Appendix A

Initial Study, Notice of Preparation, and Scoping Comments

Initial Study
Hesperia Commerce Center II Project

Prepared for:

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
Alquist–Priolo Act	Alquist–Priolo Earthquake Zoning Act
BMP	best management practice
Caltrans	California Department of Transportation
CBC	California Building Code
CEQA	California Environmental Quality Act
CIBP	Commercial/Industrial Business Park
City	City of Hesperia
County	County of San Bernardino
EIR	environmental impact report
FHSZ	Fire Hazard Severity Zone
GHG	greenhouse gas
I	Interstate
IS	Initial Study
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
project	Hesperia Commerce Center II
project Applicant	Covington Group
RTP	Regional Transportation Plan
SBCFD	San Bernardino County Fire Department
SBCSD	San Bernardino County Sheriff's Department
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
Specific Plan	Main Street and Freeway Corridor Specific Plan
U.S. Route	US

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1 Introduction

1.1 Project Overview

The City of Hesperia (City) received an application from the Covington Group (project Applicant) for the development of the Hesperia Commerce Center II (project). The project includes construction of three industrial/warehouse buildings on an approximately 194.8-acre project site generally located on the northwest corner of Phelan Road and Highway 395 in the City. Building 1 (the northwesternmost building) would be 1,561,582 square feet, Building 2 (the southernmost building) would be 2,068,100 square feet, which would potentially be divided between two spaces within the same building, and Building 3 (the easternmost building) would be 112,908 square feet. In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, truck and vehicle parking, and landscape areas. Implementation of the project will require the following approvals from the City:

- Approval of Conditional Use Permit (CUP19-00010)
- Approval of a Tentative Parcel Map
- Approval of Development Agreement

1.2 California Environmental Quality Act Compliance

The California Environmental Quality Act (CEQA) serves as the main framework of environmental law and policy in California. CEQA emphasizes the need for public disclosure and identifying and preventing environmental damage associated with proposed projects. Unless the project is deemed categorically or statutorily exempt, CEQA is applicable to any project that must be approved by a public agency in order to be processed and established. The proposed project considered herein does not fall under any of the statutory or categorical exemptions listed in the 2018 CEQA Statute and Guidelines (California PRC, Section 21000 et seq.; 14 CCR 15000 et seq.); therefore, it must meet CEQA requirements.

The intent of this document is to provide an overview and analysis of the environmental impacts associated with the proposed project by the City, acting as the lead agency. The document is accessible to the public, in accordance with CEQA, in order to receive feedback on the project's potential impacts, as well as the scope of the project's environmental impact report (EIR) (14 CCR Section 15121[a]).

1.3 Availability of the Notice of Preparation and Initial Study

The Initial Study (IS)/Notice of Preparation (NOP) for the project is being distributed directly to agencies, organizations, and interested groups and persons during the scoping period. The IS/NOP is also available for review at the City of Hesperia, Planning Department, 9700 Seventh Avenue, Hesperia, California 92345.

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2 Project Description

2.1 Project Location

The approximately 194.8-acre project site is located in the western part of the City, which is found within the Victor Valley region of San Bernardino County (see Figure 1). The project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Water and Power utility corridor to the west. The project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey *Baldy Mesa, California* 7.5-minute topographic quadrangle map. Regional access to the project site includes Highway 395, immediately adjacent to the east, and Interstate (I) 15, located approximately 1 mile east.

2.2 Environmental Setting

City of Hesperia

The City is approximately 110 square miles in the Victor Valley region of San Bernardino County. The City is located within the Mojave Desert, which is a region containing desert plains, dry lakebeds, and scattered mountains. The southern portion of the City lies at the foothills of the San Bernardino Mountains and National Forest. The City contains a variety of slope conditions, with the foothill areas containing significant slopes and the majority of the City being primarily level. The central and northern portions of the City lie upon a moderate to gentle slope with elevations ranging from 2,900 feet to 4,200 feet. Generally, the City is an urban community with a broad mix of land uses, including housing, commercial, office, industrial, agriculture, and public serving uses. The eastern and southern portions of the City contain generally rural residential uses. Commercial uses follow Main Street, Bear Valley and Hesperia Roads, and the freeway corridor. Industrial uses are generally divided into two areas west of the I-15 freeway and east of Highway 395, and the eastern area between the BNSF railroad lines and I Avenue north of Main Street.

The City is bordered by the City of Victorville to the north, City of Apple Valley to the east, unincorporated San Bernardino County land to the south, and the unincorporated community of Oak Hills to the west. Three highways provide direct access to the City: I-15 runs north–south on the west side of the City, Highway 395 connects to I-15 on the west side, and State Route 138 passes through the southeastern corner of the City (City of Hesperia 2010).

Existing Project Site

The approximately 194.8-acre, irregularly-shaped project site consists of vacant, undeveloped land. The project site is located within the Main Street and Freeway Corridor Specific Plan (Specific Plan). According to the City's General Plan and Specific Plan, the land use and zoning designations for the project site are Commercial/Industrial Business Park (CIBP) (City of Hesperia 2010; City of Hesperia 2014) (see Figure 2 and Figure 3).

Surrounding Land Uses

Land uses surrounding the project site primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. Specific land uses located in the immediate vicinity of the project site include the following:

- **North:** Vacant land and scattered commercial, light industrial, and rural residential uses
- **East:** Vacant land, Highway 395, and residential uses
- **South:** Vacant land and scattered rural residential, commercial, and light industrial uses
- **West:** Utility corridor, vacant land, and rural residential uses

2.3 Project Characteristics

The project would include construction of three industrial/warehouse buildings and associated improvements on 194.8-acres of vacant land (see Figure 4). Building 1 (the northwesternmost building) would be 1,561,582 square feet (inclusive of 20,000 square feet of office/mezzanine), Building 2 (the southernmost building) would be 2,068,100 square feet (inclusive of 20,000 square feet of office/mezzanine), which would potentially be divided between two spaces within the same building[1], and building 3 (the easternmost building) would be 112,908 square feet (inclusive of 5,000 square feet of office/mezzanine). In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and approximately 7 percent landscape area coverage.

On-Site and Off-Site Improvements

The project would also include improvements along Phelan Road and Yucca Terrace Drive, including frontage landscape and pedestrian improvements. A variety of trees, shrubs, plants, and land covers would be planted within the project frontage's landscape setback area, as well as within the landscape areas found around the proposed industrial/warehouse buildings and throughout the project site.

Site Access, Circulation, and Parking

Access to the project site would be provided by five driveways: two driveways on the northern project boundary off Yucca Terrace Drive, one driveway on the easternmost part of the project site off Highway 395, and two driveways on the southern project boundary off Phelan Road. Paved passenger vehicle parking areas would be provided within the western and eastern portions of the project site, while tractor-trailer stalls and loading docks would be located both north and south of Building 1 and Building 2. In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, approximately 1,762 tractor-trailer stalls, roughly 1,611 passenger vehicle parking spaces, and approximately 7 percent landscape area coverage.

[1] As shown on Figure 4, Site Plan, Building 2 could ultimately be divided between two users. Under this scenario, "Building 2" would be 1,287,000 square feet (inclusive of 10,000 square feet of office/mezzanine) and the adjoining "Building 2A" would be 781,100 square feet (inclusive of 10,000 square feet of office/mezzanine).

Storm Drain and Other Utility Improvements

The project would construct a combination of at grade detention basin and potentially subsurface catch basins to capture and treat on-site stormwater. Also, given the vacant, undeveloped nature of the project site, both dry and wet utilities, including domestic water, sanitary sewer, and electricity, would need to be extended onto the project site.

2.4 Project Approvals

As part of the project, the project Applicant is requesting approval of the following entitlements:

- Approval of Conditional Use Permit (CUP19-00010)
- Approval of a Tentative Parcel Map
- Approval of Development Agreement

Subsequent non-discretionary approvals (which would require separate processing through the City) would include, but may not be limited to a demolition permit, grading permit, building permits, and occupancy permits.

Note that the preceding list of actions and/or approvals is preliminary and may not be comprehensive.

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3 Initial Study Checklist

1. **Project title:**

   Hesperia Commerce Center II

2. **Lead agency name and address:**

   City of Hesperia, Planning Department
   9700 Seventh Avenue
   Hesperia, California 92345

3. **Contact person:**

   Chris Borchert, Principal Planner
   760.947.1231
   cborchert@cityofhesperia.us

4. **Project location:**

   The project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Water and Power utility corridor to the west. The project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey *Baldy Mesa, California* 7.5-minute topographic quadrangle map.

5. **Project sponsor's name and address:**

   Covington Group
   14180 Dallas Parkway, Suite 713
   Dallas, Texas 75254

6. **General plan designation:**

   Main Street / Freeway Corridor Specific Plan – Commercial/Industrial Business Park

7. **Zoning:**

   Commercial/Industrial Business Park

8. **Description of project:**

   The project includes construction of three industrial/warehouse buildings on an approximately 194.8-acre project site generally located on the northwest corner of Phelan Road and Highway 395 in the City. Building 1 (the northwesternmost building) would be 1,561,582 square feet, Building 2 (the southernmost building) would be 2,068,100 square feet, which would potentially be divided between two spaces within the same

building, and Building 3 (the easternmost building) would be 112,908 square feet. In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, truck and vehicle parking, and landscape areas.

See Section 2, Project Description, for further project details.

9. **Surrounding land uses and setting:**

Land uses surrounding the project site primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. Specific land uses located in the immediate vicinity of the project site include the following:

- **North:** Vacant land and scattered commercial, light industrial, and rural residential uses
- **East:** Vacant land, Highway 395, and residential uses
- **South:** Vacant land and scattered rural residential, commercial, and light industrial uses
- **West:** Utility corridor, vacant land, and rural residential uses

10. **Other public agencies whose discretionary approval is required:**

No discretionary approvals from other outside agencies is anticipated at this time.

11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**

In accordance with California Assembly Bill 52 requirements, the City will initiate Tribal consultation, the results of which will be summarized in the Draft Environmental Impact Report (EIR).

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☒ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Energy
☒ Geology and Soils	☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials
☒ Hydrology and Water Quality	☐ Land Use and Planning	☐ Mineral Resources
☒ Noise	☐ Population and Housing	☐ Public Services
☐ Recreation	☒ Transportation	☒ Tribal Cultural Resources
☒ Utilities and Service Systems	☒ Wildfire	☒ Mandatory Findings of Significance

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

11/18/19

Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
   a. Earlier Analysis Used. Identify and state where they are available for review.
   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
   a. The significance criteria or threshold, if any, used to evaluate each question; and
   b. The mitigation measure identified, if any, to reduce the impact to less than significance

3.1 Aesthetics

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS –** Except as provided in Public Resources Code Section 21099, would the project**:**				
a)	Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b)	Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

a) Would the project have a substantial adverse effect on a scenic vista?

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Potentially Significant Impact. The project would include construction of three industrial/warehouse buildings and associated improvements on currently undeveloped, vacant land. In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and landscape areas. Due to this proposed increase in on-site development intensity, there is a potential for the project to effect views in public views of scenic vistas or otherwise alter the existing visual character or quality of public views, despite the fact that the project must be designed and constructed in accordance with the design standards set forth both the Specific Plan and the

City's Development Code. In addition, implementation of the project would include the installation of new nighttime lighting, which could potentially adversely affect nighttime views in the area. Such lighting would include lighting for on-site parking and facilities, as well as light generated by vehicles entering and exiting the project site. Therefore, these issues will be analyzed in the Draft EIR.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. According to the California Department of Conservation's California Important Farmland Finder, the project site contains grazing land (DOC 2016a). Grazing land is described as land on which the existing vegetation is suited to the grazing of livestock. Grazing land does not include land designated or previously designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (collectively "Important Farmland"). Therefore, no impacts would occur, and no further analysis is proposed for the Draft EIR.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. According the California Department of Conservation's Williamson Act Parcel map for South San Bernardino County, the project site is not located on or adjacent to any lands under a Williamson Act contract (DOC 2016b). In addition, the project site and surrounding area are not zoned for agricultural uses, but instead for CIBP, rural estate residential, and neighborhood commercial uses (City of Hesperia 2010). As such, implementation of the project would not conflict with existing zoning for agricultural use or land under a Williamson Act contract. Therefore, no impacts would occur, and no further analysis is proposed for the Draft EIR.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. According to the City's Zoning Map, the project site is not located on or adjacent to forestland, timberland, or timberland zoned timberland production (City of Hesperia 2010). Therefore, no impacts would occur, and no further analysis is proposed for the Draft EIR.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The project site is not located on or adjacent to forestland. No private timberlands or public lands with forests are located in the City. Therefore, no impact would occur, and no further analysis is proposed for the Draft EIR.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project site is not located on or adjacent to any parcels identified as Important Farmland or forestland. In addition, the project would not involve changes to the existing environment that would result in the indirect conversion of Important Farmland or forestland located away from the project site. Therefore, no impacts would occur, and no further analysis is proposed for the Draft EIR.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Potentially Significant Impact. Project construction and operations would involve activities that would generate both short-term and long-term criteria pollutant and other emissions. Further air quality analysis is required to determine whether the project could potentially result in any adverse effects related to air quality. Therefore, these issues will be analyzed in the Draft EIR.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Potentially Significant Impact. Implementation of the project would result in construction and operational activities upon a currently undeveloped, vacant site. Such activities could potentially have an adverse effect on candidate, sensitive, or special-status species, sensitive natural communities, migratory wildlife corridors, and protected trees. Further biological resources analysis is required to determine whether the project could potentially result in any adverse effects related to biological resources. Therefore, these issues will be analyzed further in the Draft EIR.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☒	☐	☐	☐

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Potentially Significant Impact. Implementation of the project would result in construction and operational activities upon a currently undeveloped, vacant site. Such activities could potentially have an adverse effect on currently unrecorded, unknown historical, archaeological, or Tribal cultural resources. Further cultural resources analysis is required to determine whether the project could potentially result in any adverse effects related to cultural resources. Therefore, these issues will be analyzed further in the Draft EIR.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Potentially Significant Impact. Project construction and operations would involve activities that would require the use of energy, including electricity and petroleum. Further energy usage analysis is required to determine whether the project could potentially result in any adverse effects related to energy consumption. Therefore, these issues will be analyzed in the Draft EIR.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

No Impact. The Alquist–Priolo Earthquake Zoning Act (Alquist–Priolo Act) requires the delineation of fault zones along active faults in California. The purpose of the Alquist–Priolo Act is to regulate development on or near active fault traces to reduce hazards associated with fault rupture. The Alquist–Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults. According to the California Department of Conservation, the project site is not located in an Alquist-Priolo Earthquake Fault Zone (DOC 2019). Thus, the potential for surface rupture is low on the project site. Therefore, no impacts would occur, and this issue will not be evaluated further in the Draft EIR.

ii) Strong seismic ground shaking?

Less-Than-Significant Impact. Similar to other areas located in seismically active Southern California, the City is susceptible to strong ground shaking during an earthquake. However, the project site is not located within an Alquist–Priolo Earthquake Fault Zone, and the site would not be affected by ground shaking more than any other area in this seismic region. The project would comply with the most recent version of the California Building Code (CBC), which contains universal standards related to seismic load requirements. Compliance with the CBC would ensure the structural integrity in the event that seismic ground shaking is experienced at the project site. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

iii) Seismic-related ground failure, including liquefaction?

Less-Than-Significant Impact. Soil liquefaction is a seismically induced form of ground failure that has been a major cause of earthquake damage in Southern California. Liquefaction is a process by which water-saturated granular soils transform from a solid to a liquid state because of a sudden shock or strain such as an earthquake. Due to the existing geologically young, loose, unconsolidated sediments throughout the City, liquefaction has the potential to occur within the City. However, the project would comply with the most recent version of the CBC, which contains universal standards related to the project site's specific soil characteristics. Compliance with the CBC would ensure the structural integrity in light of seismic-related issues experience at the project site. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

iv) Landslides?

No Impact. According to Exhibit SF-1 of the City's General Plan Safety Element (City of Hesperia 2010), the project site is not located in an area identified as susceptible to slope instability. The project site is relatively flat and is not located adjacent to any potentially unstable topographical feature such as a hillside or riverbank. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less-Than-Significant Impact. The project would involve earthwork and other construction activities that would disturb surface soils and temporarily leave exposed soil on the ground's surface. Common causes of soil erosion from construction sites include stormwater, wind, and soil being tracked off site by vehicles. To help curb erosion, project construction activities must comply with all applicable federal, state, and local regulations for erosion control. The project would be required to comply with standard regulations, including South Coast Air Quality Management District (SCAQMD) Rules 402 and 403, which would reduce construction erosion impacts. Rule 402 requires that dust suppression techniques be implemented to prevent dust and soil erosion from creating a nuisance off site (SCAQMD 1976). Rule 403 requires that fugitive dust be controlled with best available control measures so that it does not remain visible in the atmosphere beyond the property line of the emissions source (SCAQMD 2005).

Since project construction activities would disturb 1 or more acres, the project must adhere to the provisions of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Construction activities subject to this permit include clearing, grading, and ground disturbances such as stockpiling and excavating. The NPDES Construction General Permit requires implementation of a stormwater pollution prevention plan, which would include construction features for the project (i.e., best management practices [BMPs]) designed to prevent erosion and protect the quality of stormwater runoff. Sediment-control BMPs may include stabilized construction entrances, straw wattles on earthen embankments, sediment filters on existing inlets, or the equivalent. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less-Than-Significant Impact. Project activities may occur in geologically unstable areas such as zones of potential liquefaction or collapsible soils. However, the project would comply with the most recent version of the CBC, which contains universal standards related to the project site's specific soil characteristics. Compliance with the CBC would ensure the structural integrity in light of seismic-related issues experience at the project site. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less-Than-Significant Impact. Expansive soils are characterized by their potential shrink/swell behavior. Shrink/swell is the change in volume (expansion and contraction) that occurs in certain fine-grained clay sediments from the cycle of wetting and drying. Clay minerals are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for substantial expansion.

According to the City's General Plan, the City's soils are mostly comprised of water-laid sand, silt, and gravel (City of Hesperia 2010). In addition, the U.S. Department of Agriculture's Web Soil Survey does not identify the project site or surrounding area as containing clay soils, which are typically expansive. The project site is documented as 100% Cajon Sand, which does not exhibit significant shrink/swell behavior (USDA 2019). Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Less-Than-Significant Impact. The project would connect to the existing municipal sewer lines. The project would not require septic tanks or alternative wastewater disposal systems. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Potentially Significant Impact. According to the City's General Plan Conservation Element, the City has potential for paleontological finds (City of Hesperia 2010). As such, development and construction activities associated with the project have the potential to unearth potentially significant paleontological resources. Therefore, impacts would be potentially significant, and further analysis is proposed in the Draft EIR.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Potentially Significant Impact. Project construction and operations would involve activities that would generate both short-term and long-term greenhouse gas (GHG) emissions. Further GHG analysis is required to determine whether the project could potentially result in any adverse effects related to GHGs. Therefore, these issues will be analyzed in the Draft EIR.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☒	☐	☐	☐

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Potentially Significant Impact. Development of the project would result in the construction of three industrial/warehouse buildings and associated improvements on currently undeveloped, vacant land. Project implementation could potentially result in impacts related to hazardous materials and wildland fire. Therefore, these issues will be analyzed in the Draft EIR.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The nearest school to the project site is San Joaquin Valley College (9331 Mariposa Road), which is located approximately 1.4 miles southeast of the site. As such, the closest school is located well outside of a 0.25-mile radius around the project site. Therefore, no impacts would occur, and this issue will not be evaluated further in the Draft EIR.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Hazardous Waste and Substances Sites list (Cortese List) is a planning document providing information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires the California Environmental Protection Agency to develop, at least annually, an updated Cortese List. The Department of Toxic Substances Control is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies are required to provide additional hazardous materials release information for the Cortese List (CalEPA 2019). A review of Cortese List online data resources does not identify hazardous materials or waste sites on the project site or immediately surrounding area (DTSC 2019; RWQCB 2019). Therefore, no impacts would occur, and this issue will not be evaluated further in the Draft EIR.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The nearest operational public-use airport to the project site is the Hesperia Airport, which is located approximately 6.2 miles to the south. The airport is located on the Mesa, west of Antelope Valley wash and south of Ranchero Road. According to the Comprehensive Land Use Plan, the project site is not located within a runway protection zone or safety zone area, which would have potential safety and noise impacts (San Bernardino County 1991). Therefore, impacts would not occur, and this issue will not be evaluated further in the Draft EIR.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-Than-Significant Impact. According to the City's Mitigation Plan, the project would be required to comply with the City's Emergency Operations Plan (City of Hesperia 2017). The City Emergency Operations Plan provides a framework for coordinated response and recovery activities during an emergency (City of Hesperia 2017). In addition, the City's General Plan designates all freeways and arterial roads as emergency evacuation routes. Typically, roadway facilities designated by the City's General Plan Safety Element as major, primary, or secondary highways, as well as other streets with regional access are assumed to serve as evacuation routes in the event of a regional emergency. As roadways capable of supporting high traffic volumes and providing regional access to other highways, freeways, and neighboring jurisdictions, both Main Street and Highway 395 are expected to serve as emergency evacuation routes in the event of an emergency. The project does not propose any changes to the geometry of these roadways to the extent that these roadways' ability to serve as emergency evacuation routes would be compromised. As a result, the project would not significantly affect emergency response or evacuation activities. Therefore, impacts would be less than significant, and this issue will not be evaluated further in the Draft EIR.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	☒	☐	☐	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☒	☐	☐	☐
iv) impede or redirect flood flows?	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) impede or redirect flood flows?

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Potentially Significant Impact. Implementation of the project would result in construction and operational activities upon a currently undeveloped, vacant site. Such activities could potentially have an adverse effect on existing drainage patterns, which could subsequently impact surface and ground water quality, as well as both on-site and local hydrology. Therefore, these issues will be analyzed in the Draft EIR.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on or off site;

Less-Than-Significant Impact. The project would involve earthwork and other construction activities that would disturb surface soils and temporarily leave exposed soil on the ground's surface. Common causes of soil erosion from construction sites include stormwater, wind, and soil being tracked off site by vehicles. To help curb erosion, project construction activities must comply with all applicable federal, state, and local regulations for erosion control. The project would be required to comply with standard regulations, including SCAQMD Rules 402 and 403, which would reduce construction erosion impacts. Rule 402 requires that dust suppression techniques be implemented to prevent dust and soil erosion from creating a nuisance off site (SCAQMD 1976). Rule 403 requires that fugitive dust be controlled with best available control measures so that it does not remain visible in the atmosphere beyond the property line of the emissions source (SCAQMD 2005).

Since project construction activities would disturb 1 or more acres, the project must adhere to the provisions of the NPDES Construction General Permit. Construction activities subject to this permit include clearing, grading, and ground disturbances such as stockpiling and excavating. The NPDES Construction General Permit requires implementation of a stormwater pollution prevention plan, which would include construction features for the project (i.e., BMPs) designed to prevent erosion and protect the quality of stormwater runoff. Sediment-control BMPs may include stabilized construction entrances, straw wattles on earthen embankments, sediment filters on existing inlets, or the equivalent. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Less-Than-Significant Impact. The project would not be susceptible to flood hazards, tsunami, or seiche. Seiche is generally associated with oscillation of enclosed bodies of water (e.g., reservoirs, lakes) typically caused by ground shaking associated with a seismic event; however, the project site is not located near an enclosed body of water. Flooding from tsunami conditions is not expected, since the project site is located approximately 60 miles from the Pacific Ocean.

In addition, the Federal Emergency Management Agency Flood Map Service Center identifies the project site as Zone X, which is classified as an area of minimal flood hazard, outside of the Special Flood Hazard Area and higher than the elevation of the 0.2%-annual-chance flood (FEMA 2019). As such, the project would not risk release of pollutants due to inundation. Therefore, impacts associated with seiche, tsunami, or flooding would be less than significant, and this issue will not be evaluated further in the Draft EIR.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a) Would the project physically divide an established community?

No Impact. The physical division of an established community typically refers to the construction of a linear feature (e.g., a major highway or railroad tracks) or removal of a means of access (e.g., a local road or bridge) that would impair mobility within an existing community or between a community and outlying area.

Under the existing condition, the project site is vacant land and is not used as a connection between established communities. Instead, connectivity within the area surrounding the project site is facilitated via local roadways. As such, the project would not impede movement within the project area, within an established community, or from one established community to another. Therefore, no impacts would occur, and this issue will not be evaluated further in the Draft EIR.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less-Than-Significant Impact. The project would not result in a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, as further discussed below.

City of Hesperia Land Use Plans, Policies, and Regulations

General Plan

Pursuant to state law, specific plans establish land use regulations for those areas covered by the Specific Plan. The General Plan designates the Specific Plan to cover all freeway frontages within the City as well as the commercial and industrial areas parallel to the freeway corridor. The goals, policies, and development standards applicable to the project are found in the Specific Plan.

Main Street and Freeway Corridor Specific Plan

The Specific Plan establishes a framework for the Main Street and freeway corridors and is intended to facilitate and support development and improvements along these corridors. The regulations of the specific plan replace those set forth in the planning and zoning provisions of the City's Development Code, and any other applicable ordinances.

The project site is zoned and designated by the Specific Plan as CIBP (City of Hesperia 2014). The project site would be developed in accordance with the provisions set forth in this land use designation. The Specific Plan lists CIBP as one of two industrial zones. The CIBP zone is meant to create consolidated areas for employment-creating uses in a business park setting. The zone is intended to provide for service commercial, light industrial, light manufacturing, and industrial support uses, mainly conducted in enclosed buildings, to minimize environmental impacts such as noise, vibration, air pollution, glare, or waste disposal. The CIBP zone falls within three land use districts, Main Street/I-15 District, Highway 395/I-15 District, and Industrial District. The Main Street/I-15 and Highway 395/I-15 Districts provide enhanced vehicular, truck, and rail accessibility by taking advantage of their location along the I-15 corridor with its connection to Highway 395, and its linkage to the Southern California Logistics Airport. The project site falls within the Main Street/I-15 District. The Main Street/I-15 District takes advantage of regional freeway accessibility and visibility through high-quality development and streetscape enhancements.

Among the permitted uses in the CIBP zone, warehousing and wholesale distribution centers are permitted at 200,000 square feet or less. Warehouses and wholesale distribution centers over 200,000 square feet are conditionally permitted. The Specific Plan states that the maximum gross floor area ratio in CIBP zones is 0.35 (City of Hesperia 2014). Additionally, maximum building height within the zone is 60 feet with the exception that buildings height shall be limited to 45 feet within the portion of the site that falls with 100 feet of an adjacent residential zone (City of Hesperia 2014).

The project would include construction of a total of 3,596,290 square feet of warehousing use, which would require a Conditional Use Permit. As part of the project approvals, the project Applicant is requesting approval of a Conditional Use Permit. Assuming that the City's decision makers approve the Conditional Use Permit, the project would be an allowable use within the CIBP zone. Additionally, the project plans would be reviewed by City staff to ensure consistency with all applicable development standards and regulations.

The Specific Plan contains several goals and policies that address land use and planning and are applicable to the project. An analysis of the project's consistency with these goals and policies is provided in Table 1.

Table 1. Specific Plan Consistency Analysis

Specific Plan Goal or Policy	Consistency Summary
Specific Plan Goal: LU-1b: Provide for continuing growth within the Specific Plan area, with land uses and intensities appropriately designated to meet the needs of anticipated growth and to achieve the community's objectives.	**Consistent.** The project would include construction of three warehouse buildings. The project site is designated as CIBP and would support the expansion of regional commercial development. Additionally, the project would support the City's goal of increasing jobs within the City and balancing the job to housing ratio. Therefore, the project would be consistent with the goal.
Policy LU-1.1: With the adoption of the Main Street and Freeway Corridor Specific Plan, establish land use districts that have complimentary rather than competitive uses/zones, and maintain the integrity of and interrelationships between these zones.	**Consistent.** The project site would be located in the Specific Plan's Main Street/I-15 District. The Main Street/I-15 District is intended for mixed-use development to enhance large-scale regional commercial and service uses. The project would be compatible with the Main Street/I-15 District and be consistent with its land use designation of CIBP. Therefore, the project would be consistent with the goal.

Table 1. Specific Plan Consistency Analysis

Specific Plan Goal or Policy	Consistency Summary
Goal LU-2: Create a jobs/housing balance in the City.	**Consistent.** For purposes of analyses, employment estimates were calculated using average employment density factors reported by SCAG. SCAG reports that for every 2,111 square feet of warehouse space in San Bernardino County, the median number of jobs supported is one employee (SCAG 2001). As such, the estimated number of employees required for operation would be approximately 1,777. According to the City's 2019 SCAG profile, the total number of jobs in the City of Hesperia during 2017 was 22,513 (SCAG 2019). Additionally, in 2018, the total number of housing units in the City was 29,601 (SCAG 2019). As such, jobs generated from the project would contribute to balancing the jobs/housing ratio. Therefore, the project would be consistent with the goal.
Policy LU-2.1: Designate land near Interstate-15 and Highway 395 for freeway-oriented commercial and industrial/business park development.	**Consistent.** The project is located approximately 1.4 miles west of I-15. Additionally, a small section of the project borders Highway 395. The project site and surrounding area to the north and partially to the east and south are designated as CIBP. The project would include construction of three warehouse buildings. Therefore, the project is consistent with the policy.
Policy LU-2.2: Add to the City's industrial land base where logically and physically possible to do so.	**Consistent.** Under existing conditions, the project site is vacant, undeveloped land. The project site is designated as CIBP. As such, the project would include construction of three warehouse buildings with designated office space and associated improvements. Because of the nature of the project and the vast size of the project site, the project would add to the City's industrial land base, while being physically advantageous. Additionally, the project site is located adjacent to Highway 395 and 1.4 miles west of I-15. Therefore, trucks traveling to and from the project site would have convenient freeway access. Thus, the project would be consistent with the policy.
Goal LU-6: Make use of vacant sites with the Specific Plan area.	**Consistent.** The project site is located on vacant land within the Specific Plan area. The project involves the construction of three industrial distribution warehouses. The project site has a land use designation of CIBP and would comply with provisions associated with development in a CIBP zone outlined in the Specific Plan.

Source: City of Hesperia 2014.
Notes: I = Interstate; City = City of Hesperia; SCAG = Southern California Association of Governments; CIBP = Commercial/Industrial Business Park.

Regional Transportation Plan/Sustainable Communities Strategy

The 2016 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) is a long-range visioning plan that balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health. Ultimately, the RTP/SCS is intended to help guide transportation and land use decisions and public investments. It reflects goals and guiding policies and a vision developed through extensive outreach to the general public and numerous stakeholders across the region (SCAG 2016).

Analysis of the project's consistency with the SCAG 2016 RTP/SCS goals is provided in Table 2.

Table 2. Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

RTP/SCS Goals[1]	Consistency Summary
RTP/SCS Goal 1. Align the plan investments and policies with improving regional economic development competitiveness.	**Consistent.** The project would involve construction of three industrial warehouse buildings. Thus, it is anticipated that the project would generate jobs and tax revenue for the City and its residents. Once operational, the project would add to the City's business tax base and would employ approximately 1,777 workers, helping the City better meet its jobs/housing balance, while also providing commercial/industrial business park use that will help the City offer a more balanced array of land uses throughout the broader project area.
RTP/SCS Goal 2. Maximize mobility and accessibility for all people and goods in the region.	**Consistent.** The project would include construction of three industrial distribution warehouses that would be easily and efficiently accessible to Highway 395, and I-15, which would help to facilitate regional goods movement throughout Southern California.
RTP/SCS Goal 3. Ensure travel safety and reliability for all people and goods in the region.	**Consistent.** A traffic impact analysis will be conducted to determine the project's potential impact on the regional and local circulation system. If deemed necessary by this upcoming evaluation, feasible mitigation measures would be required to minimize any adverse effects on the circulation system resulting from the project to the greatest extent feasible. The findings of this evaluation effort will be included in the Draft EIR.
RTP/SCS Goal 4. Preserve and ensure a sustainable regional transportation system.	**Consistent.** A traffic impact analysis will be conducted to determine the project's potential impact on the regional and local circulation system. If deemed necessary by this upcoming evaluation, feasible mitigation measures would be required to minimize any adverse effects on the circulation system resulting from the project to the greatest extent feasible. The findings of this evaluation effort will be included in the Draft EIR.
RTP/SCS Goal 5. Maximize the productivity of our transportation system.	**Consistent.** The project would include construction of three industrial distribution warehouses that would be easily and efficiently accessible to Highway 395, and I-15, which would help to facilitate regional goods movement throughout Southern California.

Table 2. Regional Transportation Plan/Sustainable Communities Strategy Consistency Analysis

RTP/SCS Goals[1]	Consistency Summary
RTP/SCS Goal 6. Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).	**Consistent.** The project site provides quick and efficient access to Highway 395 and I-15. As a result, the project would be able to operate without the need for truck traffic to pass through residential or commercial/retail areas. The project site is surrounded by vacant land, rural-low density residential, and scattered commercial and industrial uses. These uses include residences that would be considered sensitive receptors residing in close proximity to the project site. Construction and operation of the project could potentially result in environmental impacts affecting the health of nearby sensitive receptors. An air quality and GHG analysis will be required to determine whether the project could potentially result in any adverse effects related to air quality, health risk, and/or GHG emissions, and mitigation measures will be applied, as necessary, to minimize potential impacts to nearby residents.
RTP/SCS Goal 7. Actively encourage and create incentives for energy efficiency, where possible.	**Consistent.** At a minimum, the project would comply with all applicable state and local building codes intended to promote energy efficiency, including the California Energy Code (California Code of Regulations Title 24 Part 6).
RTP/SCS Goal 8. Encourage land use and growth patterns that facilitate transit and non-motorized transportation.	**Consistent.** The project area is served by Victor Valley Transit Authority, which operates approximately 26 bus routes within and around the City. These bus lines would connect the project area to residential and commercial/retail areas located in the City and surrounding communities, allowing on-site employees to access their homes and services without the need to drive their passenger vehicles.
RTP/SCS Goal 9. Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.	**Consistent.** Development impact fees will be assessed during the project entitlement process, which will help to offset fiscal burdens placed on the City with respect to capital improvements and expenditures resulting from development of the project. A portion of these fees would be used to supplement any potential incremental capital expenditure increases accrued by the Hesperia Police Department as a result of the project and other related development projects.

[1] **Source:** SCAG 2016.

Notes: City = City of Hesperia; I = Interstate; EIR = Environmental Impact Report; GHG = greenhouse gas

As described in Tables 1 and 2, the project would be consistent with the applicable goals and policies set forth by the Specific Plan, General Plan, and SCAG in the RTP/SCS and RCP. Therefore, impacts would be less than significant, and this issue will not be evaluated further in the Draft EIR.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☒	☐

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less-Than-Significant Impact. According to the Conservation Element in the City's General Plan, mineral resources such as sand, gravel, and stone have been identified within the City (City of Hesperia 2010). Additionally, several aggregate resources such as gravelly alluvium and sandy alluvium are known to exist within the City. These resources are primarily located within wash areas and active stream channels. Although the City has known mineral resources, the project would be located within an area that is not zoned for mineral resource extraction operations, and thus, such activities cannot currently occur on the project site. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☐	☐

a) ***Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?***

b) ***Would the project result in generation of excessive groundborne vibration or groundborne noise levels?***

c) ***For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?***

Potentially Significant Impact. Project construction and operations would involve activities that would generate both short-term and long-term noise. Further noise analysis is required to determine whether the project could potentially result in any adverse effects related to increased noise levels. Therefore, these issues will be analyzed in the Draft EIR.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less-Than-Significant Impact. The project would require a temporary construction workforce and a permanent operational workforce, both of which could potentially induce population growth in the project area. The temporary workforce would be needed to construct the three warehouse buildings and associated improvements. The number of construction workers needed during any given period would largely depend on the specific stage of construction, but would likely range from a dozen to several dozen workers on a daily basis.

Because the future tenants are not known yet, the number of jobs that the project would generate cannot be precisely determined. Thus, for purposes of analyses, employment estimates were calculated using average employment density factors reported by SCAG. SCAG reports that for every 2,111 square feet of warehouse space in San Bernardino County, the median number of jobs supported is one employee (SCAG 2001). The project would include 3,752,948 square feet of indusial/warehouses space. As such, the estimated number of employees required for operation would be approximately 1,777.

According to the City's General Plan, as of January 2009, the population of the City was approximately 88,184 residents. Upon build-out, the City anticipates to grow to more than 243,000 residents (City of Hesperia 2010). As such, the project-related increase of approximately 1,777 employees would represent a nominal percentage of the City's projected future population upon General Plan build-out[2].

In addition, data provided by the California Employment Development Department in August 2019 found that the unemployment rate for San Bernardino County is at 4.5%, which is above the state (4.2%) and national (3.6%) averages (EDD 2019). As such, the project's temporary and permanent employment requirements could likely be met by the City's existing labor force without people needing to relocate into the project region, and the project would not stimulate population growth or a population concentration above what is assumed in local and regional land use plans. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

[2] Note that this represents a conservative approach, as this finding assumes that all future employees will have relocated to the City as a result of the project from outside of the City, and that no future employees are already residents of the City.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The project site is currently vacant and contains no housing or other residential uses. Given that no residential uses are located on site, it follows that the site does not support a residential population. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Less-Than-Significant Impact. Fire protection and emergency response services for the project site are provided by the SBCFD. SBCFD operates three fire stations within the City, with Fire Station 305 (8331 Caliente Road) located approximately 1.7 miles south of the project site, Fire Station 304 (15660 Eucalyptus Street) located approximately 5.2 miles northeast, and Fire Station 302 (17288 Olive Street) located approximately 6.8 miles east (SBCFD 2018).

According to the City's General Plan Safety Element, the average response time within the City is approximately 7 minutes, 16 seconds (City of Hesperia 2010). If needed, fire stations from adjacent cities, such as Victorville and Apple Valley may respond to emergency calls in Hesperia. Based on the proximity of the project site to the existing SBCFD facilities, the average response times in the project area, the ability for nearby cities to respond to emergency calls, and the fact that the project site is already located within SBCFD's service area, the project could be adequately served by the SBCFD without the construction of new, or the expansion of existing, facilities.

In addition, as previously analyzed in response 3.14(a), the project would not directly or indirectly induce unplanned population growth in the City. Although the project could potentially result in an incremental increase in calls for service to the project site compared to existing conditions, this increase is expected to be nominal (as opposed to new residential or commercial/retail land uses, which do result in greater increase in calls for service) and would not result in the need for new fire protection facilities.

Overall, it is anticipated that the project would be adequately served by existing SBCFD facilities, equipment, and personnel. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

Police protection?

Less-Than-Significant Impact. Police protection and emergency response services for the project site are provided by the San Bernardino County Sheriff's Department (SBCSD). SBCSD operates one station within the City, Hesperia Police Department (15840 Smoke Tree Street), and is located approximately 5 miles east of the project site. Hesperia Police Department is comprised of approximately 58 law enforcement personnel, including 1 captain, 1 lieutenant, 7 sergeants, 5 detectives, and 44 deputy sheriffs (City of Hesperia 2019).

As previously addressed, the project would not directly or indirectly induce unplanned population growth in the City. Although the project could potentially result in a slight incremental increase in calls for service to the project site compared to existing conditions, this increase is expected to be nominal (as opposed to new residential or commercial/retail land uses, which do result in greater increase in calls for service) and would not result in the need for new police protection facilities.

Overall, it is anticipated that the project would be adequately served by existing SBCSD facilities, equipment, and personnel. Therefore, impacts would be less than significant, and no further analysis will be conducted in the Draft EIR.

Schools?

No Impact. As previously discussed, the project would not directly or indirectly induce unplanned population growth in the City. Although the project would require employees to construct and operate the project, these short-term and long-term employees would likely already reside within the broader project area. As such, it is not anticipated that many people would relocate to the City as a result of the project, and an increase in school-age children requiring public education is not expected to occur as a result.

Similar to other development projects in the City, the project would be subject to Senate Bill 50, which requires payment of mandatory impact fees to offset any impact to school services or facilities. The provisions of Senate Bill 50 are deemed to provide full and complete mitigation of school facilities impacts, notwithstanding any contrary provisions in CEQA or other state or local laws (Government Code Section 65996). In accordance with Senate Bill 50, the project Applicant would pay its fair share of impact fees based on the project's square footage per Government Code Section 65995(h). These impact fees are required of most residential, commercial, and industrial development projects in the City. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

Parks?

No Impact. The project would construct three industrial/warehouse buildings in the City. The project does not propose any residential uses, and would not directly or indirectly induce unplanned population growth in the City. As such, the project would not increase the use of existing neighborhood parks or regional parks in the City and surrounding area. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

Other public facilities?

No Impact. Given industrial nature of the project and the lack of population growth that would result from the project, it is unlikely that the project would increase the use of libraries and other public facilities. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

No Impact. The project would construct three industrial/warehouse buildings and associated improvements. The project does not propose any residential uses, and would not directly or indirectly result in a substantial and unplanned increase in population growth within the project area. As such, the project would not increase the use of existing neighborhood parks or regional parks in the City and surrounding area. In addition, as an industrial use, the project does not propose recreational facilities or require the construction or expansion of recreational facilities. Therefore, no impacts would occur, and no further analysis will be conducted in the Draft EIR.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.TRANSPORTATION – Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☒	☐	☐	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☒	☐	☐	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
d) Result in inadequate emergency access?	☒	☐	☐	☐

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d) Would the project result in inadequate emergency access?

Potentially Significant Impact. Project operations would involve industrial/warehouse activities that would generate truck and passenger vehicle traffic that may conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, or otherwise result in both localized and broader transportation impacts. Further traffic impact analysis is required to determine whether the project could potentially result in any adverse effects related the local and regional circulation system. Therefore, these issues will be analyzed in the Draft EIR.

3.18 Tribal Cultural Resources

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII.	**TRIBAL CULTURAL RESOURCES**				
a)	Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☒	☐	☐	☐
ii)	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Potentially Significant Impact. Implementation of the project would result in construction and operational activities upon a currently undeveloped, vacant site. Such activities could potentially have an adverse effect on currently unrecorded, unknown historical, archaeological, or Tribal cultural resources. Further cultural resources analysis is required to determine whether the project could potentially result in any adverse effects related to cultural resources. Therefore, these issues will be analyzed further in the Draft EIR.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☐	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☒	☐	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☒	☐	☐	☐

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

c) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Potentially Significant Impact. Project construction and operations would involve activities that would require the use of energy and would generate the need for domestic water, sanitary sewer, stormwater, and solid waste disposal. Given the vacant, undeveloped nature of the project site, these, and likely other dry and wet utilities and services would need to be extended onto the project site. Further air quality analysis is required to determine whether the project could potentially result in any adverse effects related utilities and services systems. Therefore, these issues will be analyzed in the Draft EIR.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☒	☐	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☒	☐	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☒	☐	☐	☐

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Potentially Significant Impact. According to California Department of Forestry and Fire Protection's 2008 High FHSZ in the Local Response Area map for the City, the project site is not located in an area identified as being susceptible to wildland fire (CAL FIRE 2019). The project site is located adjacent to a moderate FHSZ to the west and a high FHSZ to the south, although the nearest very high FHSZ is located approximately 8 miles south of the project site. Further wildfire risk analysis is required to determine whether the project could potentially result in any adverse effects related to wildfire. Therefore, these issues will be analyzed in the Draft EIR.

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4.2 List of Preparers

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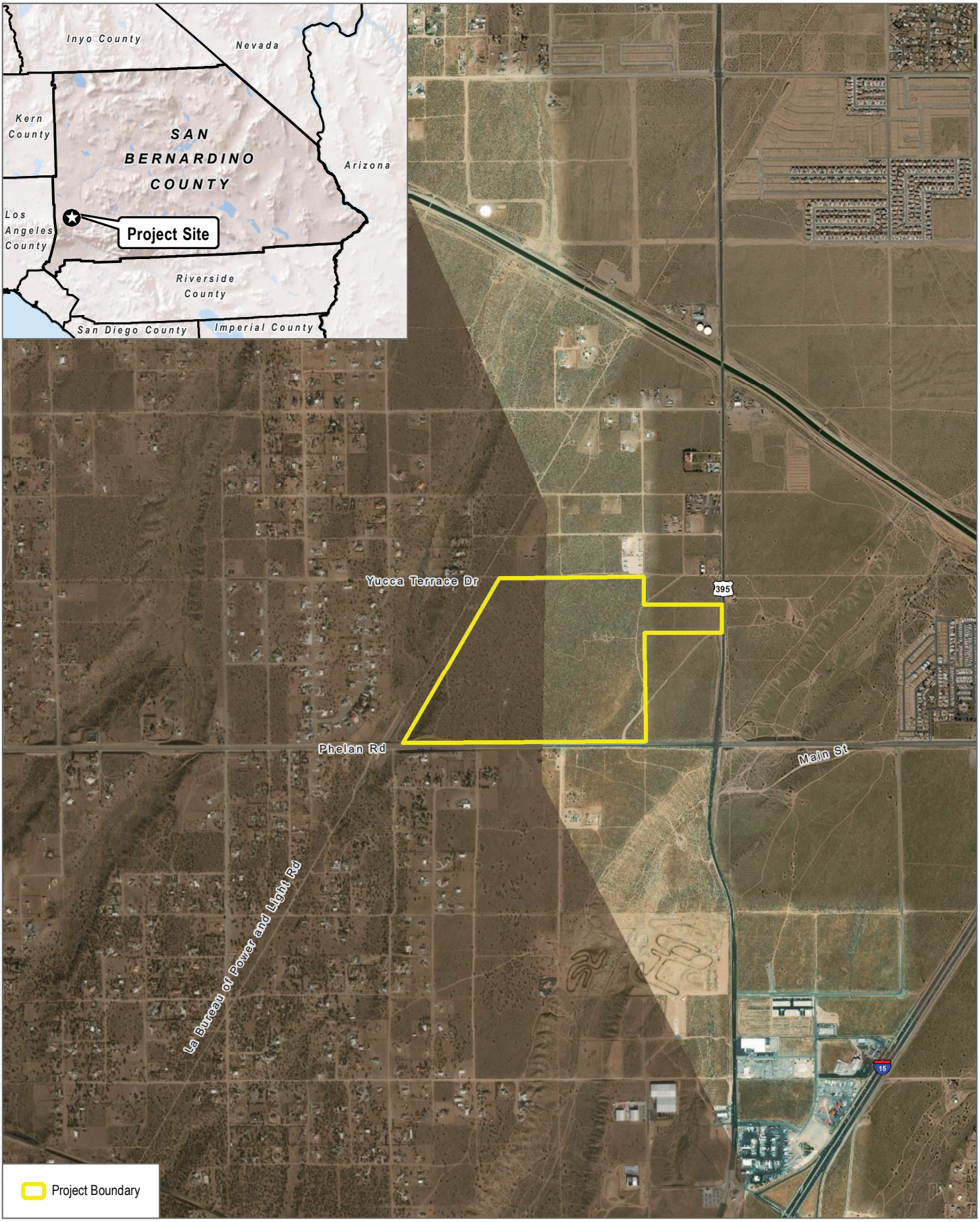

SOURCE: Bing Maps 2019

DUDEK

0 1,000 2,000 Feet

Figure 1

Project Location

Hesperia Commerce Center II

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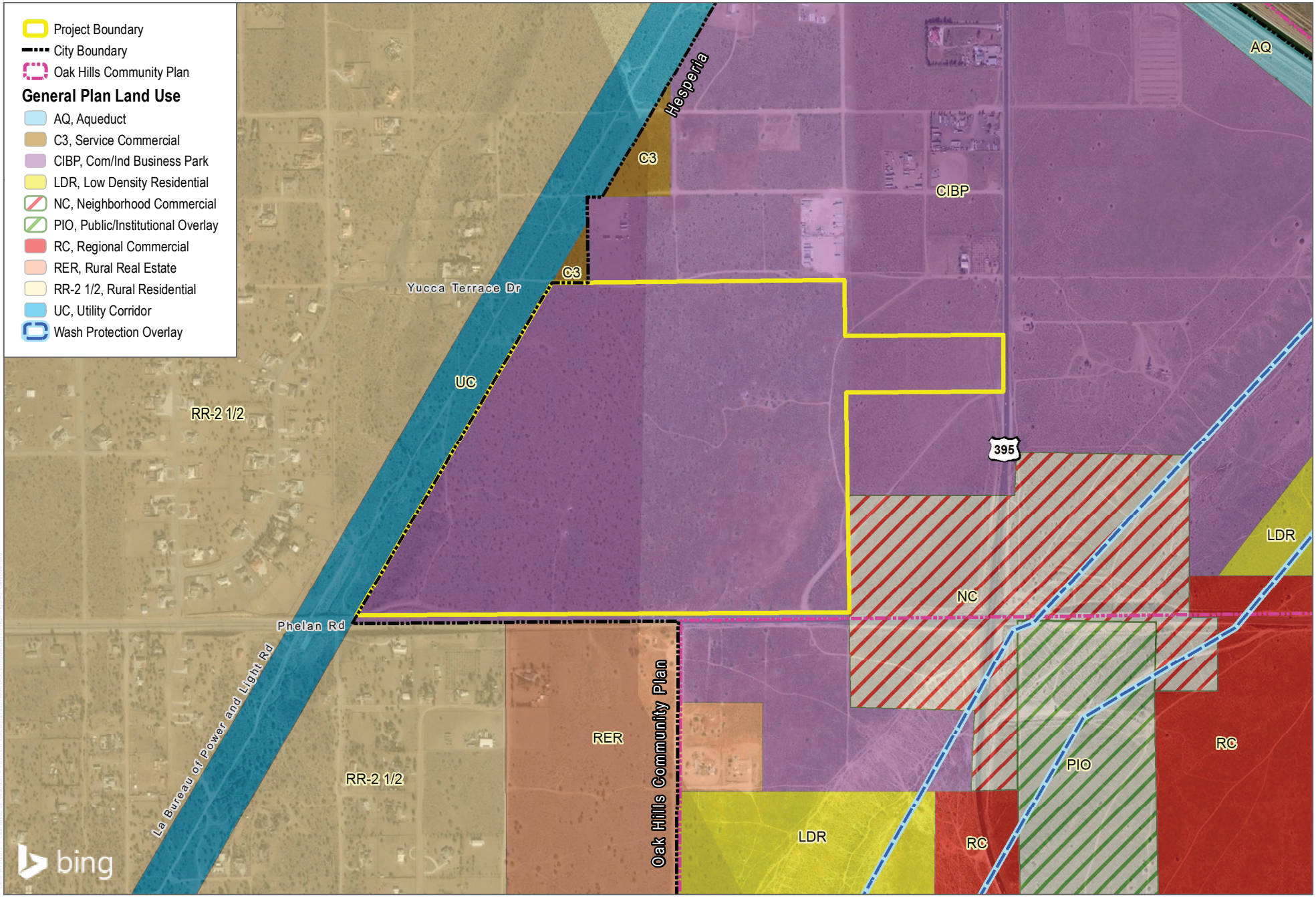

SOURCE: Bing Maps 2019; City of Hesperia 2019

DUDEK

0 500 1,000 Feet

Figure 2

Land Use Designation

Hesperia Commerce Center II

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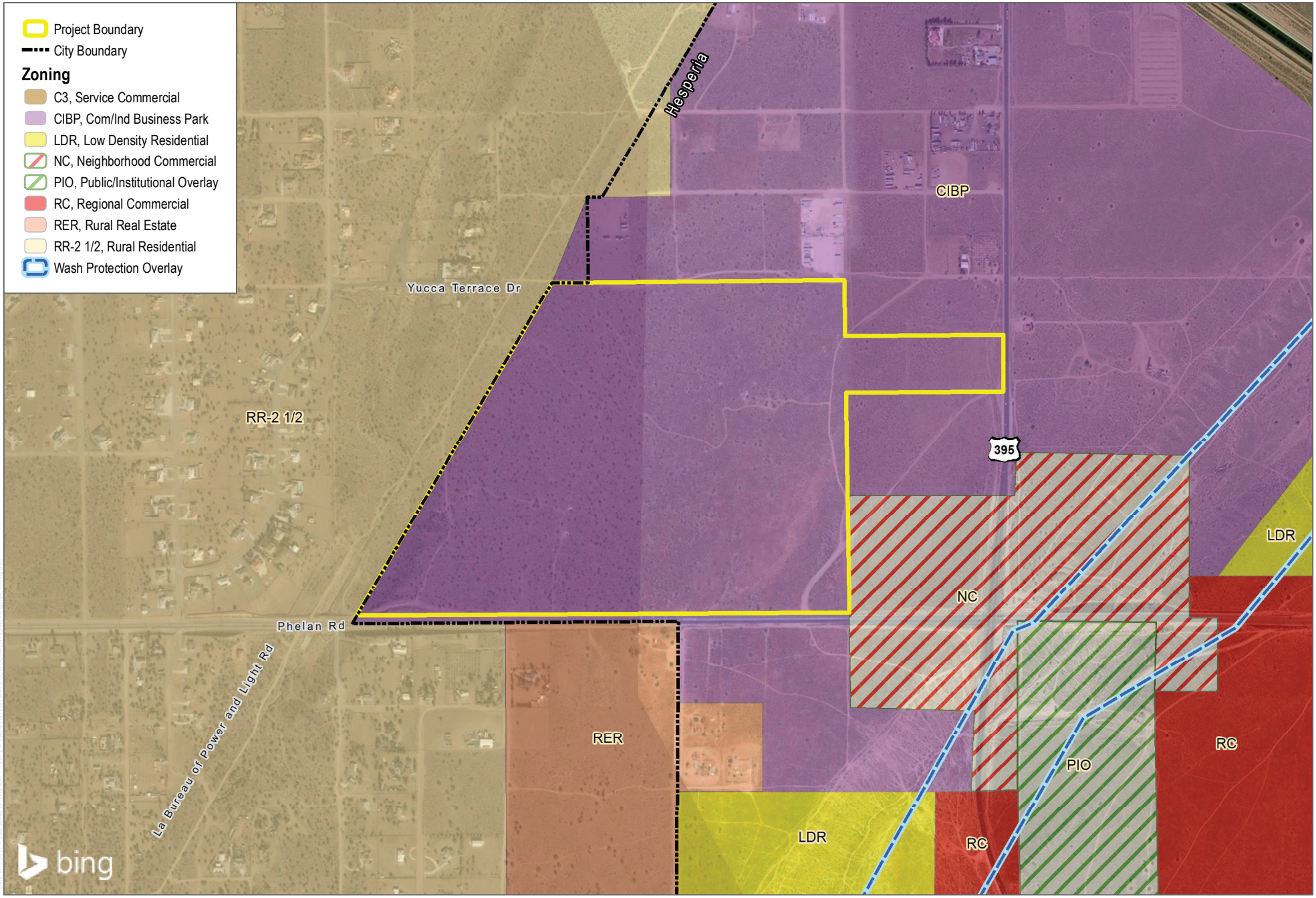

SOURCE: Bing Maps 2019; City of Hesperia 2010

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Figure 3

Zoning

Hesperia Commerce Center II

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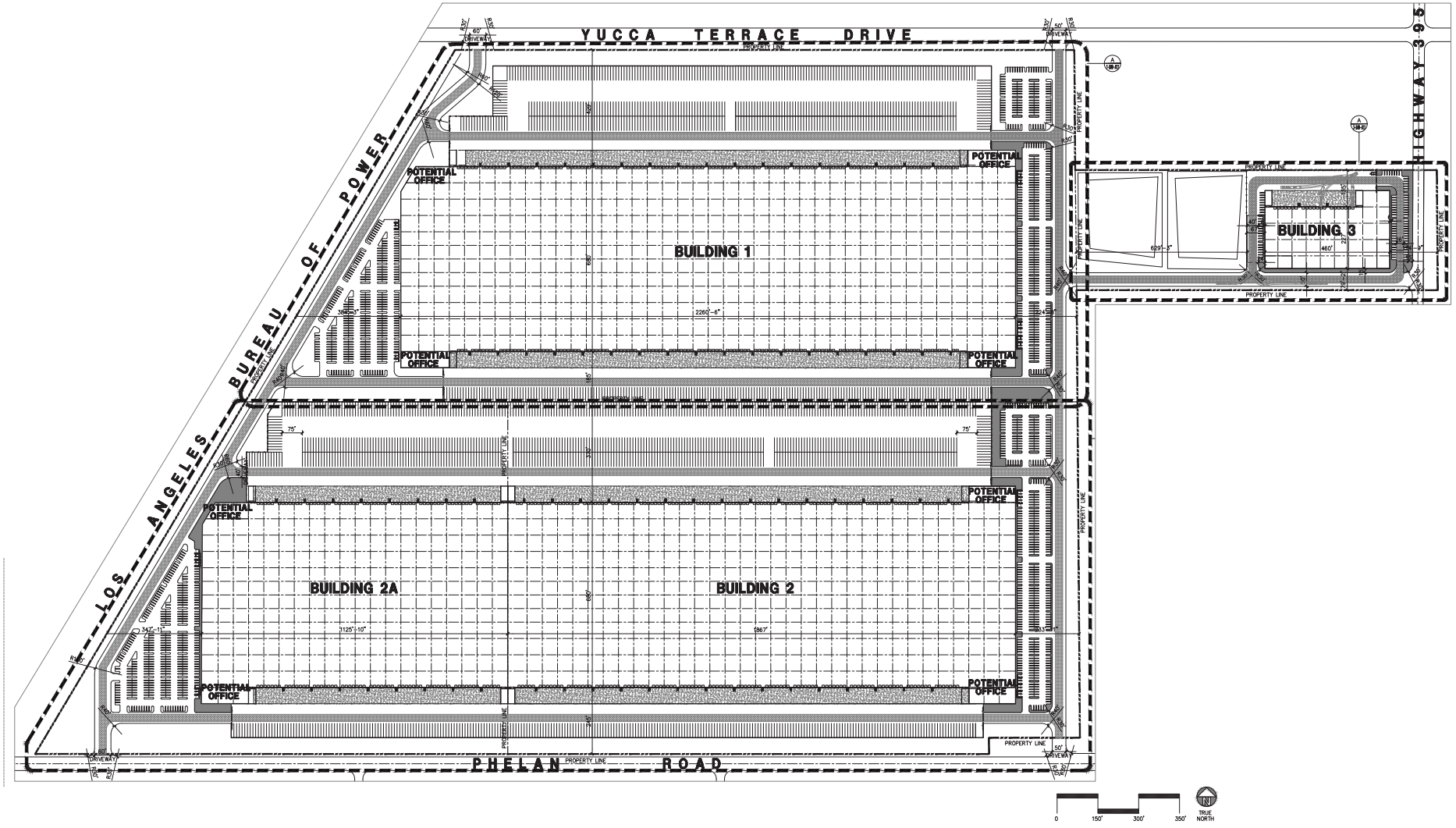

SOURCE: HPA Architecture, 2019

FIGURE 4
Site Plan
Hesperia Commerce Center II

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STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Gavin Newsom
Governor

Kate Gordon
Director

Notice of Preparation

November 21, 2019

To: Reviewing Agencies

Re: Hesperia Commerce Center II
SCH# 2019110418

Attached for your review and comment is the Notice of Preparation (NOP) for the Hesperia Commerce Center II draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Chris Borchert
Hesperia, City of
9700 Seventh Ave
Hesperia, CA 92345

with a copy to the State Clearinghouse in the Office of Planning and Research at state.clearinghouse@opr.ca.gov . Please refer to the SCH number noted above in all correspondence concerning this project on our website: https://ceqanet.opr.ca.gov/2019110418/2.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Appendix C

2019110418

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Hesperia Commerce Center II

Lead Agency: City of Hesperia | Contact Person: Chris Borchert
Mailing Address: 9700 Seventh Ave | Phone: (760) 947-1231
City: Hesperia | Zip: 92345 | County: USA

Project Location: County: San Bernardino | City/Nearest Community: Hesperia
Cross Streets: Phelan/Main Street and LA Bureau of Power and Light Road | Zip Code: 92344
Longitude/Latitude (degrees, minutes and seconds): 34 ° 26 ' 1.7 " N / 117 ° 24 ' 28.1 " W Total Acres: 194.8
Assessor's Parcel No.: 306435103, 306436101, 306439101, and 306440102 | Section: 16 | Twp.: 4N | Range: 5 W | Base: San Bern
Within 2 Miles: State Hwy #: I-15, CA 395 | Waterways: Oro Grande Wash and Manzanita Wash
Airports: n/a | Railways: Union Pacific Rail | Schools: n/a

Document Type:

CEQA: ☒ NOP ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Other:
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI Other: ☐ Joint Document ☐ Final Document ☐ Other:

Governor's Office of Planning & Research
NOV 21 2019
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☒ Site Plan
☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees 1,777
☒ Industrial: Sq.ft. 3,742,590 Acres ____ Employees ____
☐ Educational: ____
☐ Recreational: ____
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☐ Power: Type ____ MW ____
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☐ Other: ____

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☒ Drainage/Absorption ☒ Economic/Jobs
☐ Fiscal ☒ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities
☒ Recreation/Parks ☒ Schools/Universities ☒ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☒ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☒ Other: Paleontological resources

Present Land Use/Zoning/General Plan Designation:

Commercial/Industrial Business Park

Project Description: *(please use a separate page if necessary)*

Construction of three industrial/warehouse buildings totaling 3,742,590 SF. See attached NOP.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

NOP Distribution List

County: San Bernardino

SCH# 2019110418

Resources Agency

- [■] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Allyson Hitt
- [ ] **Colorado River Board**
  Elsa Contreras
- [▒] **Dept. of Conservation**
  Crina Chan
- [▒] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [■] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [▒] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Wildlife

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [ ] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [■] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [ ] **California Department of Education**
  Lesley Taylor
- [ ] **OES (Office of Emergency Services)**
  Monique Wilber
- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Erik Vink
- [ ] **Delta Stewardship Council**
  Anthony Navasero
- [ ] **California Energy Commission**
  Eric Knight
- [■] **Native American Heritage Comm.**
  Debbie Treadway
- [▒] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [▒] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [ ] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Christian Bushong
- [▒] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Susan Zanchi
- [ ] **Caltrans, District 4**
  Patricia Maurice
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Dianna Watson
- [■] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [▒] **Airport & Freight**
  Jack Würsten
- [ ] **Transportation Projects**
  Nesamani Kalandiyur
- [ ] **Industrial/Energy Projects**
  Mike Tollstrup
- [ ] **California Department of Resources, Recycling & Recovery**
  Kevin Taylor/Jeff Esquivel
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- [ ] **State Water Resources Control Board**
  Div. Drinking Water #_____
- [▒] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [▒] **Dept. of Toxic Substances Control Reg. #_____**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
- [ ] **RWQCB 5F**
  Central Valley Region (5)
  Fresno Branch Office
- [ ] **RWQCB 5R**
  Central Valley Region (5)
  Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
- [▒] **RWQCB 6V**
  Lahontan Region (6)
  Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____
  _____
  _____
- [ ] _____
  Conservancy

Last Updated 5/22/18

LOZEAU DRURY LLP

T 510.836.4200
F 510.836.4205

1939 Harrison Street, Ste. 150
Oakland, CA 94612

www.lozeaudrury.com
richard@lozeaudrury.com

Via Email and U.S. Mail

November 22, 2019

Chris Borchert, Principal Planner
Planning Department
City of Hesperia
9700 Seventh Ave
Hesperia, CA 92345
cborchert@cityofhesperia.us

Mike Blay, Director
Development Services Department
City of Hesperia
9700 Seventh Ave
Hesperia, CA 92345
mblay@cityofhesperia.us

Melinda Sayre, City Clerk
City Clerk's Office
City of Hesperia
9700 Seventh Ave
Hesperia, CA 92345
msayre@cityofhesperia.us

Re: CEQA and Land Use Notice Request for Hesperia Commerce Center II aka SCH 2019110418

Dear Mr. Borchert, Mr. Blay, and Ms. Sayre:

I am writing on behalf of Supporters Alliance for Environmental Responsibility ("SAFER") and its members living in the City of Hesperia regarding Hesperia Commerce Center II aka SCH 2019110418, including all actions referring or related to the proposed construction of three industrial/warehouse buildings totaling 3,742,590 square feet of industrial/warehouse space and associated improvements including loading docks, tractor trailer stalls, passenger vehicle parking spaces and landscape improvements located on the northwest quadrant of Highway 395 and Phelan Road/Main Street on APNs 306435103, 306436101, 306439101, and 306440102 in the City of Hesperia ("Project").

We hereby request that the City of Hesperia ("City") send by electronic mail, if possible, or U.S. Mail to our firm at the address below notice of any and all actions or hearings related to activities undertaken, authorized, approved, permitted, licensed, or certified by the City and any of its subdivisions, and/or supported, in whole or in part, through contracts, grants, subsidies, loans or other forms of assistance from the City, including, but not limited to the following:

- Notice of any public hearing in connection with the Project as required by California Planning and Zoning Law pursuant to Government Code Section 65091.
- Any and all notices prepared for the Project pursuant to the California Environmental Quality Act ("CEQA"), including, but not limited to:
    - Notices of any public hearing held pursuant to CEQA.

- Notices of determination that an Environmental Impact Report ("EIR") is required for the Project, prepared pursuant to Public Resources Code Section 21080.4.
- Notices of any addenda prepared to a previously certified or approved EIR.
- Notices of any scoping meeting held pursuant to Public Resources Code Section 21083.9.
- Notices of preparation of an EIR or a negative declaration for the Project, prepared pursuant to Public Resources Code Section 21092.
- Notices of availability of an EIR or a negative declaration for the Project, prepared pursuant to Public Resources Code Section 21152 and Section 15087 of Title 14 of the California Code of Regulations.
- Notices of approval and/or determination to carry out the Project, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of any addenda prepared to a previously certified or approved EIR.
- Notices of approval or certification of any EIR or negative declaration, prepared pursuant to Public Resources Code Section 21152 or any other provision of law.
- Notices of determination that the Project is exempt from CEQA, prepared pursuant to Public Resources Code section 21152 or any other provision of law.
- Notice of any Final EIR prepared pursuant to CEQA.
- Notice of determination, prepared pursuant to Public Resources Code Section 21108 or Section 21152.

Please note that we are requesting notices of CEQA actions and notices of any public hearings to be held under any provision of Title 7 of the California Government Code governing California Planning and Zoning Law. **This request is filed pursuant to Public Resources Code Sections 21092.2 and 21167(f), and Government Code Section 65092**, which requires agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body.

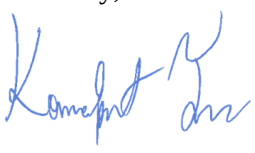
In addition, we request that the City send to us via email, if possible or U.S. Mail a copy of all Planning Commission and City Council meetings and/or hearing agendas.

Please send notice by electronic mail, if possible, or U.S. Mail to:

Richard Drury
Komalpreet Toor
Stacey Oborne
Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612
richard@lozeaudrury.com
komal@lozeaudrury.com
stacey@lozeaudrury.com

Please call if you have any questions. Thank you for your attention to this matter.

Sincerely,



Komalpreet Toor
Legal Assistant
Lozeau | Drury LLP

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

Governor's Office of Planning & Research

NOV 27 2019

STATE CLEARINGHOUSE

November 25, 2019

Chris Borchert
Hesperia, City of
9700 Seventh Ave
Hesperia, CA 92345

RE: SCH# 2019110418, Hesperia Commerce Center II Project, San Bernardino County

Dear Mr. Borchert:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements**. If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   - **a.** A brief description of the project.
   - **b.** The lead agency contact information.
   - **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   - **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   - **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   - **a.** Alternatives to the project**.**
   - **b.** Recommended mitigation measures**.**
   - **c.** Significant effects**.** (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   - **a.** Type of environmental review necessary.
   - **b.** Significance of the tribal cultural resources.
   - **c.** Significance of the project's impacts on tribal cultural resources.
   - **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   - **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
   - **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
    a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
    b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
        i. Planning and construction to avoid the resources and protect the cultural and natural context.
        ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
        i. Protecting the cultural character and integrity of the resource.
        ii. Protecting the traditional use of the resource.
        iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
    a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
    b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
    a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
    b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
    c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:

Andrew.Green@nahc.ca.gov.

Sincerely,



Andrew Green
Staff Services Analyst

cc: State Clearinghouse

Patrick Cruz

From: Ryan Leonard - Senior Planner <rleonard@cityofhesperia.us>
Sent: Monday, December 2, 2019 8:46 AM
To: Patrick Cruz; Collin Ramsey
Cc: Chris Borchert
Subject: FW: Commerce Center II Project

From: Brenda Hetzel [mailto:amc92345@yahoo.com]
Sent: Saturday, November 30, 2019 10:30 AM
To: Chris Borchert <cborchert@cityofhesperia.us>
Subject: Commerce Center II Project

City of Hesperia/ Planning Department

Chris Borchert, Principal Planner

Re: Commerce Center II- Env ironmental Impact Scoping

I am writing you today with my concerns as a home owner in the direct area of this project. How many of these letters were mailed out? I received one but most of my neighbors within a mile of this project have not! It is my estimation that a project of this magnitude will affect property values for a five mile radius.

The cumulative effects of this project will impact past, present and future activities and natural processes of the entire community, not to mention the propagation of 24/7 unpleasant noise, traffic, light, visual pollution and overcrowding.

The emissions from the amount of carrier vehicles for those loading docks and the loud, disruptive noises are a huge concern for both home owners and animal life. What about the aquifers and ground water?

Please inform us of an alternative- what's next, Low income housing?

Sincerely,

Brenda Hetzel

9861 Bellflower St., Oak Hills, Ca 92344

Email: bthetzel@verizon.net

To: Chris Borchert, Principal Planner

From: Larry Joe Williams (9883 Bellflower)

Date: 12/5/19

Re: Commerce Center II Project

This letter is to inform you that you of three concerns that I have regarding this project

1. Will there be hazards material and how will air quality be managed?
2. Traffic at 395 and onto Phelan Rd headed to Los Angeles County
3. Will trucks be running all night? And will the noise level impact my property 250 feet behind the property?

Thanks for your time,

Larry Joe Williams

9883 Bellflower St

Oak Hills Ca 92344

Patrick Cruz

From: Ryan Leonard - Senior Planner <rleonard@cityofhesperia.us>
Sent: Thursday, January 2, 2020 1:11 PM
To: Collin Ramsey
Cc: Patrick Cruz
Subject: FW: Commerce center ll project

From: Brenda Email [mailto:bthetzel@verizon.net]
Sent: Sunday, December 8, 2019 2:40 PM
To: Chris Borchert <cborchert@cityofhesperia.us>
Subject: Commerce center ll project

Another concern from property owners is that all of us received a hit on our property taxes to Mojave water- because county had to purchase water to supply our area zone j, can you imagine the amount of water it would take to even test the fire sprinkler system in a 3.7 million sf building?
Sent from my iPhone

Patrick Cruz

From: Ryan Leonard - Senior Planner <rleonard@cityofhesperia.us>
Sent: Thursday, January 2, 2020 1:10 PM
To: Collin Ramsey
Cc: Patrick Cruz
Subject: FW: Re Hesperia Commerce Center II

From: Chris Sherburne [mailto:chris.sherburne@tbuworldwide.com]
Sent: Wednesday, December 11, 2019 1:46 PM
To: Chris Borchert <cborchert@cityofhesperia.us>
Subject: Re Hesperia Commerce Center II

PLEASE ACKNOWLEDGE PERSONAL RECEIPT OF THIS EMAIL.
Mr. Borchert,

We own frontage property on Highway 395 contiguous to the proposed Hesperia Commerce Center II (herein called "The Project"). We note that all five driveways into the Project, directly or indirectly, come off Hwy 395. I personally have seen over 10 serious wrecks on Hwy 395 where it bounds the Project, even including several fatalities. We suggest viewing of the detailed Site Plan which should have been filed with the City of Hesperia (or soon will be) to ensure that the serious potential problems regarding access and egress of Hwy 395 have been adequately dealt with.

As an engineer and a person directly connected to the project, I respectfully request viewing of these detailed plans at your convenience. This matter, which certainly can be adequately addressed, pertains to the very feasibility of the Project--and therefore seems to fit within the scope of the scoping meeting on 12 December, which we hope to attend.

Thank you for noticing us about the Project and the meeting.
Chris Sherburne
(760)912-0159.

State of California - Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Inland Deserts Region
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
www.wildlife.ca.gov

***GAVIN NEWSOM**, Governor*
CHARLTON H. BONHAM, Director

December 19, 2019

Chris Borchert
City of Hesperia
9700 Seventh Ave.
Hesperia, CA 92345

Subject: Notice of Preparation of a Draft Environmental Impact Report
Hesperia Commerce Center II, State Clearinghouse No. 2019110418

Dear Mr. Borchert:

The California Department of Fish and Wildlife (CDFW) appreciates the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Hesperia Commerce Center II (Project), State Clearinghouse No. 2019110418. CDFW is responding to the NOP as a Trustee Agency for fish and wildlife resources (California Fish and Game Code Sections 711.7 and 1802, and the California Environmental Quality Act (CEQA) Guidelines Section 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 et seq.) and/or a California Endangered Species Act (CESA) Permit for Incidental Take of Endangered, Threatened, and/or Candidate species (California Fish and Game Code Sections 2080 and 2080.1).

PROJECT DESCRIPTION SUMMARY

Project Location

The proposed Project is located in the City of Hesperia within San Bernardino County. The Project is bounded by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Water and Power utility corridor to the west. The Project area is approximately 194.8 acres of undeveloped habitat contained within Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey *Baldy Mesa, California* 7.5-minute topographic quadrangle map. The Assessor's Parcels Numbers for the Project area include 306435103, 306436101, 306439101, and 306440102.

Project Description

The proposed Project includes the construction of three industrial buildings, with a combined area of 3,742,590 square feet, and the construction of the associated loading docks, tractor-trailer stalls, and passenger vehicle parking spaces. The Project also includes landscaping.

COMMENTS AND RECOMMENDATIONS

CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species (i.e., biological resources); and administers the Natural Community Conservation Planning Program (NCCP Program). CDFW offers the comments and recommendations presented below to assist City of Hesperia (Lead Agency) in adequately identifying and/or mitigating the Project's significant, or potentially significant, impacts on biological resources. The comments and recommendations are also offered to enable CDFW to adequately review and comment on the proposed Project with respect to impacts on biological resources. CDFW recommends that the forthcoming DEIR address the following:

Assessment of Biological Resources

Section 15125(c) of the CEQA Guidelines states that knowledge of the regional setting of a Project is critical to the assessment of environmental impacts and that special emphasis should be placed on environmental resources that are rare or unique to the region. To enable CDFW to adequately review and comment on the Project, the DEIR should include a complete assessment of the flora and fauna within and adjacent to the Project footprint, with particular emphasis on identifying rare, threatened, endangered, and other sensitive species and their associated habitats. CDFW recommends that the DEIR specifically include:

1. An assessment of the various habitat types located within the Project footprint, and a map that identifies the location of each habitat type. CDFW recommends that floristic, alliance- and/or association-based mapping and assessment be completed following *The Manual of California Vegetation*, second edition (Sawyer et al. 2009). Adjoining habitat areas should also be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions.

2. A general biological inventory of the fish, amphibian, reptile, bird, and mammal species that are present or have the potential to be present within each habitat type onsite and within adjacent areas that could be affected by the Project. CDFW's California Natural Diversity Database (CNDDB) in Sacramento should be contacted at (916) 322-2493 or CNDDB@wildlife.ca.gov to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code, in the vicinity of the proposed Project. CDFW recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

   Please note, CDFW's CNDDB is not exhaustive in terms of the data it houses, nor is it an absence database. CDFW recommends that it be used as a starting point in gathering information about the potential presence of species within the general area of the Project site.

3. A complete, recent inventory of rare, threatened, endangered, and other sensitive species located within the Project footprint and within offsite areas with the potential to be affected, including California Species of Special Concern (SSC) and California Fully Protected

Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (CEQA Guidelines § 15380). The inventory should address seasonal variations in use of the Project area and should not be limited to resident species. Focused species-specific surveys, completed by a qualified biologist and conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the U.S. Fish and Wildlife Service, where necessary. Note that CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if the Project is proposed to occur over a protracted time frame, or in phases, or if surveys are completed during periods of drought.

Species in Project Area

CDFW recommends species-specific surveys for the threatened desert tortoise and Mohave ground squirrel. CDFW approved desert tortoise pre-construction surveys cover 100 percent of the project area and adjacent habitat using the methods described in the most recent *United States Fish and Wildlife Service (USFWS) Desert Tortoise (Mojave Population) Field Manual. The Mohave Ground Squirrel Survey Guidelines* (Department of Fish and Game, July 2010) are available on CDFW's website (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83975&inline).

CDFW also recommends a survey for burrowing owl, a Species of Special Concern. Survey recommendations and guidelines are provided in the *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012) (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline).

Development of a desert kit fox and American badger mitigation and monitoring plan is recommended. Desert kit fox is a protected species, and American badger is a Species of Special Concern.

CDFW also recommends a thorough, recent, floristic-based assessment of special status plants and natural communities, following CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (https://www.wildlife.ca.gov/Conservation/Plants).

Analysis of Direct, Indirect, and Cumulative Impacts to Biological Resources

The DEIR should provide a thorough discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources as a result of the Project. To ensure that Project impacts to biological resources are fully analyzed, the following information should be included in the DEIR:

1. A discussion of potential impacts from lighting, noise, human activity, and wildlife-human interactions created by zoning of development Projects or other Project activities adjacent to natural areas, exotic and/or invasive species, and drainage. The latter subject should address Project-related changes on drainage patterns and water quality within, upstream,

and downstream of the Project site, including: volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-Project fate of runoff from the Project site.

2. A discussion of potential indirect Project impacts on biological resources, including resources in areas adjacent to the Project footprint, such as nearby public lands (e.g. National Forests, State Parks, etc.), open space, adjacent natural habitats, riparian ecosystems, wildlife corridors, and any designated and/or proposed reserve or mitigation lands (e.g., preserved lands associated with a Natural Community Conservation Plan, or other conserved lands).

3. An evaluation of impacts to adjacent open space lands from both the construction of the Project and long-term operational and maintenance needs.

4. A cumulative effects analysis developed as described under CEQA Guidelines § 15130. Please include all potential direct and indirect Project related impacts to riparian areas, wetlands, vernal pools, alluvial fan habitats, wildlife corridors or wildlife movement areas, aquatic habitats, sensitive species and other sensitive habitats, open lands, open space, and adjacent natural habitats in the cumulative effects analysis. General and specific plans, as well as past, present, and anticipated future Projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

Mitigation Measures for Project Impacts to Biological Resources

The DEIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the Project. When proposing measures to avoid, minimize, or mitigate impacts, CDFW recommends consideration of the following:

1. *Fully Protected Species*: Several Fully Protected Species (Fish and Game Code § 3511) have the potential to occur within or adjacent to the Project area, including, but not limited to: White-tailed kite (*Elanus leucurus*), American peregrine falcon (*Falco peregrinus anatum*), and golden eagle (*Aquila chrysaetos*). Fully protected species may not be taken or possessed at any time. Project activities described in the DEIR should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the Project area. CDFW also recommends that the DEIR fully analyze potential adverse impacts to fully protected species due to habitat modification, loss of foraging habitat, and/or interruption of migratory and breeding behaviors. CDFW recommends that the Lead Agency include in the analysis appropriate avoidance, minimization and mitigation measures to reduce any possible indirect impacts to fully protected species.

2. *Sensitive Plant Communities*: CDFW considers sensitive plant communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3, and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2009). The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from Project-related direct and indirect impacts. A S-2 ranked species, short-joint beavertail, has the potential to occur within or adjacent to the Project area.

Example Mitigation Measure for Sensitive Plant Species:
Minimization measures may include transplanting perennial species, seed collection and dispersal from annual species, and other conservation strategies that will protect the viability of the local population. If minimization measures are implemented, monitoring of plant populations will be conducted annually for 5 years to assess the mitigation's effectiveness. The performance standard for mitigation will be no net reduction in the size or viability of the local population.

3. *Mitigation*: CDFW considers adverse Project-related impacts to sensitive species and habitats to be significant to both local and regional ecosystems, and the DEIR should include mitigation measures for adverse Project-related impacts to these resources. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration and/or enhancement should be evaluated and discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

   The DEIR should include measures to perpetually protect the targeted habitat values within mitigation areas from direct and indirect adverse impacts in order to meet mitigation objectives to offset Project-induced qualitative and quantitative losses of biological values. Specific issues that should be addressed include restrictions on access, proposed land dedications, long-term monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

4. *Nesting Birds and Migratory Bird Treaty Act:* Please note that it is the Project proponent's responsibility to comply with all applicable laws related to nesting birds and birds of prey. Migratory non-game native bird species are protected by international treaty under the federal Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et seq.*). In addition, sections 3503, 3503.5, and 3513 of the Fish and Game Code (FGC) also afford protective measures as follows: Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by FGC or any regulation made pursuant thereto; Section 3503.5 states that is it unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by FGC or any regulation adopted pursuant thereto; and Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

   CDFW recommends that the DEIR include the results of avian surveys, as well as specific avoidance and minimization measures to ensure that impacts to nesting birds do not occur. Project-specific avoidance and minimization measures may include, but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, and buffers, where appropriate. The DEIR should also include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. If pre-construction surveys are proposed in the DEIR, CDFW recommends that they be

required no more than three (3) days prior to vegetation clearing or ground disturbance activities, as instances of nesting could be missed if surveys are conducted sooner.

Example Mitigation Measure for Burrowing Owl:

Preconstruction survey for burrowing owls will be conducted in areas supporting potentially suitable habitat and within 30 days prior to the start of construction activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the site will be resurveyed. Surveys for burrowing owls will be conducted in accordance with protocols established in the *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012) or current version.

If burrowing owls are detected, disturbance to burrows will be avoided during nesting season (February 1 through August 31). Buffers will be established around occupied burrows in accordance with guidance provided in the *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012) or current version.

Outside of the nesting season. Passive owl relocation techniques approved by CDFW will be implemented. Owls would be excluded from burrows in the immediate Project area and within a buffer zone by installing one-way doors in burrow entrances. These doors will be placed at least 48 hours prior to ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat will be provided following the guidance in the *Staff Report on Burrowing Owl Mitigation* (Department of Fish and Game, March 2012) or current version. The Project area will be monitored daily for one week to confirm owl departure from burrows prior to any ground-disturbing activities.

Where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

5. *Moving out of Harm's Way:* The proposed project is anticipated to result in the clearing of natural habitats that support native species. To avoid direct mortality, CDFW recommends that the lead agency condition the DEIR to require that a CDFW-approved qualified biologist be retained to be onsite prior to and during all ground- and habitat-disturbing activities to move out of harm's way special status species or other wildlife of low or limited mobility that would otherwise be injured or killed from project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise by injured or killed, and individuals should be moved only as far a necessary to ensure their safety. Furthermore, it should be noted that the temporary relocation of onsite wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

California Endangered Species Act

CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to the California Endangered Species Act (CESA). A CESA Incidental Take Permit (ITP) is issued to conserve, protect, enhance, and restore State-listed CESA species and their habitats. CDFW recommends that a CESA ITP be obtained if the Project has the potential to result in "take"

(California Fish and Game Code Section 86 defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of CESA-listed species.

Take of any CESA-listed species is prohibited except as authorized by state law (Fish and Game Code, §§ 2080 & 2085). If the Project, including the Project construction or any Project-related activity during the life of the Project, results in take of CESA-listed species, CDFW recommends that the Project proponent seek appropriate authorization prior to Project implementation through an ITP. Desert tortoise and Mohave ground squirrel are two CESA-listed threatened species that have potential to occur within the Project Area, presence needs to be determined by protocol surveys required by the Lead Agency.

CDFW encourages early consultation, as significant modification to the proposed Project and avoidance, minimization, and mitigation measures may be necessary to obtain a CESA ITP. Please note that the proposed avoidance, minimization, and mitigation measures must be sufficient for CDFW to conclude that the Project's impacts are fully mitigated and the measures, when taken in aggregate, must meet the full mitigation standard.

Lake and Streambed Alteration Program

Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: Substantially divert or obstruct the natural flow of any river, stream or lake; Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or Deposit debris, waste or other materials that could pass into any river, stream or lake. Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

Upon receipt of a complete notification, CDFW determines if the proposed Project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration (LSA) Agreement is required. An LSA Agreement includes measures necessary to protect existing fish and wildlife resources. CDFW may suggest ways to modify your Project that would eliminate or reduce harmful impacts to fish and wildlife resources.

CDFW's issuance of an LSA Agreement is a "Project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if necessary, the DEIR should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the proposed Project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to https://www.wildlife.ca.gov/Conservation/LSA/Forms.

Filing Fees

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

Further Coordination

CDFW appreciates the opportunity to comment on the NOP of a DEIR for the Hesperia Commerce Center II State Clearinghouse No. 2019110418 and recommends that the City address CDFW's comments and concerns in the forthcoming DEIR.
If you should have any questions pertaining to the comments provided in this letter, or wish to schedule a meeting and/or site visit, please contact Ashley Rosales at (909) 980-8607 or at Ashley.Rosales@wildlife.ca.gov

Sincerely,

Scott Wilson
Environmental Program Manager

ec: State Clearinghouse

Literature Cited

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. A manual of California Vegetation, 2nd ed. California Native Plant Society Press, Sacramento, California. http://vegetation.cnps.org/

825 East Third Street, San Bernardino, CA 92415-0835 | Phone: 909.387.8109 Fax: 909.387.7876
www.SBCounty.gov

SAN BERNARDINO COUNTY

Department of Public Works

- Flood Control
- Operations
- Solid Waste Management
- Surveyor
- Transportation

Brendon Biggs, M.S., P.E.
Interim Director

Transmitted Via Email

December 20, 2019

City of Hesperia
Attn: Chris Borchert, Principle Planner
Planning Department
9700 Seventh Avenue,
Hesperia, California, 92345

File: 10(ENV)-4.01

RE: CEQA – NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF HESPERIA FOR THE COMMERCE CENTER II PROJECT

Dear Mr. Borchert:

Thank you for allowing the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project. **We received this request on November 25, 2019** and pursuant to our review, the following comments are provided:

Traffic Division (Eanas Shanabo, Engineering Technician IV, 909-387-1869):

Please include analysis to traffic impacts and any proposed mitigation to Pheland Road from the Proposed Project site westwards to the SR-138, their impacts and any required mitigation should be discussed within the Draft EIR prior to certification and adoption.

Please include the County of San Bernardino Department of Public Works Traffic Division in the scoping and traffic study review process.

Environmental Management Division (Jonathan Dillon, PWE III, Stormwater Program, 909-387-8119):

Page 26 of the draft Initial Study, Section 3.10, Hydrology and Water Quality, indicates areas of analysis(a-e) where Potentially Significant Impacts may occur as a result of the Project. Their impacts and any required mitigation should be discussed within the Draft EIR prior to certification and adoption.

BOARD OF SUPERVISORS
Robert A. Lovingood, First District | Janice Rutherford, Second District | Dawn Rowe, Third District | Curt Hagman, Chairman, Fourth District | Josie Gonzales, Vice Chair, Fifth District
Gary McBride, Chief Executive Officer

We respectfully request to be included on the circulation list for all project notices, public reviews, or public hearings. In closing, I would like to thank you again for allowing the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project. Should you have any questions or need additional clarification, please contact the individuals who provided the specific comment, as listed above.

Sincerely,

for

MICHAEL R. PERRY
Supervising Planner
Environmental Management

MRP:AJ:sr
Email: cborchert@cityofhesperia.us

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT AND NOTICE OF A PUBLIC SCOPING MEETING

Date: November 21, 2019

To: State Agencies, Responsible Agencies, Local and Public Agencies, and Interested Parties

From/Lead Agency: City of Hesperia, Planning Department

Subject: Notice of Preparation of an Environmental Impact Report for the Hesperia Commerce Center II Project

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the City of Hesperia (City), as lead agency, is commencing preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) to evaluate the potential environmental effects associated with implementation of the Hesperia Commerce Center II Project (Project).

The City is requesting input from interested individuals, organizations, and agencies regarding the scope and content of the environmental analysis to be included in the upcoming EIR. In accordance with CEQA, the City requests that agencies provide comments on the environmental issues related to the statutory responsibilities of their particular agency. This NOP contains a description of the Project, its location, and a preliminary determination of the environmental resource topics to be addressed in the EIR.

Project Location

The approximately 194.8-acre Project site is located in the eastern part of the City, which is found within the Victor Valley region of San Bernardino County (see Figure 1). The Project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Water and Power utility corridor to the west. The Project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the Project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map. Regional access to the Project site includes Highway 395, immediately adjacent to the east, and Interstate (I) 15, located approximately 1 mile east.

Project Summary

The Project would include construction of three industrial/warehouse buildings and associated improvements on 194.8-acres of vacant land (see Figure 2). Building 1 (the northwesternmost building) would be 1,561,582 square feet (inclusive of 20,000 square feet of office/mezzanine), Building 2 (the southernmost building) would be 2,068,100 square feet (inclusive of 20,000 square

Larry Bird, Mayor
Bill Holland, Mayor Pro Tem
Rebekah Swanson, Council Member
Cameron Gregg, Council Member
Brigit Bennington, Council Member

Nils Bentsen, City Manager

9700 Seventh Avenue
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TD 760-947-1119

www.cityofhesperia.us

feet of office/mezzanine), which would potentially be divided between two spaces within the same building, and Building 3 (the easternmost building) would be 112,908 square feet (inclusive of 5,000 square feet of office/mezzanine). In total, the Project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and approximately 7 percent landscape area coverage. Implementation of the project will require the following approvals from the City:

- Approval of Conditional Use Permit (CUP19-00010)
- Approval of a Tentative Parcel Map
- Approval of Development Agreement

Potential Environmental Impacts of the Project

As discussed in the attached Initial Study, the EIR will evaluate whether implementation of the Project may potentially result in one or more significant environmental impacts. The potential environmental effects to be addressed in the EIR will include, but may not be limited to the following:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Transportation
- Utilities and Service Systems
- Wildfire

The EIR will also address all other CEQA-mandated topics, including cumulative impacts and Project alternatives.

Public Scoping Comment Period and Meeting

Public Scoping Comment Period

The City has established a 30-day public scoping period from November 21, 2019, to December 20, 2019. During the scoping period, the City's intent is to disseminate Project information to the public and solicit comments from agencies, organizations, and interested parties, including nearby residents and business owners, regarding the scope and content of the environmental information to be included in the EIR, including mitigation measures or Project alternatives to reduce potential environmental effects.

During this period, this NOP and the attached Initial Study may be accessed electronically at the following website:

https://www.cityofhesperia.us/312/Planning

This NOP and the attached Initial Study is also available for review in-person at Hesperia City Hall, Planning Department, 9700 Seventh Avenue, Hesperia, California 9234.

Public Scoping Meeting

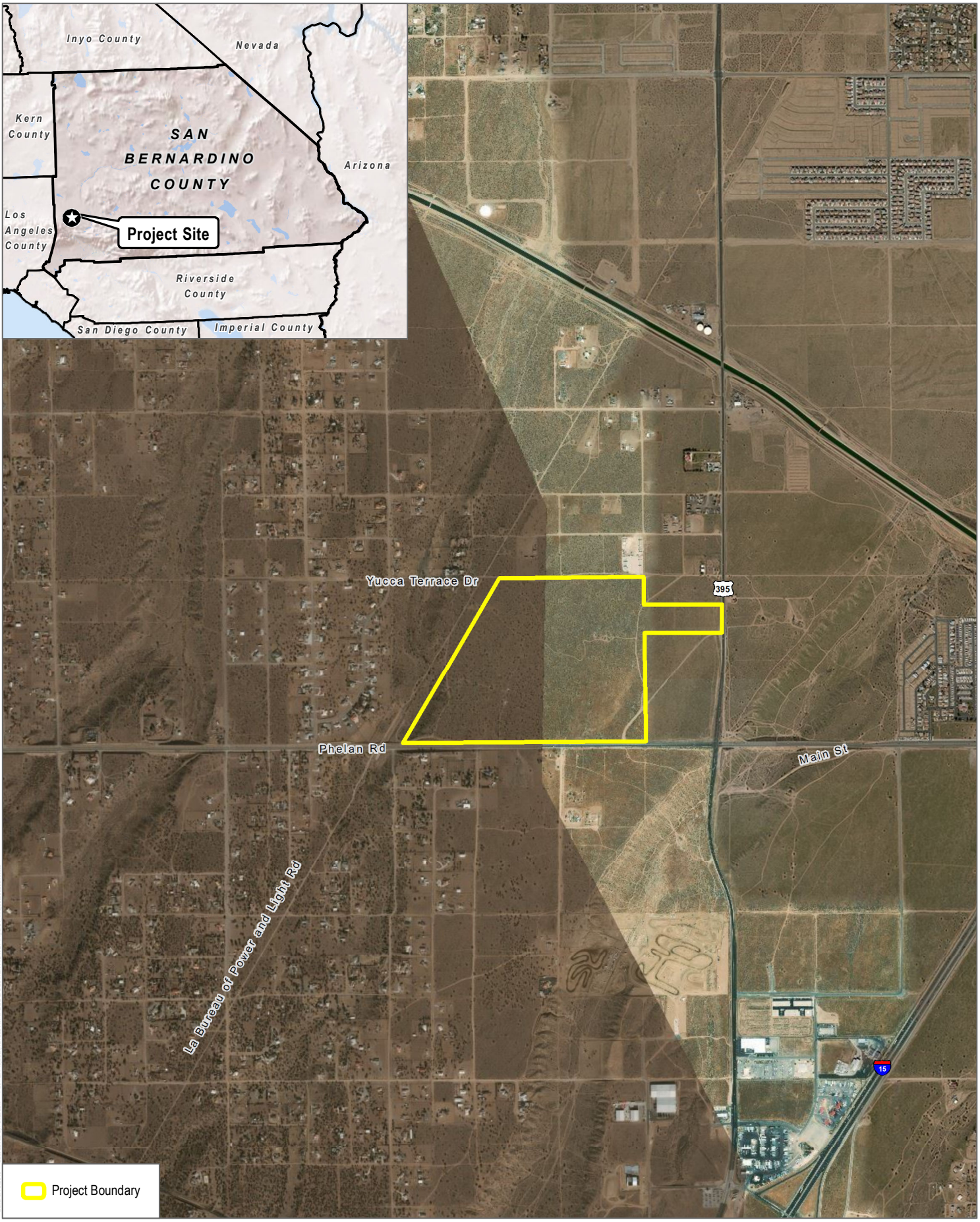
During the 30-day public scoping period, the City will also hold a public scoping meeting on Thursday, December 12, 2019, at 5:00 p.m. at Hesperia City Hall, Planning Department, 9700 Seventh Avenue, Hesperia, California 92345. The public scoping meeting will provide an additional opportunity to receive and disseminate information, identify potential environmental issues of concern, and discuss the scope of analysis to be included in the EIR. The scoping

meeting is not a public hearing, and no decisions on the Project will be made at this meeting. It is an additional opportunity for agencies, organizations, and the public to provide scoping comments in person on what environmental issues should be addressed in the EIR. All public agencies, organizations, and interested parties are encouraged to attend and participate in this meeting.

Scoping Comments

All scoping comments must be received in writing by December 20, 2019, by 4:30 p.m., which marks the end of the 30-day public scoping period. All written comments should indicate an associated contact person for the agency or organization, if applicable, and reference the Project name in the subject line. Pursuant to CEQA, responsible agencies are requested to indicate their statutory responsibilities in connection with the Project when responding. Please mail or email comments and direct any questions to the following contact person:

Chris Borchert, Principal Planner
City of Hesperia Planning Department
9700 Seventh Avenue
Hesperia, California 92345
Phone: (760) 947-1231
Email: cborchert@cityofhesperia.us



SOURCE: Bing Maps 2019

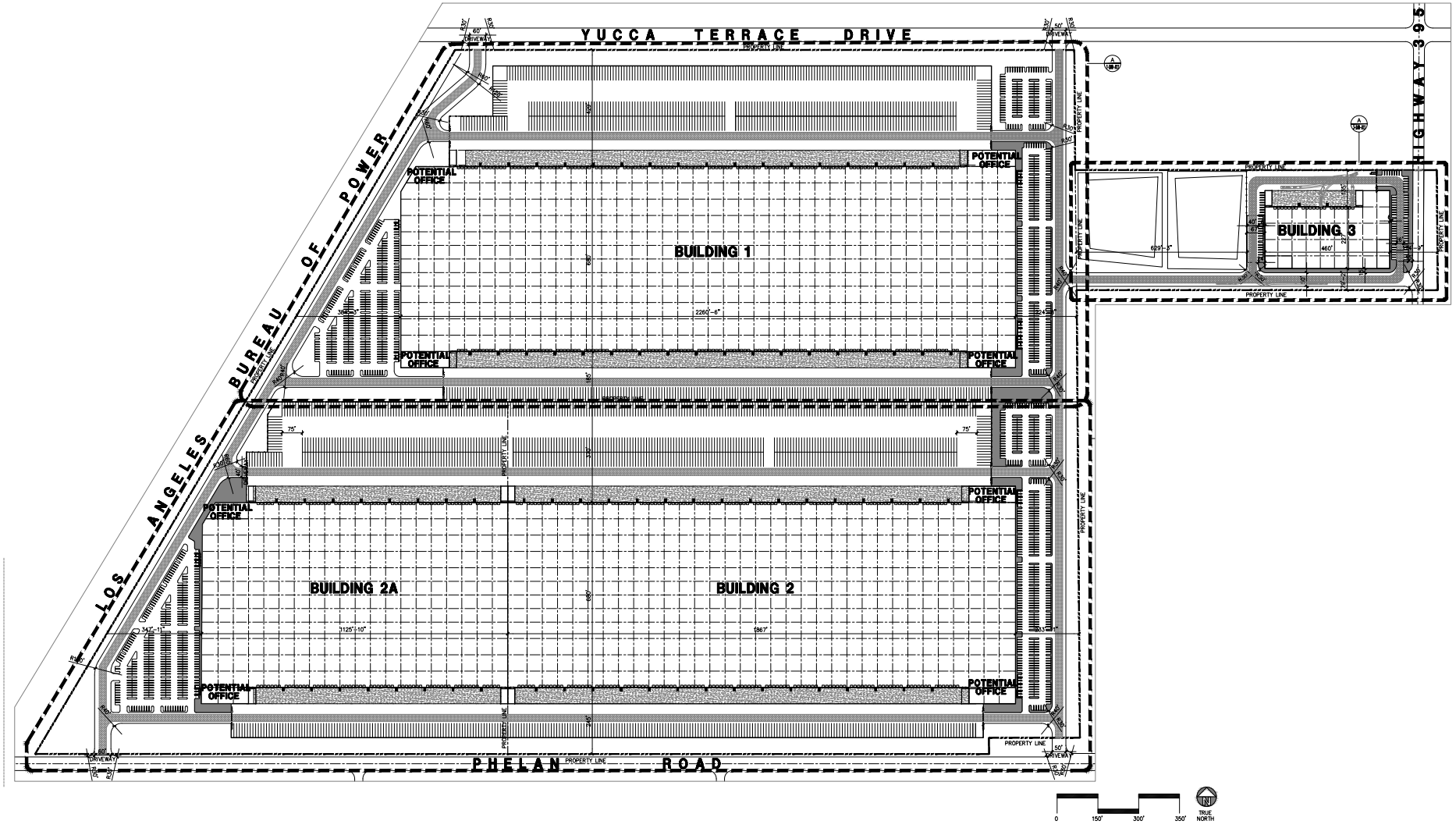
DUDEK

0 1,000 2,000 Feet

Figure 1

Project Location

Hesperia Commerce Center II



SOURCE: HPA Architecture, 2019

FIGURE 2

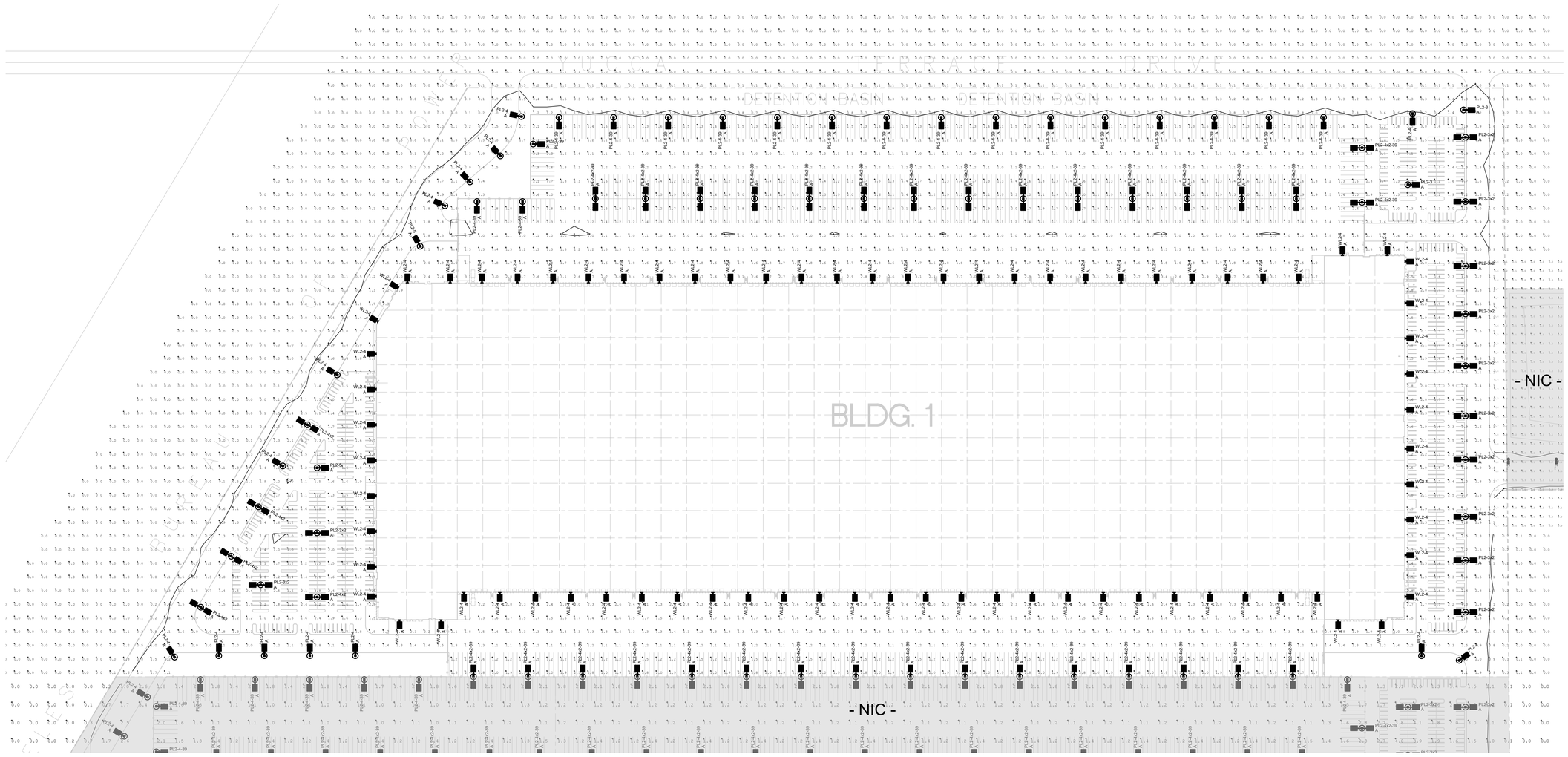
Site Plan

Hesperia Commerce Center II

DUDEK

Appendix B

Site Lighting Plan



SITE LIGHTING PLAN

(SCALE: 1"=100'-0")

INDICATES UNDER SEPARATE SUBMITTAL

GRAPHIC SCALE (SCALE 1"=100'-0")

TABLE 5.106.8 [N]
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS[1,2]

ALLOWABLE RATING	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
Maximum Allowable Backlight Rating[3]				
Luminaire greater than 2 mounting heights (MH) from property line	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B2
Maximum Allowable Uplight Rating				
For area lighting[4]	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Glare Rating[5]				
Luminaire greater than 2 MH from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	G0	G0	G1	G1
Luminaire back hemisphere is less than 0.5 MH from property line	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.
2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet *U*-value limits for "all other outdoor lighting."
5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

CAL GREEN BUG TABLE

TABLE 130.2-B GLARE RATINGS (MAXIMUM ZONAL LUMENS)

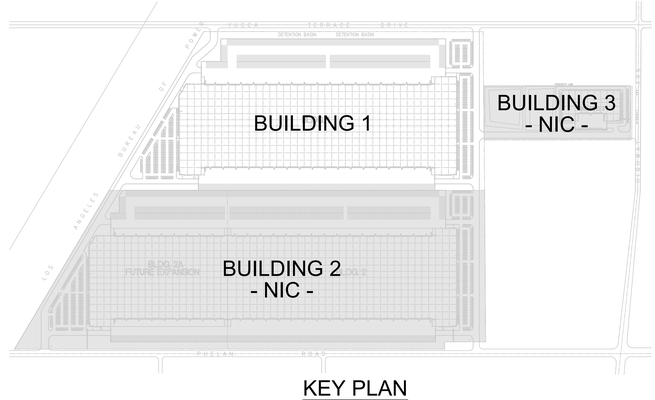
	Glare Rating for Asymmetrical Luminaire Types (Type 1, Type II, Type III, Type IV)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	110	500	1,000	2,500	5,000
	Glare Rating for Quadrilateral Symmetrical Luminaire Types (Type V, Type V Square)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000

TITLE 24 ZONAL LUMEN TABLE

FIXTURE LEGEND

PL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-3x2	TWIN LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-5	LED TYPE 5 (RSX2-LED-P2-50K-R5) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL3-3x2	TWIN LED TYPE 3 (RSX2-LED-P3-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	TWIN LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B3-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B2-UO-G3	<150w THEREFORE N/A	YES	YES

* - SEE ARCHITECTURAL PLANS FOR ACTUAL POLE BASE HEIGHTS



KEY PLAN

(SCALE: 1"=500'-0")

Gei

CONTRACTORS
ENGINEERS
Lic No. 201042

Gregg Electric Inc.

608 W. EMPORIA ST.
ONTARIO, CA 91762
(909) 983-1794

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PROJECT:

HESPERIA
COMMERCE
CENTER II
BUILDING 1

HESPERIA, CA

TITLE:

BUILDING 1
SITE LIGHTING PLAN

DRAWN BY: GT/SL
DATE: 1/30/20
SCALE: 1"=100'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO: -----

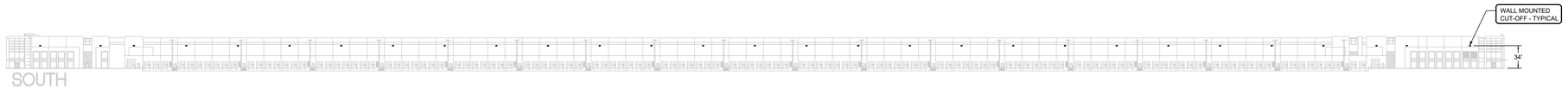
SHEET: 1ESL1











EXTERIOR LIGHTING ELEVATIONS

(SCALE: 1"=80'-0")



RSX2 LED
Area Luminaire

Catalog Number

Notes

Type

Fill the fields as needed, save the page to see all interactive elements.

Specifications

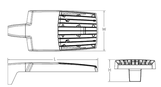
EPA (ft²@0°): 0.69 ft² (0.06 m²)

Length: 29.3" (74.4 cm) (SPA mount)

Width: 13.4" (34.0 cm)

Height: 3.0" (7.6 cm) Main Body, 7.2" (18.3 cm) Arm

Weight (max): 33.0 lbs (15.0 kg)



Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor and an adjustable integral slip-fitter are also available.

Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED					
Series	**Performance Package**	**Color Temperature**	**Distribution**	**Voltage**	**Mounting**
RSX2 LED	P1	30K 3000K	R3 Type 3 Wide	MVOLT (120V-277V) [1]	SPA Square pole mounting (Min. 3.5"SO for 1 at 90°, Min. 5.5"SO for 2, 3, 4 at 90°)
	P2	40K 4000K	R4 Type 4 Wide	HVOLT (347V-480V) [2]	RPA Round pole mounting (3.7" min pole dia. for 1,2,3 or 4 at 90°)
	P3	50K 5000K	R5 Type 5 Wide	**(use specific voltage for options as noted)**	MA Mast arm adaptor (fits 2-3/8"OD horizontal tenon)
	P4		R5S Type 5 Short	120 [3] 277 [3]	IS Adjustable slipfitter (fits 2-3/8"OD tenon) [4]
	P5		AFR Automotive Front Row	208 [3] 347 [3]	WBA Wall bracket
	P6			240 [3] 480 [3]	

Options			Finish
Shipped Installed		**Shipped Installed**	DDBXD Dark Bronze
HS	House-side shield	***Standalone Sensors Controls (factory default settings, see table page 5)**	DBLXD Black
PE	Photocontrol, button style [5,6]	PIRS Motion/ambient sensor for 8–20' mounting heights [7,9,10]	DNAXD Natural Aluminum
PEA	Photocontrol external threaded, adjustable [5,7]	PIRHS Motion/ambient sensor for 20–40' mounting heights [7,9,10]	DWHXD White
PER7	Seven-wire twist-lock receptacle only (no controls) [5,8,9]		DDBTXD Textured Dark Bronze
DS*	Dual switching	***Networked Sensors/Controls**	DBLBXD Textured Black
CE34	Conduit entry 3/4"NPT (Qty 2)	NLTAIR2 nLight AIR generation 2 [7,10]	DNATXD Textured Natural Aluminum
SF	Single fuse (120, 277, 347) [3]	PIRHN Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [7,9,11,12]	DWHXD Textured White
DF	Double fuse (208, 240, 480) [3]		
SPD20KV	20KV Surge pack (10KV standard)		
FAO	Field adjustable output		
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)		
Shipped Separately (requires some field assembly)		***Note:** Sensor coverage pattern is affected when luminaire is tilted.	
EGS	External glare shield		
EGFV	External glare full visor (360° around light aperture)		
BS	Bird spikes [13]		

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Ordering Information

Accessories

Ordered and shipped separately.

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS U	External glare field (specify finish)
RSX2EGFV U	External glare full visor (specify finish)
RSXRPA U	RSX Universal round pole adapter plate (specify finish)
RCPRS	Receptacle only, PER5/PIRS field programmer
BLL12T 1.5 IL	Photocell - SSL twist-lock (120-277V) [14]
BLL48T 1.5 CUL UI	Photocell - SSL twist-lock (347V) [14]
BLL480T 1.5 CUL UI	Photocell - SSL twist-lock (480V) [14]
DSHORT SBK U	Shorting cap [15]

NOTES
1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
3. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
4. @ maximum tilt is 90° above horizontal.
5. Requires MOLAT or 347V.
6. Requires 120V, 208V, 240V, 277V or 347V.
7. Not available with Emergency battery backup and other light sensing control options. Following options cannot be combined: PE, PEA, PER7, PIRS, PIRHS, NLTAIR2.
8. Photocell, photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
9. For units with option PER7, the mounting must be restricted to 0–45° from horizontal axis per ANSI C136.10-2015.
10. Not available with Emergency battery backup. See Motion Control Technical Guide for details. Provides 50/50 fixture operation via 2 independent drivers. Not available with PE, PEA, PER7, PIRS, PIRHS, NLTAIR2.
11. Must be ordered with PIRHN.
12. Must be ordered with NLTAIR2. For additional information on nLight AIR visit.
13. Must be ordered with fixture for factory pre-drilling.
14. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls. Not available with other light sensing options cannot be combined including PIRS, PIRSH, NLTAIR2, PIRHS and PIRHN.
15. Requires MVOLT or HVOLT.

External Shields



House Side Shield



External Glare Shield



External 360 Full Visor

Pole/Mounting Information

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

HANDHOLE ORIENTATION



Tenon Adapters

Fitter I.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST25-320	AST25-390	AST25-490
4"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490

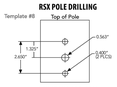
Pole Drilling Nomenclature

Number of Tenons or Degrees from Tenon/Side (default side A)					
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 180°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D

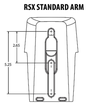
Note: Review luminaire spec sheet for specific nomenclature

RSX POLE DRILLING

Template #8



RSX STANDARD ARM



RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	**Tilt**									
SPA - Square Pole Adapter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
MA - Mast Arm Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
IS - Integral Slipfitter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.37	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.73	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.7	11.56	15.41

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Gei
CONTRACTORS
ENGINEERS
Lic No. 201042

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PROJECT:

HESPERIA COMMERCE CENTER II BUILDING 1

-
HESPERIA, CA

TITLE:

EXTERIOR LIGHTING ELEVATIONS

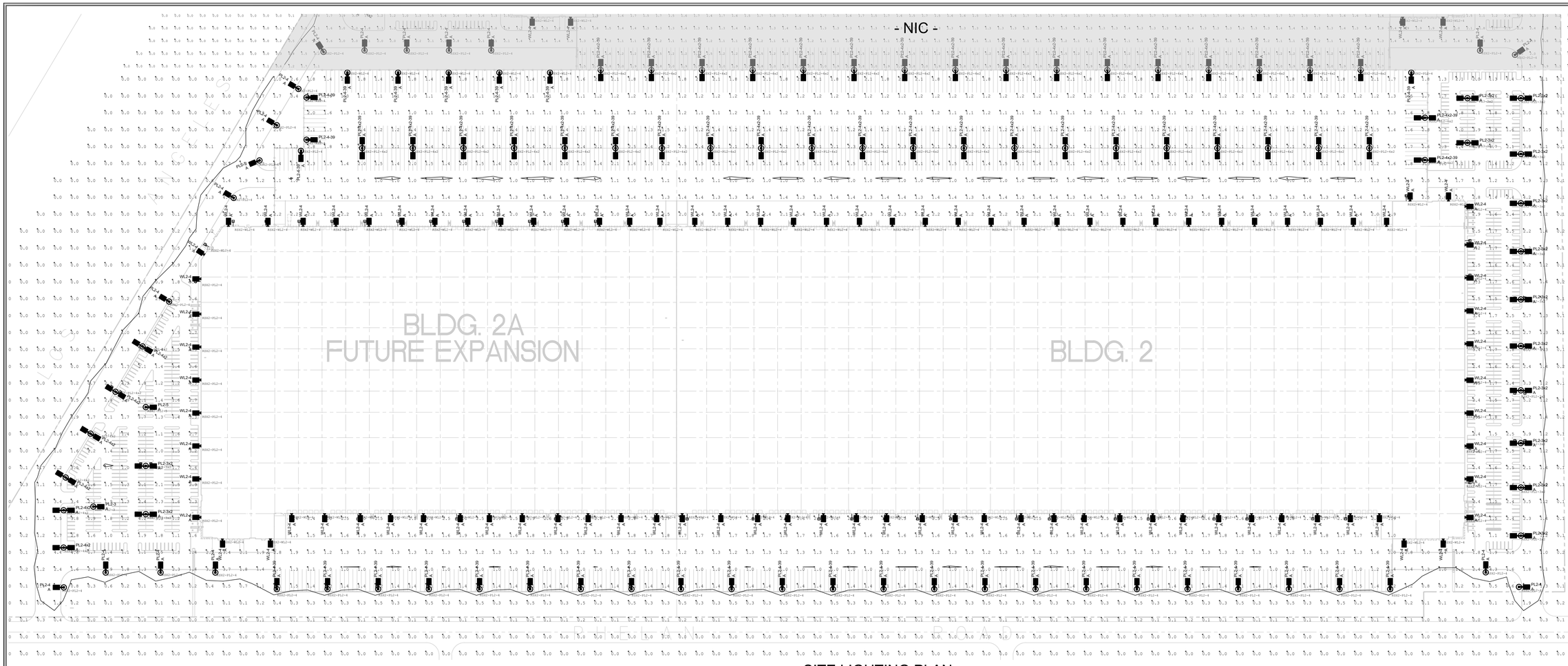
DRAWN BY: GT/SL
DATE: 1/30/20
SCALE: 1"=60'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO:

SHEET:
1ESL2

GRAPHIC SCALE
(SCALE 1"=80'-0")
60 20 0 40 80 120 160



SITE LIGHTING PLAN

(SCALE: 1"=100'-0")

INDICATES UNDER SEPARATE SUBMITTAL

GRAPHIC SCALE
(SCALE 1"=100'-0")

CAL GREEN BUG TABLE

TABLE 5.106.8 [N]
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS[1,2]

ALLOWABLE RATING	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
Maximum Allowable Backlight Rating[3]				
Luminaire greater than 2 mounting heights (MH) from property line	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B2
Maximum Allowable Uplight Rating				
For area lighting[4]	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Glare Rating[5]				
Luminaire greater than 2 MH from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	G0	G0	G1	G1
Luminaire back hemisphere is less than 0.5 MH from property line	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.
2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet *U*-value limits for "all other outdoor lighting."
5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

TITLE 24 ZONAL LUMEN TABLE

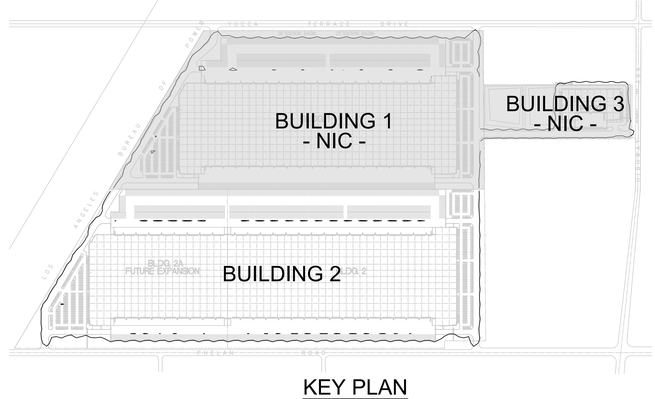
TABLE 130.2-B GLARE RATINGS (MAXIMUM ZONAL LUMENS)

	Glare Rating for Asymmetrical Luminaire Types (Type 1, Type II, Type III, Type IV)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	110	500	1,000	2,500	5,000
	Glare Rating for Quadrilateral Symmetrical Luminaire Types (Type V, Type V Square)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000

FIXTURE LEGEND

PL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-3x2	TWIN LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-5	LED TYPE 5 (RSX2-LED-P2-50K-R5) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL3-3x2	TWIN LED TYPE 3 (RSX2-LED-P3-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	TWIN LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B3-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B2-UO-G3	<150w THEREFORE N/A	YES	YES

* - SEE ARCHITECTURAL PLANS FOR ACTUAL POLE BASE HEIGHTS



KEY PLAN

(SCALE: 1"=500'-0")

CONTRACTORS
ENGINEERS
Lic No. 201042

Gregg Electric Inc.

608 W. EMPORIA ST.
ONTARIO, CA 91762
(909) 983-1794

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PROJECT:

HESPERIA
COMMERCE
CENTER II
BUILDING 2

HESPERIA, CA

TITLE:

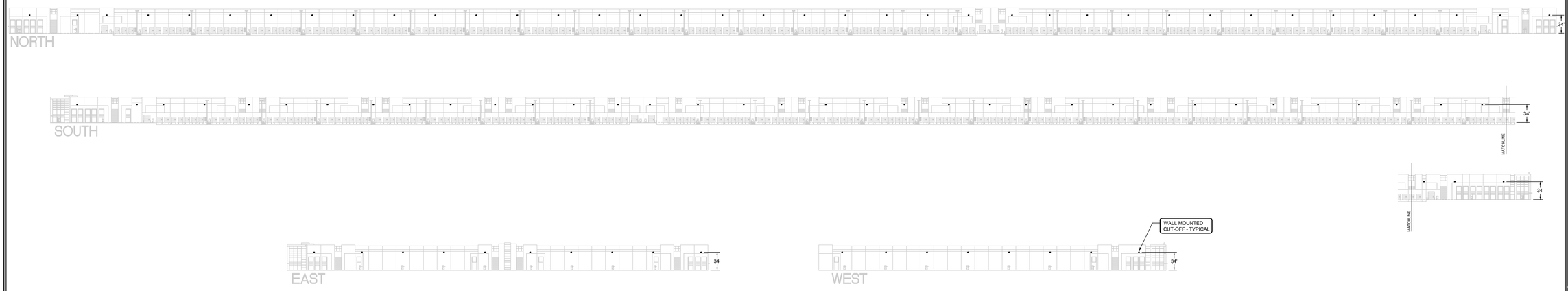
BUILDING 2
SITE LIGHTING PLAN

DRAWN BY: GT/SL
DATE: 1/30/20
SCALE: 1"=100'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO: -----

SHEET: 2ESL1



EXTERIOR LIGHTING ELEVATIONS

(SCALE: 1"=80'-0")

Gei

CONTRACTORS
ENGINEERS
Lic No. 201042

Gregg Electric Inc.

608 W. EMPORIA ST.
ONTARIO, CA 91762
(909) 983-1794

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PROJECT:

HESPERIA
COMMERCE
CENTER II
BUILDING 2

-
HESPERIA, CA

TITLE:

EXTERIOR LIGHTING ELEVATIONS

DRAWN BY: GT/SL
DATE: 1/30/20
SCALE: 1"=80'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO:

SHEET:
2ESL2

GRAPHIC SCALE
(SCALE 1"=80'-0")
60 20 0 40 80 120 160



RSX2 LED
Area Luminaire

Catalog Number
Notes
Type

Fill the SAA box or mouse over the Logo to see all interactive elements.

Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor and an adjustable integral slip-fitter are also available.

Specifications

EPA (ft²@0°): 0.69 ft² (0.06 m²)
Length: 29.3" (74.4 cm) (SPA mount)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight (max): 33.0 lbs (15.0 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED					
Series	**Performance Package**	**Color Temperature**	**Distribution**	**Voltage**	**Mounting**
RSX2 LED	P1	30K 3000K	R3 Type 3 Wide	MVOLT (120V-277V) [1]	SPA Square pole mounting (Min. 3.5"SO for 1 at 90°, Min. 5.5"SO for 2, 3, 4 at 90°)
	P2	40K 4000K	R4 Type 4 Wide	HVOLT (347V-480V) [2]	RPA Round pole mounting (3.7" min pole dia. for 1,2,3 or 4 at 90°)
	P3	50K 5000K	R5 Type 5 Wide	**(use specific voltage for options as noted)**	MA Mast arm adaptor (fits 2-3/8"OD horizontal tenon)
	P4		R5S Type 5 Short	120 [3] 277 [3]	IS Adjustable slipfitter (fits 2-3/8"OD tenons) [4]
	P5		AFR Automotive Front Row	208 [3] 347 [3]	WBA Wall bracket
	P6			240 [3] 480 [3]	

Options			Finish	
Shipped Installed		**Shipped Installed**	DDBXD	Dark Bronze
HS	House-side shield	***Standalone Sensors Controls (factory default settings, see table page 5)**	DBLXD	Black
PE	Photocontrol, button style [5,6]	PIRS Motion/ambient sensor for 8-20' mounting heights [7,9,10]	DNAXD	Natural Aluminum
PEA	Photocontrol external threaded, adjustable [6,7]	PIRHS Motion/ambient sensor for 20-40' mounting heights [7,9,10]	DWHXD	White
PER7	Seven-wire twist-lock receptacle only (no controls) [1,8,9]		DDBTXD	Textured Dark Bronze
DS*	Dual switching	***Networked Sensors/Controls**	DBLBXD	Textured Black
CE34	Conduit entry (3/4"NPT (Qty 2)	NLTAIR2 nLight AIR generation 2 [7,10]	DNATXD	Textured Natural Aluminum
SF	Single fuse (120, 277, 347) [3]	PIRHN Networked, 8-Level motion/ambient sensor (for use with NLTAIR2) [7,9,10,11]	DWHXD	Textured White
DF	Double fuse (208, 240, 480) [3]			
SPD20KV	20KV Surge pack (10KV standard)			
FAO	Field adjustable output			
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)			
Shipped Separately (requires some field assembly)				
EGS	External glare shield			
EGFV	External glare full visor (360° around light aperture)			
BS	Bird spikes [12]			

*Note: Sensor coverage pattern is affected when luminaire is tilted.

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Ordering Information

Accessories

Ordered and shipped separately.

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2GS2.0	External glare field (specify finish)
RSX2GSFV	External glare full visor (specify finish)
RSXRPA U	RSX Universal round pole adapter plate (specify finish)
RCPRS	Receptacle only, PER7/PIRHS field programmer
BLLLTF 1.5 IL	Photocell - SSL twist-lock (120-277V) [13]
BLLHATF 1.5 CUL UI	Photocell - SSL twist-lock (347V) [13]
BLL480F 1.5 CUL UI	Photocell - SSL twist-lock (480V) [13]
DSHORT SBK U	Shorting cap [13]

NOTES
1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
3. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
4. IS maximum tilt is 90° above horizontal.
5. Requires MVOLT or 347V.
6. Requires 120V, 208V, 240V, 277V or 347V.
7. Not available with other sensor and/or light sensing control options. Following options cannot be combined: PE, PEA, PER7, PIRS, PIRHS, NLTAIR2.
8. Requires photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
9. For units with option PER7, the mounting must be restricted to 0-45° from horizontal aim per ANSI C136.15-2014.
10. See Motion Sensor Default Settings and Advanced Control Technical Guide for details. Provides (5)(15) fixture operation via (2) independent drivers. Not available with PE, PEA, PER7, PIRS, PIRHS, DS*.
11. Must be ordered with PIRHN.
12. Must be ordered with NLTAIR2. For additional information on nLight AIR visit.
13. Must be ordered with fixture for factory pre-drilling.
14. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls. Cannot be ordered with other sensor/control options. Not available with NLTAIR2, PIRS, PIRHS, PIRHN and PIRHN.
15. Requires MVOLT or HVOLT.

External Shields



House Side Shield



External Glare Shield



External 360 Full Visor

Pole/Mounting Informatiion

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

HANDHOLE ORIENTATION



Tenon Adapters

Tenon O.D.	Single Unit	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST25-320	AST20-390	AST20-490
4"	AST25-190	AST25-280	AST25-290	AST25-320	AST20-390	AST20-490

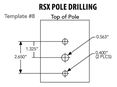
Pole Drilling Nomenclature

Number of Inserts at degrees from Handhole (default side A)					
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D

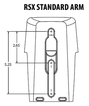
Note: Review luminaire spec sheet for specific nomenclature

RSX POLE DRILLING

Template #8



RSX STANDARD ARM



RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	**Tilt**									
SPA - Square Pole Adapter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
MA - Mast Arm Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
IS - Integral Slipfitter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.37	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.73	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.7	11.56	15.41

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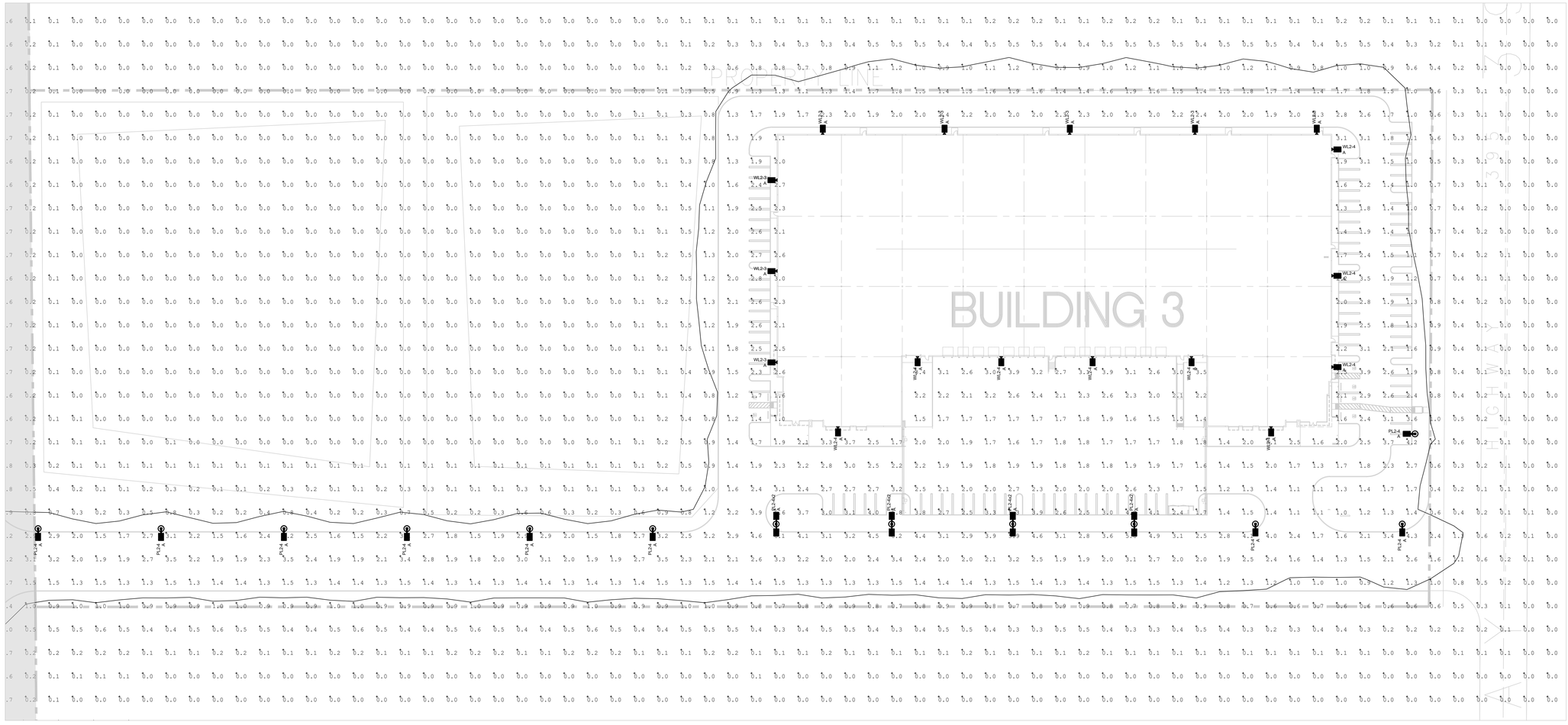


SITE LIGHTING PLAN

(SCALE: 1"=40'-0")

TABLE 5.106.8 [N]
MAXIMUM ALLOWABLE BACKLIGHT, UPLIGHT AND GLARE (BUG) RATINGS[1,2]

ALLOWABLE RATING	LIGHTING ZONE 1	LIGHTING ZONE 2	LIGHTING ZONE 3	LIGHTING ZONE 4
Maximum Allowable Backlight Rating[3]				
Luminaire greater than 2 mounting heights (MH) from property line	No Limit	No Limit	No Limit	No Limit
Luminaire back hemisphere is 1 – 2 MH from property line	B2	B3	B4	B4
Luminaire back hemisphere is 0.5 – 1 MH from property line	B1	B2	B3	B3
Luminaire back hemisphere is less than 0.5 MH from property line	B0	B0	B1	B2
Maximum Allowable Uplight Rating				
For area lighting[4]	U0	U0	U0	U0
For all other outdoor lighting, including decorative luminaires	U1	U2	U3	U4
Maximum Allowable Glare Rating[5]				
Luminaire greater than 2 MH from property line	G1	G2	G3	G4
Luminaire front hemisphere is 1 – 2 MH from property line	G0	G1	G1	G2
Luminaire front hemisphere is 0.5 – 1 MH from property line	G0	G0	G1	G1
Luminaire back hemisphere is less than 0.5 MH from property line	G0	G0	G0	G1

1. IESNA Lighting Zones 0 and 5 are not applicable; refer to Lighting Zones as defined in the *California Energy Code* and Chapter 10 of the *California Administrative Code*.
2. For property lines that abut public walkways, bikeways, plazas and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the centerline of the public roadway or public transit corridor for the purpose of determining compliance with this section.
3. If the nearest property line is less than or equal to two mounting heights from the back hemisphere of the luminaire distribution, the applicable reduced Backlight rating shall be met.
4. General lighting luminaires in areas such as outdoor parking, sales or storage lots shall meet these reduced ratings. Decorative luminaires located in these areas shall meet *U*-value limits for "all other outdoor lighting."
5. If the nearest property line is less than or equal to two mounting heights from the front hemisphere of the luminaire distribution, the applicable reduced Glare rating shall be met.

CAL GREEN BUG TABLE

TABLE 130.2-B GLARE RATINGS (MAXIMUM ZONAL LUMENS)

	Glare Rating for Asymmetrical Luminaire Types (Type I, Type II, Type III, Type IV)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	110	500	1,000	2,500	5,000

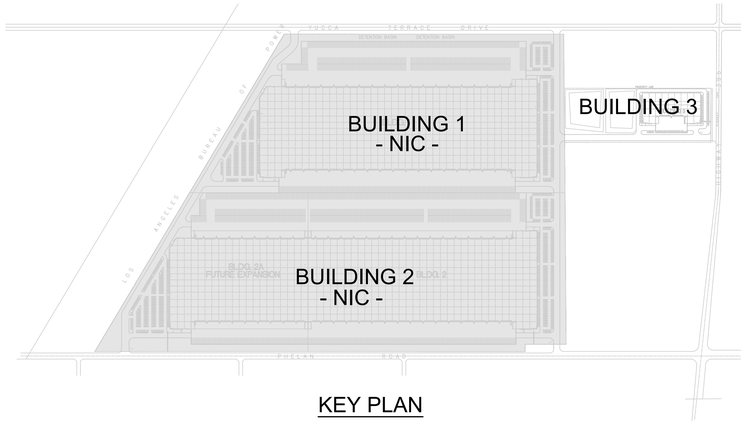
	Glare Rating for Quadrilateral Symmetrical Luminaire Types (Type V, Type V Square)				
	Maximum Zonal Lumens per Outdoor Lighting Zone				
Secondary Solid Angle	LZ 0	LZ 1	LZ 2	LZ 3	LZ 4
Forward Very High (FVH) 80 to 90 degrees	10	100	225	500	750
Backlight Very High (BVH) 80 to 90 degrees	10	100	225	500	750
Forward High (FH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000
Backlight High (BH) 60 to <80 degrees	660	1,800	5,000	7,500	12,000

TITLE 24 ZONAL LUMEN TABLE

FIXTURE LEGEND

PL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-3x2	TWIN LED TYPE 3 (RSX2-LED-P2-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2-39	LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 39' ROUND TAPERED POLE ON 4' HIGH CONC BASE*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-5	LED TYPE 5 (RSX2-LED-P2-50K-R5) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
PL3-3x2	TWIN LED TYPE 3 (RSX2-LED-P3-50K-R3) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B3-UO-G3	<150w THEREFORE N/A	YES	YES
PL2-4x2	TWIN LED TYPE 4 (RSX2-LED-P2-50K-R4) CUT-OFF ON 25' SQUARE STEEL POLE ON 2'-6" HIGH CONC BASE IN AUTO PARKING & 4' HIGH CONC BASE IN TRUCK YARD*	B2-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-3	LED TYPE 3 (RSX2-LED-P2-50K-R3) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B3-UO-G3	<150w THEREFORE N/A	YES	YES
WL2-4	LED TYPE 4 (RSX2-LED-P2-50K-R4) LED CUT-OFF AT 34' AFF WITH NO UPLTILT	B2-UO-G3	<150w THEREFORE N/A	YES	YES

* - SEE ARCHITECTURAL PLANS FOR ACTUAL POLE BASE HEIGHTS



KEY PLAN

CONTRACTORS
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Lic No. 201042

Gregg Electric Inc.

608 W. EMPORIA ST.
ONTARIO, CA 91762
(909) 983-1794

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PROJECT:

HESPERIA
COMMERCE
CENTER II
BUILDING 3

HESPERIA, CA

TITLE:

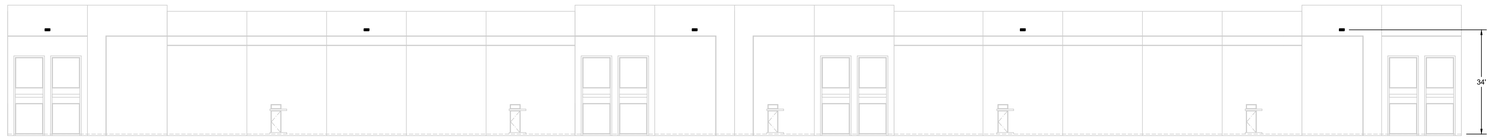
BUILDING 3
SITE LIGHTING PLAN

DRAWN BY: GT/SL
DATE: 1/30/20
SCALE: 1"=40'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO: -----

SHEET: 3ESL1



EXTERIOR LIGHTING ELEVATIONS

(SCALE: 1"=20'-0")

Gei

CONTRACTORS
ENGINEERS
Lic No. 201042

Gregg Electric Inc.

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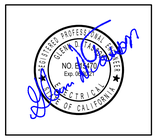

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PROJECT:

HESPERIA
COMMERCE
CENTER II
BUILDING 3

-
HESPERIA, CA

TITLE:

EXTERIOR LIGHTING ELEVATIONS

DRAWN BY:	GT/SL
DATE:	1/30/20
SCALE:	1"=20'-0"

REVISION:	BY	DATE
A: -	-	-
B: -	-	-
C: -	-	-
D: -	-	-
E: -	-	-
F: -	-	-
G: -	-	-
H: -	-	-
J: -	-	-
K: -	-	-

JOB NO:

SHEET:

3ESL2

GRAPHIC SCALE
(SCALE 1"=20'-0")

15 5 0 10 20 30 40



RSX2 LED
Area Luminaire

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor and an adjustable integral slip-fitter are also available.

Specifications

EPA (ft²@0°): 0.69 ft² (0.06 m²)
Length: 29.3" (74.4 cm) (SPA mount)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight (max): 33.0 lbs (15.0 kg)

Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED					
Series	**Performance Package**	**Color Temperature**	**Distribution**	**Voltage**	**Mounting**
RSX2 LED	P1 Performance Package P2 Performance Package P3 Performance Package P4 Performance Package P5 Performance Package P6 Performance Package	30K 3000K 40K 4000K 50K 5000K	R3 Type 3 Wide R4 Type 4 Wide R5 Type 5 Wide R5S Type 5 Short AFR Automotive Front Row	MVOLT (120V-277V) [1] HVOLT (347V-480V) [1] **(use specific voltage for options as noted)** 120 [1] 277 [1] 208 [1] 347 [1] 240 [1] 480 [1]	SPA Square pole mounting (Min. 3.5"OD for 1 at 90°, Min. 3.7"OD for 2, 3, 4 at 90°) RPA Round pole mounting (3.2" min pole dia. for 1,2,3 or 4 at 90°) MA Mast arm adapter (fits 2-3/8"OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8"OD tenon) [4] WBA Wall bracket

Options		Finish	
Shipped Installed		DDBXD	Dark Bronze
HS	House-side shield	DBLXD	Black
PE	Photocontrol, button style [1,2]	DNAXD	Natural Aluminum
PEX	Photocontrol external threaded, adjustable [1,2]	DWHXD	White
PERT	Seven-wire twist-lock receptacle only (no controls) [1,4,5]	DDBTXD	Textured Dark Bronze
DS*	Dual switching	DBLBXD	Textured Black
CE34	Conduit entry 3/4"NPT (Qty 2)	DNATXD	Textured Natural Aluminum
SF	Single fuse (120, 277, 347) [1]	DWHGXD	Textured White
DF	Double fuse (208, 240, 480) [1]		
SPD20KV	20kV Surge pack (10kV standard)		
FAO	Field adjustable output		
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)		
Shipped Separately (requires some field assembly)			
EGS	External glare shield		
EGFV	External glare full visor (360° around light aperture)		
BS	Bird spikes [3]		
Shipped Installed			
***Standalone Sensors Controls (factory default settings, see table page 5)**			
PIRS	Motion/ambient sensor for 8-20' mounting heights [7,8,9]		
PIRHS	Motion/ambient sensor for 20-40' mounting heights [7,8,9]		
***Networked Sensors/Controls**			
NL SIR2	nLight AIR generation 2 [7,10]		
PIRNH	Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [7,8,9,10]		

***Note:** Sensor coverage pattern is affected when luminaire is tilted.

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Ordering Information

Accessories

Ordered and shipped separately.

RSX2HS	RSX2 House-side shield (Includes 2 shields)
RSX2EGS U	External glare field (specify finish)
RSX2EGFV U	External glare full visor (specify finish)
RSXRPA U	RSX External round pole adapter plate (specify finish)
RCPRS	Receptacle only, for PIRS/PIRHS field programmer
DLL127F 1.5 SI	Photocell - SSL twist-lock (120-277V) [6]
DLL347F 1.5 CUL SI	Photocell - SSL twist-lock (347V) [6]
DLL480F 1.5 CUL SI	Photocell - SSL twist-lock (480V) [6]
DSHORT SBK U	Shorting cap [4]

NOTES
1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
3. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
4. SI - maximum tilt is 90° above horizontal.
5. Requires MOLT or 347V.
6. Requires 120V, 208V, 240V, 277V or 347V.
7. Sensor/Receptacle only available with other light sensing control options (following options cannot be combined: PE, PEX, PERT, PIRS, PIRHS).
8. Sensor/Receptacle only ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
9. For units with option PERT, the mounting must be restricted to tilt +/- 45° from horizontal aim per ANSI C136.31-2010.
10. NLTAIR2 PIR or PIRH must be ordered with the Wireless Control Technical Guide for details. Provides 50/50 fixture operation via (2) independent drivers. Not available with PE, PEX, PERT, PIRS, PIRHS, or DS.
11. Must be ordered with PIRHN.
12. Must be ordered with NLTAIR2. For additional information on nLight AIR 2.
13. Must be ordered with fixture for factory pre-drilling.
14. Requires luminaire to be specified with PERT option. Ordered and shipped as a separate line item from Acuity Brands Controls. Not available with PE, PEX. Only one control may be combined including DMG, PERT, PIRS, PIRHS and PIRHN.
15. Requires MVOLT or HVOLT.
16. For use with option PERT, the mounting must be restricted to tilt +/- 45° from horizontal aim per ANSI C136.31-2010.

External Shields



House Side Shield



External Glare Shield

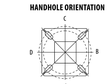


External 360 Full Visor

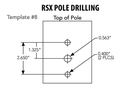
Pole/Mounting Information

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

HANDHOLE ORIENTATION



RSX POLE DRILLING



RSX STANDARD ARM



Tenon Adapters

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Pole Drilling Nomenclature

Number of Holes at Degree from Handhole (default side A)					
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 288°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side A & C	Round pole only	Side B, C, & D	Sides A, B, C, D

Note: Review luminaire spec sheet for specific nomenclature

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	3 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	**Tilt**									
SPA - Square Pole Adapter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
MA - Mast Arm Adapter		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
IS - Integral Slipfitter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.7	11.56	15.41

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RSX2 LED
Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

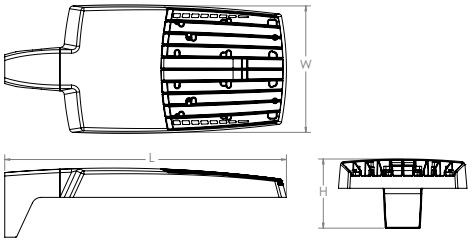
Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX2 delivers 11,000 to 31,000 lumens allowing it to replace 250W to 1000W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor and an adjustable integral slip-fitter are also available.

Specifications

EPA (ft²@0°):	0.69 ft² (0.06 m²)
Length:	29.3" (74.4 cm) (SPA mount)
Width:	13.4" (34.0 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.3 cm) Arm
Weight (max):	33.0 lbs (15.0 kg)



Ordering Information

EXAMPLE: RSX2 LED P6 40K R3 MVOLT SPA DDBXD

RSX2 LED

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX2 LED	P1 P2 P3 P4 P5 P6	30K 3000K 40K 4000K 50K 5000K	R3 Type 3 Wide R4 Type 4 Wide R5 Type 5 Wide R5S Type 5 Short AFR Automotive Front Row	MVOLT (120V-277V) [1] HVOLT (347V-480V) [2] **(use specific voltage for options as noted)** 120 [3] 277 [3] 208 [3] 347 [3] 240 [3] 480 [3]	SPA Square pole mounting (Min. 3.0"SQ for 1 at 90°, Min. 3.5"SQ for 2, 3, 4 at 90°) RPA Round pole mounting (3.2" min pole dia. for 1,2,3 or 4 at 90°) MA Mast arm adaptor (fits 2-3/8"OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8"OD tenon) [4] WBA Wall bracket

Options

Shipped Installed

HS	House-side shield
PE	Photocontrol, button style [5,7]
PEX	Photocontrol external threaded, adjustable [6,7]
PER7	Seven-wire twist-lock receptacle only (no controls) [7,8,9]
DS[10]	Dual switching
CE34	Conduit entry 3/4" NPT (Qty 2)
SF	Single fuse (120, 277, 347) [3]
DF	Double fuse (208, 240, 480) [3]
SPD20KV	20KV Surge pack (10KV standard)
FAO	Field adjustable output
DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)

Shipped Separately (requires some field assembly)

EGS	External glare shield
EGFV	External glare full visor (360° around light aperture)
BS	Bird spikes [13]

Shipped Installed

***Standalone Sensors Controls (factory default settings, see table page 5)**

PIRS	Motion/ambient sensor for 8-20' mounting heights [7,15,16]
PIRHS	Motion/ambient sensor for 20-40' mounting heights [7,15,16]

***Networked Sensors/Controls**

NLTAIR2	nLight AIR generation 2 [11,16]
PIRHN	Networked, Bi-Level motion/ambient sensor (for use with NLTAIR2) [7,12,15,16]

*Note: Sensor coverage pattern is affected when luminaire is tilted.

Finish

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured Dark Bronze
DBLBXD	Textured Black
DNATXD	Textured Natural Aluminum
DWHGXD	Textured White

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Ordering Information

Accessories
Ordered and shipped separately.

RSX2HS	RSX2 House side shield (includes 2 shields)
RSX2EGS U	External glares hield (specify finish)
RSX2EGFV U	External glare full visor (specify finish)
RSXRPA U	RSX Universal round pole adaptor plate (specify finish)
RCPIRS	Remote control PIRS/PIRHS field programmer
DLL127F 1.5 JU	Photocell -SSL twist-lock (120-277V) [14]
DLL347F 1.5 CUL JU	Photocell -SSL twist-lock (347V) [14]
DLL480F 1.5 CUL JU	Photocell -SSL twist-lock (480V) [14]
DSHORT SBK U	Shorting cap [14]

NOTES
1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2 HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
3 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
4 IS maximum tilt is 90° above horizontal.
5 Requires MOVLT or 347V.
6 Requires 120V, 208V, 240V, 277V or 347V.
7 Not available in combination with other light sensing control options (following options cannot be combined: PE, PEX, PER7, PIRS, PIRHS, PIRHN).
8 Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included. Dimming leads capped for future use.
9 For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
10 Requires (2) separately switched circuits. See Outdoor Control Technical Guide for details. Provides 50/50 fixture operation via (2) independent drivers. Not available with PE, PEX, PER7, PIRS, PIRSH or PIRHN.
11 Must be ordered with PIRHN.
12 Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
13 Must be ordered with fixture for factory pre-drilling.
14 Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.
15 Two or more of the following options cannot be combined including DMG, PER7, FAO, PIRS, PIRHS and PIRHN.
16 Requires MVOLT or HVOLT.

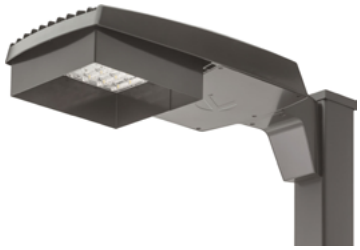
External Shields



House Side Shield



External Glare Shield

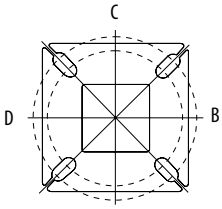


External 360 Full Visor

Pole/Mounting Informatiion

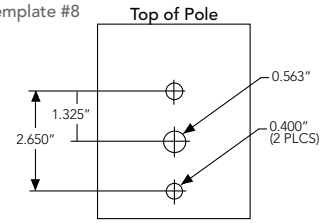
Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

HANDHOLE ORIENTATION

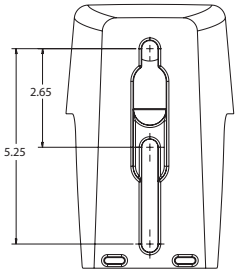


RSX POLE DRILLING

Template #8



RSX STANDARD ARM



Tenon Adapters

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Pole Drilling Nomenclature

Number of heads at degree from handhole (default side A)					
DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS
1 @ 90°	2 @ 280°	2 @ 90°	3 @ 120°	3 @ 90°	4 @ 90°
Side B	Side B & D	Side B & C	Round pole only	Side B, C, & D	Sides A, B, C, D
Note: Review luminaire spec sheet for specific nomenclature					

RSX2 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	Tilt									
SPA - Square Pole Adaptor	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
RPA - Round Pole Adaptor		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
MA - Mast Arm Adaptor		0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
IS - Integral Slipfitter	0°	0.69	1.22	1.27	1.8	1.61	2.39	1.37	2.06	2.74
	10°	0.53	1.06	1.05	1.58	1.37	2.08	1.06	1.59	2.12
	20°	0.52	1.02	1.03	1.52	1.33	2.02	1.03	1.55	2.07
	30°	0.64	1.11	1.18	1.63	1.45	2.21	1.27	1.91	2.54
	40°	0.81	1.21	1.35	1.74	1.65	2.39	1.62	2.43	3.23
	45°	0.91	1.25	1.5	1.81	1.75	2.48	1.82	2.73	3.64
	50°	1.34	1.83	2.17	2.61	2.56	3.62	2.68	4.02	5.36
	60°	2.2	2.97	3.57	4.24	4.17	5.89	4.41	6.61	8.82
	70°	2.86	4.13	4.7	5.89	5.71	8.21	5.71	8.57	11.42
	80°	3.4	5.13	5.67	7.34	7.09	10.21	6.79	10.19	13.59
	90°	3.85	5.96	6.55	8.58	8.31	11.88	7.7	11.56	15.41

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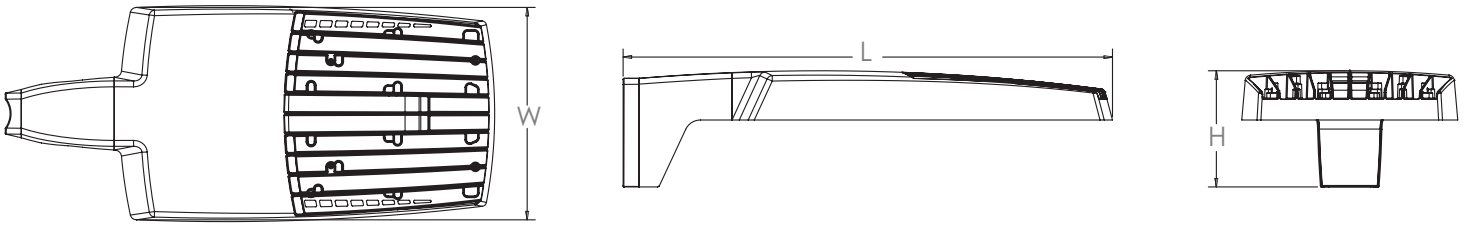
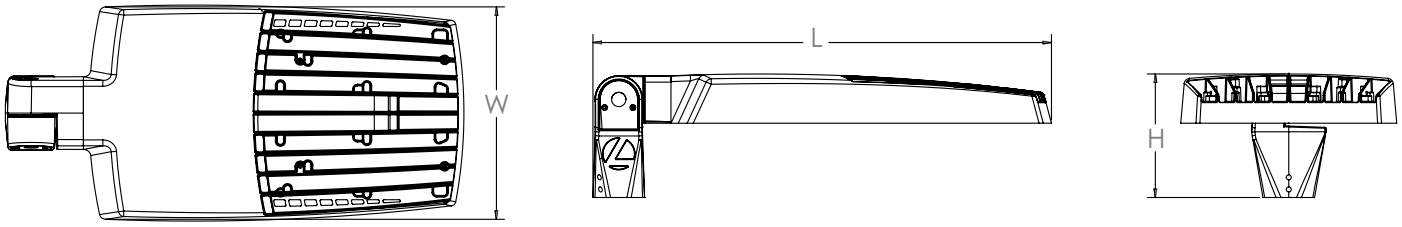
Dimensions

RSX2 with Round Pole Adapter (RPA)



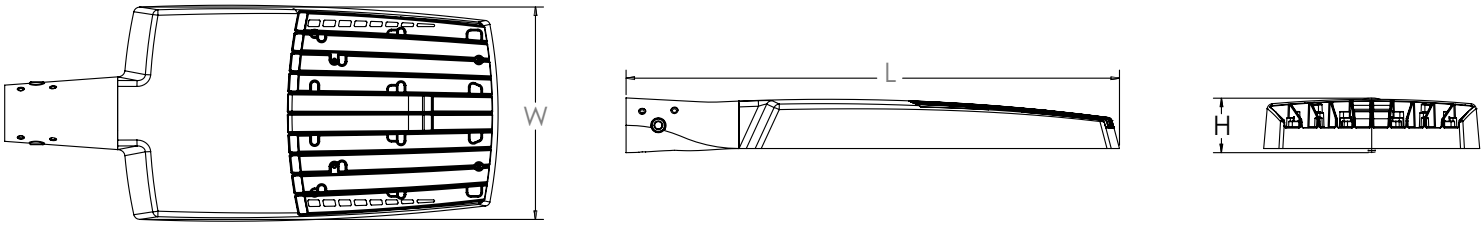
Length: 30.3" (77.0 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.3 cm) Arm

RSX2 with Adjustable Slipfitter (IS)



Length: 28.3" (71.9 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

RSX2 with Mast Arm Adapter (MA)



Length: 30.6" (77.7 cm)
Width: 13.4" (34.0 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

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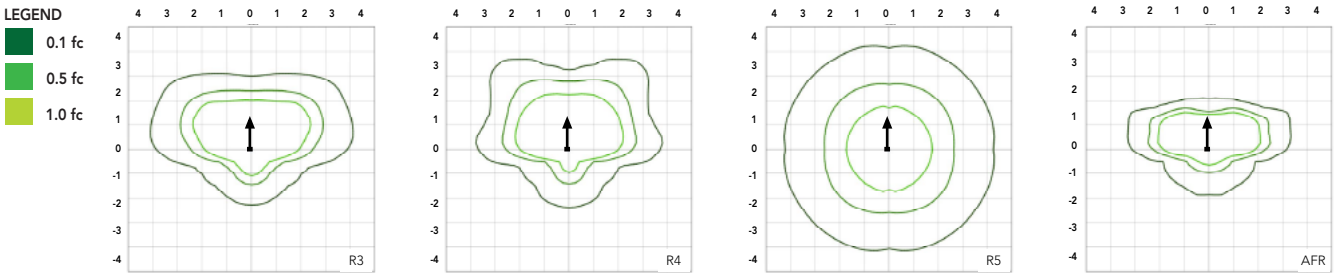
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX2 LED P6 40K. Distances are in units of mounting height (30').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	71W	0.59	0.34	0.30	0.26	0.20	0.15
P2	111W	0.93	0.53	0.46	0.40	0.32	0.23
P3	147W	1.23	0.70	0.61	0.53	0.42	0.31
P4	187W	1.55	0.90	0.78	0.68	0.53	0.38
P5	210W	1.75	1.01	0.87	0.76	0.60	0.44
P6	244W	2.03	1.17	1.01	0.88	0.70	0.51

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution. Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	71W	R3	10,005	2	0	2	141	10,992	2	0	2	155	10,992	2	0	2	155
		R4	10,136	2	0	2	143	11,136	2	0	2	157	11,136	2	0	2	157
		R5	10,271	4	0	2	145	11,285	4	0	2	159	11,285	4	0	2	159
		R5S	10,544	3	0	1	149	11,585	3	0	2	163	11,585	3	0	2	163
		AFR	10,026	2	0	1	141	11,016	2	0	1	155	11,016	2	0	1	155
P2	111W	R3	15,657	2	0	3	141	17,202	3	0	3	155	17,202	3	0	3	155
		R4	15,862	2	0	3	143	17,427	2	0	3	157	17,427	2	0	3	157
		R5	16,075	4	0	2	145	17,661	5	0	3	159	17,661	5	0	3	159
		R5S	16,502	4	0	2	149	18,130	4	0	2	163	18,130	4	0	2	163
		AFR	15,691	2	0	2	141	17,240	2	0	2	155	17,240	2	0	2	155
P3	147W	R3	19,785	3	0	3	135	21,737	3	0	4	148	21,737	3	0	4	148
		R4	20,044	3	0	3	136	22,022	3	0	4	150	22,022	3	0	4	150
		R5	20,313	5	0	3	138	22,317	5	0	3	152	22,317	5	0	3	152
		R5S	20,852	4	0	2	142	22,910	4	0	2	156	22,910	4	0	2	156
		AFR	19,828	3	0	2	135	21,785	3	0	2	148	21,785	3	0	2	148
P4	187W	R3	22,756	3	0	4	122	25,002	3	0	4	134	25,002	3	0	4	134
		R4	23,054	3	0	4	123	25,329	3	0	4	135	25,329	3	0	4	135
		R5	23,363	5	0	3	125	25,669	5	0	4	137	25,669	5	0	4	137
		R5S	23,983	4	0	2	128	26,350	4	0	2	141	26,350	4	0	2	141
		AFR	22,806	3	0	2	122	25,056	3	0	2	134	25,056	3	0	2	134
P5	210W	R3	26,049	3	0	4	124	28,620	3	0	4	136	28,620	3	0	4	136
		R4	26,390	3	0	4	126	28,994	3	0	4	138	28,994	3	0	4	138
		R5	26,744	5	0	4	127	29,383	5	0	4	140	29,383	5	0	4	140
		R5S	27,454	4	0	2	131	30,163	4	0	2	144	30,163	4	0	2	144
		AFR	26,106	3	0	2	124	28,682	3	0	2	137	28,682	3	0	2	137
P6	244W	R3	27,549	3	0	4	113	30,267	3	0	4	124	30,267	3	0	4	124
		R4	27,909	3	0	4	114	30,663	3	0	4	126	30,663	3	0	4	126
		R5	28,284	5	0	4	116	31,075	5	0	4	127	31,075	5	0	4	127
		R5S	29,035	4	0	2	119	31,900	5	0	3	131	31,900	5	0	3	131
		AFR	27,609	3	0	2	113	30,334	3	0	2	124	30,334	3	0	2	124

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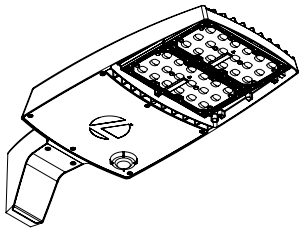
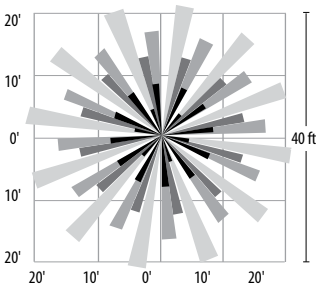
Sensor Coverage

Motion Sensor Default Settings (PIRS and PIRHS only)						
Option	Dimmed State	High Level (when triggered)	Photocell Operation	Dwell Time	Ramp-up Time	Ramp-down Time
PIRS or PIRHS	Approx. 37% Output	100% Output	Enabled @ 5FC	5 minutes	3 seconds	20 seconds

PIRS Coverage Patterns





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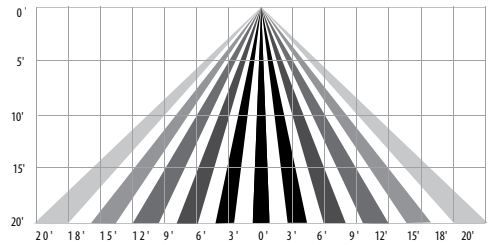
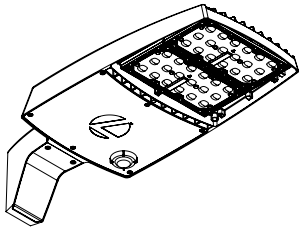
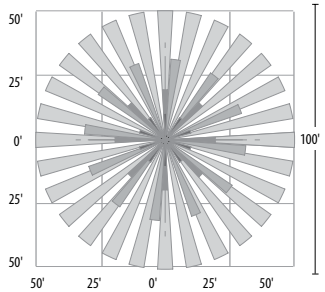


Side

PIRHS Coverage Pattern





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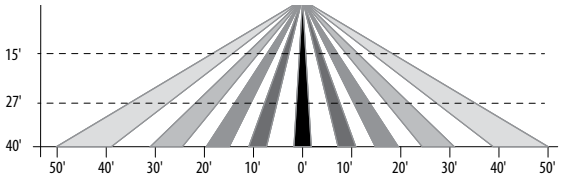
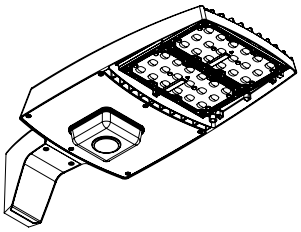
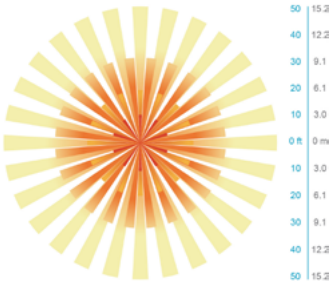


Side

PIRHN nLight Sensor Coverage Pattern

nLight PIRHN





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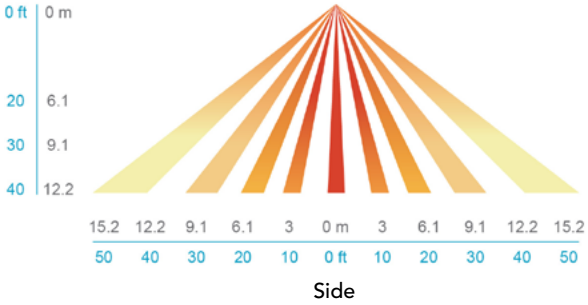

Side

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX2 delivers 11,000 to 31,000 lumens and is ideal for replacing 250W to 1000W HID pole-mounted luminaires in parking lots and other area lighting applications..

CONSTRUCTION AND DESIGN
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. All mountings are rated for a 1.5 G vibration load per ANSI C136.31.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 3, Type 4, Type 5, Type 5S and AFR (Automotive Front Row).

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles. Integrated motion sensors with on-board photocells feature remote control sensor programing and are suitable for mounting heights up to 40 feet.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slip fitter has an integral junction box and offers easy installation. IS adjustable slipfitter is not rated for tilting above 90° or mounting within 4 feet of ground. Can be tilted up to 90° above horizontal.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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Appendix C-1

Air Quality Impact Analysis

Hesperia Commerce Center II

AIR QUALITY IMPACT ANALYSIS

CITY OF HESPERIA

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AUGUST 7, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
%	Percent
1992 CO Plan	1992 Federal Attainment Plan for Carbon Monoxide
µg/m^3	Microgram per Cubic Meter
AB 2595	California Clean Air Act
AQIA	Air Quality Impact Analysis
AQMIS	Air Quality and Meteorological Information System
AQMP	Air Quality Management Plan
BAAQMD	Bay Area Air Quality Management District
BACM	Best Available Control Measures
BMPs	Best Management Practices
BSC	Building Standards Commission
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model™
CALGreen	California Green Building Standards Code
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CIBP	Commercial/Industrial Business Park
CO	Carbon Monoxide
COHb	Carboxyhemoglobin
EPA	Environmental Protection Agency
g/L	Grams Per Liter
GHG	Greenhouse Gas
HRA	Health Risk Assessment
lbs/day	Pounds per Day
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MWELO	Model Water Efficient Landscape Ordinance
NAAQS	National Ambient Air Quality Standards
N_2	Nitrogen
NO	Nitric Oxide
N_2O	Nitrous Oxide

NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_2	Oxygen
O_3	Ozone
Pb	Lead
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
ppm	Parts Per Million
Project	Hesperia Commerce Center II
ROG	Reactive Organic Gases
RECLAIM	Regional Clean Air Incentives Market
SDAB	Southeast Desert Air Basin
SCAQMD	South Coast Air Quality Management District
sf	Square Feet
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_4	Sulfates
SO_X	Oxides of Sulfur
TAC	Toxic Air Contaminant
TIA	Hesperia Commerce Center II Traffic Impact Analysis
TSF	Thousand Square Feet
VOC	Volatile Organic Compound
VPH	Vehicles Per Hour

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Hesperia Commerce Center II Air Quality Impact Analysis* (AQIA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (1). Table ES-1 shows the findings of less than significant for each potential air quality impact under CEQA. As shown, no mitigation measures (MM) are required.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Potentially Significant*	*Less Than Significant*
Regional Operational Emissions	3.5	*Potentially Significant*	*Significant and Unavoidable*
CO "Hot Spot" Analysis	3.6	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.7	*Potentially Significant*	*Significant and Unavoidable*
Sensitive Receptors	3.8	*Less Than Significant*	*n/a*
Odors	3.9	*Less Than Significant*	*n/a*
Cumulative Impacts	3.10	*Potentially Significant*	*Significant and Unavoidable*

ES.2 STANDARD REGULATORY REQUIREMENTS/BEST AVAILABLE CONTROL MEASURES

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the Cities' shall ensure such language is incorporated prior to issuance of any development permits. Mojave Desert Air Quality Management District (MDAQMD) Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 1113 (Architectural Coatings) (2). It should be noted that these Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 1113 has been taken.

MDAQMD RULE 1113

This rule serves to limit the Volatile Organic Compound (VOC) content of architectural coatings used on projects in the MDAQMD. Any person who supplies, sells, offers for sale, or manufactures

any architectural coating for use on projects in the MDAQMD must comply with the current VOC standards set in this rule (2)[1].

ES.3 PROJECT DESIGN FEATURES

Energy-saving and sustainable design features and operational programs would be incorporated into facilities developed pursuant to the currently proposed Project. The Project also incorporates and expresses the following project design features (PDF) and attributes promoting energy efficiency and sustainability. Because these features/attributes are integral to the Project, and/or are regulatory requirements, they are not considered to be MMs.

- The Project will design building shells and building components, such as windows; roof systems: electrical and lighting systems: and heating, ventilating, and air conditioning systems to meet 2019 Title 24 Standards which expects 30 percent (%) less energy for non-residential buildings.
- To reduce water demands and associated energy use, subsequent development proposals within the Project site would be required to implement a Water Conservation Strategy and demonstrate a minimum 20% reduction in indoor and outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy)[2].
- In order to reduce the amount of waste disposed at landfills, the Project would implement a 75% waste diversion.

ES.4 CONSTRUCTION-SOURCE MMS

MM AQ-1

The Project shall utilize "Super-Compliant" low VOC paints which have been reformulated to exceed the regulatory VOC limits put forth by MDAQMD's Rule 1113. Super-Compliant low VOC paints shall be no more than 10 grams per liter (g/L) of VOC. Alternatively, the Project Applicant may utilize tilt-up concrete buildings that do not require the use of architectural coatings.

ES.5 OPERATIONAL-SOURCE MMS

The Project operational-source emissions would exceed MDAQMD regional thresholds for VOCs, nitrogen oxides (NO_X), and particulate matter less than 10 microns (PM_{10}) emissions. It is important to note that the majority of VOC emissions are derived from consumer products. For analytical purposes, consumer products include cleaning supplies, aerosols, and other consumer products (3). As such, the Project Applicant cannot meaningfully control the use of consumer products by future building users via mitigation. On this basis, it is concluded that Project operational-source VOC emissions cannot be definitively reduced below applicable SCQMD thresholds.

[1] Only paints no more than 50 g/L of VOC consistent with MDAQMD Rule 1113 for flat coatings shall be used.

[2] Reduction of 20% indoor and outdoor water usage is consistent with the current CALGreen Code performance standards for residential and non-residential land uses. Per CALGreen, the reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

Additionally, the majority of the Project's NO_X and PM_{10} emissions are derived from vehicle usage. Since neither the Project Applicant nor the City of Hesperia have regulatory authority to control tailpipe emissions, no feasible MMs exist that would reduce these emissions to levels that are less-than-significant.

The following measures (MM AQ-2 through MM AQ-5) are designed to reduce Project operational-source NO_X emissions. However, it should be noted that there is no way to quantify these reductions in the California Emissions Estimator Model (CalEEMod). Additionally, any Transportation Demand Management (TDM) measures implemented as mitigation for transportation VMT impacts would act to generally reduce vehicle-source emissions. The efficacy of TDMs and any resulting emissions reductions would be dependent on as yet-unknown building tenants and final site plan designs. Accordingly, emissions reductions resulting from implementation of TDMs are not quantified within this analysis. Furthermore, even with implementation of MM AQ-2 through MM AQ-5 and TDMs, Project operational-source emissions impacts would be significant and unavoidable.

MM AQ-2

Legible, durable, weather-proof signs shall be placed at truck access gates, loading docks, and truck parking areas that identify applicable California Air Resources Board (CARB) anti-idling regulations. At a minimum, each sign shall include: 1) instructions for truck drivers to shut off engines when not in use; 2) instructions for drivers of diesel trucks to restrict idling to no more than five (5) minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager and the CARB to report violations. Prior to the issuance of an occupancy permit, the City of Hesperia shall conduct a site inspection to ensure that the signs are in place.

MM AQ-3

Prior to tenant occupancy, the Project Applicant or successor in interest shall provide documentation to the City of Hesperia demonstrating that occupants/tenants of the Project site have been provided documentation on funding opportunities, such as the Carl Moyer Program, that provide incentives for using cleaner-than-required engines and equipment.

MM AQ-4

The minimum number of automobile electric vehicle (EV) charging stations required by the California Code of Regulations (CCR) Title 24 shall be provided. In addition, the buildings should include an electrical infrastructure sufficiently-sized to accommodate the potential installation of additional auto and truck EV charging stations in the future.

MM AQ-5

Conduit should be installed to tractor trailer parking areas in logical locations determined by the Project Applicant during construction document plan check, for the purpose of accommodating the future installation of EV truck charging stations at such time this technology becomes commercially available.

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1 INTRODUCTION

This report presents the results of the AQIA prepared by Urban Crossroads, Inc., for the proposed Hesperia Commerce Center II (Project).

The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the MDAQMD.

1.1 SITE LOCATION

The proposed project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. The Project location is shown on Exhibit 1-A. The Project Site is generally located in an undeveloped rural area with some residential homes located to the west and south.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the following uses:

- 2,361,648 square feet (sf) of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 sf of General Light Industrial use; 1,271,656 sf within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 sf within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at the Main Street interchange. At the time this AQIA was prepared, the future tenants of the proposed Project were unknown.

The on-site Project-related emission sources are expected to include loading dock activity and entry gate & truck movements. This air study is intended to describe air quality impacts associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

EXHIBIT 1-A: LOCATION MAP

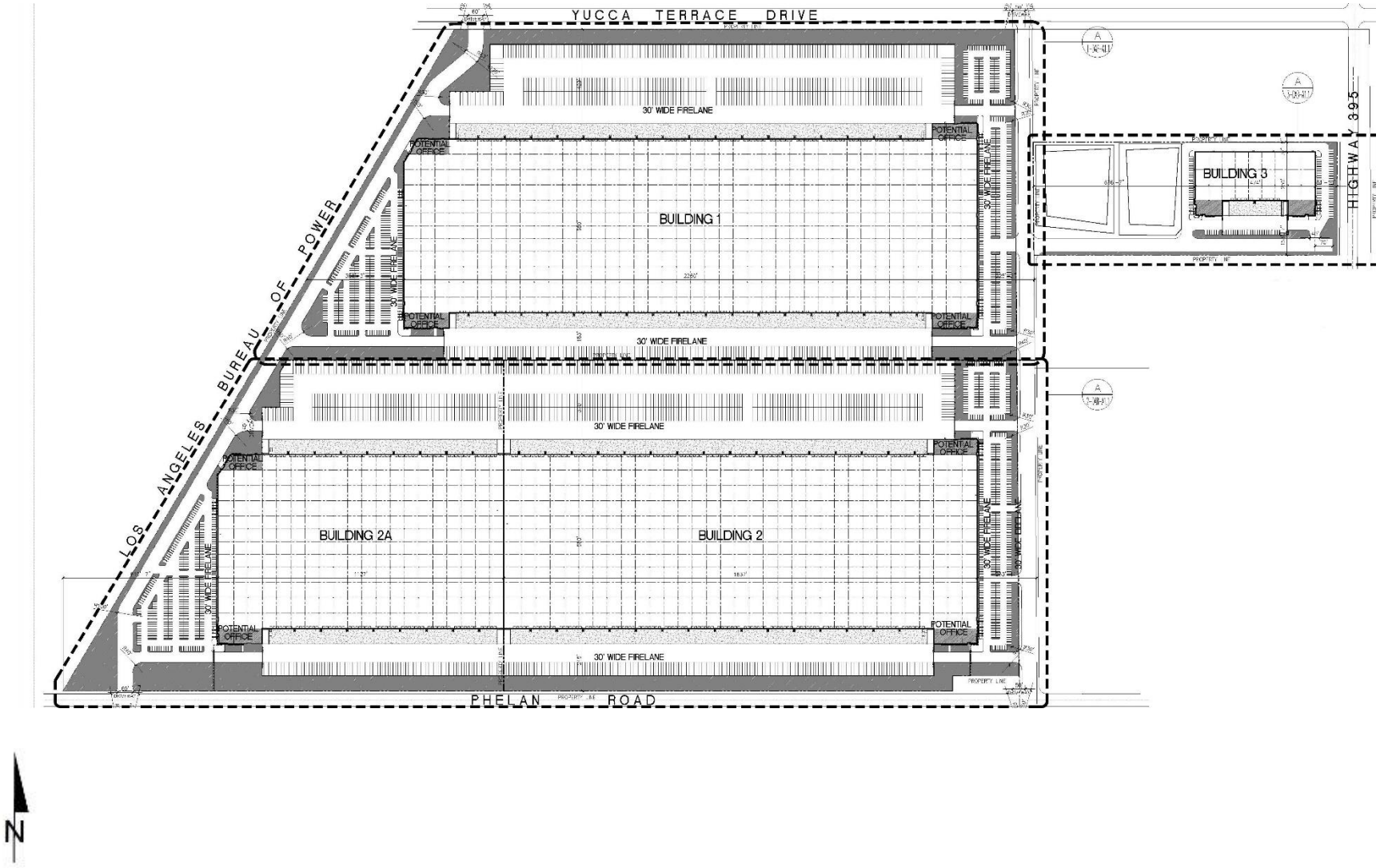


N

LEGEND:

Site Boundary

EXHIBIT 1-B: SITE PLAN



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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 MOJAVE DESERT AIR BASIN

The Project site is located in the portion of the County of San Bernardino, California, that is part of the Mojave Desert Air Basin (MDAB) and is under the jurisdiction of the MDAQMD. The air quality assessment for the proposed Project includes estimating emissions associated with short-term construction and long-term operation of the proposed Project. A number of air quality modeling tools are available to assess the air quality impacts of projects. In addition, certain air districts, such as the MDAQMD, have created guidelines and requirements to conduct air quality analyses. The MDAQMD's current guidelines, included in its *California Environmental Quality Act and Federal Conformity Guidelines* (August 2016), were adhered to in the assessment of air quality impacts for the proposed Project.

2.2 REGIONAL CLIMATE

Air quality in the Project area is not only affected by various emissions sources (mobile, industry, etc.) but is also affected by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall.

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains within the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and Central California valley regions by mountains (highest elevation is approximately 10,000 feet), whose passes form the main channels for these air masses. The Mojave Desert is bordered on the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 feet). A lesser pass lies between the San Bernardino Mountains and the Little San Bernardino Mountains in the Morongo Valley. The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley), whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer, the MDAB is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The MDAB is classified as a dry-hot desert climate, with portions classified

as dry-very hot desert, to indicate that at least three months have maximum average temperatures over 100.4° F.

Snow is common above 5,000 feet in elevation, resulting in moderate snowpack and limited spring runoff. Below 5,000 feet, any precipitation normally occurs as rainfall. Pacific storm fronts normally move into the area from the west, driven by prevailing winds from the west and southwest. During late summer, moist high-pressure systems from the Pacific collide with rising heated air from desert areas, resulting in brief, high-intensity thunderstorms that can cause high winds and localized flash flooding.

2.3 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (4):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
Carbon Monoxide (CO)	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone (O_3), motor vehicles operating at slow speeds are the primary source of CO in the MDAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia

Criteria Pollutant	Description	Sources	Health Effects
			(oxygen deficiency) as seen at high altitudes.
Sulfur Dioxide (SO_2)	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X)	Coal or oil burning power plants and industries, refineries, diesel engines	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

Criteria Pollutant	Description	Sources	Health Effects
NO_X	NO_X consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of O_3 exposure increases when animals are exposed to a combination of O_3 and NO_2.
O_3	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. O_3 concentrations are generally highest during the summer	Formed when reactive organic gases (ROG) and nitrogen oxides react in the presence of sunlight. ROG sources include any source	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for O_3 effects. Short-term exposure (lasting for a

Criteria Pollutant	Description	Sources	Health Effects
	months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated O_3 levels are associated with increased school absences. In recent years, a correlation between elevated ambient O_3 levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high O_3 levels. O_3 exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes O_3 may be more toxic than exposure to O_3 alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.
Particulate Matter	PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility	Sources of PM_{10} include road dust, windblown dust and construction. Also formed from other pollutants (acid rain, NO_X, SO_X,	A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of

Criteria Pollutant	Description	Sources	Health Effects
	(haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
Volatile Organic Compounds (VOC)	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not	Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting, cosmetic, degreasing and hobby products.	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health effects, though many have several.

Criteria Pollutant	Description	Sources	Health Effects
	form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	
Reactive Organic Gases (ROG)	Similar to VOC, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Lead is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. The major sources of lead emissions are ore and metals processing, particularly lead smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint.	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Criteria Pollutant	Description	Sources	Health Effects
	Project does not include operational activities such as metal processing or lead acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of lead emissions.		Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves.	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.4 EXISTING AIR QUALITY

Existing air quality is measured at established MDAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (5).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards were updated by CARB on May ,4 2016 and are presented in Table 2-2. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the Air District meets the standards set by the United State Environmental Protection Agency (EPA) or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS standards. In order to improve air quality in nonattainment areas, a State Implementation Plan (SIP) is drafted. The SIP outlines the measures that the state will take to improve air quality. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area (6).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards						
Pollutant	**Averaging Time**	**California Standards [1]**		**National Standards [2]**		
		Concentration [3]	**Method [4]**	**Primary [3,5]**	**Secondary [3,6]**	**Method [7]**
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (5/4/16)**

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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2.5 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, SO_2 and Pb which are known as criteria pollutants. The MDAQMD monitors levels of various criteria pollutants at 6 permanent monitoring stations throughout the air district (7). On February 20, 2019, CARB posted the 2018 amendments to the state and national area designations. See Table 2-3 for attainment designations for the MDAB and the Southeast Desert Air Basin (SDAB) (8). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the MDAB and SDAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE MDAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Attainment	Unclassifiable/Attainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the MDAB and SDAB
"-" = The national 1-hour O_3 standard was revoked effective June 15, 2005.

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for O_3 and PM_{10} was obtained from the MDAQMD Hesperia-Olive Street monitoring station, located approximately 6.69 miles east of the project site in Hesperia. Data for CO, NO_2, and $PM_{2.5}$ was obtained from the MDAQMD Victorville-Park Avenue, located approximately 7.02 miles northeast of the project site in Victorville. It should be noted that the Victorville-Park monitoring station was utilized in lieu of the Hesperia-Olive Street monitoring station only where data was not available from the nearest monitoring site.

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ was obtained using the CARB iADAM: Air Quality and Data Statistics and the Air Quality and Meteorological Information System (AQMIS) (9) (10). Data for SO_2 has been omitted as attainment is regularly met and few monitoring stations measure SO_2 concentrations. It should be noted that the table below is provided for informational purposes.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2016-2018

Pollutant	Standard	Year		
		2016	2017	2018
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.098	0.094	0.100
Maximum Federal 8-Hour Concentration (ppm)		0.119	0.114	0.113
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	70	78	73
Number of Days Exceeding State/Federal 8-Hour Standard	> 0.070 ppm	25	18	9
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	11.57	1.52	1.420
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	97.2	57.3	51.4
Annual Federal Standard Design Value		10	13	12
PM_{10}				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	203.5	163.6	138.9
Annual Federal Arithmetic Mean ($\mu g/m^3$)		25.3	26.9	27.8
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	1	2	0
Number of Days Exceeding State 24-Hour Standard	> 50 $\mu g/m^3$	9	--	--
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	41.5	27.2	32.7
Annual Federal Arithmetic Mean ($\mu g/m^3$)	> 12 $\mu g/m^3$	7.4	8.7	7.9
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	1	0	0

Source: California Air Resource Board iADAM: Air Quality Data Statistics and AQMIS
ppm = Parts Per Million
$\mu g/m^3$ – microgram per cubic meter
-- = data not available

2.7 REGULATORY BACKGROUND

2.7.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (11). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (12). The CAA also mandates that states submit and implement SIPs for local areas not meeting these

standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (13) (14). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS within the MDAB.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of NO_X which are emitted as byproducts of the combustion process.

2.7.2 CALIFORNIA REGULATIONS

CARB

CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for SO_4, visibility, hydrogen sulfide (H_2S), and vinyl chloride (C_2H_3Cl). However, at this time, H_2S and C_2H_3Cl are not measured at any monitoring stations in the MDAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (15) (11).

Local air quality management districts, such as the MDAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare Air Quality Management Plans (AQMP) that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;

- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a 5% or more annual reduction in emissions or 15% or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than 5% per year under certain circumstances.

TITLE 24 ENERGY EFFICIENCY STANDARDS AND CALIFORNIA GREEN BUILDING STANDARDS

CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that will be effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65% diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2020.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the MDAB and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) will use approximately 30% less energy due to lighting upgrade requirements (16).

Because the Project will be constructed after January 1,2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (17):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building

or within an addition that is project to consume more than 1,000 gallons per day (5.303.1.1 and 5.303.1.2).

- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.7.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the MDAB. The NAAQS, the Project region within the MDAB is in nonattainment for O_3 (8-hour) and PM_{10}. For the CAAQS, the Project region within the MDAB is in nonattainment for O_3 (1-hour and 8-hour) and PM_{10}. In response, the MDAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards (18). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.7.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the MDAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the *State CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (1):

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard.
- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The MDAQMD has developed regional significance thresholds for regulated pollutants, shown below in Table 3-1. The MDAQMD's *Guidelines* indicate that any projects in the MDAB with daily regional emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact (19).

TABLE 3-1: MAXIMUM REGIONAL DAILY EMISSIONS THRESHOLDS

Pollutant	Daily Threshold (lbs/day)
CO	548 lbs/day
NO_X	137 lbs/day
VOC	137 lbs/day
SO_X	137 lbs/day
PM_{10}	82 lbs/day
$PM_{2.5}$	65 lbs/day

Note: lbs/day – pounds per day

3.3 MODELS EMPLOYED TO ANALYZE AIR QUALITY EMISSIONS

Land uses such as the Project affect GHGs through construction-source and operational-source emissions.

3.3.1 CALEEMOD

On October 17, 2017, the South Coast Air Quality Management District (SCAQMD) in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the CalEEMod Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOC, NO_X, CO, SO_X, PM_{10}, $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from MMs (20). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendices 3.1 and 3.4.

3.3.2 EMISSION FACTORS MODEL

The EMissions FACtor model (EMFAC) is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by CARB to project changes in future emissions from on-road mobile sources (21).

The latest version of CalEEMod uses vehicle emission rates obtained from the EMFAC 2014 web database. EMFAC2014 emission rates of all vehicle categories are based on aggregated model year and aggregated speed for all counties, air basins, air districts and statewide average for thirty one (31) scenario years that each includes three seasons (annual, summer, and winter). It should be noted that emission rates for CH_4 were provided by CARB directly as they were not included in EMFAC2014 (3).

Although CalEEMod Version 2016.3.2 includes EMFAC2014 mobile source emission factors, the EPA approved the 2017 version of the EMFAC web database on August 19, 2019, for use in SIP and transportation conformity analyses. This AQIA utilizes summer, winter, and annual EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season.

Because the EMFAC2017 emission rates are associated with vehicle fuel types while CalEEMod vehicle emission factors are aggregated to include all fuel types for each individual vehicle class, the EMFAC2017 emission rates for different fuel types of a vehicle class are averaged by activity or by population and activity to derive CalEEMod emission factors. Methodology for converting EMFAC2017 emission rates into CalEEMod vehicle emission factors for each emission type are detailed in CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* (3). EMFAC2017 emission rates utilized in this analysis can be found in Appendix 3.5 of this report.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating
- Construction Workers Commuting

GRADING ACTIVITIES

Dust is typically a major concern during grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. Based on consultation with the client, the Project site has been designed to balance (will not require import/export of soil).

CONSTRUCTION WORKER VEHICLE TRIPS

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod defaults.

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in January 2021 and will last through November 2021. Construction duration by phase is shown on Table 3-2. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[3] The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines*. The duration of construction activity was based on the 2021 opening year.

[3] As shown in the CalEEMod User's Guide Version 2016.3.2, Section 4.3"OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

3.4.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The associated construction equipment was generally based on CalEEMod defaults. A detailed summary of construction equipment assumptions by phase is provided at Table 3-3. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this analysis.

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	01/04/2021	01/29/2021	20
Grading	01/30/2021	03/12/2021	30
Building Construction	03/13/2021	11/19/2021	180
Paving	07/03/2021	11/19/2021	100
Architectural Coating	04/24/2021	11/19/2021	150

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Number	Hours Per Day
Site Preparation	Rubber Tired Dozers	3	8
	Tractors/Loaders/Backhoes	4	8
Grading	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.3 CONSTRUCTION EMISSIONS SUMMARY

IMPACTS WITHOUT MITIGATION

CalEEMod calculates maximum daily emissions for summer and winter periods. As such, the estimated maximum daily construction emissions without mitigation for both summer and winter periods are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would exceed criteria pollutant thresholds established by the MDAQMD for emissions VOC.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION – WITHOUT MITIGATION

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2021	144.81	126.72	144.41	0.48	41.47	14.14
Winter						
2021	144.71	126.37	133.29	0.46	41.47	14.14
Maximum Daily Emissions	**144.81**	**126.72**	**144.41**	**0.48**	**41.47**	**14.14**
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	**YES**	**NO**	**NO**	**NO**	**NO**	**NO**

IMPACTS WITH MITIGATION

The estimated maximum daily construction emissions with mitigation are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.2. MM AQ-1 is recommended to reduce the impacts. As stated in Section ES.3, MM AQ-1 requires that The Project shall utilize "Super-Compliant" low VOC paints which have been reformulated to exceed the regulatory VOC limits put forth by MDAQMD's Rule 1113. Super-Compliant low VOC paints shall be no more than 10 g/L of VOC. Alternatively, the Project Applicant may utilize tilt-up concrete buildings that do not require the use of architectural coatings. After implementation of MM AQ-1, regional construction emissions would not exceed the applicable MDAQMD thresholds of significance for any criteria pollutant. Therefore, a less than significant impact would occur.

TABLE 3-5: EMISSIONS SUMMARY OF CONSTRUCTION – WITH MITIGATION

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2021	52.23	126.72	144.41	0.48	41.47	14.14
Winter						
2021	52.12	126.37	133.29	0.46	41.47	14.14
Maximum Daily Emissions	**52.23**	**126.72**	**144.41**	**0.48**	**41.47**	**14.14**
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOCs, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- On-site Equipment Emissions

3.5.1 AREA SOURCE EMISSIONS

ARCHITECTURAL COATINGS

Over a period of time the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using CalEEMod default parameters.

CONSUMER PRODUCTS

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form O_3 and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on assumptions provided in CalEEMod. In the case of the commercial uses proposed by the Project, no substantive on-site use of consumer products is anticipated.

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the

landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

3.5.2 ENERGY SOURCE EMISSIONS

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (Regional Clean Air Incentives Market Program (RECLAIM)) for generation within the MDAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using CalEEMod default parameters.

TITLE 24 ENERGY EFFICIENCY STANDARDS

California's Energy Efficiency Standards for Residential and Nonresidential Buildings was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity. The 2019 Title 24 was adopted by the CEC and became effective on January 1, 2020. The CEC anticipates that nonresidential buildings will use approximately 30% less energy (16). The CalEEMod defaults for Title 24 – Electricity and Lighting Energy were reduced by 30% in order to reflect consistency with the 2019 Title 24 standard.

3.5.3 MOBILE SOURCE EMISSIONS

VEHICLES

Project-related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Hesperia Commerce Center II Traffic Impact Analysis* (Urban Crossroads, Inc.) (TIA) were utilized in this analysis (22).

3.5.3.1 APPROACH FOR ANALYSIS OF THE PROJECT

Two separate model runs were utilized for cars and trucks for each Project scenario in order to more accurately model emissions resulting from passenger car and truck operations.

PASSENGER CARS

The first run analyzed passenger car emissions, incorporated the CalEEMod default trip length of 9.50 miles for passenger cars and an assumption of 100% primary trips. It is important to note that although the TIA does not breakdown passenger cars by type, this analysis assumes that passenger cars include Light-Duty-Auto vehicles (LDA), Light-Duty-Trucks (LDT1[4] & LDT2[5]), and

[4] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[5] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

Medium-Duty-Vehicles (MDV) vehicle types. In order to account for emissions generated by passenger cars, the fleet mix presented in Table 3-6 was utilized in this analysis.

TABLE 3-6: PASSENGER CAR FLEET MIX[6]

Land Use	Vehicle Type	%
High-Cube Fulfillment Center Warehouse/ General Light Industrial	LDA	62.06
	LDT1	4.19
	LDT2	20.27
	MDV	13.48

TRUCKS

The second run analyzed truck emissions, incorporated a truck trip length of 40 miles[7] and an assumption of 100% primary trips. In order to be consistent with the TIA, trucks are broken down by truck type. The trucks are comprised of 2-axle/Light-Heavy-Duty Trucks (LHDT), 3-axle/Medium-Heavy-Duty Trucks (MHDT), and 4+-axle/Heavy-Heavy-Duty Trucks (HHDT). In order to account for emissions generated by trucks, the fleet mix presented in Table 3-6 was utilized in this analysis.

It should be noted that the TIA identifies two different truck categories for the high-cube fulfillment center warehouse use, 2-4-axle and 5+-axle trucks. CalEEMod categorizes trucks by truck type, not by axle-type. In order to account for emissions from LHDT, MHDT, and HHDT trucks, the analysis herein assumed that 25% of the 2-4 axle trucks are LHDT, 25% are MHDT, and the remaining 50% are HHDT.

TABLE 3-7: TRUCK FLEET MIX[8]

Land use	Vehicle Type	%
High-Cube Fulfillment Center Warehouse	LHDT	10.71
	MHDT	10.71
	HHDT	78.57
General Light Industrial	LHDT	37.36
	MHDT	18.21
	HHDT	44.43

[6] The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the CalEEMod default percentage assigned to LDA, LDT1, LDT2, and MDV vehicle types.

[7] The average trip length for heavy trucks were based on the SCAQMD documents for the implementation of the Facility Based Mobile Source Measures (FBMSMs) adopted in the 2016 AQMP. SCAQMD's "Preliminary Warehouse Emission Calculations" cites 39.9-mile trip length for heavy-heavy trucks (41). As a conservative measure, a trip length of 40 miles has been utilized for all trucks for the purpose of this analysis.

[8] Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT, MHDT, HHDT) relative to the total number of truck trips generated by the Project.

FUGITIVE DUST RELATED TO VEHICULAR TRAVEL

Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of break and tire wear particulates. The emissions estimates for travel on paved roads were calculated using CalEEMod.

3.5.4 ON-SITE EQUIPMENT EMISSIONS

It is common for industrial buildings to require cargo handling equipment to move empty containers and empty chassis to and from the various pieces of cargo handling equipment that receive and distribute containers. The most common type of cargo handling equipment is the yard truck which is designed for moving cargo containers. Yard trucks are also known as yard goats, utility tractors (UTRs), hustlers, yard hostlers, and yard tractors. The cargo handling equipment is assumed to have a horsepower (hp) range of approximately 175 hp to 200 hp. For this particular Project, based on the maximum square footage of building space permitted by the Project, on-site modeled operational equipment includes a total fifteen (15) 200 hp, electric-powered yard tractors operating at 4 hours a day for 365 days of the year.

3.5.4 OPERATIONAL EMISSIONS SUMMARY

As previously stated, CalEEMod utilizes summer and winter EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season. As such, operational activities for summer and winter scenarios are presented in Table 3-8. Detailed operational model outputs are presented in Appendices 3.3 and 3.4. The Project would exceed the numerical thresholds of significance established by the MDAQMD for emissions of VOC, NO_X, and PM_{10}.

It is important to note that the majority of VOC emissions are derived from consumer products. For analytical purposes, consumer products include cleaning supplies, aerosols, and other consumer products (3). As such, the Project Applicant cannot meaningfully control the use of consumer products by future building users via mitigation. On this basis, it is concluded that Project operational-source VOC emissions cannot be definitively reduced below applicable SCQMD thresholds.

Additionally, it should be noted that the majority of the Project's NO_X and PM_{10} emissions are derived from vehicle usage. MMs AQ-2 through MM AQ-5 are designed to reduce the operational NO_X emissions but will not be sufficient enough to reduce the NO_X emissions to less than the significant impacts. Since neither the Project Applicant nor the City have regulatory authority to control tailpipe emissions, no feasible MMs exist that would reduce NO_X emissions to levels that are less-than-significant, thus NO_X emissions are considered significant and unavoidable.

TABLE 3-8: SUMMARY OF PEAK OPERATIONAL EMISSIONS

Source	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Summer						
Area Source	106.61	8.90E-03	0.97	7.00E-05	3.47E-03	3.47E-03
Energy Source	1.24	11.27	9.47	0.07	0.86	0.86
Mobile Source (Passenger Cars)	29.19	19.60	263.15	0.67	69.12	18.55
Mobile Sources (Trucks)	17.48	493.85	153.68	2.25	92.81	32.13
On-Site Equipment Sources	2.05	23.19	11.61	0.05	0.78	0.72
Total Maximum Daily Emissions	**156.56**	**547.92**	**438.87**	**3.03**	**163.58**	**52.26**
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	**YES**	**YES**	**NO**	**NO**	**YES**	**NO**
Source	**Emissions (lbs/day)**					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Winter						
Area Source	106.61	8.90E-03	0.97	7.00E-05	3.47E-03	3.47E-03
Energy Source	1.24	11.27	9.47	0.07	0.86	0.86
Mobile Source (Passenger Cars)	25.69	20.32	213.62	0.60	69.12	18.55
Mobile Sources (Trucks)	17.21	519.49	153.30	2.25	92.82	32.13
On-Site Equipment Sources	2.05	23.19	11.61	0.05	0.78	0.72
Total Maximum Daily Emissions	**152.79**	**574.28**	**388.97**	**2.96**	**163.58**	**52.26**
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	**YES**	**YES**	**NO**	**NO**	**YES**	**NO**

3.6 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific CO "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the MDAB was designated nonattainment under the CAAQS and NAAQS for CO (23).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in

California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the MDAB is now designated as attainment.

To establish a more accurate record of baseline CO concentrations affecting the MDAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-9.

TABLE 3-9: CO MODEL RESULTS

Intersection Location	CO Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire Boulevard/Veteran Avenue	4.6	3.5	3.7
Sunset Boulevard/Highland Avenue	4	4.5	3.5
La Cienega Boulevard/Century Boulevard	3.7	3.1	5.2
Long Beach Boulevard/Imperial Highway	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

As identified within SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak CO concentrations in the MDAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 9.3 ppm 8-hour CO concentration measured at the Long Beach Boulevard and Imperial Highway intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 8.6 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (24).

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour (vph) —or 24,000 vph where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (25).

Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 3-10. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day and AM/PM traffic volumes of 8,062 vph and 7,719 vph respectively (26). The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4

ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[9] As shown on Exhibit 7-1 of the TIA, the highest average daily trips on a segment of road would be 61,500 daily trips on Interstate 15 Northbound Ramps and Main Street, which is lower than the highest daily traffic volumes at Wilshire Blvd. and Veteran Ave. of 100,000 vehicles per day (22). Additionally, the 2003 AQMP determined that the highest traffic volumes on a segment of road is 8,674 vph on La Cienega Boulevard and Century Boulevard. As shown on Table 3-11 the highest trips on a segment of road for the Project is 8,772 vph on US Highway 395 & Phelan Road and Main Street. As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP. The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-10: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire Boulevard/Veteran Avenue	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset Boulevard/Highland Avenue	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega Boulevard/Century Boulevard	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach Boulevard/Imperial Highway	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Source: 2003 AQMP

TABLE 3-11: PROJECT PEAK TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
US Highway 395 & Phelan Road/ Main Street	1,834/3,106	2,739/2,451	1,351/1,708	1,877/1,508	7,801/8,772
Key Point Avenue/ Main Street	141/466	585/416	1,445/2,331	2,538/2,649	4,708/5,862
I-15 Northbound Ramps/ Main Street	1,180/1,518	0/0	1,425/2,508	2,497/2,424	5,103/6,450
Mariposa Road/ Main Street	209/421	360/530	1,972/3,462	2,250/2,211	4,791/6,624

Source: *Hesperia West Traffic Impact Analysis* (Urban Crossroads, Inc.)

[9] Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

3.7 AQMP

The Federal Particulate Matter Attainment Plan and Ozone Attainment Plan for the Mojave Desert set forth a comprehensive set of programs that will lead the MDAB into compliance with federal and state air quality standards. The control measures and related emission reduction estimates within the Federal Particulate Matter Attainment Plan and Ozone Attainment Plan are based upon emissions projections for a future development scenario derived from land use, population, and employment characteristics defined in consultation with local governments. Accordingly, conformance with these attainment plans for development projects is determined by demonstrating compliance the indicators discussed below:

3.7.1 CONSISTENCY CRITERION NO. 1

Local land use plans and/or population projections

The Project site is located within the Main Street and Freeway Corridor Specific Plan and is designated for Commercial/Industrial Business Park (CIBP) uses. The CIBP designation is intended to provide for service commercial, light industrial, light manufacturing, and industrial support uses, mainly conducted in enclosed buildings, which will produce only a small environmental impact, such as noise, vibration, air pollution, glare or waste disposal (27). The Project Applicant proposes land uses that are consistent with development anticipated under the site's existing General Plan designation. The Project would therefore conform to local land use plans.

3.7.4 CONSISTENCY CRITERION NO. 2

All MDAQMD Rules and Regulations

The Project would be required to comply with all applicable MDAQMD Rules and Regulations, including, but not limited to Rules 401 (Visibile Emissions), 402 (Nuisance), and 403 (Fugitive Dust). As previously stated in Section ES.2 of this AQIA, the Project would implement BCAM AQ-1 (MDAQMD Rule 1113 for flat coatings).

3.7.3 CONSISTENCY CRITERION NO. 3

Demonstrating that the project will not increase the frequency or severity of a violation in the federal or state ambient air quality standards

As substantiated herein, Project construction-source emissions would not exceed applicable MDAQMD regional thresholds after implementation of MM AQ-1. However, as presented in the preceding analysis, Project operational-source air pollutant emissions would result in exceedances of regional thresholds for emissions of VOC, NO_X, and PM_{10}. As previously stated, the majority of VOC emissions are derived from consumer products. For analytical purposes, consumer products include cleaning supplies, aerosols, and other consumer products (3). As such, the Project Applicant cannot meaningfully control the use of consumer products by future building users via mitigation. On this basis, it is concluded that Project operational-source VOC emissions cannot be definitively reduced below applicable SCQMD thresholds.

Additionally, it should be noted that the majority of the Project's NO_X and PM_{10} emissions are derived from vehicle usage. Since neither the Project Applicant nor the City of Hesperia have regulatory authority to control tailpipe emissions, no feasible MMs exist that would reduce these emissions to levels that are less-than-significant.

As such, VOC, NO_X, and PM_{10}emissions are considered significant and unavoidable and the Project would have the potential to increase the frequency or severity of a violation in the federal or state ambient air quality for on-going project operations.

AQMP CONSISTENCY CONCLUSION

The Project would conform to local land use plans. The Project would comply with all applicable all MDAQMD Rules and Regulations. Project operational-source emissions have the potential to increase the frequency or severity of a violation in the federal or state ambient air quality standards. On this basis, the Project is considered to potentially conflict with the Federal Particulate Matter Attainment Plan and Ozone Attainment Plan for the Mojave Desert. The potential for the Project to conflict with an applicable AQMP is therefore considered significant and unavoidable.

3.8 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

As per the MDAQMD's *Guidelines*, the following project types located within a specified distance to an existing or planned sensitive receptor land use must be evaluated to determine exposure of substantial pollutant concentrations to sensitive receptors (19):

- Any industrial project within 1,000 feet;
- A distribution center (40 or more trucks per day) within 1,000 feet;
- A major transportation project (50,000 or more vehicles per day) within 1,000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

As the proposed Project consists of 2,361,648 sf of High-Cube Fulfillment Center use and 1,383,781 sf of General Light Industrial use, the potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, childcare centers, and athletic facilities can also be considered as sensitive receptors.

Receptors in the Project study area are described below and shown on Exhibit 3-A. Consistent with the *Hesperia Commerce Center II Noise Impact Analysis,* prepared by Urban Crossroads, Inc., all distances are measured from the Project sites boundary to the outdoor living areas (e.g., backyards) or at the building façade, whichever is closer to the Project sites. The selection of receptor locations is based on Federal Highway Administration (FHWA) guidelines and is consistent with additional guidance provided by Caltrans and the Federal Transit Administration (FTA) (28). Distance is measured in a straight line from the project boundary to each receptor location.

R1: Location R1 represents the existing residence at 10120 Fremontia Road, approximately 662 feet northwest of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R1 is placed at the residential building façade.

R2: Location R2 represents the sensitive residence at 10368 US-395 approximately 2,010 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R2 is placed at the residential building façade.

R3: Location R3 represents the existing West Main Villas apartments at 9800 Mesa Linda Street, approximately 2,165 feet southeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R3 is placed at the residential building façade.

R4: Location R4 represents the sensitive residence at 11345 Phelan Road, approximately 217 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receptor R4 is placed at the residential building façade.

R5: Location R5 represents the sensitive residence at 9883 Monta Vista, approximately 745 feet west of the Project site. R5 is placed at the private outdoor living area (backyard) facing the Project site.

R6: Location R6 represents the sensitive residence at 9993 Monta Vista, approximately 1,226 feet west of the Project site. R5 is placed at the private outdoor living area (backyard) facing the Project site.

Based on Exhibit 3-A, and as described above, the nearest sensitive receptor is a residence at 11345 Phelan Road, approximately 217 feet south of the Project site.

The Project would have a significant impact if it results in a maximum incremental cancer risk from emission of diesel particulate matter of ≥ 10 in one million and/or a chronic & acute hazard index that is ≥1.0.

For purposes of this evaluation, a Health Risk Assessment (HRA) has been prepared by Urban Crossroads, Inc. under a separate cover. The results of the *Hesperia Commerce Center II Mobile Source Health Risk Assessment* (Urban Crossroads, Inc.) indicate that the Project would not result in any significant health risk impacts from exposure to TACs resulting from the Project (29).

EXHIBIT 3-A: SENSITIVE RECEPTOR LOCATIONS



3.9 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not propose or require land uses that would be substantive sources of objectionable odors. Potential temporary and intermittent odors may result from construction equipment exhaust, the application of asphalt and architectural coatings, Temporary and intermittent construction-source emissions are controlled through existing requirements and industry Best Management Practices (BMPs) addressing proper storage of and application construction materials.

Over the life of the Project, odors may result from storage of municipal solid waste pending its transport to area landfills. . Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City of Hesperia's solid waste regulations.

The proposed Project would also be required to comply with MDAQMD Rule 402. Rule 402 provides that "[a] person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." (30). Based on the preceding, the potential for the Project to create objectionable odors affecting a substantial number of people is considered less-than-significant.

3.10 CUMULATIVE IMPACTS

The MDAQMD relies on the SCAQMD guidance for determining cumulative impacts. The SCAQMD has recognized that there is typically insufficient information to quantitatively evaluate the cumulative contributions of multiple projects because each project applicant has no control over nearby projects.

The SCAQMD published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (31). In this report the SCAQMD clearly states (Page D-3):

> *"…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."*

Individual projects that do not generate operational or construction emissions that exceed the MDAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the MDAB is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. As previously noted, the Project construction-source would not exceed applicable MDAQMD regional thresholds. However, as presented in the preceding analysis, Project operational-source air pollutant emissions would result in exceedances of regional thresholds for emissions of VOC, NO_X, and PM_{10}. As previously stated, the majority of VOC emissions are derived from consumer products. For analytical purposes, consumer products include cleaning supplies, aerosols, and other consumer products (3). As such, the Project Applicant cannot meaningfully control the use of consumer products by future building users via mitigation. On this basis, it is concluded that Project operational-source VOC emissions cannot be definitively reduced below applicable SCQMD thresholds.

Additionally, it should be noted that the majority of the Project's NO_X and PM_{10} emissions are derived from vehicle usage. Since neither the Project Applicant nor the City of Hesperia have regulatory authority to control tailpipe emissions, no feasible MMs exist that would reduce these emissions to levels that are less-than-significant. As such, Project operational-source VOC, NO_X, and PM_{10} emissions exceedances of applicable MDAQMD regional thresholds are considered significant and unavoidable.

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5 CERTIFICATIONS

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Hesperia Commerce Center II Project. The information contained in this air quality impact assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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Master of Science in Environmental Studies
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PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.070 ppm (137 µg/m³)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[9]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[10]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[11]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[11]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[11]	—	
Lead[12,13]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	**No National Standards**		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1


2018
Area Designations for State
Ambient Air Quality Standards
OZONE
N
0
50
100
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Humboldt
Trinity
Tehema
SACRAMENTO VALLEY
SUTTER BUTTES
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
El Dorado
Yolo
Alpine
Sonoma
Napa
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
San Francisco
Alameda
Mariposa
GREAT BASIN VALLEYS
San Mateo
Stanislaus
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
MOJAVE DESERT
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment-Transitional
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 1

California Ambient Air Quality Standards
Area Designations for Ozone [1]

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTHEAST PLATEAU AIR BASIN				X
Alpine County			X		SACRAMENTO VALLEY AIR BASIN				
Inyo County	X				Colusa and Glenn Counties				X
Mono County	X				Sutter/Yuba Counties				
LAKE COUNTY AIR BASIN				X	Sutter Buttes	X			
LAKE TAHOE AIR BASIN				X	Remainder of Sutter County				X
MOJAVE DESERT AIR BASIN	X				Yuba County				X
MOUNTAIN COUNTIES AIR BASIN					Yolo/Solano Counties		X		
Amador County	X				Remainder of Air Basin	X			
Calaveras County	X				SALTON SEA AIR BASIN	X			
El Dorado County (portion)	X				SAN DIEGO AIR BASIN	X			
Mariposa County	X				SAN FRANCISCO BAY AREA AIR BASIN	X			
Nevada County	X				SAN JOAQUIN VALLEY AIR BASIN	X			
Placer County (portion)	X				SOUTH CENTRAL COAST AIR BASIN				
Plumas County			X		San Luis Obispo County	X			
Sierra County			X		Santa Barbara County		X		
Tuolumne County	X				Ventura County	X			
NORTH CENTRAL COAST AIR BASIN		X			SOUTH COAST AIR BASIN	X			
NORTH COAST AIR BASIN				X					

(1) AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2

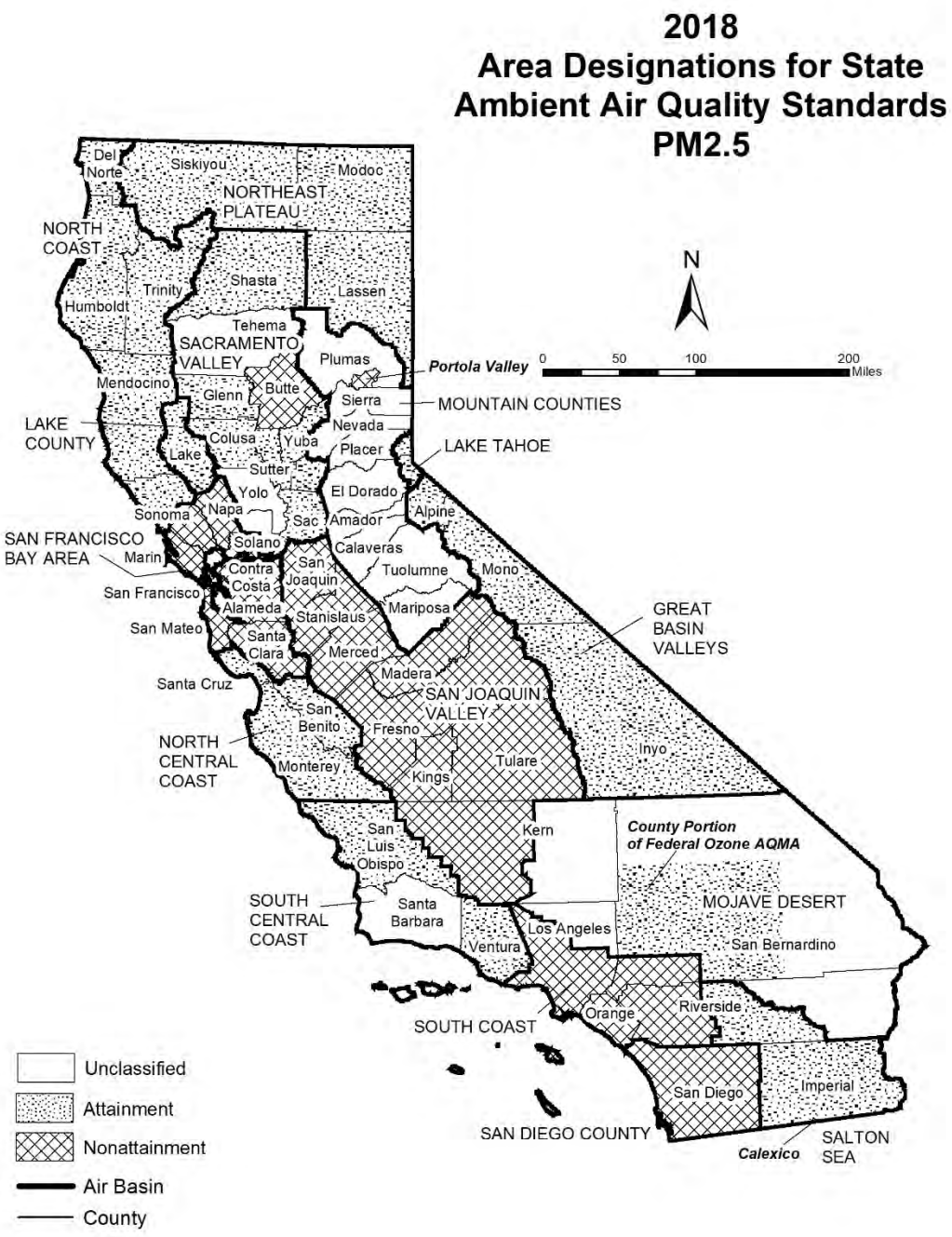

2018
Area Designations for State
Ambient Air Quality Standards
PM10
N
0
50
100
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Colusa
Yuba
Nevada
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
Yosemite NP
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Monterey
Tulare
Inyo
Kings
San Luis Obispo
Kern
MOJAVE DESERT
Santa Barbara
Los Angeles
San Bernardino
SOUTH CENTRAL COAST
Ventura
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM10)

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN	X			NORTH CENTRAL COAST AIR BASIN	X		
LAKE COUNTY AIR BASIN			X	NORTH COAST AIR BASIN			
LAKE TAHOE AIR BASIN	X			Del Norte, Sonoma (portion) and Trinity Counties			X
MOJAVE DESERT AIR BASIN	X			Remainder of Air Basin	X		
MOUNTAIN COUNTIES AIR BASIN				NORTHEAST PLATEAU AIR BASIN			
Amador County		X		Siskiyou County			X
Calaveras County	X			Remainder of Air Basin		X	
El Dorado County (portion)	X			SACRAMENTO VALLEY AIR BASIN			
Mariposa County				Shasta County			X
- Yosemite National Park	X			Remainder of Air Basin	X		
- Remainder of County		X		SALTON SEA AIR BASIN	X		
Nevada County	X			SAN DIEGO AIR BASIN	X		
Placer County (portion)	X			SAN FRANCISCO BAY AREA AIR BASIN	X		
Plumas County	X			SAN JOAQUIN VALLEY AIR BASIN	X		
Sierra County	X			SOUTH CENTRAL COAST AIR BASIN	X		
Tuolumne County		X		SOUTH COAST AIR BASIN	X		

FIGURE 3



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)

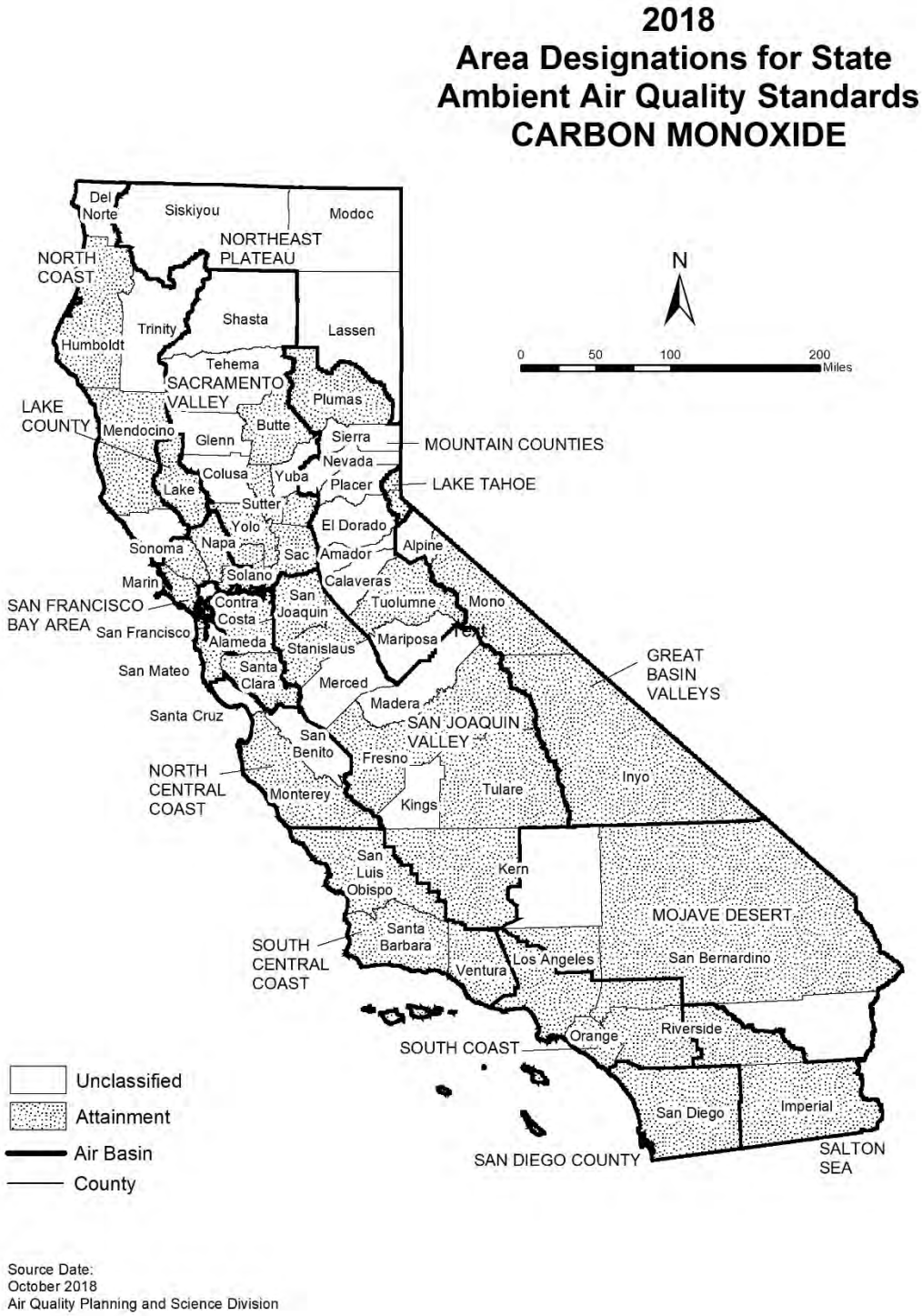
	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			
LAKE COUNTY AIR BASIN			X	Imperial County			
LAKE TAHOE AIR BASIN			X	- City of Calexico (3)	X		
MOJAVE DESERT AIR BASIN				Remainder of Air Basin			X
San Bernardino County				SAN DIEGO AIR BASIN	X		
- County portion of federal Southeast Desert Modified AQMA for Ozone (1)			X	SAN FRANCISCO BAY AREA AIR BASIN	X		
				SAN JOAQUIN VALLEY AIR BASIN	X		
Remainder of Air Basin		X		SOUTH CENTRAL COAST AIR BASIN			
MOUNTAIN COUNTIES AIR BASIN				San Luis Obispo County			X
Plumas County				Santa Barbara County		X	
- Portola Valley (2)	X			Ventura County			X
Remainder of Air Basin		X		SOUTH COAST AIR BASIN	X		
NORTH CENTRAL COAST AIR BASIN			X				
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN							
Butte County	X						
Colusa County			X				
Glenn County			X				
Placer County (portion)			X				
Sacramento County			X				
Shasta County			X				
Sutter and Yuba Counties			X				
Remainder of Air Basin		X					

(1) California Code of Regulations, title 17, section 60200(b)

(2) California Code of Regulations, title 17, section 60200(c)

(3) California Code of Regulations, title 17, section 60200(a)

FIGURE 4



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					SACRAMENTO VALLEY AIR BASIN				
Alpine County			X		Butte County				X
Inyo County				X	Colusa County			X	
Mono County				X	Glenn County			X	
LAKE COUNTY AIR BASIN				X	Placer County (portion)				X
LAKE TAHOE AIR BASIN				X	Sacramento County				X
MOJAVE DESERT AIR BASIN					Shasta County			X	
Kern County (portion)			X		Solano County (portion)				X
Los Angeles County (portion)				X	Sutter County				X
Riverside County (portion)			X		Tehama County			X	
San Bernardino County (portion)				X	Yolo County				X
MOUNTAIN COUNTIES AIR BASIN					Yuba County			X	
Amador County			X		SALTON SEA AIR BASIN				X
Calaveras County			X		SAN DIEGO AIR BASIN				X
El Dorado County (portion)			X		SAN FRANCISCO BAY AREA AIR BASIN				X
Mariposa County			X		SAN JOAQUIN VALLEY AIR BASIN				
Nevada County			X		Fresno County				X
Placer County (portion)			X		Kern County (portion)				X
Plumas County				X	Kings County			X	
Sierra County			X		Madera County			X	
Tuolumne County				X	Merced County			X	
NORTH CENTRAL COAST AIR BASIN					San Joaquin County				X
Monterey County				X	Stanislaus County				X
San Benito County			X		Tulare County				X
Santa Cruz County			X		SOUTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN					SOUTH COAST AIR BASIN				X
Del Norte County			X						
Humboldt County				X					
Mendocino County				X					
Sonoma County (portion)			X						
Trinity County			X						
NORTHEAST PLATEAU AIR BASIN			X						

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 5

California Ambient Air Quality Standards
Area Designation for Nitrogen Dioxide

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			
NORTHEAST PLATEAU AIR BASIN			X	CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
				Remainder of Air Basin			X

FIGURE 6



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SALTON SEA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN DIEGO AIR BASIN		X
MOJAVE DESERT AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X			

* The area designated for sulfur dioxide is a county or portion of a county

FIGURE 7



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 8



Source Date:
October 2018
Air Quality Planning and Science Division

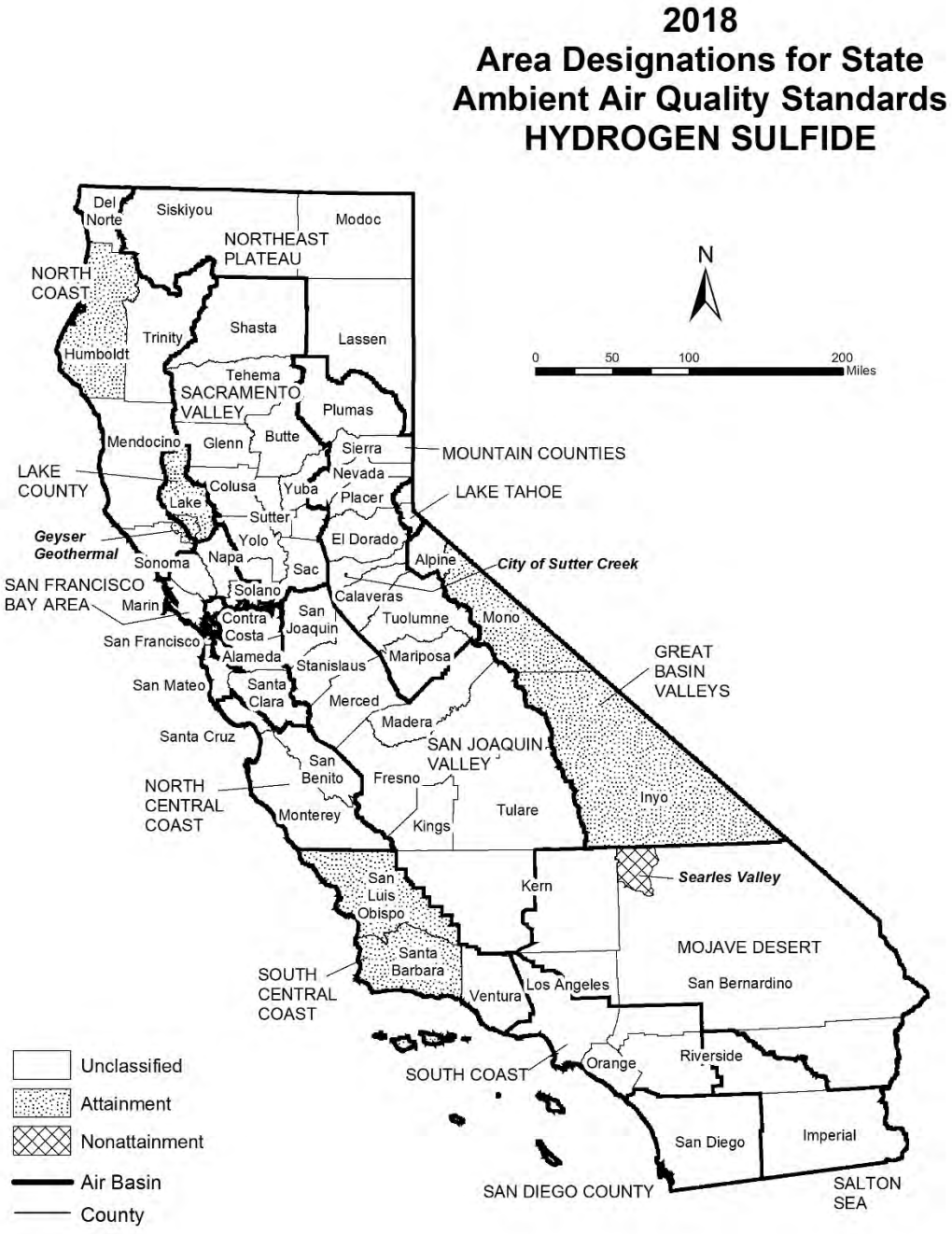
TABLE 8

California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SAN DIEGO AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN			X				

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH CENTRAL COAST AIR BASIN			X	
Alpine County			X		NORTH COAST AIR BASIN				
Inyo County				X	Del Norte County			X	
Mono County				X	Humboldt County				X
LAKE COUNTY AIR BASIN				X	Mendocino County			X	
LAKE TAHOE AIR BASIN			X		Sonoma County (portion)				
MOJAVE DESERT AIR BASIN					- Geyser Geothermal Area (2)				X
Kern County (portion)			X		- Remainder of County			X	
Los Angeles County (portion)			X		Trinity County			X	
Riverside County (portion)			X		NORTHEAST PLATEAU AIR BASIN			X	
San Bernardino County (portion)					SACRAMENTO VALLEY AIR BASIN			X	
- Searles Valley Planning Area (1)	X				SALTON SEA AIR BASIN			X	
- Remainder of County			X		SAN DIEGO AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN					SAN FRANCISCO BAY AREA AIR BASIN			X	
Amador County					SAN JOAQUIN VALLEY AIR BASIN			X	
- City of Sutter Creek	X				SOUTH CENTRAL COAST AIR BASIN				
- Remainder of County			X		San Luis Obispo County				X
Calaveras County			X		Santa Barbara County				X
El Dorado County (portion)			X		Ventura County			X	
Mariposa County			X		SOUTH COAST AIR BASIN			X	
Nevada County			X						
Placer County (portion)			X						
Plumas County			X						
Sierra County			X						
Tuolumne County			X						

* The area designated for hydrogen sulfide is a county or portion of a county

(1) 52 Federal Register 29384 (August 7, 1987)

(2) California Code of Regulations, title 17, section 60200(d)

FIGURE 10



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X		SACRAMENTO VALLEY AIR BASIN			X	
LAKE COUNTY AIR BASIN				X	SALTON SEA AIR BASIN			X	
LAKE TAHOE AIR BASIN			X		SAN DIEGO AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X		SAN FRANCISCO BAY AREA AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X		SAN JOAQUIN VALLEY AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X		SOUTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X		SOUTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X						

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment
- Nonattainment
- Unclassifiable

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment
- Unclassifiable/Attainment

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Original designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 $\mu g/m^3$. New area designations reflecting this revised standard became final in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 $\mu g/m^3$ as well as the 24-hour standard of 35 $\mu g/m^3$, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment,
- Unclassifiable, and
- Attainment/Unclassifiable.

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual

average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11

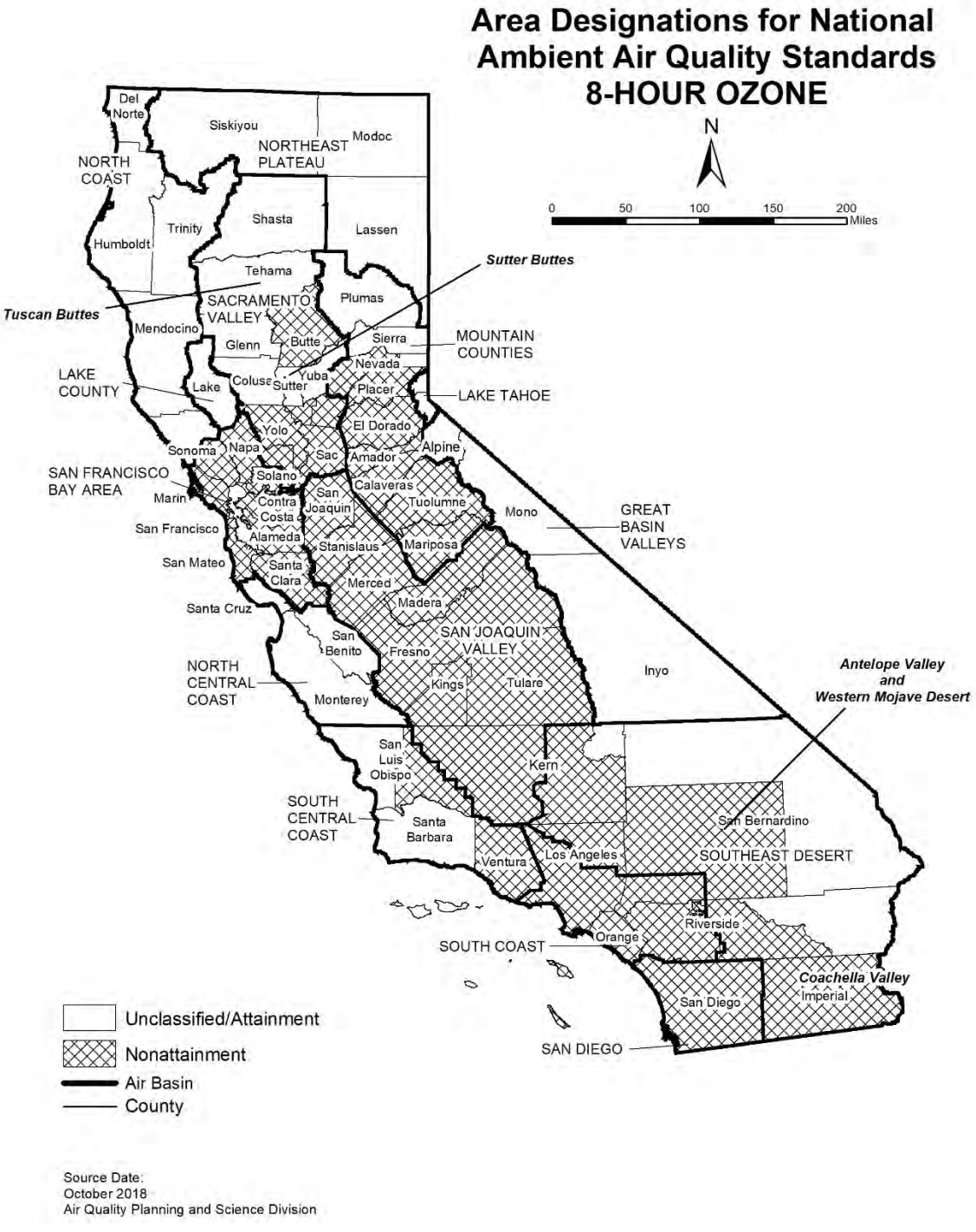

Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehama
Sutter Buttes
Tuscan Buttes
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Sutter
Yuba
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Marin
Contra Costa
San Joaquin
Calaveras
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
San Benito
SAN JOAQUIN VALLEY
Fresno
Inyo
NORTH CENTRAL COAST
Kings
Tulare
Antelope Valley and Western Mojave Desert
Monterey
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Orange
SOUTH COAST
Coachella Valley
Imperial
San Diego
SAN DIEGO
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN (cont.)		
LAKE COUNTY AIR BASIN		X	Yolo County (2)	X	
LAKE TAHOE AIR BASIN		X	Yuba County		X
MOUNTAIN COUNTIES AIR BASIN			SAN DIEGO COUNTY	X	
Amador County	X		SAN FRANCISCO BAY AREA AIR BASIN	X	
Calaveras County	X		SAN JOAQUIN VALLEY AIR BASIN	X	
El Dorado County (portion) (2)	X		SOUTH CENTRAL COAST AIR BASIN (1)		
Mariposa County	X		San Luis Obispo County		
Nevada County			- Eastern San Luis Obispo County	X	
- Western Nevada County	X		- Remainder of County		X
- Remainder of County		X	Santa Barbara County		X
Placer County (portion) (2)	X		Ventura County		
Plumas County		X	- Area excluding Anacapa and San Nicolas Islands	X	
Sierra County		X	- Channel Islands (1)		X
Tuolumne County	X		SOUTH COAST AIR BASIN (1)	X	
NORTH CENTRAL COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTH COAST AIR BASIN		X	Kern County (portion)	X	
NORTHEAST PLATEAU AIR BASIN		X	- Indian Wells Valley		X
SACRAMENTO VALLEY AIR BASIN			Imperial County	X	
Butte County	X		Los Angeles County (portion)	X	
Colusa County		X	Riverside County (portion)		
Glenn County		X	- Coachella Valley	X	
Sacramento Metro Area (2)	X		- Non-AQMA portion		X
Shasta County		X	San Bernardino County		
Sutter County			- Western portion (AQMA)	X	
- Sutter Buttes	X		- Eastern portion (non-AQMA)		X
- Southern portion of Sutter County (2)	X				
- Remainder of Sutter County		X			
Tehama County					
- Tuscan Buttes	X				
- Remainder of Tehama County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

(1) South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.

South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

(2) For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

FIGURE 12


Area Designations for National Ambient Air Quality Standards PM10
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
LAKE TAHOE
Lake
Sutter
Yolo
El Dorado
Alpine
Sacramento County
Sonoma
Napa
Sac
Amador
Mono
Mono Basin
SAN FRANCISCO BAY AREA
Marin
Solano
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mammoth Lake
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Inyo
Santa Cruz
San Benito
Fresno
SAN JOAQUIN VALLEY
Owens Valley
Coso Junction
Trona
NORTH CENTRAL COAST
Monterey
Kings
Tulare
San Luis Obispo
Kern
Indian Wells Valley
San Bernardino
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Coachella Valley
Orange
SOUTH COAST
Imperial
San Diego
SAN DIEGO COUNTY
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM10)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN				SAN DIEGO COUNTY		X	
Alpine County		X		SAN FRANCISCO BAY AREA AIR BASIN		X	
Inyo County				SAN JOAQUIN VALLEY AIR BASIN			X
- Owens Valley Planning Area	X			SOUTH CENTRAL COAST AIR BASIN		X	
- Coso Junction			X	SOUTH COAST AIR BASIN			X
- Remainder of County		X		SOUTHEAST DESERT AIR BASIN			
Mono County				Eastern Kern County			
- Mammoth Lake Planning Area			X	- Indian Wells Valley			X
- Mono Lake Basin	X			- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X		- Remainder of County		X	
LAKE COUNTY AIR BASIN		X		Imperial County			
LAKE TAHOE AIR BASIN		X		- Imperial Valley Planning Area	X		
MOUNTAIN COUNTIES AIR BASIN				- Remainder of County		X	
Placer County (portion) (2)		X		Los Angeles County (portion)		X	
Remainder of Air Basin		X		Riverside County (portion)			
NORTH CENTRAL COAST AIR BASIN		X		- Coachella Valley (3)	X		
NORTH COAST AIR BASIN		X		- Non-AQMA portion		X	
NORTHEAST PLATEAU AIR BASIN		X		San Bernardino County			
SACRAMENTO VALLEY AIR BASIN				- Trona	X		
Butte County		X		- Remainder of County	X		
Colusa County		X					
Glenn County		X					
Placer County (portion) (2)		X					
Sacramento County (1)			X				
Shasta County		X					
Solano County (portion)		X					
Sutter County		X					
Tehama County		X					
Yolo County		X					
Yuba County		X					

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
(1) Air quality in Sacramento County meets the national PM10 standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.
(2) U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.
(3) Air quality in Coachella Valley meets the national PM10 standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13


Area Designations for National Ambient Air Quality Standards PM2.5
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTH COAST
NORTHEAST PLATEAU
Humboldt
Trinity
Shasta
Lassen
Tehama
SACRAMENTO VALLEY
Plumas
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Mendocino
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
El Dorado
Yolo
Sonoma
Napa
Sacramento
Alpine
Amador
Solano
Calaveras
SAN FRANCISCO BAY AREA
Marin
Tuolumne
GREAT BASIN VALLEYS
Contra Costa
San Joaquin
Mono
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
Fresno
NORTH CENTRAL COAST
San Benito
SAN JOAQUIN VALLEY
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
SOUTHEAST DESERT
Ventura
Los Angeles
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN (2)	X	
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN	X	
MOUNTAIN COUNTIES AIR BASIN			SOUTH CENTRAL COAST AIR BASIN		X
Plumas County			SOUTH COAST AIR BASIN (3)	X	
- Portola Valley Portion of Plumas	X		SOUTHEAST DESERT AIR BASIN		
- Remainder of Plumas County		X	Imperial County (portion) (4)	X	
Remainder of Air Basin		X	Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X			
NORTH COAST AIR BASIN		X			
NORTHEAST PLATEAU AIR BASIN		X			
SACRAMENTO VALLEY AIR BASIN					
Sacramento Metro Area (1)	X				
Sutter County		X			
Yuba County (portion)		X			
Remainder of Air Basin		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour PM2.5 standard as well as the 1997 and 2012 PM2.5 annual standards.

(1) For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(2) Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(3) Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

(4) That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

FIGURE 14


Area Designations for National Ambient Air Quality Standards
CARBON MONOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Trinity
Lassen
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Lake
Sutter
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15


Area Designations for National Ambient Air Quality Standards
NITROGEN DIOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
Plumas
SACRAMENTO VALLEY
Mendocino
Glenn
Butte
Sierra
Nevada
MOUNTAIN COUNTIES
Colusa
Yuba
Placer
LAKE COUNTY
Lake
Sutter
LAKE TAHOE
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Calaveras
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Tulare
Inyo
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
SOUTHEAST DESERT
Los Angeles
San Bernardino
Ventura
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 15

National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		
LAKE COUNTY AIR BASIN		X	San Luis Obispo County		X
LAKE TAHOE AIR BASIN		X	Santa Barbara County		X
MOUNTAIN COUNTIES AIR BASIN		X	Ventura County		X
NORTH CENTRAL COAST AIR BASIN		X	Channel Islands (1)		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
SACRAMENTO VALLEY AIR BASIN		X	Imperial County		X
SAN DIEGO COUNTY		X	Remainder of Air Basin		X
SAN FRANCISCO BAY AREA AIR BASIN		X			
SAN JOAQUIN VALLEY AIR BASIN					
Fresno County		X			
Kern County (portion)		X			
Kings County		X			
Madera County		X			
Merced County		X			
San Joaquin County		X			
Stanislaus County		X			
Tulare County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

(1) South Central Coast Air Basin Channel Islands:

Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.

Ventura County includes Anacapa and San Nicolas Islands.

Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17


Area Designations for National Ambient Air Quality Standards
LEAD
N
0 50 100 150 200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Lake
Sutter
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN		
NORTH COAST AIR BASIN		X	Los Angeles County (portion) (1)	X	
NORTHEAST PLATEAU AIR BASIN		X	Remainder of Air Basin		X
SACRAMENTO VALLEY AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

(1) Portion of County in Air Basin, not including Channel Islands

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APPENDIX 3.1:

CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS (UNMITIGATED)

Hesperia Commerce Center II (Construction - Unmitigated)

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	15.36	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	150.00	600.00
tblGrading	AcresOfGrading	0.00	400.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblSolidWaste	SolidWasteGenerationRate	1,715.89	0.00
tblSolidWaste	SolidWasteGenerationRate	2,219.95	0.00
tblTripsAndVMT	VendorTripNumber	1,391.00	696.00
tblTripsAndVMT	WorkerTripNumber	3,564.00	1,782.00
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7730e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3300e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04

tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7740e-003
tblVehicleEF	HHD	0.11	0.00

tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6800e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56
tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4810e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1000e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.02	0.01

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9820e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	0.96	0.68
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	LDA	4.6640e-003	2.6750e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75

tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6340e-003
tblVehicleEF	LDA	6.1500e-004	5.5000e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1450e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9150e-003
tblVehicleEF	LDA	6.1100e-004	5.4200e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5900e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.09	0.20

tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5510e-003
tblVehicleEF	LDA	6.1500e-004	5.4900e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3480e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003

tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003

tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003

tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26

tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
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tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
tblVehicleEF	MHD	0.02	5.4630e-003
tblVehicleEF	MHD	4.1450e-003	6.2250e-003
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tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
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tblVehicleEF	MHD	155.10	70.79
tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003

tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4900e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
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tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
tblVehicleEF	MHD	5.61	1.72
tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78

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tblVehicleEF	MHD	1.01	1.76
tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8700e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09

tblVehicleEF	MHD	0.02	5.8910e-003
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tblVehicleEF	MHD	0.06	0.02
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tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
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tblVehicleEF	MHD	1,105.72	1,107.76
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tblVehicleEF	MHD	5.3200e-004	2.1320e-003
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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
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tblVehicleEF	OBUS	0.03	0.03
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tblVehicleEF	OBUS	0.73	1.52
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tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4300e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
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tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8610e-003
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tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
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tblVehicleEF	OBUS	1.02	1.08

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tblVehicleEF	OBUS	9.5000e-005	8.7200e-004
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.39	0.15
tblVehicleEF	OBUS	7.1200e-004	5.0100e-004
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tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
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tblVehicleEF	OBUS	0.01	9.8320e-003
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tblVehicleEF	OBUS	0.03	0.03

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tblVehicleEF	OBUS	1.3700e-004	1.2520e-003
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tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
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tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
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tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
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tblVehicleEF	OBUS	0.01	0.02
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tblVehicleEF	OBUS	0.02	0.03

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tblVehicleEF	SBUS	0.03	0.03
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tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
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tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
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tblVehicleEF	SBUS	0.03	0.03
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tblVehicleEF	SBUS	0.01	2.3230e-003
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tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
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tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
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tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

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tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
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tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
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tblVehicleEF	UBUS	1.30	0.18
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tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	144.8146	126.7151	144.4130	0.4839	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	48,984.3707	48,984.3707	3.9428	0.0000	49,082.9397
Maximum	**144.8146**	**126.7151**	**144.4130**	**0.4839**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**3.9428**	**0.0000**	**49,082.9397**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	144.8146	126.7151	144.4130	0.4839	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	48,984.3707	48,984.3707	3.9428	0.0000	49,082.9397
Maximum	**144.8146**	**126.7151**	**144.4130**	**0.4839**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**3.9428**	**0.0000**	**49,082.9397**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**0.1651**	**0.0957**	**1.2604**	**3.2500e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**323.8980**	**323.8980**	**9.3800e-003**		**324.1326**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**0.1651**	**0.0957**	**1.2604**	**3.2500e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**323.8980**	**323.8980**	**9.3800e-003**		**324.1326**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.5222					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**124.8141**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.5222					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**124.8141**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Construction - Unmitigated)

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Construction - Unmitigated) - San Bernardino-Mojave Desert County, Winter

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	15.36	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	150.00	600.00
tblGrading	AcresOfGrading	0.00	400.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblSolidWaste	SolidWasteGenerationRate	1,715.89	0.00
tblSolidWaste	SolidWasteGenerationRate	2,219.95	0.00
tblTripsAndVMT	VendorTripNumber	1,391.00	696.00
tblTripsAndVMT	WorkerTripNumber	3,564.00	1,782.00
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7730e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3300e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04

tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7740e-003
tblVehicleEF	HHD	0.11	0.00

tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6800e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56
tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02

tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4810e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1000e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.02	0.01

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9820e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	0.96	0.68
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	LDA	4.6640e-003	2.6750e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75

tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6340e-003
tblVehicleEF	LDA	6.1500e-004	5.5000e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1450e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9150e-003
tblVehicleEF	LDA	6.1100e-004	5.4200e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5900e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.09	0.20

tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5510e-003
tblVehicleEF	LDA	6.1500e-004	5.4900e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3480e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003

tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003

tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003

tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26

tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7300e-004	6.6000e-005
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7100e-004	6.5000e-005
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
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tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
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tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	4.1800e-004	1.6790e-003

tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	0.02	5.1740e-003
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tblVehicleEF	MHD	1,105.72	1,107.78

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tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09

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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	1.5800e-003	1.4230e-003
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tblVehicleEF	MHD	7.0500e-004	5.1800e-004
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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
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tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
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tblVehicleEF	SBUS	0.01	0.01

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tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	144.7087	126.3659	133.2889	0.4556	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	46,133.8148	46,133.8148	4.0103	0.0000	46,234.0734
Maximum	**144.7087**	**126.3659**	**133.2889**	**0.4556**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.0103**	**0.0000**	**46,234.0734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	144.7087	126.3659	133.2889	0.4556	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	46,133.8148	46,133.8148	4.0103	0.0000	46,234.0733
Maximum	**144.7087**	**126.3659**	**133.2889**	**0.4556**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.0103**	**0.0000**	**46,234.0733**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**0.1617**	**0.1006**	**1.0490**	**2.9200e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**290.7317**	**290.7317**	**8.3000e-003**		**290.9392**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**0.1617**	**0.1006**	**1.0490**	**2.9200e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**290.7317**	**290.7317**	**8.3000e-003**		**290.9392**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.5222					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**124.8141**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	124.5222					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**124.8141**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.2:

CALEEMOD CONSTRUCTION EMISSIONS MODEL OUTPUTS (MITIGATED)

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	10.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

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tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
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tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
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tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
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tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
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tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	0.12	0.00
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tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
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tblVehicleEF	MHD	1.4330e-003	1.2040e-003
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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01
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tblVehicleEF	MHD	1.4330e-003	1.2040e-003
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tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
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tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.5300e-004	1.4180e-003
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tblVehicleEF	MHD	2.8480e-003	2.6690e-003
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tblVehicleEF	MHD	0.02	0.03
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tblVehicleEF	MHD	0.35	0.08
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tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09

tblVehicleEF	MHD	0.02	5.8910e-003
tblVehicleEF	MHD	4.1530e-003	6.2420e-003
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tblVehicleEF	MHD	5.3200e-004	2.1320e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
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tblVehicleEF	OBUS	5.4210e-003	0.02
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tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
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tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

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tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.2276	126.7151	144.4130	0.4839	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	48,984.3707	48,984.3707	3.9428	0.0000	49,082.9397
Maximum	**52.2276**	**126.7151**	**144.4130**	**0.4839**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**3.9428**	**0.0000**	**49,082.9397**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.2276	126.7151	144.4130	0.4839	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	48,984.3707	48,984.3707	3.9428	0.0000	49,082.9397
Maximum	**52.2276**	**126.7151**	**144.4130**	**0.4839**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**3.9428**	**0.0000**	**49,082.9397**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**0.1651**	**0.0957**	**1.2604**	**3.2500e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**323.8980**	**323.8980**	**9.3800e-003**		**324.1326**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**0.1651**	**0.0957**	**1.2604**	**3.2500e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**323.8980**	**323.8980**	**9.3800e-003**		**324.1326**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	10.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
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tblEnergyUse	T24NG	2.00	0.00
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tblGrading	AcresOfGrading	0.00	400.00
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tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
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tblOffRoadEquipment	UsageHours	7.00	8.00
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tblSolidWaste	SolidWasteGenerationRate	2,219.95	0.00
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tblVehicleEF	LDT1	3.8930e-003	3.1180e-003

tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
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tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
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tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26

tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
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tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
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tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003

tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4900e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
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tblVehicleEF	MHD	0.24	0.35
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tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
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tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
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tblVehicleEF	MHD	0.38	0.09

tblVehicleEF	MHD	0.02	5.8910e-003
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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
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tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	1.5800e-003	1.4230e-003
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
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tblVehicleEF	OBUS	0.73	1.52
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tblVehicleEF	OBUS	1,126.32	1,610.98
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tblVehicleEF	OBUS	1.10	1.20
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tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

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tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
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tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
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tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
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tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
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tblVehicleEF	OBUS	7.1200e-004	5.0100e-004
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tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
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tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4200e-004
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tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
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tblVehicleEF	SBUS	0.03	0.03
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tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004

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tblVehicleEF	SBUS	0.01	1.7430e-003
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tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
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tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98

tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003

tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.1216	126.3659	133.2889	0.4556	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	46,133.8148	46,133.8148	4.0103	0.0000	46,234.0734
Maximum	**52.1216**	**126.3659**	**133.2889**	**0.4556**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.0103**	**0.0000**	**46,234.0734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.1216	126.3659	133.2889	0.4556	39.4241	3.9728	41.4696	12.2601	3.6550	14.1419	0.0000	46,133.8148	46,133.8148	4.0103	0.0000	46,234.0733
Maximum	**52.1216**	**126.3659**	**133.2889**	**0.4556**	**39.4241**	**3.9728**	**41.4696**	**12.2601**	**3.6550**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.0103**	**0.0000**	**46,234.0733**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**0.1617**	**0.1006**	**1.0490**	**2.9200e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**290.7317**	**290.7317**	**8.3000e-003**		**290.9392**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					33.2542	0.0000	33.2542	8.9106	0.0000	8.9106			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**33.2542**	**3.9707**	**37.2249**	**8.9106**	**3.6530**	**12.5637**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**0.1617**	**0.1006**	**1.0490**	**2.9200e-003**	**0.3286**	**2.1700e-003**	**0.3308**	**0.0872**	**2.0000e-003**	**0.0892**		**290.7317**	**290.7317**	**8.3000e-003**		**290.9392**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.3:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS (PASSENGER CARS)

Hesperia Commerce Center II (Operations - Passenger Cars)

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Summer

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20

tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Summer

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
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tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
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tblVehicleEF	LDA	1.32	2.30
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tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
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tblVehicleEF	LDA	1.10	1.87
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tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
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tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7002e-003
tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0370e-003	6.3342e-003
tblVehicleEF	LHD1	3.5800e-004	1.0204e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7053e-003
tblVehicleEF	LHD1	0.01	7.6945e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

tblVehicleEF	LHD2	2.7300e-004	6.5763e-005
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8953e-003
tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1159e-003
tblVehicleEF	LHD2	2.7100e-004	6.5012e-005
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8873e-003
tblVehicleEF	LHD2	5.2490e-003	4.5947e-003
tblVehicleEF	LHD2	9.0820e-003	8.7354e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17

tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003
tblVehicleEF	LHD2	2.7200e-004	6.5519e-005
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
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tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
tblVehicleEF	MHD	0.02	5.4628e-003
tblVehicleEF	MHD	4.1450e-003	6.2249e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
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tblVehicleEF	MHD	1,105.72	1,107.75
tblVehicleEF	MHD	53.92	15.06
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tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7551e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	4.1800e-004	1.6792e-003
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004

tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7339e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4901e-004
tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1738e-003
tblVehicleEF	MHD	4.2290e-003	6.3499e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
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tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.5300e-004	1.4178e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	2.8480e-003	2.6688e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	2.8480e-003	2.6688e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.05	0.10

tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
tblVehicleEF	MHD	0.02	5.8908e-003
tblVehicleEF	MHD	4.1530e-003	6.2416e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
tblVehicleEF	MHD	142.41	68.88
tblVehicleEF	MHD	1,105.72	1,107.76
tblVehicleEF	MHD	53.92	14.97
tblVehicleEF	MHD	0.60	0.56
tblVehicleEF	MHD	1.06	1.85
tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1323e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5509e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4813e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
tblVehicleEF	OBUS	0.01	9.8281e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
tblVehicleEF	OBUS	6.67	3.30
tblVehicleEF	OBUS	70.21	51.97
tblVehicleEF	OBUS	1,126.32	1,610.98
tblVehicleEF	OBUS	71.08	24.56
tblVehicleEF	OBUS	0.32	0.26
tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0316e-003

tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	2.2350e-003	3.0916e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1802e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9868e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4302e-004
tblVehicleEF	OBUS	2.2350e-003	3.0916e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1802e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8612e-003

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
tblVehicleEF	OBUS	71.08	24.00
tblVehicleEF	OBUS	0.33	0.26
tblVehicleEF	OBUS	1.02	1.08
tblVehicleEF	OBUS	1.92	0.45
tblVehicleEF	OBUS	9.5000e-005	8.7177e-004
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	9.1000e-005	8.3405e-004
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	4.3510e-003	6.6825e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3478e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36

tblVehicleEF	OBUS	0.39	0.15
tblVehicleEF	OBUS	7.1200e-004	5.0115e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.1800e-004	2.3749e-004
tblVehicleEF	OBUS	4.3510e-003	6.6825e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3478e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.42	0.16
tblVehicleEF	OBUS	0.01	9.8316e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.28	0.44
tblVehicleEF	OBUS	0.73	1.53
tblVehicleEF	OBUS	6.62	3.24
tblVehicleEF	OBUS	65.88	51.61
tblVehicleEF	OBUS	1,126.32	1,611.00
tblVehicleEF	OBUS	71.08	24.45
tblVehicleEF	OBUS	0.31	0.26
tblVehicleEF	OBUS	1.08	1.17
tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2524e-003
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02

tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	1.3100e-004	1.1982e-003
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9528e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4194e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4371e-003
tblVehicleEF	SBUS	0.07	1.1456e-003
tblVehicleEF	SBUS	5.64	1.00

tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.49	0.17
tblVehicleEF	SBUS	1,270.71	324.55
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9578e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.7866e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.28	6.0115e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.5621e-006
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.31	6.5819e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4522e-003
tblVehicleEF	SBUS	0.06	8.8875e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3452e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
tblVehicleEF	SBUS	0.32	0.32

tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.56
tblVehicleTrips	ST_TR	1.68	1.75

tblVehicleTrips	SU_TR	0.68	3.93
tblVehicleTrips	SU_TR	1.68	1.75
tblVehicleTrips	WD_TR	6.97	3.90
tblVehicleTrips	WD_TR	1.68	1.75
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803
Mobile	29.1856	19.6033	263.1493	0.6724	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		68,124.0749	68,124.0749	2.1208		68,177.0943
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**139.3112**	**56.1672**	**286.9547**	**0.8002**	**68.7815**	**2.1440**	**70.9254**	**18.2332**	**2.0545**	**20.2877**		**88,768.8315**	**88,768.8315**	**3.9234**	**0.2940**	**88,954.5288**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
Mobile	29.1856	19.6033	263.1493	0.6724	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		68,124.0749	68,124.0749	2.1208		68,177.0943
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**139.0810**	**54.0738**	**285.1963**	**0.7877**	**68.7815**	**1.9849**	**70.7664**	**18.2332**	**1.8954**	**20.1286**		**86,256.8407**	**86,256.8407**	**3.8752**	**0.2480**	**86,427.6104**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.17**	**3.73**	**0.61**	**1.57**	**0.00**	**7.42**	**0.22**	**0.00**	**7.74**	**0.78**	**0.00**	**2.83**	**2.83**	**1.23**	**15.66**	**2.84**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	29.1856	19.6033	263.1493	0.6724	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		68,124.0749	68,124.0749	2.1208		68,177.0943
Unmitigated	29.1856	19.6033	263.1493	0.6724	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		68,124.0749	68,124.0749	2.1208		68,177.0943

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
NaturalGas Unmitigated	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	123175	1.3284	12.0760	10.1439	0.0725		0.9178	0.9178		0.9178	0.9178		14,491.2312	14,491.2312	0.2778	0.2657	14,577.3453
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	13134.6	0.1417	1.2877	1.0817	7.7300e-003		0.0979	0.0979		0.0979	0.0979		1,545.2524	1,545.2524	0.0296	0.0283	1,554.4350
Total		**1.4700**	**13.3637**	**11.2255**	**0.0802**		**1.0157**	**1.0157**		**1.0157**	**1.0157**		**16,036.4835**	**16,036.4835**	**0.3074**	**0.2940**	**16,131.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	105.706	1.1400	10.3633	8.7052	0.0622		0.7876	0.7876		0.7876	0.7876		12,435.9651	12,435.9651	0.2384	0.2280	12,509.8659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25248	0.0998	0.9071	0.7620	5.4400e-003		0.0689	0.0689		0.0689	0.0689		1,088.5275	1,088.5275	0.0209	0.0200	1,094.9961
Total		**1.2397**	**11.2704**	**9.4672**	**0.0676**		**0.8566**	**0.8566**		**0.8566**	**0.8566**		**13,524.4927**	**13,524.4927**	**0.2592**	**0.2480**	**13,604.8620**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Tractors/Loaders/Backhoes	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**2.0500**	**23.1912**	**11.6098**	**0.0476**		**0.7830**	**0.7830**		**0.7203**	**0.7203**		**4,606.2019**	**4,606.2019**	**1.4897**		**4,643.4453**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Operations - Passenger Cars)

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Winter

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20

tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Winter

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
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tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
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tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
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tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
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tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
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tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
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tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
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tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
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tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
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tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
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tblVehicleEF	LHD1	0.35	0.68

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tblVehicleEF	LHD1	0.02	0.03
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tblVehicleEF	LHD1	0.15	0.17
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tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
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tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
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tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
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tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
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tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
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tblVehicleEF	LHD2	24.89	6.65
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
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tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
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tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	0.02	0.02
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tblVehicleEF	LHD2	0.07	0.09
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tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.10	0.29
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
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tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
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tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
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tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
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tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
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tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
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tblVehicleEF	MCY	5.0400e-003	5.0400e-003
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tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

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tblVehicleEF	MCY	0.57	2.54
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tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	0.06	0.06
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tblVehicleEF	MH	0.04	0.18
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tblVehicleEF	MHD	7.1400e-004	5.5776e-004
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	0.03	0.03

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tblVehicleEF	SBUS	0.01	3.2005e-003
tblVehicleEF	SBUS	0.32	0.32

tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.56
tblVehicleTrips	ST_TR	1.68	1.75

tblVehicleTrips	SU_TR	0.68	3.93
tblVehicleTrips	SU_TR	1.68	1.75
tblVehicleTrips	WD_TR	6.97	3.90
tblVehicleTrips	WD_TR	1.68	1.75
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803
Mobile	25.6921	20.3177	213.6235	0.5984	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		60,630.7214	60,630.7214	2.1940		60,685.5720
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**135.8177**	**56.8815**	**237.4289**	**0.7262**	**68.7815**	**2.1440**	**70.9254**	**18.2332**	**2.0545**	**20.2877**		**81,275.4780**	**81,275.4780**	**3.9966**	**0.2940**	**81,463.0064**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
Mobile	25.6921	20.3177	213.6235	0.5984	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		60,630.7214	60,630.7214	2.1940		60,685.5720
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**135.5875**	**54.7882**	**235.6705**	**0.7137**	**68.7815**	**1.9849**	**70.7664**	**18.2332**	**1.8954**	**20.1286**		**78,763.4872**	**78,763.4872**	**3.9485**	**0.2480**	**78,936.0881**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.17**	**3.68**	**0.74**	**1.73**	**0.00**	**7.42**	**0.22**	**0.00**	**7.74**	**0.78**	**0.00**	**3.09**	**3.09**	**1.20**	**15.66**	**3.10**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	25.6921	20.3177	213.6235	0.5984	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		60,630.7214	60,630.7214	2.1940		60,685.5720
Unmitigated	25.6921	20.3177	213.6235	0.5984	68.7815	0.3419	69.1234	18.2332	0.3150	18.5482		60,630.7214	60,630.7214	2.1940		60,685.5720

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
NaturalGas Unmitigated	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	123175	1.3284	12.0760	10.1439	0.0725		0.9178	0.9178		0.9178	0.9178		14,491.2312	14,491.2312	0.2778	0.2657	14,577.3453
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	13134.6	0.1417	1.2877	1.0817	7.7300e-003		0.0979	0.0979		0.0979	0.0979		1,545.2524	1,545.2524	0.0296	0.0283	1,554.4350
Total		**1.4700**	**13.3637**	**11.2255**	**0.0802**		**1.0157**	**1.0157**		**1.0157**	**1.0157**		**16,036.4835**	**16,036.4835**	**0.3074**	**0.2940**	**16,131.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	105.706	1.1400	10.3633	8.7052	0.0622		0.7876	0.7876		0.7876	0.7876		12,435.9651	12,435.9651	0.2384	0.2280	12,509.8659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25248	0.0998	0.9071	0.7620	5.4400e-003		0.0689	0.0689		0.0689	0.0689		1,088.5275	1,088.5275	0.0209	0.0200	1,094.9961
Total		**1.2397**	**11.2704**	**9.4672**	**0.0676**		**0.8566**	**0.8566**		**0.8566**	**0.8566**		**13,524.4927**	**13,524.4927**	**0.2592**	**0.2480**	**13,604.8620**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Tractors/Loaders/Backhoes	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**2.0500**	**23.1912**	**11.6098**	**0.0476**		**0.7830**	**0.7830**		**0.7203**	**0.7203**		**4,606.2019**	**4,606.2019**	**1.4897**		**4,643.4453**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.4:

CALEEMOD OPERATIONAL EMISSIONS MODEL OUTPUTS (TRUCKS)

Hesperia Commerce Center II (Operations - Trucks)

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Summer

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00

tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Summer

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
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tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

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tblVehicleEF	HHD	1,493.95	1,319.16
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tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
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tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
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tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
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tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
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tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0370e-003	6.3342e-003
tblVehicleEF	LHD1	3.5800e-004	1.0204e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7053e-003
tblVehicleEF	LHD1	0.01	7.6945e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

tblVehicleEF	LHD2	2.7300e-004	6.5763e-005
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8953e-003
tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1159e-003
tblVehicleEF	LHD2	2.7100e-004	6.5012e-005
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8873e-003
tblVehicleEF	LHD2	5.2490e-003	4.5947e-003
tblVehicleEF	LHD2	9.0820e-003	8.7354e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17

tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003
tblVehicleEF	LHD2	2.7200e-004	6.5519e-005
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
tblVehicleEF	MHD	0.02	5.4628e-003
tblVehicleEF	MHD	4.1450e-003	6.2249e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
tblVehicleEF	MHD	155.10	70.79
tblVehicleEF	MHD	1,105.72	1,107.75
tblVehicleEF	MHD	53.92	15.06
tblVehicleEF	MHD	0.63	0.57
tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7551e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	4.1800e-004	1.6792e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004

tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7339e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4901e-004
tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1738e-003
tblVehicleEF	MHD	4.2290e-003	6.3499e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
tblVehicleEF	MHD	5.61	1.72
tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78
tblVehicleEF	MHD	53.92	14.81
tblVehicleEF	MHD	0.65	0.57

tblVehicleEF	MHD	1.01	1.76
tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	3.5300e-004	1.4178e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	2.8480e-003	2.6688e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8659e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4652e-004
tblVehicleEF	MHD	2.8480e-003	2.6688e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.05	0.10

tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
tblVehicleEF	MHD	0.02	5.8908e-003
tblVehicleEF	MHD	4.1530e-003	6.2416e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
tblVehicleEF	MHD	142.41	68.88
tblVehicleEF	MHD	1,105.72	1,107.76
tblVehicleEF	MHD	53.92	14.97
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tblVehicleEF	MHD	1.06	1.85
tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1323e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5509e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4813e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
tblVehicleEF	OBUS	6.67	3.30
tblVehicleEF	OBUS	70.21	51.97
tblVehicleEF	OBUS	1,126.32	1,610.98
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tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0316e-003

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	2.2350e-003	3.0916e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1802e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9868e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4302e-004
tblVehicleEF	OBUS	2.2350e-003	3.0916e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1802e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8612e-003

tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
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tblVehicleEF	OBUS	1.02	1.08
tblVehicleEF	OBUS	1.92	0.45
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tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02
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tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	4.3510e-003	6.6825e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3478e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36

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tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.1800e-004	2.3749e-004
tblVehicleEF	OBUS	4.3510e-003	6.6825e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3478e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.42	0.16
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tblVehicleEF	OBUS	0.03	0.03
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tblVehicleEF	OBUS	0.73	1.53
tblVehicleEF	OBUS	6.62	3.24
tblVehicleEF	OBUS	65.88	51.61
tblVehicleEF	OBUS	1,126.32	1,611.00
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tblVehicleEF	OBUS	0.31	0.26
tblVehicleEF	OBUS	1.08	1.17
tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2524e-003
tblVehicleEF	OBUS	0.13	0.13
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02

tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	1.3100e-004	1.1982e-003
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9528e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4194e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
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tblVehicleEF	SBUS	0.01	4.4371e-003
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tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9578e-003
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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.7866e-003
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tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.28	6.0115e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01

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tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
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tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.31	6.5819e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4522e-003
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tblVehicleEF	SBUS	1,144.20	1,170.32
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tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3452e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
tblVehicleEF	SBUS	0.32	0.32

tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
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tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
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tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
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tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
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tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
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tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
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tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

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tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
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tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
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tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
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tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
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tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
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tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
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tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00

tblVehicleTrips	ST_TR	1.32	0.43
tblVehicleTrips	ST_TR	1.68	0.38
tblVehicleTrips	SU_TR	0.68	1.07
tblVehicleTrips	SU_TR	1.68	0.38
tblVehicleTrips	WD_TR	6.97	1.06
tblVehicleTrips	WD_TR	1.68	0.38
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803
Mobile	17.4796	493.8516	153.6758	2.2451	83.7981	9.0152	92.8133	23.5076	8.6235	32.1311		235,999.7646	235,999.7646	1.1373		236,028.1979
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**127.6052**	**530.4154**	**177.4812**	**2.3730**	**83.7981**	**10.8173**	**94.6153**	**23.5076**	**10.3630**	**33.8705**		**256,644.5213**	**256,644.5213**	**2.9399**	**0.2940**	**256,805.6324**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
Mobile	17.4796	493.8516	153.6758	2.2451	83.7981	9.0152	92.8133	23.5076	8.6235	32.1311		235,999.7646	235,999.7646	1.1373		236,028.1979
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**127.3750**	**528.3221**	**175.7228**	**2.3604**	**83.7981**	**10.6582**	**94.4563**	**23.5076**	**10.2039**	**33.7114**		**254,132.5304**	**254,132.5304**	**2.8918**	**0.2480**	**254,278.7140**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.18**	**0.39**	**0.99**	**0.53**	**0.00**	**1.47**	**0.17**	**0.00**	**1.54**	**0.47**	**0.00**	**0.98**	**0.98**	**1.64**	**15.66**	**0.98**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.4796	493.8516	153.6758	2.2451	83.7981	9.0152	92.8133	23.5076	8.6235	32.1311		235,999.7646	235,999.7646	1.1373		236,028.1979
Unmitigated	17.4796	493.8516	153.6758	2.2451	83.7981	9.0152	92.8133	23.5076	8.6235	32.1311		235,999.7646	235,999.7646	1.1373		236,028.1979

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.373600	0.000000	0.182100	0.444300	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.107100	0.000000	0.107100	0.785800	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
NaturalGas Unmitigated	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	123175	1.3284	12.0760	10.1439	0.0725		0.9178	0.9178		0.9178	0.9178		14,491.2312	14,491.2312	0.2778	0.2657	14,577.3453
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	13134.6	0.1417	1.2877	1.0817	7.7300e-003		0.0979	0.0979		0.0979	0.0979		1,545.2524	1,545.2524	0.0296	0.0283	1,554.4350
Total		**1.4700**	**13.3637**	**11.2255**	**0.0802**		**1.0157**	**1.0157**		**1.0157**	**1.0157**		**16,036.4835**	**16,036.4835**	**0.3074**	**0.2940**	**16,131.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	105.706	1.1400	10.3633	8.7052	0.0622		0.7876	0.7876		0.7876	0.7876		12,435.9651	12,435.9651	0.2384	0.2280	12,509.8659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25248	0.0998	0.9071	0.7620	5.4400e-003		0.0689	0.0689		0.0689	0.0689		1,088.5275	1,088.5275	0.0209	0.0200	1,094.9961
Total		**1.2397**	**11.2704**	**9.4672**	**0.0676**		**0.8566**	**0.8566**		**0.8566**	**0.8566**		**13,524.4927**	**13,524.4927**	**0.2592**	**0.2480**	**13,604.8620**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Tractors/Loaders/ Backhoes	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**2.0500**	**23.1912**	**11.6098**	**0.0476**		**0.7830**	**0.7830**		**0.7203**	**0.7203**		**4,606.2019**	**4,606.2019**	**1.4897**		**4,643.4453**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Operations - Trucks)

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00

tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Winter

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
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tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
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tblVehicleEF	LDT2	355.82	333.34
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tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

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tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
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tblVehicleEF	LHD1	0.15	0.17
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tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

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tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
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tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
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tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
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tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
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tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
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tblVehicleEF	LHD1	0.01	7.8854e-003
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tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
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tblVehicleEF	LHD1	0.01	0.01
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tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	0.02	0.02
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tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
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tblVehicleEF	LHD1	0.11	0.10
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tblVehicleEF	LHD1	0.01	7.6945e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
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tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
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tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
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tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
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tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
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tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
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tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
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tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
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tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
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tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17

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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.10	0.29
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
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tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	MCY	0.16	0.27
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tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
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tblVehicleEF	MCY	9.06	8.04
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tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
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tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
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tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
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tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
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tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
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tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
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tblVehicleEF	MDV	1.1700e-003	8.9248e-004
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tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
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tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
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tblVehicleEF	MH	1.50	4.73
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
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tblVehicleEF	MH	1.61	4.97
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tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
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tblVehicleEF	MHD	7.5600e-004	1.7998e-004

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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
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tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	1.4910e-003	6.7339e-004
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tblVehicleEF	MHD	6.4400e-004	1.4901e-004
tblVehicleEF	MHD	1.4330e-003	1.2037e-003
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tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	0.02	5.1738e-003
tblVehicleEF	MHD	4.2290e-003	6.3499e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.5300e-004	1.4178e-003
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
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tblVehicleEF	MHD	1.6690e-003	1.6086e-003
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tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1323e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	0.36	0.08
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4813e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
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tblVehicleEF	MHD	0.39	0.09
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tblVehicleEF	OBUS	0.03	0.03
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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	OBUS	5.1650e-003	0.02
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tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8612e-003

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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02

tblVehicleEF	OBUS	9.1200e-004	2.4731e-004
tblVehicleEF	OBUS	1.3100e-004	1.1982e-003
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2739e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9528e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4194e-004
tblVehicleEF	OBUS	2.3980e-003	3.4748e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1271e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4371e-003
tblVehicleEF	SBUS	0.07	1.1456e-003
tblVehicleEF	SBUS	5.64	1.00

tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.49	0.17
tblVehicleEF	SBUS	1,270.71	324.55
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9578e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.7866e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.28	6.0115e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.5621e-006
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.31	6.5819e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4522e-003
tblVehicleEF	SBUS	0.06	8.8875e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3452e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
tblVehicleEF	SBUS	0.32	0.32

tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00

tblVehicleTrips	ST_TR	1.32	0.43
tblVehicleTrips	ST_TR	1.68	0.38
tblVehicleTrips	SU_TR	0.68	1.07
tblVehicleTrips	SU_TR	1.68	0.38
tblVehicleTrips	WD_TR	6.97	1.06
tblVehicleTrips	WD_TR	1.68	0.38
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803
Mobile	17.2070	519.4926	153.2973	2.2458	83.7972	9.0192	92.8164	23.5072	8.6273	32.1346		236,046.0509	236,046.0509	1.0783		236,073.0095
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**127.3327**	**556.0564**	**177.1027**	**2.3737**	**83.7972**	**10.8213**	**94.6185**	**23.5072**	**10.3668**	**33.8740**		**256,690.8076**	**256,690.8076**	**2.8810**	**0.2940**	**256,850.4439**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
Mobile	17.2070	519.4926	153.2973	2.2458	83.7972	9.0192	92.8164	23.5072	8.6273	32.1346		236,046.0509	236,046.0509	1.0783		236,073.0095
Offroad	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**127.1024**	**553.9631**	**175.3443**	**2.3611**	**83.7972**	**10.6622**	**94.4594**	**23.5072**	**10.2077**	**33.7149**		**254,178.8167**	**254,178.8167**	**2.8328**	**0.2480**	**254,323.5256**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.18**	**0.38**	**0.99**	**0.53**	**0.00**	**1.47**	**0.17**	**0.00**	**1.53**	**0.47**	**0.00**	**0.98**	**0.98**	**1.67**	**15.66**	**0.98**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	17.2070	519.4926	153.2973	2.2458	83.7972	9.0192	92.8164	23.5072	8.6273	32.1346		236,046.0509	236,046.0509	1.0783		236,073.0095
Unmitigated	17.2070	519.4926	153.2973	2.2458	83.7972	9.0192	92.8164	23.5072	8.6273	32.1346		236,046.0509	236,046.0509	1.0783		236,073.0095

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.373600	0.000000	0.182100	0.444300	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.107100	0.000000	0.107100	0.785800	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.2398	11.2704	9.4671	0.0676		0.8566	0.8566		0.8566	0.8566		13,524.4927	13,524.4927	0.2592	0.2480	13,604.8620
NaturalGas Unmitigated	1.4700	13.3637	11.2255	0.0802		1.0156	1.0156		1.0156	1.0156		16,036.4835	16,036.4835	0.3074	0.2940	16,131.7803

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	123175	1.3284	12.0760	10.1439	0.0725		0.9178	0.9178		0.9178	0.9178		14,491.2312	14,491.2312	0.2778	0.2657	14,577.3453
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	13134.6	0.1417	1.2877	1.0817	7.7300e-003		0.0979	0.0979		0.0979	0.0979		1,545.2524	1,545.2524	0.0296	0.0283	1,554.4350
Total		**1.4700**	**13.3637**	**11.2255**	**0.0802**		**1.0157**	**1.0157**		**1.0157**	**1.0157**		**16,036.4835**	**16,036.4835**	**0.3074**	**0.2940**	**16,131.7803**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	105.706	1.1400	10.3633	8.7052	0.0622		0.7876	0.7876		0.7876	0.7876		12,435.9651	12,435.9651	0.2384	0.2280	12,509.8659
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.25248	0.0998	0.9071	0.7620	5.4400e-003		0.0689	0.0689		0.0689	0.0689		1,088.5275	1,088.5275	0.0209	0.0200	1,094.9961
Total		**1.2397**	**11.2704**	**9.4672**	**0.0676**		**0.8566**	**0.8566**		**0.8566**	**0.8566**		**13,524.4927**	**13,524.4927**	**0.2592**	**0.2480**	**13,604.8620**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Tractors/Loaders/ Backhoes	2.0500	23.1912	11.6098	0.0476		0.7830	0.7830		0.7203	0.7203		4,606.2019	4,606.2019	1.4897		4,643.4453
Total	**2.0500**	**23.1912**	**11.6098**	**0.0476**		**0.7830**	**0.7830**		**0.7203**	**0.7203**		**4,606.2019**	**4,606.2019**	**1.4897**		**4,643.4453**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.5:

EMFAC2017 EMISSIONS

EMFAC2017 Derived CalEEMod Annual Emission Rates: Year 2021[1,2]

Season	Pollutant	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
Annual	CH4_IDLEX	0	0	0	0	0.0047002	0.002884393	0.005462799	0.033944412	0.0098281	0	0	0.0148569	0
Annual	CH4_RUNEX	0.0026749	0.0073485	0.0046236	0.0067807	0.0076648	0.00458596	0.006224944	0.00277306	0.013413	3.5090854	0.3255683	0.0044371	0.0040644
Annual	CH4_STREX	0.0578648	0.0956738	0.0841905	0.1027589	0.0167827	0.008863023	0.016065028	1.18311E-07	0.0304842	0.0390267	0.2651581	0.0011456	0
Annual	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.441332374	9.629008375	0.4258242	0	0	0.9993574	0
Annual	CO_RUNEX	0.6683081	1.4995434	1.0191772	1.3735844	1.1461745	0.691622288	0.667847037	0.277099563	1.5190457	26.99105	22.013324	0.2793525	0.3770585
Annual	CO_STREX	2.2969213	2.6225455	2.9966249	3.6754582	1.0718362	0.554496556	1.871427004	0.000833471	3.30223	2.8692608	8.9844073	0.1653752	0
Annual	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	70.78529758	1752.039462	51.970891	0	0	324.54587	0
Annual	CO2_NBIO_RUNEX	266.85269	316.00046	341.92445	425.57046	651.42903	635.5045078	1107.75197	1319.403427	1610.984	1847.2145	210.64393	1170.3186	936.21688
Annual	CO2_NBIO_STREX	55.748836	67.906481	73.807937	90.686337	10.459744	6.645552615	15.05777141	0.011729666	24.557554	32.354784	62.809923	0.9662743	0
Annual	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.566606408	8.890806324	0.2583853	0	0	3.5179937	0
Annual	NOX_RUNEX	0.046995	0.1511193	0.1113042	0.1567988	2.0544623	2.201925109	1.886552977	2.622989174	1.2049041	0.3881814	1.1909885	5.1565592	5.0527138
Annual	NOX_STREX[3]	0.2056189	0.3324369	0.3596246	0.4385097	0.3043943	0.173823645	0.977976616	1.950342423	0.4712958	0.2816151	0.2684624	0.976146	0
Annual	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.001755109	0.013662057	0.0010316	0	0	0.0039578	0
Annual	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061625751	0.13034	0.1001032	0.01176	0.7448002	0.13034
Annual	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035931291	0.012	0.0219395	0.004	0.0115259	0.016
Annual	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808762	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Annual	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Annual	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.001679184	0.013071042	0.000987	0	0	0.0037866	0
Annual	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026411036	0.05586	0.0429014	0.00504	0.3192001	0.05586
Annual	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982823	0.003	0.0054849	0.001	0.0028815	0.004
Annual	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567525	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Annual	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Annual	ROG_DIURN	0.0686027	0.2140615	0.1163696	0.1295337	0.0034939	0.00143893	0.00120368	2.36398E-06	0.0030916	0.0022153	1.461458	5.79E-05	0
Annual	ROG_HTSK	0.1140346	0.29062	0.1683612	0.1866671	0.0953605	0.042301854	0.036930097	6.93275E-05	0.0305995	0.0154164	0.8796803	0.0002161	0
Annual	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.026933596	0.730244569	0.0489331	0	0	0.0799162	0
Annual	ROG_RESTL	0.051984	0.1434438	0.0901802	0.1061315	0.0015523	0.000670337	0.000557764	1.2306E-06	0.0011802	0.0008901	0.8162044	2.196E-05	0
Annual	ROG_RUNEX	0.0106151	0.0328535	0.0195157	0.0319818	0.0812705	0.072897571	0.078673463	0.053070192	0.0813611	0.0566542	2.2061452	0.0886078	0.087504
Annual	ROG_RUNLS	0.2287987	0.9834642	0.5470746	0.5638528	0.671418	0.271613447	0.204632415	0.000367536	0.3536574	0.0930351	2.2378205	0.0017428	0
Annual	ROG_STREX	0.2622446	0.4997704	0.4080381	0.5210898	0.0849194	0.043950296	0.083861199	6.08414E-07	0.156008	0.1642388	1.9869902	0.0060115	0
Annual	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000673394	0.016551555	0.0004987	0	0	0.003072	0
Annual	SO2_RUNEX	0.0026339	0.0031199	0.0033752	0.0041982	0.0063337	0.006115786	0.010638055	0.01246288	0.0158273	0.0065545	0.0020845	0.0111005	0.0088506
Annual	SO2_STREX	0.0005504	0.0006704	0.0007287	0.0008954	0.0001035	6.57631E-05	0.000149009	1.16075E-07	0.000243	0.0003202	0.0006216	9.562E-06	0
Annual	TOG_DIURN	0.0686095	0.2140829	0.1163812	0.1295467	0.0034939	0.00143893	0.00120368	2.36398E-06	0.0030916	0.0022153	1.461458	5.79E-05	0
Annual	TOG_HTSK	0.114046	0.290649	0.168378	0.1866858	0.0953605	0.042301854	0.036930097	6.93275E-05	0.0305995	0.0154164	0.8796803	0.0002161	0
Annual	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.03671194	0.831354429	0.0663601	0	0	0.1089966	0
Annual	TOG_RESTL	0.0519892	0.1434582	0.0901892	0.1061422	0.0015523	0.000670337	0.000557764	1.2306E-06	0.0011802	0.0008901	0.8162044	2.196E-05	0
Annual	TOG_RUNEX	0.0154364	0.0478809	0.0284369	0.0445839	0.1005817	0.085208121	0.094760997	0.060752637	0.1113712	3.588771	2.6880152	0.1013931	0.0996175
Annual	TOG_RUNLS	0.2288216	0.9835625	0.5471293	0.5639092	0.671418	0.271613447	0.204632415	0.000367536	0.3536574	0.0930351	2.2378205	0.0017428	0
Annual	TOG_STREX	0.2871802	0.5472901	0.4468374	0.5705648	0.0929761	0.048120042	0.091817457	6.66137E-07	0.1708092	0.1798209	2.1613607	0.0065819	0
Summer	CH4_IDLEX	0	0	0	0	0.0047187	0.002895333	0.005173765	0.03555194	0.0098612	0	0	0.0148762	0
Summer	CH4_RUNEX	0.0031454	0.0085438	0.0054059	0.0078195	0.0078854	0.00464152	0.00634993	0.00277429	0.0138262	3.5091583	0.3176694	0.0044522	0.0040644
Summer	CH4_STREX	0.0479321	0.0785458	0.0695562	0.0848259	0.0158536	0.00837419	0.015164352	1.10826E-07	0.0284746	0.034398	0.2224301	0.0008888	0
Summer	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.35188912	9.44758006	0.4131207	0	0	0.9606434	0
Summer	CO_RUNEX	0.848539	1.8637435	1.280343	1.692519	1.1749269	0.698093127	0.682499887	0.277528535	1.5670807	26.994273	22.206278	0.280191	0.3770585
Summer	CO_STREX	1.8729499	2.1262353	2.4312682	2.9894728	0.9886781	0.512171237	1.723460472	0.000767818	2.9725315	2.2865079	8.0447805	0.1033972	0
Summer	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	72.16075658	1740.606667	52.231838	0	0	332.89886	0
Summer	CO2_NBIO_RUNEX	295.36402	345.58074	371.15686	456.90769	651.47987	635.5158777	1107.777975	1319.404146	1611.0689	1847.2205	210.70519	1170.3202	936.21688
Summer	CO2_NBIO_STREX	54.914408	66.802807	72.656748	89.274077	10.310935	6.569679426	14.80651523	0.011625479	23.999229	31.363762	60.211341	0.863482	0
Summer	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.572538683	8.563880877	0.2580462	0	0	3.5900222	0
Summer	NOX_RUNEX	0.0426474	0.1353447	0.1003464	0.1409154	1.9178599	2.065042641	1.756708404	2.462832844	1.0836509	0.3769315	0.9999713	4.8196409	4.7330264
Summer	NOX_STREX[3]	0.1910134	0.308476	0.3339413	0.4070907	0.2861811	0.163441967	0.96930326	1.9503283	0.4534051	0.2627958	0.2469996	0.9752466	0
Summer	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.001481959	0.013167913	0.0008718	0	0	0.0033452	0
Summer	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061625751	0.13034	0.1001032	0.01176	0.7448002	0.13034
Summer	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035931291	0.012	0.0219395	0.004	0.0115259	0.016
Summer	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808762	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Summer	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Summer	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.00141785	0.012598274	0.0008341	0	0	0.0032005	0
Summer	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026411036	0.05586	0.0429014	0.00504	0.3192001	0.05586
Summer	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982823	0.003	0.0054849	0.001	0.0028815	0.004
Summer	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567525	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Summer	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Summer	ROG_DIURN	0.1557458	0.493328	0.2633941	0.2917439	0.0076478	0.00312269	0.002668816	5.65315E-06	0.0066825	0.0045597	3.5436931	0.0001311	0
Summer	ROG_HTSK	0.1411721	0.388091	0.2116025	0.2267625	0.1227998	0.053995519	0.046967391	8.77623E-05	0.035726	0.0204902	1.4606602	0.0003023	0
Summer	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.025666587	0.764823046	0.0489581	0	0	0.0797945	0
Summer	ROG_RESTL	0.1306789	0.3702802	0.2242604	0.2606185	0.0043187	0.001839844	0.001608566	4.03344E-06	0.0033478	0.002565	2.5274785	7.427E-05	0
Summer	ROG_RUNEX	0.0123358	0.0379384	0.0225903	0.036078	0.0824906	0.073155694	0.079317948	0.053079255	0.0833996	0.0568686	2.1361077	0.0886668	0.087504
Summer	ROG_RUNLS	0.2301911	0.9968321	0.5528288	0.5699317	0.6834737	0.276876048	0.210412452	0.000384076	0.3590939	0.0922682	2.2521319	0.0015133	0
Summer	ROG_STREX	0.214331	0.4059684	0.3327034	0.4250718	0.0798556	0.041333226	0.078880534	5.72279E-07	0.1453639	0.1441845	1.6530152	0.0046553	0
Summer	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000686586	0.016443552	0.0005011	0	0	0.0031509	0
Summer	SO2_RUNEX	0.0029154	0.0034119	0.0036638	0.0045076	0.0063342	0.006115898	0.010638313	0.012462887	0.0158282	0.0065546	0.0020851	0.0111005	0.0088506
Summer	SO2_STREX	0.0005422	0.0006596	0.0007173	0.0008814	0.000102	6.50123E-05	0.000146522	1.15044E-07	0.0002375	0.0003104	0.0005958	8.545E-06	0
Summer	TOG_DIURN	0.1557613	0.4933773	0.2634204	0.291773	0.0076478	0.00312269	0.002668816	5.65315E-06	0.0066825	0.0045597	3.5436931	0.0001311	0
Summer	TOG_HTSK	0.1411862	0.3881298	0.2116236	0.2267852	0.1227998	0.053995519	0.046967391	8.77623E-05	0.035726	0.0204902	1.4606602	0.0003023	0
Summer	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.034906564	0.870720848	0.0663885	0	0	0.1088581	0
Summer	TOG_RESTL	0.1306919	0.3703173	0.2242828	0.2606446	0.0043187	0.001839844	0.001608566	4.03344E-06	0.0033478	0.002565	2.5274785	7.427E-05	0
Summer	TOG_RUNEX	0.0179449	0.0552921	0.0329196	0.0506269	0.1023621	0.085584774	0.095701429	0.060765863	0.1143458	3.5890837	2.6058402	0.1014791	0.0996175
Summer	TOG_RUNLS	0.2302141	0.9969318	0.5528841	0.5699887	0.6834737	0.276876048	0.210412452	0.000384076	0.3590939	0.0922682	2.2521319	0.0015133	0
Summer	TOG_STREX	0.2347108	0.4445693	0.3643394	0.4654297	0.0874318	0.04525468	0.086364256	6.26574E-07	0.1591552	0.1578639	1.79816	0.0050969	0

Winter	CH4_IDLEX	0	0	0	0	0.0047053	0.002887331	0.005890815	0.031700032	0.0098316	0	0	0.014866	0
Winter	CH4_RUNEX	0.0025905	0.007125	0.0044829	0.0065501	0.0076945	0.004594716	0.006241599	0.002480891	0.0134788	3.5090966	0.3196593	0.0044384	0.0040644
Winter	CH4_STREX	0.0566311	0.0934567	0.0823531	0.1004643	0.0165382	0.008735425	0.015787123	1.16312E-07	0.0301582	0.0380602	0.2495332	0.0011307	0
Winter	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.566254416	9.87905054	0.4433672	0	0	1.0528195	0
Winter	CO_RUNEX	0.617299	1.3939069	0.944598	1.2689154	1.149984	0.692542589	0.669977396	0.276075954	1.5262654	26.991476	20.783926	0.2794205	0.3770585
Winter	CO_STREX	2.2022723	2.5111953	2.8744225	3.5220018	1.0433986	0.540379625	1.818488598	0.000810268	3.2372798	2.7128399	8.4044802	0.1578565	0
Winter	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	68.87746911	1767.737047	51.610534	0	0	313.01079	0
Winter	CO2_NBIO_RUNEX	258.48166	307.31545	333.34237	416.34827	651.43572	635.5061277	1107.755748	1319.159044	1610.9968	1847.2153	208.5212	1170.3188	936.21688
Winter	CO2_NBIO_STREX	55.576148	67.683144	73.578255	90.39556	10.410133	6.620851303	14.96929322	0.011692854	24.448803	32.092634	61.473182	0.954093	0
Winter	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.558413089	9.341832015	0.2588537	0	0	3.4185259	0
Winter	NOX_RUNEX	0.0436753	0.1408216	0.1035247	0.1460964	2.0188258	2.166145569	1.852985277	2.583567528	1.173618	0.3853519	1.1444349	5.0749656	4.970195
Winter	NOX_STREX[3]	0.2006999	0.3246921	0.3511054	0.4281314	0.2978902	0.170097764	0.97512097	1.950337773	0.4653645	0.2771659	0.2632045	0.97606	0
Winter	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.002132317	0.014344279	0.0012524	0	0	0.0048038	0
Winter	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061621215	0.13034	0.1001032	0.01176	0.7448002	0.13034
Winter	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035928646	0.012	0.0219395	0.004	0.0115259	0.016
Winter	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808539	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Winter	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Winter	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.002040074	0.013723751	0.0011982	0	0	0.004596	0
Winter	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026409092	0.05586	0.0429014	0.00504	0.3192001	0.05586
Winter	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982161	0.003	0.0054849	0.001	0.0028815	0.004
Winter	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567312	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Winter	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Winter	ROG_DIURN	0.0736593	0.2410085	0.1236088	0.1345147	0.0041507	0.001641618	0.001422545	2.73437E-06	0.0034748	0.0024056	1.8435234	7.323E-05	0
Winter	ROG_HTSK	0.125992	0.3389592	0.1883636	0.2045931	0.1153841	0.049653004	0.041823676	8.44099E-05	0.0331301	0.0174081	1.188463	0.0002541	0
Winter	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.028704829	0.68249299	0.0488987	0	0	0.0800842	0
Winter	ROG_RESTL	0.0470322	0.128741	0.081932	0.0969481	0.0014654	0.000621704	0.000518002	1.10931E-06	0.0011271	0.0008208	0.6725868	1.984E-05	0
Winter	ROG_RUNEX	0.0102385	0.031703	0.0188404	0.0306903	0.0814211	0.072934926	0.078766411	0.053066986	0.0816807	0.0566849	2.157056	0.0886133	0.087504
Winter	ROG_RUNLS	0.2587147	1.15611	0.6373986	0.6519435	0.7247069	0.294198042	0.223001825	0.000382932	0.3774331	0.1125847	2.5444428	0.0023232	0
Winter	ROG_STREX	0.2555883	0.4859417	0.3974461	0.5070816	0.0835682	0.043257652	0.082500654	5.98543E-07	0.1542801	0.1600051	1.8612281	0.0059331	0
Winter	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000655094	0.016700703	0.0004953	0	0	0.002963	0
Winter	SO2_RUNEX	0.0025512	0.0030341	0.0032904	0.0041071	0.0063337	0.006115802	0.010638093	0.01246288	0.0158275	0.0065546	0.0020635	0.0111005	0.0088506
Winter	SO2_STREX	0.0005487	0.0006682	0.0007264	0.0008925	0.000103	6.55187E-05	0.000148133	1.1571E-07	0.0002419	0.0003176	0.0006083	9.442E-06	0
Winter	TOG_DIURN	0.0736667	0.2410326	0.1236211	0.1345282	0.0041507	0.001641618	0.001422545	2.73437E-06	0.0034748	0.0024056	1.8435234	7.323E-05	0
Winter	TOG_HTSK	0.1260046	0.3389931	0.1883824	0.2046135	0.1153841	0.049653004	0.041823676	8.44099E-05	0.0331301	0.0174081	1.188463	0.0002541	0
Winter	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.039236531	0.776966316	0.066321	0	0	0.1091879	0
Winter	TOG_RESTL	0.0470369	0.1287539	0.0819402	0.0969578	0.0014654	0.000621704	0.000518002	1.10931E-06	0.0011271	0.0008208	0.6725868	1.984E-05	0
Winter	TOG_RUNEX	0.0148879	0.0462068	0.0274535	0.0428005	0.1008015	0.085262629	0.094896626	0.060455735	0.1118376	3.5888158	2.629509	0.1014012	0.0996175
Winter	TOG_RUNLS	0.2587406	1.1562256	0.6374623	0.6520087	0.7247069	0.294198042	0.223001825	0.000382932	0.3774331	0.1125847	2.5444428	0.0023232	0
Winter	TOG_STREX	0.2798911	0.5321468	0.4352384	0.5552304	0.0914967	0.047361684	0.090327832	6.55329E-07	0.1689173	0.1751855	2.0246287	0.0064959	0

1 Source: California Air Resources Board. EMFAC2017 Web Database. https://www.arb.ca.gov/emfac/2017/; California Air Pollution Control Officers Association (CAPCOA). 2017, November. California Emissions Estimator Model User's Guide, Version 2016.3.2, Appendix A.

2 Unless otherwise noted, per CalEEMod methodology, the calculated CalEEMod emission rates are derived from the emission rates obtained using the EMFAC2017 Web Database for the San Bernardino County (MD) region .

3 Because EMFAC2017 provides vehicle trips data for MHDT and HHDT diesel trucks, the formula provided in Appendix A of the CalEEMod User's Guide in calculating the NO_x STREX emission rates are utilized.

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Appendix C-2

Health Risk Assessment

Hesperia Commerce Center II

MOBILE SOURCE DIESEL HEALTH RISK ASSESSMENT

CITY OF HESPERIA

PREPARED BY:

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AUGUST 11, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg	Microgram
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APS	Auxiliary Power System
AQMD	Air Quality Management District
ARB	Air Resources Board
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DPM	Diesel Particulate Matter
EMFAC	Emission Factor Model
EPA	Environmental Protection Agency
HHD	Heavy Heavy-Duty
HI	Hazard Index
HRA	Health Risk Assessment
LHD	Light Heavy-Duty
MATES	Multiple Air Toxics Exposure Study
MDAQMD	Mojave Desert Air Quality Management District
MEIR	Maximally Exposed Individual Receptor
MEISC	Maximally Exposed Individual School Child
MEIW	Maximally Exposed Individual Worker
MHD	Medium Heavy-Duty
NAD	North American Datum
OEHHA	Office of Environmental Health Hazard Assessment
PCE	Passenger Car Equivalent
PM10	Particulate Matter 10 microns in diameter or less
Project	Hesperia Commerce Center II
REL	Reference Exposure Level
RM	Recommended Measures
SCAQMD	South Coast Air Quality Management District
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
TIA	Traffic Impact Analysis
URF	Unit Risk Factor
UTM	Universal Transverse Mercator
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

This report evaluates the potential mobile source health risk impacts to the nearest sensitive receptors (which are residents) and nearest workers to the proposed Project, more specifically, health risk impacts as a result of exposure to diesel particulate matter (DPM) emitted from heavy-duty diesel trucks accessing the site. This section summarizes the significance criteria and Project mobile source health risks.

The results of the health risk assessment of lifetime cancer risk from Project-generated DPM emissions are provided in Table ES-1 below for the Project.

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R3, which represents the existing West Main Villas apartments as 9800 Mesa Linda Street approximately 2,165 feet southeast of the Project site, and immediately adjacent to the north of Main Street (the Projects primary truck travel route). R3 is placed at the residential building façade. At the maximally exposed individual receptor (MEIR), the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 7.37 in one million, which is less than the Mojave Desert Air Quality Management District's (MDAQMD's) significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.003, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the MEIR analyzed herein, and DPM generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to nearby residences. The nearest modeled receptors are illustrated on Exhibit 2-B (as shown later in this report).

TABLE ES-1: SUMMARY OF CANCER AND NON-CANCER RISKS

Time Period	Location	Maximum Lifetime Cancer Risk (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold
30 Year Exposure	Maximum Exposed Individual Receptor	7.37	10	NO
Time Period	**Location**	**Maximum Hazard Index**	**Significance Threshold**	**Exceeds Significance Threshold**
Annual Average	Maximum Exposed Sensitive Receptor	0.003	1.0	NO

1 INTRODUCTION

The purpose of this Health Risk Assessment (HRA) is to evaluate Project-related impacts to the nearest sensitive receptors (residents) and workers as a result of heavy-duty diesel trucks accessing the site.

The MDAQMD identifies that if a proposed Project is expected to generate/attract heavy-duty diesel trucks, which emit DPM, preparation of a mobile source HRA is recommended. This document serves to meet the MDQMD's recommendation for preparation of a HRA. The mobile source HRA has been prepared in accordance with the relevant documentation available including Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1) and is comprised of all relevant and appropriate procedures presented by the United States Environmental Protection Agency (U.S. EPA), California EPA and MDAQMD. Cancer risk is expressed in terms of expected incremental incidence per million population. The MDAQMD has established an incidence rate of ten (10) persons per million as the maximum acceptable incremental cancer risk due to DPM exposure from a project such as the proposed Project. This threshold serves to determine whether or not a given project has a potentially significant development-specific and cumulatively considerable impact.

The MDQMD has also established non-carcinogenic risk parameters for use in HRAs. Non-carcinogenic risks are quantified by calculating a "hazard index," expressed as the ratio between the ambient pollutant concentration and its toxicity or Reference Exposure Level (REL). An REL is a concentration at or below which health effects are not likely to occur. A hazard index less of than one (1.0) means that adverse health effects are not expected. In this HRA, non-carcinogenic exposures of less than 1.0 are considered less-than-significant. Both the cancer risk and non-carcinogenic risk thresholds are applied to the nearest sensitive receptors below.

1.1 SITE LOCATION

The proposed project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. The Project location is shown on Exhibit 1-A. The Project Site is generally located in an undeveloped rural area with some residential homes located to the west and south.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the following uses:

- 2,361,648 square feet (sf) of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 sf of General Light Industrial use; 1,271,656 sf within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 sf within Building 3

It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021. Regional access to the Project site is available from the I-15 Freeway at

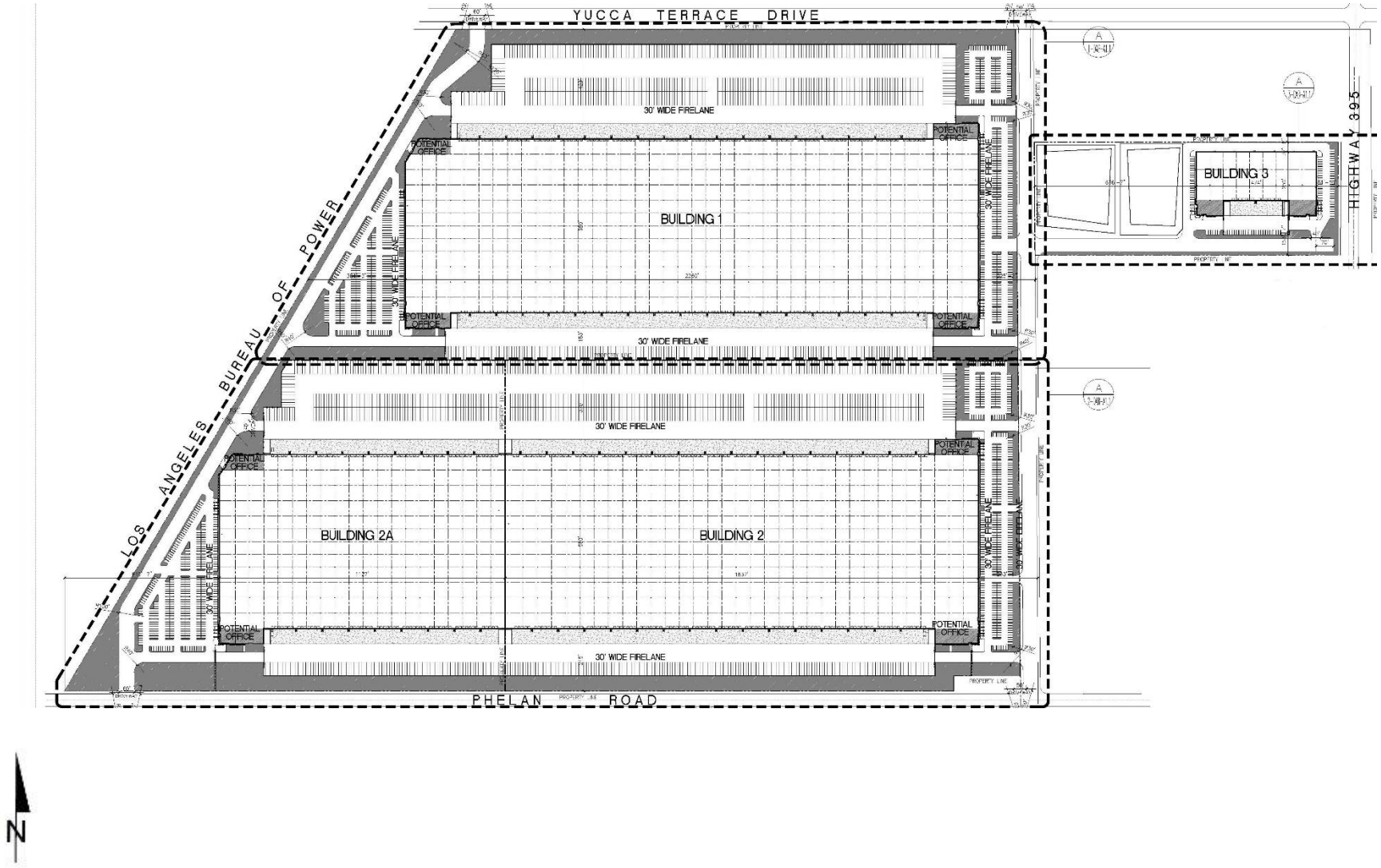
the Main Street interchange. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

Per the *Hesperia Commerce Center II Traffic Impact Analysis* (Urban Crossroads, Inc.) (TIA) prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 11,898 two-way vehicular trips per day (5,949 inbound and 5,949 outbound) which includes 2,368 two-way heavy-duty diesel truck trips per day (1,184 inbound and 1,184 outbound) (2). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 2,368 two-way heavy-duty diesel truck trips generated by the Project.

EXHIBIT 1-A: LOCATION MAP



EXHIBIT 1-B: SITE PLAN



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2 BACKGROUND

2.1 BACKGROUND ON RECOMMENDED METHODOLOGY

This HRA is based on applicable guidelines to produce conservative estimates of human health risk posed by exposure to DPM. The conservative nature of this analysis is due primarily to the following factors:

- The ARB-adopted diesel exhaust Unit Risk Factor (URF) of 300 in one million per µg/m3 is based upon the upper 95 percentile of estimated risk for each of the epidemiological studies utilized to develop the URF. Using the 95th percentile URF represents a very conservative (health-protective) risk posed by DPM because it represents breathing rates that are high for the human body (95% higher than the average population).
- The emissions derived assume that every truck accessing the Project site will idle for 15 minutes under the unmitigated scenario, and this is an overestimation of actual idling times and thus conservative.[1] The California Air Resources Board (CARB's) anti-idling requirements impose a 5-minute maximum idling time and therefore the analysis conservatively overestimates DPM emissions from idling by a factor of 3.

2.2 EMISSIONS ESTIMATION

2.2.1 ON-SITE AND OFF-SITE TRUCK ACTIVITY

Vehicle DPM emissions were calculated using emission factors for particulate matter less than 10µm in diameter (PM_{10}) generated with the 2017 version of the EMission FACtor model (EMFAC) developed by the CARB. EMFAC 2017 is a mathematical model that CARB developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the ARB to project changes in future emissions from on-road mobile sources (3). The most recent version of this model, EMFAC 2017, incorporates regional motor vehicle data, information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day.

Several distinct emission processes are included in EMFAC 2017. Emission factors calculated using EMFAC 2017 are expressed in units of grams per vehicle miles traveled (g/VMT) or grams per idle-hour (g/idle-hr), depending on the emission process. The emission processes and corresponding emission factor units associated with diesel particulate exhaust for this Project are presented below.

For this Project, annual average PM_{10} emission factors were generated by running EMFAC 2017 in EMFAC Mode for vehicles in the Mojave Desert Air Quality Management District (MDAQMD) jurisdiction. The EMFAC Mode generates emission factors in terms of grams of pollutant emitted

[1] Although the Project is required to comply with ARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions should be estimated for 15 minutes of truck idling (personal communication, in person, with Jillian Wong, December 22, 2016), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc.

per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for speeds traveled in the vicinity of the Project. The vehicle travel speeds for each segment modeled are summarized below.

- Idling – on-site loading/unloading and truck gate
- 5 miles per hour – on-site vehicle movement including driving and maneuvering
- 25 miles per hour – off-site vehicle movement including driving and maneuvering.

Calculated emission factors are shown at Table 2-1. As a conservative measure, a 2021 EMFAC 2017 run was conducted and a static 2021 emissions factor data set was used for the entire duration of analysis herein (e.g., 30 years). Use of 2021 emission factors would overstate potential impacts since this approach assumes that emission factors remain "static" and do not change over time due to fleet turnover or cleaner technology with lower emissions that would be incorporated into vehicles after 2021. Additionally, based on EMFAC 2017, Light-Heavy-Duty Trucks are comprised of 50.39% diesel, Medium-Heavy-Duty Trucks are comprised of 78.62% diesel, and Heavy-Heavy-Duty Trucks are comprised of 99.95% diesel. Trucks fueled by diesel are accounted for by these percentages accordingly in the emissions factor generation.

The vehicle DPM exhaust emissions were calculated for running exhaust emissions. The running exhaust emissions were calculated by applying the running exhaust PM10 emission factor (g/VMT) from EMFAC over the total distance traveled. The following equation was used to estimate off-site emissions for each of the different vehicle classes comprising the mobile sources (4):

$Emissions_{speedA}$ (g/s) = $EF_{RunExhaust}$ (g/VMT) * Distance (VMT/trip) * Number of Trips (trips/day) / seconds per day

Where:

$Emissions_{speedA}$ (g/s): Vehicle emissions at a given speed A;

$EF_{RunExhaust}$ (g/VMT): EMFAC running exhaust PM_{10} emission factor at speed A;

Distance (VMT/trip): Total distance traveled per trip.

Similar to off-site traffic, on-site vehicle running emissions were calculated by applying the running exhaust PM_{10} emission factor (g/VMT) from EMFAC and the total vehicle trip number over the length of the driving path using the same formula presented above for on-site emissions. In addition, on-site vehicle idling exhaust emissions were calculated by applying the idle exhaust PM_{10} emission factor (g/idle-hr) from EMFAC and the total truck trip over the total assumed idle time (15 minutes). The following equation was used to estimate the on-site vehicle idling emissions for each of the different vehicle classes (4):

$Emissions_{idle}$ (g/s) = EF_{idle} (g/hr) * Number of Trips (trips/day) * Idling Time (min/trip) *

60 minutes per hour / seconds per day

Where:

$Emissions_{idle}$ (g/s): Vehicle emissions during idling;

EF_{idle}(g/s): EMFAC idle exhaust PM_{10} emission factor.

TABLE 2-1: 2021 WEIGHTED AVERAGE DPM EMISSIONS FACTORS

Speed	Weighted Average
0 (idling)	0.13148 (g/idle-hr)
5	0.05528 (g/s)
25	0.02342 (g/s)

Each roadway was modeled as a line source (made up of multiple adjacent volume sources). Due to the large number of volume sources modeled for this analysis, the corresponding coordinates of each volume source have not been included in this report but are included in Appendix "2.1". The DPM emission rate for each volume source was calculated by multiplying the emission factor (based on the average travel speed along the roadway) by the number of trips and the distance traveled along each roadway segment and dividing the result by the number of volume sources along that roadway, as illustrated on Table 2-2. The modeled emission sources are illustrated on Exhibit 2-A. The modeling domain is limited to the Project's primary truck route and includes off-site sources in the study area for more than a 1 mile. This modeling domain is more inclusive and conservative than using only a ¼ mile modeling domain which is the distance supported by several reputable studies which conclude that the greatest potential risks occur within a ¼ mile of the primary source of emissions (5) (in the case of the Project, the primary source of emissions is the on-site idling and on-site travel).

On-site truck idling was estimated to occur as trucks enter and travel through the Project site. Although the Project's diesel-fueled truck and equipment operators will be required by State law to comply with CARB's idling limit of 5 minutes, staff at SCAQMD recommends that the on-site idling emissions be calculated assuming 15 minutes of truck idling (6), which would take into account on-site idling which occurs while the trucks are waiting to pull up to the truck bays, idling at the bays, idling at check-in and check-out, etc. As such, this analysis calculates truck idling at 15 minutes, consistent with SCAQMD's recommendation, even though the Project is not within the jurisdiction of the SCAQMD, these recommendations are relevant for CEQA purposes since MDAQMD does not provide similar guidance.

Per the *Hesperia Commerce Center II Traffic Impact Analysis* (Urban Crossroads, Inc.) (TIA) prepared by Urban Crossroads, Inc., the Project is expected to generate a total of approximately 11,898 two-way vehicular trips per day (5,949 inbound and 5,949 outbound) which includes 2,368 two-way heavy-duty diesel truck trips per day (1,184 inbound and 1,184 outbound) (2). This health risk assessment study evaluates the potential impacts resulting from diesel exhaust from the 2,368 two-way heavy-duty diesel truck trips generated by the Project.

EXHIBIT 2-A: MODELED EMISSIONS SOURCES

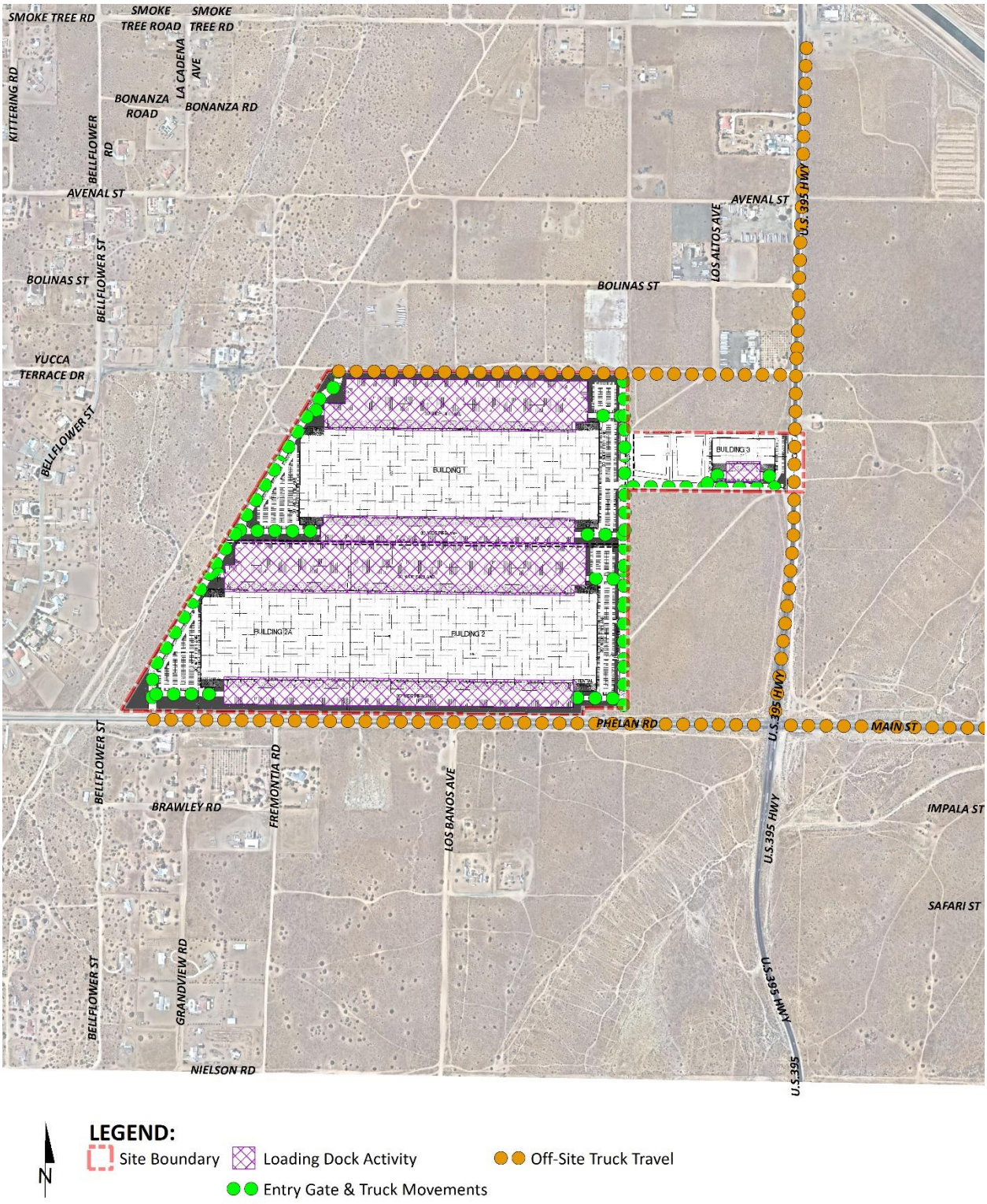


TABLE 2-2: DPM EMISSIONS FROM PROJECT TRUCKS (2021 ANALYSIS YEAR)

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling Building 1 (N)	248			0.1315	8.14	9.426E-05
On-Site Idling Building 1 (S)	248			0.1315	8.14	9.426E-05
On-Site Idling Building 2 (N)	327			0.1315	10.73	1.242E-04
On-Site Idling Building 2 (S)	327			0.1315	10.73	1.242E-04
On-Site Idling Building 3	36			0.1315	1.17	1.351E-05
On-Site Travel Building 1 (N)	496	233.38	0.0553		12.90	1.493E-04
On-Site Travel Building 1 (S)	496	265.19	0.0553		14.66	1.697E-04
On-Site Travel Building 2 (N)	653	408.68	0.0553		22.59	2.615E-04
On-Site Travel Building 2 (S)	653	433.59	0.0553		23.97	2.774E-04
On-Site Travel Building 3	71	20.42	0.0553		1.13	1.306E-05
Off-Site Travel 100% Inbound	1184	1334.42	0.0234		31.25	3.617E-04
Off-Site Travel 95% Outbound	1125	1267.70	0.0234		29.69	3.436E-04
Off-Site Travel 40% Inbound	474	238.13	0.0234		5.58	6.455E-05
Off-Site Travel 40% Outbound	474	238.13	0.0234		5.58	6.455E-05
Off-Site Travel 40% Inbound	474	103.85	0.0234		2.43	2.815E-05
Off-Site Travel 20% Inbound	237	211.37	0.0234		4.95	5.730E-05
Off-Site Travel 50% Outbound	592	129.81	0.0234		3.04	3.519E-05
Off-Site Travel 5% Outbound	59	52.84	0.0234		1.24	1.432E-05
Off-Site Travel 25% Inbound	296	75.10	0.0234		1.76	2.036E-05
Off-Site Travel 15% Inbound	178	117.07	0.0234		2.74	3.173E-05
Off-Site Travel 30% Outbound	355	90.12	0.0234		2.11	2.443E-05
Off-Site Travel 15% Outbound	178	117.07	0.0234		2.74	3.173E-05
Off-Site Travel 5% Outbound	59	21.68	0.0234		0.51	5.877E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

2.3 EXPOSURE QUANTIFICATION

The analysis herein has been conducted in accordance with the guidelines in the Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis (1). The Environmental Protection Agency's (U.S. EPA's) AERMOD model has been utilized. For purposes of this analysis, the Lakes AERMOD View (Version 9.9.0) was used to calculate annual average particulate concentrations associated with site operations. Lakes AERMOD View was utilized to incorporate the U.S. EPA's latest AERMOD Version 19191 (7).

The model offers additional flexibility by allowing the user to assign an initial release height and vertical dispersion parameters for mobile sources representative of a roadway. For this HRA, the roadways were modeled as adjacent volume sources. Roadways were modeled using the U.S. EPA's haul route methodology for modeling of on-site and off-site truck movement. More specifically, the Haul Road Volume Source Calculator in Lakes AERMOD View has been utilized to determine the release height parameters. Based on the US EPA methodology, the Project's modeled sources would result in a release height of 3.49 meters, and an initial lateral dimension of 4.0 meters, and an initial vertical dimension of 3.25 meters.

The model requires additional input parameters including emission data and local meteorology. Meteorological data from the Southern California Logistics Airport monitoring station located in MDAQMD was used to represent local weather conditions and prevailing winds (8).

Universal Transverse Mercator (UTM) coordinates for World Geodetic System (WGS) 84 were used to locate the Project site boundaries, each volume source location, and receptor locations in the Project site's vicinity. The AERMOD dispersion model summary output files for the proposed Project are presented in Appendix "2.1". Modeled sensitive receptors were placed at residential and non-residential locations.

Receptors may be placed at applicable structure locations for residential and worker property and not necessarily the boundaries of the properties containing these uses because the human receptors (residents and workers) spend a majority of their time at the residence or in the workplace's building, and not on the property line. It should be noted that the primary purpose of receptor placement is focused on long-term exposure. For example, the HRA evaluates the potential health risks to residents and workers over a period of 30 years of exposure, respectively. Notwithstanding, as a conservative measure, receptors were placed at either the outdoor living area or the building façade, whichever is closer to the Project site.

For purposes of this HRA, receptors include both residential and non-residential (worker) land uses in the vicinity of the Project. These receptors are included in the HRA since residents and workers may be exposed at these locations over a long-term duration of 30 years of exposure. This methodology is consistent with MDAQMD and OEHHA recommended guidance.

Any impacts to residents located further away from the Project site or primary truck travel route than the modeled residential receptors would have a lesser impact than what has already been disclosed in the HRA at the MEIR because concentrations dissipate with distance.

All receptors were set to existing elevation height so that only ground-level concentrations are analyzed (9). United States Geological Survey (USGS) Digital Elevation Model (DEM) terrain data based on a 7.5-minute topographic quadrangle map series using AERMAP was utilized in the HRA modeling to set elevations.

Discrete variants for daily breathing rates, exposure frequency, and exposure duration were obtained from relevant distribution profiles presented in the 2015 OEHHA Guidelines. Table 2-3 summarizes the Exposure Parameters for Residents based on 2015 OEHHA Guidelines. Appendix 2.2 includes the detailed risk calculation.

TABLE 2-3: EXPOSURE ASSUMPTIONS FOR INDIVIDUAL CANCER RISK (30 YEAR RESIDENTIAL)

Age	Daily Breathing Rate (L/kg-day)	Age Specific Factor	Exposure Duration (years)	Fraction of Time at Home	Exposure Frequency (days/year)	Exposure Time (hours/day)
-0.25 to 0	361	10	0.25	0.85	350	24
0 to 2	1090	10	2	0.85	350	24
2 to 16	572	3	14	0.72	365	24
16 to 30	261	1	14	0.73	365	24

2.4 CARCINOGENIC CHEMICAL RISK

Excess cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens over a specified exposure duration. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific cancer potency factor (CPF). A risk level of 10 in one million implies a likelihood that up to 10 people, out of one million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the levels of toxic air contaminants over a specified duration of time.

Guidance from CARB and the California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) recommends a refinement to the standard point estimate approach when alternate human body weights and breathing rates are utilized to assess risk for susceptible subpopulations such as children. For the inhalation pathway, the procedure requires the incorporation of several discrete variates to effectively quantify dose. Once determined, contaminant dose is multiplied by the cancer potency factor (CPF) in units of inverse dose expressed in milligrams per kilogram per day (mg/kg/day)-1 to derive the cancer risk estimate. Therefore, to assess exposures, the following dose algorithm was utilized.

$$DOSEair = (Cair \times [BR/BW] \times A \times EF) \times (1 \times 10^{-6})$$

Where:

DOSEair = chronic daily intake (mg/kg/day)

Cair = concentration of contaminant in air (ug/m3)

[BR/BW] = daily breathing rate normalized to body weight (L/kg BW-day)

A = inhalation absorption factor

EF = exposure frequency (days/365 days)

BW = body weight (kg)

1 x 10 -6 = conversion factors (ug to mg, L to m3)

RISKair = DOSEair x CPF x ED/AT

Where:

DOSEair = chronic daily intake (mg/kg/day)

CPF = cancer potency factor

ED = number of years within particular age group

AT = averaging time

2.5 NON-CARCINOGENIC EXPOSURES

An evaluation of the potential noncarcinogenic effects of chronic exposures was also conducted. Adverse health effects are evaluated by comparing a compound's annual concentration with its toxicity factor or Reference Exposure Level (REL). The REL for diesel particulates was obtained from OEHHA for this analysis. The chronic reference exposure level (REL) for DPM was established by OEHHA as 5 µg/m^3 (OEHHA Toxicity Criteria Database, http://www.oehha.org/risk/chemicaldb/index.asp).

The non-cancer hazard index was calculated as follows:

The relationship for the non-cancer health effects of DPM is given by the following equation:

$$HI_{DPM} = C_{DPM}/REL_{DPM}$$

Where:

HI_{DPM} = Hazard Index; an expression of the potential for non-cancer health effects.

C_{DPM} = Annual average DPM concentration (µg/m^3).

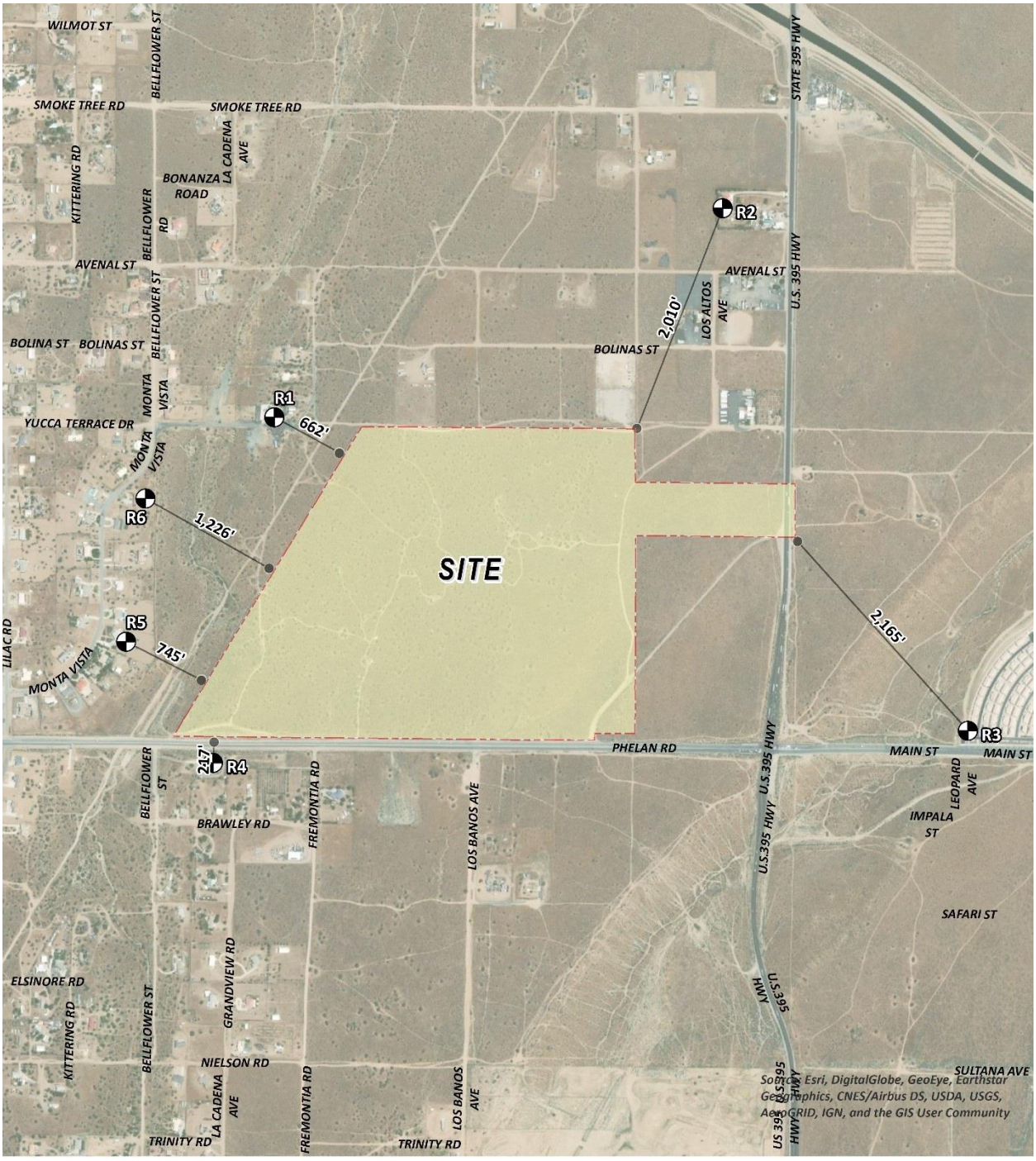
REL_{DPM} = Reference exposure level (REL) for DPM; the DPM concentration at which no adverse health effects are anticipated.

For purposes of this analysis the hazard index for the respiratory endpoint totaled less than one for all receptors in the project vicinity, and thus is less than significant.

2.6 POTENTIAL PROJECT-RELATED DPM SOURCE CANCER AND NON-CANCER RISKS

The residential land use with the greatest potential exposure to Project DPM source emissions is Location R3, which represents the existing West Main Villas apartments as 9800 Mesa Linda Street approximately 2,165 feet southeast of the Project site, and immediately adjacent to the north of Main Street (the Projects primary truck travel route). R3 is placed at the residential building façade. At the MEIR, the maximum incremental cancer risk attributable to Project DPM source emissions is estimated at 7.37 in one million, which is less than the MDAQMD's significance threshold of 10 in one million. At this same location, non-cancer risks were estimated to be 0.003, which would not exceed the applicable significance threshold of 1.0. Because all other modeled residential receptors are exposed to lesser concentrations and are located at a greater distance than the MEIR analyzed herein, and DPM generally dissipates with distance from the source, all other residential receptors in the vicinity of the Project site would be exposed to less emissions and therefore less risk than the MEIR identified herein. As such, the Project will not cause a significant human health or cancer risk to nearby residences. The nearest modeled receptors are illustrated on Exhibit 2-B.

EXHIBIT 2-B: MODELED RECEPTORS



LEGEND:

- Receptor Locations
- Distance from receptor to Project site boundard (in feet)

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3 REFERENCES

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8. **California Air Resources Board.** Data for AERMOD. [Online] [Cited: August 10, 2020.] https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files.
9. **South Coast Air Quality Management District.** South Coast AQMD Modeling Guidance for AERMOD. [Online] [Cited: September 18, 2019.] http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance.

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4 CERTIFICATIONS

The contents of this health risk assessment represent an accurate depiction of the impacts to sensitive receptors associated with the proposed Hesperia Commerce Center II Project. The information contained in this health risk assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 2.1:

AERMOD MODEL INPUT/OUTPUT

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**
**************************************
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** AERMOD Input Produced by:
** AERMOD View Ver. 9.9.0
** Lakes Environmental Software Inc.
** Date: 8/12/2020
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**
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** AERMOD Control Pathway
**************************************
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   AVERTIME ANNUAL
   URBANOPT 2035210
   POLLUTID DPM
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CO FINISHED
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** AERMOD Source Pathway
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** Source ID - Type - X Coord. - Y Coord. **
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** PREFIX
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** SZINIT = 3.25
** Nodes = 2
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** 462778.254, 3810238.412, 1080.00, 3.49, 4.00
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LOCATION L0007422 VOLUME 462238.674 3810238.412 1085.22
LOCATION L0007423 VOLUME 462247.264 3810238.412 1085.05
LOCATION L0007424 VOLUME 462255.854 3810238.412 1085.00
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LOCATION L0007430 VOLUME 462307.394 3810238.412 1084.62
LOCATION L0007431 VOLUME 462315.984 3810238.412 1084.58
LOCATION L0007432 VOLUME 462324.574 3810238.412 1084.58
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LOCATION L0007434 VOLUME 462341.754 3810238.412 1084.55
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LOCATION L0007443 VOLUME 462419.064 3810238.412 1083.74
LOCATION L0007444 VOLUME 462427.654 3810238.412 1083.62
LOCATION L0007445 VOLUME 462436.244 3810238.412 1083.58
LOCATION L0007446 VOLUME 462444.834 3810238.412 1083.58
LOCATION L0007447 VOLUME 462453.424 3810238.412 1083.58
LOCATION L0007448 VOLUME 462462.014 3810238.412 1083.54
LOCATION L0007449 VOLUME 462470.604 3810238.412 1083.38
LOCATION L0007450 VOLUME 462479.194 3810238.412 1083.21
LOCATION L0007451 VOLUME 462487.784 3810238.412 1083.04
LOCATION L0007452 VOLUME 462496.374 3810238.412 1082.91
LOCATION L0007453 VOLUME 462504.964 3810238.412 1082.79
LOCATION L0007454 VOLUME 462513.554 3810238.412 1082.67
LOCATION L0007455 VOLUME 462522.144 3810238.412 1082.54
LOCATION L0007456 VOLUME 462530.734 3810238.412 1082.37
LOCATION L0007457 VOLUME 462539.324 3810238.412 1082.21
LOCATION L0007458 VOLUME 462547.914 3810238.412 1082.04
LOCATION L0007459 VOLUME 462556.504 3810238.412 1082.00
LOCATION L0007460 VOLUME 462565.094 3810238.412 1082.00
LOCATION L0007461 VOLUME 462573.684 3810238.412 1082.00
LOCATION L0007462 VOLUME 462582.274 3810238.412 1081.97
LOCATION L0007463 VOLUME 462590.864 3810238.412 1081.85
LOCATION L0007464 VOLUME 462599.454 3810238.412 1081.73
LOCATION L0007465 VOLUME 462608.044 3810238.412 1081.61
LOCATION L0007466 VOLUME 462616.634 3810238.412 1081.58
LOCATION L0007467 VOLUME 462625.224 3810238.412 1081.58
LOCATION L0007468 VOLUME 462633.814 3810238.412 1081.58

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   LOCATION L0007469     VOLUME   462642.404 3810238.412 1081.54
   LOCATION L0007470     VOLUME   462650.994 3810238.412 1081.37
   LOCATION L0007471     VOLUME   462659.584 3810238.412 1081.20
   LOCATION L0007472     VOLUME   462668.174 3810238.412 1081.04
   LOCATION L0007473     VOLUME   462676.764 3810238.412 1080.91
   LOCATION L0007474     VOLUME   462685.354 3810238.412 1080.79
   LOCATION L0007475     VOLUME   462693.944 3810238.412 1080.67
   LOCATION L0007476     VOLUME   462702.534 3810238.412 1080.53
   LOCATION L0007477     VOLUME   462711.124 3810238.412 1080.37
   LOCATION L0007478     VOLUME   462719.714 3810238.412 1080.20
   LOCATION L0007479     VOLUME   462728.304 3810238.412 1080.03
   LOCATION L0007480     VOLUME   462736.894 3810238.412 1080.00
   LOCATION L0007481     VOLUME   462745.484 3810238.412 1080.00
   LOCATION L0007482     VOLUME   462754.074 3810238.412 1080.00
   LOCATION L0007483     VOLUME   462762.664 3810238.412 1079.96
   LOCATION L0007484     VOLUME   462771.254 3810238.412 1079.84
** End of LINE VOLUME Source ID = SLINE1
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE2
** DESCRSRC On-Site Idling Building 1 (S)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00009426
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 462201.498, 3810000.315, 1088.52, 3.49, 4.00
** 462772.339, 3810000.315, 1083.51, 3.49, 4.00
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   LOCATION L0007486     VOLUME   462214.383 3810000.315 1088.52
   LOCATION L0007487     VOLUME   462222.973 3810000.315 1088.47
   LOCATION L0007488     VOLUME   462231.563 3810000.315 1088.32
   LOCATION L0007489     VOLUME   462240.153 3810000.315 1088.17
   LOCATION L0007490     VOLUME   462248.743 3810000.315 1088.02
   LOCATION L0007491     VOLUME   462257.333 3810000.315 1088.00
   LOCATION L0007492     VOLUME   462265.923 3810000.315 1088.00
   LOCATION L0007493     VOLUME   462274.513 3810000.315 1088.00
   LOCATION L0007494     VOLUME   462283.103 3810000.315 1088.00
   LOCATION L0007495     VOLUME   462291.693 3810000.315 1088.00
   LOCATION L0007496     VOLUME   462300.283 3810000.315 1088.00
   LOCATION L0007497     VOLUME   462308.873 3810000.315 1088.00
   LOCATION L0007498     VOLUME   462317.463 3810000.315 1087.88
   LOCATION L0007499     VOLUME   462326.053 3810000.315 1087.74
   LOCATION L0007500     VOLUME   462334.643 3810000.315 1087.61
   LOCATION L0007501     VOLUME   462343.233 3810000.315 1087.52
   LOCATION L0007502     VOLUME   462351.823 3810000.315 1087.52
   LOCATION L0007503     VOLUME   462360.413 3810000.315 1087.52
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   LOCATION L0007504     VOLUME   462369.003 3810000.315 1087.52
   LOCATION L0007505     VOLUME   462377.593 3810000.315 1087.39
   LOCATION L0007506     VOLUME   462386.183 3810000.315 1087.24
   LOCATION L0007507     VOLUME   462394.773 3810000.315 1087.09
   LOCATION L0007508     VOLUME   462403.363 3810000.315 1087.00
   LOCATION L0007509     VOLUME   462411.953 3810000.315 1087.00
   LOCATION L0007510     VOLUME   462420.543 3810000.315 1087.00
   LOCATION L0007511     VOLUME   462429.133 3810000.315 1087.00
   LOCATION L0007512     VOLUME   462437.723 3810000.315 1086.88
   LOCATION L0007513     VOLUME   462446.313 3810000.315 1086.74
   LOCATION L0007514     VOLUME   462454.903 3810000.315 1086.60
   LOCATION L0007515     VOLUME   462463.493 3810000.315 1086.46
   LOCATION L0007516     VOLUME   462472.083 3810000.315 1086.31
   LOCATION L0007517     VOLUME   462480.673 3810000.315 1086.16
   LOCATION L0007518     VOLUME   462489.263 3810000.315 1086.01
   LOCATION L0007519     VOLUME   462497.853 3810000.315 1086.00
   LOCATION L0007520     VOLUME   462506.443 3810000.315 1086.00
   LOCATION L0007521     VOLUME   462515.033 3810000.315 1086.00
   LOCATION L0007522     VOLUME   462523.623 3810000.315 1086.00
   LOCATION L0007523     VOLUME   462532.213 3810000.315 1086.00
   LOCATION L0007524     VOLUME   462540.803 3810000.315 1086.00
   LOCATION L0007525     VOLUME   462549.393 3810000.315 1086.00
   LOCATION L0007526     VOLUME   462557.983 3810000.315 1085.87
   LOCATION L0007527     VOLUME   462566.573 3810000.315 1085.73
   LOCATION L0007528     VOLUME   462575.163 3810000.315 1085.60
   LOCATION L0007529     VOLUME   462583.753 3810000.315 1085.45
   LOCATION L0007530     VOLUME   462592.343 3810000.315 1085.31
   LOCATION L0007531     VOLUME   462600.933 3810000.315 1085.16
   LOCATION L0007532     VOLUME   462609.523 3810000.315 1085.01
   LOCATION L0007533     VOLUME   462618.113 3810000.315 1085.00
   LOCATION L0007534     VOLUME   462626.703 3810000.315 1085.00
   LOCATION L0007535     VOLUME   462635.293 3810000.315 1085.00
   LOCATION L0007536     VOLUME   462643.883 3810000.315 1084.94
   LOCATION L0007537     VOLUME   462652.473 3810000.315 1084.80
   LOCATION L0007538     VOLUME   462661.063 3810000.315 1084.66
   LOCATION L0007539     VOLUME   462669.653 3810000.315 1084.53
   LOCATION L0007540     VOLUME   462678.243 3810000.315 1084.38
   LOCATION L0007541     VOLUME   462686.833 3810000.315 1084.23
   LOCATION L0007542     VOLUME   462695.423 3810000.315 1084.08
   LOCATION L0007543     VOLUME   462704.013 3810000.315 1084.00
   LOCATION L0007544     VOLUME   462712.603 3810000.315 1084.00
   LOCATION L0007545     VOLUME   462721.193 3810000.315 1084.00
   LOCATION L0007546     VOLUME   462729.783 3810000.315 1084.00
   LOCATION L0007547     VOLUME   462738.373 3810000.315 1083.87
   LOCATION L0007548     VOLUME   462746.963 3810000.315 1083.73
   LOCATION L0007549     VOLUME   462755.553 3810000.315 1083.59
   LOCATION L0007550     VOLUME   462764.143 3810000.315 1083.45
** End of LINE VOLUME Source ID = SLINE2
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** Line Source Represented by Adjacent Volume Sources
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** LINE VOLUME Source ID = SLINE3
** DESCRSRC On-Site Idling Building 2 (N)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001242
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 461979.668, 3809862.780, 1092.00, 3.49, 4.00
** 462769.381, 3809859.823, 1084.82, 3.49, 4.00
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   LOCATION L0007552     VOLUME   461992.553 3809862.732 1092.00
   LOCATION L0007553     VOLUME   462001.143 3809862.700 1092.00
   LOCATION L0007554     VOLUME   462009.733 3809862.668 1092.00
   LOCATION L0007555     VOLUME   462018.323 3809862.636 1092.00
   LOCATION L0007556     VOLUME   462026.913 3809862.603 1092.00
   LOCATION L0007557     VOLUME   462035.503 3809862.571 1092.00
   LOCATION L0007558     VOLUME   462044.093 3809862.539 1092.00
   LOCATION L0007559     VOLUME   462052.683 3809862.507 1092.00
   LOCATION L0007560     VOLUME   462061.272 3809862.475 1092.00
   LOCATION L0007561     VOLUME   462069.862 3809862.442 1092.00
   LOCATION L0007562     VOLUME   462078.452 3809862.410 1092.00
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   LOCATION L0007564     VOLUME   462095.632 3809862.346 1092.00
   LOCATION L0007565     VOLUME   462104.222 3809862.314 1091.88
   LOCATION L0007566     VOLUME   462112.812 3809862.282 1091.62
   LOCATION L0007567     VOLUME   462121.402 3809862.249 1091.37
   LOCATION L0007568     VOLUME   462129.992 3809862.217 1091.12
   LOCATION L0007569     VOLUME   462138.582 3809862.185 1091.12
   LOCATION L0007570     VOLUME   462147.172 3809862.153 1091.13
   LOCATION L0007571     VOLUME   462155.762 3809862.121 1091.13
   LOCATION L0007572     VOLUME   462164.352 3809862.089 1091.11
   LOCATION L0007573     VOLUME   462172.942 3809862.056 1091.07
   LOCATION L0007574     VOLUME   462181.532 3809862.024 1091.04
   LOCATION L0007575     VOLUME   462190.122 3809861.992 1091.00
   LOCATION L0007576     VOLUME   462198.712 3809861.960 1091.00
   LOCATION L0007577     VOLUME   462207.301 3809861.928 1091.00
   LOCATION L0007578     VOLUME   462215.891 3809861.896 1091.00
   LOCATION L0007579     VOLUME   462224.481 3809861.863 1090.87
   LOCATION L0007580     VOLUME   462233.071 3809861.831 1090.62
   LOCATION L0007581     VOLUME   462241.661 3809861.799 1090.38
   LOCATION L0007582     VOLUME   462250.251 3809861.767 1090.14
   LOCATION L0007583     VOLUME   462258.841 3809861.735 1090.10
   LOCATION L0007584     VOLUME   462267.431 3809861.703 1090.06
   LOCATION L0007585     VOLUME   462276.021 3809861.670 1090.02
   LOCATION L0007586     VOLUME   462284.611 3809861.638 1090.00
   LOCATION L0007587     VOLUME   462293.201 3809861.606 1090.00
   LOCATION L0007588     VOLUME   462301.791 3809861.574 1090.00
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LOCATION L0007589     VOLUME   462310.381 3809861.542 1089.99
LOCATION L0007590     VOLUME   462318.971 3809861.510 1089.74
LOCATION L0007591     VOLUME   462327.561 3809861.477 1089.50
LOCATION L0007592     VOLUME   462336.151 3809861.445 1089.26
LOCATION L0007593     VOLUME   462344.740 3809861.413 1089.13
LOCATION L0007594     VOLUME   462353.330 3809861.381 1089.08
LOCATION L0007595     VOLUME   462361.920 3809861.349 1089.04
LOCATION L0007596     VOLUME   462370.510 3809861.316 1089.00
LOCATION L0007597     VOLUME   462379.100 3809861.284 1089.00
LOCATION L0007598     VOLUME   462387.690 3809861.252 1089.00
LOCATION L0007599     VOLUME   462396.280 3809861.220 1089.00
LOCATION L0007600     VOLUME   462404.870 3809861.188 1088.86
LOCATION L0007601     VOLUME   462413.460 3809861.156 1088.62
LOCATION L0007602     VOLUME   462422.050 3809861.123 1088.38
LOCATION L0007603     VOLUME   462430.640 3809861.091 1088.16
LOCATION L0007604     VOLUME   462439.230 3809861.059 1088.11
LOCATION L0007605     VOLUME   462447.820 3809861.027 1088.07
LOCATION L0007606     VOLUME   462456.410 3809860.995 1088.02
LOCATION L0007607     VOLUME   462465.000 3809860.963 1088.00
LOCATION L0007608     VOLUME   462473.590 3809860.930 1088.00
LOCATION L0007609     VOLUME   462482.180 3809860.898 1088.00
LOCATION L0007610     VOLUME   462490.769 3809860.866 1088.00
LOCATION L0007611     VOLUME   462499.359 3809860.834 1088.00
LOCATION L0007612     VOLUME   462507.949 3809860.802 1088.00
LOCATION L0007613     VOLUME   462516.539 3809860.770 1088.00
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LOCATION L0007615     VOLUME   462533.719 3809860.705 1087.62
LOCATION L0007616     VOLUME   462542.309 3809860.673 1087.39
LOCATION L0007617     VOLUME   462550.899 3809860.641 1087.17
LOCATION L0007618     VOLUME   462559.489 3809860.609 1087.12
LOCATION L0007619     VOLUME   462568.079 3809860.577 1087.07
LOCATION L0007620     VOLUME   462576.669 3809860.544 1087.02
LOCATION L0007621     VOLUME   462585.259 3809860.512 1087.00
LOCATION L0007622     VOLUME   462593.849 3809860.480 1087.00
LOCATION L0007623     VOLUME   462602.439 3809860.448 1087.00
LOCATION L0007624     VOLUME   462611.029 3809860.416 1086.97
LOCATION L0007625     VOLUME   462619.619 3809860.383 1086.74
LOCATION L0007626     VOLUME   462628.208 3809860.351 1086.51
LOCATION L0007627     VOLUME   462636.798 3809860.319 1086.27
LOCATION L0007628     VOLUME   462645.388 3809860.287 1086.15
LOCATION L0007629     VOLUME   462653.978 3809860.255 1086.10
LOCATION L0007630     VOLUME   462662.568 3809860.223 1086.05
LOCATION L0007631     VOLUME   462671.158 3809860.190 1086.00
LOCATION L0007632     VOLUME   462679.748 3809860.158 1086.00
LOCATION L0007633     VOLUME   462688.338 3809860.126 1086.00
LOCATION L0007634     VOLUME   462696.928 3809860.094 1086.00
LOCATION L0007635     VOLUME   462705.518 3809860.062 1085.85
LOCATION L0007636     VOLUME   462714.108 3809860.030 1085.62
LOCATION L0007637     VOLUME   462722.698 3809859.997 1085.39
LOCATION L0007638     VOLUME   462731.288 3809859.965 1085.19
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   LOCATION L0007639     VOLUME   462739.878 3809859.933 1085.13
   LOCATION L0007640     VOLUME   462748.468 3809859.901 1085.08
   LOCATION L0007641     VOLUME   462757.058 3809859.869 1085.02
   LOCATION L0007642     VOLUME   462765.648 3809859.837 1084.85
** End of LINE VOLUME Source ID = SLINE3
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE4
** DESCRSRC On-Site Idling Building 2 (S)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001242
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 461984.105, 3809624.683, 1096.05, 3.49, 4.00
** 462772.339, 3809621.726, 1088.19, 3.49, 4.00
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   LOCATION L0007644     VOLUME   461996.990 3809624.635 1096.02
   LOCATION L0007645     VOLUME   462005.579 3809624.603 1096.01
   LOCATION L0007646     VOLUME   462014.169 3809624.570 1095.87
   LOCATION L0007647     VOLUME   462022.759 3809624.538 1095.59
   LOCATION L0007648     VOLUME   462031.349 3809624.506 1095.32
   LOCATION L0007649     VOLUME   462039.939 3809624.474 1095.05
   LOCATION L0007650     VOLUME   462048.529 3809624.442 1095.05
   LOCATION L0007651     VOLUME   462057.119 3809624.409 1095.05
   LOCATION L0007652     VOLUME   462065.709 3809624.377 1095.05
   LOCATION L0007653     VOLUME   462074.299 3809624.345 1095.04
   LOCATION L0007654     VOLUME   462082.889 3809624.313 1095.03
   LOCATION L0007655     VOLUME   462091.479 3809624.280 1095.02
   LOCATION L0007656     VOLUME   462100.069 3809624.248 1095.00
   LOCATION L0007657     VOLUME   462108.659 3809624.216 1094.73
   LOCATION L0007658     VOLUME   462117.249 3809624.184 1094.46
   LOCATION L0007659     VOLUME   462125.839 3809624.151 1094.19
   LOCATION L0007660     VOLUME   462134.429 3809624.119 1094.06
   LOCATION L0007661     VOLUME   462143.019 3809624.087 1094.06
   LOCATION L0007662     VOLUME   462151.608 3809624.055 1094.06
   LOCATION L0007663     VOLUME   462160.198 3809624.023 1094.06
   LOCATION L0007664     VOLUME   462168.788 3809623.990 1094.05
   LOCATION L0007665     VOLUME   462177.378 3809623.958 1094.03
   LOCATION L0007666     VOLUME   462185.968 3809623.926 1094.01
   LOCATION L0007667     VOLUME   462194.558 3809623.894 1094.00
   LOCATION L0007668     VOLUME   462203.148 3809623.861 1094.00
   LOCATION L0007669     VOLUME   462211.738 3809623.829 1094.00
   LOCATION L0007670     VOLUME   462220.328 3809623.797 1093.99
   LOCATION L0007671     VOLUME   462228.918 3809623.765 1093.72
   LOCATION L0007672     VOLUME   462237.508 3809623.732 1093.46
   LOCATION L0007673     VOLUME   462246.098 3809623.700 1093.19
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LOCATION L0007675 VOLUME 462263.278 3809623.636 1093.04
LOCATION L0007676 VOLUME 462271.868 3809623.604 1093.02
LOCATION L0007677 VOLUME 462280.458 3809623.571 1093.00
LOCATION L0007678 VOLUME 462289.047 3809623.539 1093.00
LOCATION L0007679 VOLUME 462297.637 3809623.507 1093.00
LOCATION L0007680 VOLUME 462306.227 3809623.475 1093.00
LOCATION L0007681 VOLUME 462314.817 3809623.442 1092.85
LOCATION L0007682 VOLUME 462323.407 3809623.410 1092.59
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LOCATION L0007686 VOLUME 462357.767 3809623.281 1092.04
LOCATION L0007687 VOLUME 462366.357 3809623.249 1092.01
LOCATION L0007688 VOLUME 462374.947 3809623.217 1092.00
LOCATION L0007689 VOLUME 462383.537 3809623.184 1092.00
LOCATION L0007690 VOLUME 462392.127 3809623.152 1092.00
LOCATION L0007691 VOLUME 462400.717 3809623.120 1091.98
LOCATION L0007692 VOLUME 462409.307 3809623.088 1091.72
LOCATION L0007693 VOLUME 462417.897 3809623.056 1091.46
LOCATION L0007694 VOLUME 462426.487 3809623.023 1091.20
LOCATION L0007695 VOLUME 462435.076 3809622.991 1091.08
LOCATION L0007696 VOLUME 462443.666 3809622.959 1091.05
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LOCATION L0007704 VOLUME 462512.386 3809622.701 1090.03
LOCATION L0007705 VOLUME 462520.976 3809622.669 1090.00
LOCATION L0007706 VOLUME 462529.566 3809622.637 1090.00
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LOCATION L0007708 VOLUME 462546.746 3809622.572 1090.00
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LOCATION L0007711 VOLUME 462572.515 3809622.475 1090.00
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LOCATION L0007715 VOLUME 462606.875 3809622.346 1090.00
LOCATION L0007716 VOLUME 462615.465 3809622.314 1089.84
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LOCATION L0007718 VOLUME 462632.645 3809622.250 1089.34
LOCATION L0007719 VOLUME 462641.235 3809622.218 1089.12
LOCATION L0007720 VOLUME 462649.825 3809622.185 1089.12
LOCATION L0007721 VOLUME 462658.415 3809622.153 1089.13
LOCATION L0007722 VOLUME 462667.005 3809622.121 1089.13
LOCATION L0007723 VOLUME 462675.595 3809622.089 1089.10

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   LOCATION L0007724     VOLUME   462684.185 3809622.056 1089.07
   LOCATION L0007725     VOLUME   462692.775 3809622.024 1089.03
   LOCATION L0007726     VOLUME   462701.365 3809621.992 1089.00
   LOCATION L0007727     VOLUME   462709.955 3809621.960 1089.00
   LOCATION L0007728     VOLUME   462718.544 3809621.927 1089.00
   LOCATION L0007729     VOLUME   462727.134 3809621.895 1089.00
   LOCATION L0007730     VOLUME   462735.724 3809621.863 1088.83
   LOCATION L0007731     VOLUME   462744.314 3809621.831 1088.59
   LOCATION L0007732     VOLUME   462752.904 3809621.798 1088.34
   LOCATION L0007733     VOLUME   462761.494 3809621.766 1088.14
   LOCATION L0007734     VOLUME   462770.084 3809621.734 1088.14
** End of LINE VOLUME Source ID = SLINE4
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE5
** DESCRSRC On-Site Idling Building 3
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001351
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 463131.703, 3810133.412, 1078.00, 3.49, 4.00
** 463204.167, 3810131.933, 1077.09, 3.49, 4.00
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   LOCATION L0007735     VOLUME   463135.997 3810133.325 1078.00
   LOCATION L0007736     VOLUME   463144.585 3810133.149 1078.00
   LOCATION L0007737     VOLUME   463153.173 3810132.974 1077.90
   LOCATION L0007738     VOLUME   463161.761 3810132.799 1077.65
   LOCATION L0007739     VOLUME   463170.350 3810132.624 1077.40
   LOCATION L0007740     VOLUME   463178.938 3810132.448 1077.15
   LOCATION L0007741     VOLUME   463187.526 3810132.273 1077.12
   LOCATION L0007742     VOLUME   463196.114 3810132.098 1077.13
** End of LINE VOLUME Source ID = SLINE5
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE6
** DESCRSRC On-Site Travel Building 1 (N)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001493
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 6
** 462877.782, 3810254.840, 1078.04, 3.49, 4.00
** 462780.544, 3810258.046, 1079.23, 3.49, 4.00
** 462780.544, 3810299.719, 1078.92, 3.49, 4.00
** 462284.740, 3810305.062, 1084.00, 3.49, 4.00
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** 462285.809, 3810267.663, 1084.86, 3.49, 4.00
** 462200.325, 3810260.183, 1085.11, 3.49, 4.00
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   LOCATION L0007744     VOLUME   462864.904 3810255.265 1078.51
   LOCATION L0007745     VOLUME   462856.319 3810255.548 1078.79
   LOCATION L0007746     VOLUME   462847.733 3810255.831 1079.00
   LOCATION L0007747     VOLUME   462839.148 3810256.114 1078.99
   LOCATION L0007748     VOLUME   462830.563 3810256.397 1078.98
   LOCATION L0007749     VOLUME   462821.977 3810256.680 1078.97
   LOCATION L0007750     VOLUME   462813.392 3810256.963 1078.97
   LOCATION L0007751     VOLUME   462804.807 3810257.246 1078.98
   LOCATION L0007752     VOLUME   462796.221 3810257.529 1078.99
   LOCATION L0007753     VOLUME   462787.636 3810257.812 1079.07
   LOCATION L0007754     VOLUME   462780.544 3810259.541 1079.28
   LOCATION L0007755     VOLUME   462780.544 3810268.131 1079.19
   LOCATION L0007756     VOLUME   462780.544 3810276.721 1079.10
   LOCATION L0007757     VOLUME   462780.544 3810285.311 1079.01
   LOCATION L0007758     VOLUME   462780.544 3810293.901 1078.82
   LOCATION L0007759     VOLUME   462777.773 3810299.749 1078.73
   LOCATION L0007760     VOLUME   462769.184 3810299.842 1078.86
   LOCATION L0007761     VOLUME   462760.594 3810299.934 1078.99
   LOCATION L0007762     VOLUME   462752.005 3810300.027 1079.14
   LOCATION L0007763     VOLUME   462743.415 3810300.119 1079.29
   LOCATION L0007764     VOLUME   462734.826 3810300.212 1079.44
   LOCATION L0007765     VOLUME   462726.236 3810300.305 1079.52
   LOCATION L0007766     VOLUME   462717.647 3810300.397 1079.52
   LOCATION L0007767     VOLUME   462709.057 3810300.490 1079.51
   LOCATION L0007768     VOLUME   462700.468 3810300.582 1079.51
   LOCATION L0007769     VOLUME   462691.878 3810300.675 1079.64
   LOCATION L0007770     VOLUME   462683.289 3810300.767 1079.78
   LOCATION L0007771     VOLUME   462674.699 3810300.860 1079.92
   LOCATION L0007772     VOLUME   462666.110 3810300.952 1080.00
   LOCATION L0007773     VOLUME   462657.520 3810301.045 1080.00
   LOCATION L0007774     VOLUME   462648.931 3810301.138 1080.00
   LOCATION L0007775     VOLUME   462640.341 3810301.230 1080.00
   LOCATION L0007776     VOLUME   462631.752 3810301.323 1080.13
   LOCATION L0007777     VOLUME   462623.162 3810301.415 1080.27
   LOCATION L0007778     VOLUME   462614.573 3810301.508 1080.41
   LOCATION L0007779     VOLUME   462605.983 3810301.600 1080.55
   LOCATION L0007780     VOLUME   462597.394 3810301.693 1080.69
   LOCATION L0007781     VOLUME   462588.804 3810301.785 1080.84
   LOCATION L0007782     VOLUME   462580.215 3810301.878 1081.00
   LOCATION L0007783     VOLUME   462571.625 3810301.971 1081.13
   LOCATION L0007784     VOLUME   462563.036 3810302.063 1081.26
   LOCATION L0007785     VOLUME   462554.446 3810302.156 1081.39
   LOCATION L0007786     VOLUME   462545.857 3810302.248 1081.53
   LOCATION L0007787     VOLUME   462537.267 3810302.341 1081.68
   LOCATION L0007788     VOLUME   462528.678 3810302.433 1081.84
   LOCATION L0007789     VOLUME   462520.088 3810302.526 1082.00
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   LOCATION L0007790     VOLUME   462511.499 3810302.619 1082.00
   LOCATION L0007791     VOLUME   462502.909 3810302.711 1082.00
   LOCATION L0007792     VOLUME   462494.320 3810302.804 1082.00
   LOCATION L0007793     VOLUME   462485.730 3810302.896 1082.06
   LOCATION L0007794     VOLUME   462477.141 3810302.989 1082.18
   LOCATION L0007795     VOLUME   462468.551 3810303.081 1082.31
   LOCATION L0007796     VOLUME   462459.962 3810303.174 1082.42
   LOCATION L0007797     VOLUME   462451.372 3810303.266 1082.42
   LOCATION L0007798     VOLUME   462442.783 3810303.359 1082.42
   LOCATION L0007799     VOLUME   462434.193 3810303.452 1082.42
   LOCATION L0007800     VOLUME   462425.604 3810303.544 1082.50
   LOCATION L0007801     VOLUME   462417.014 3810303.637 1082.66
   LOCATION L0007802     VOLUME   462408.425 3810303.729 1082.83
   LOCATION L0007803     VOLUME   462399.835 3810303.822 1083.00
   LOCATION L0007804     VOLUME   462391.246 3810303.914 1083.12
   LOCATION L0007805     VOLUME   462382.656 3810304.007 1083.23
   LOCATION L0007806     VOLUME   462374.067 3810304.099 1083.34
   LOCATION L0007807     VOLUME   462365.477 3810304.192 1083.39
   LOCATION L0007808     VOLUME   462356.888 3810304.285 1083.39
   LOCATION L0007809     VOLUME   462348.298 3810304.377 1083.38
   LOCATION L0007810     VOLUME   462339.709 3810304.470 1083.39
   LOCATION L0007811     VOLUME   462331.119 3810304.562 1083.56
   LOCATION L0007812     VOLUME   462322.530 3810304.655 1083.74
   LOCATION L0007813     VOLUME   462313.940 3810304.747 1083.92
   LOCATION L0007814     VOLUME   462305.351 3810304.840 1084.00
   LOCATION L0007815     VOLUME   462296.761 3810304.932 1084.00
   LOCATION L0007816     VOLUME   462288.172 3810305.025 1084.00
   LOCATION L0007817     VOLUME   462284.887 3810299.906 1084.00
   LOCATION L0007818     VOLUME   462285.133 3810291.319 1084.00
   LOCATION L0007819     VOLUME   462285.378 3810282.733 1084.09
   LOCATION L0007820     VOLUME   462285.623 3810274.146 1084.32
   LOCATION L0007821     VOLUME   462283.713 3810267.480 1084.54
   LOCATION L0007822     VOLUME   462275.155 3810266.731 1084.64
   LOCATION L0007823     VOLUME   462266.598 3810265.982 1084.66
   LOCATION L0007824     VOLUME   462258.041 3810265.233 1084.69
   LOCATION L0007825     VOLUME   462249.483 3810264.485 1084.72
   LOCATION L0007826     VOLUME   462240.926 3810263.736 1084.82
   LOCATION L0007827     VOLUME   462232.369 3810262.987 1084.90
   LOCATION L0007828     VOLUME   462223.812 3810262.238 1084.97
   LOCATION L0007829     VOLUME   462215.254 3810261.489 1085.00
   LOCATION L0007830     VOLUME   462206.697 3810260.741 1085.00
** End of LINE VOLUME Source ID = SLINE6
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE7
** DESCRSRC On-Site Travel Building 1 (S)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0001697
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** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 462016.535, 3809983.430, 1090.11, 3.49, 4.00
** 462060.346, 3809981.293, 1090.00, 3.49, 4.00
** 462228.107, 3809982.362, 1088.87, 3.49, 4.00
** 462877.782, 3809978.088, 1082.26, 3.49, 4.00
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   LOCATION L0007832     VOLUME   462029.405 3809982.802 1090.10
   LOCATION L0007833     VOLUME   462037.985 3809982.384 1090.12
   LOCATION L0007834     VOLUME   462046.565 3809981.965 1090.10
   LOCATION L0007835     VOLUME   462055.145 3809981.547 1090.07
   LOCATION L0007836     VOLUME   462063.728 3809981.315 1090.03
   LOCATION L0007837     VOLUME   462072.318 3809981.369 1090.00
   LOCATION L0007838     VOLUME   462080.908 3809981.424 1090.00
   LOCATION L0007839     VOLUME   462089.498 3809981.479 1090.00
   LOCATION L0007840     VOLUME   462098.088 3809981.534 1090.00
   LOCATION L0007841     VOLUME   462106.677 3809981.588 1090.00
   LOCATION L0007842     VOLUME   462115.267 3809981.643 1090.00
   LOCATION L0007843     VOLUME   462123.857 3809981.698 1090.00
   LOCATION L0007844     VOLUME   462132.447 3809981.752 1089.93
   LOCATION L0007845     VOLUME   462141.037 3809981.807 1089.68
   LOCATION L0007846     VOLUME   462149.627 3809981.862 1089.43
   LOCATION L0007847     VOLUME   462158.216 3809981.917 1089.18
   LOCATION L0007848     VOLUME   462166.806 3809981.971 1089.13
   LOCATION L0007849     VOLUME   462175.396 3809982.026 1089.13
   LOCATION L0007850     VOLUME   462183.986 3809982.081 1089.13
   LOCATION L0007851     VOLUME   462192.576 3809982.135 1089.11
   LOCATION L0007852     VOLUME   462201.166 3809982.190 1089.08
   LOCATION L0007853     VOLUME   462209.755 3809982.245 1089.04
   LOCATION L0007854     VOLUME   462218.345 3809982.300 1089.01
   LOCATION L0007855     VOLUME   462226.935 3809982.354 1088.80
   LOCATION L0007856     VOLUME   462235.525 3809982.313 1088.54
   LOCATION L0007857     VOLUME   462244.115 3809982.256 1088.29
   LOCATION L0007858     VOLUME   462252.704 3809982.200 1088.12
   LOCATION L0007859     VOLUME   462261.294 3809982.143 1088.13
   LOCATION L0007860     VOLUME   462269.884 3809982.087 1088.13
   LOCATION L0007861     VOLUME   462278.474 3809982.030 1088.13
   LOCATION L0007862     VOLUME   462287.064 3809981.974 1088.10
   LOCATION L0007863     VOLUME   462295.654 3809981.917 1088.06
   LOCATION L0007864     VOLUME   462304.243 3809981.861 1088.03
   LOCATION L0007865     VOLUME   462312.833 3809981.804 1088.00
   LOCATION L0007866     VOLUME   462321.423 3809981.748 1088.00
   LOCATION L0007867     VOLUME   462330.013 3809981.691 1088.00
   LOCATION L0007868     VOLUME   462338.603 3809981.635 1088.00
   LOCATION L0007869     VOLUME   462347.192 3809981.578 1088.00
   LOCATION L0007870     VOLUME   462355.782 3809981.522 1088.00
   LOCATION L0007871     VOLUME   462364.372 3809981.465 1088.00
   LOCATION L0007872     VOLUME   462372.962 3809981.409 1087.92
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LOCATION L0007873 VOLUME 462381.552 3809981.352 1087.67
LOCATION L0007874 VOLUME 462390.141 3809981.296 1087.43
LOCATION L0007875 VOLUME 462398.731 3809981.239 1087.19
LOCATION L0007876 VOLUME 462407.321 3809981.183 1087.12
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LOCATION L0007878 VOLUME 462424.501 3809981.070 1087.03
LOCATION L0007879 VOLUME 462433.091 3809981.013 1087.00
LOCATION L0007880 VOLUME 462441.680 3809980.957 1087.00
LOCATION L0007881 VOLUME 462450.270 3809980.900 1087.00
LOCATION L0007882 VOLUME 462458.860 3809980.844 1087.00
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LOCATION L0007884 VOLUME 462476.040 3809980.731 1086.56
LOCATION L0007885 VOLUME 462484.629 3809980.674 1086.32
LOCATION L0007886 VOLUME 462493.219 3809980.618 1086.18
LOCATION L0007887 VOLUME 462501.809 3809980.561 1086.18
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LOCATION L0007889 VOLUME 462518.989 3809980.448 1086.18
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LOCATION L0007892 VOLUME 462544.758 3809980.278 1086.03
LOCATION L0007893 VOLUME 462553.348 3809980.222 1086.00
LOCATION L0007894 VOLUME 462561.938 3809980.165 1086.00
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LOCATION L0007896 VOLUME 462579.117 3809980.052 1086.00
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LOCATION L0007898 VOLUME 462596.297 3809979.939 1085.56
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LOCATION L0007903 VOLUME 462639.246 3809979.657 1085.01
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LOCATION L0007905 VOLUME 462656.426 3809979.544 1085.00
LOCATION L0007906 VOLUME 462665.016 3809979.487 1085.00
LOCATION L0007907 VOLUME 462673.605 3809979.431 1084.91
LOCATION L0007908 VOLUME 462682.195 3809979.374 1084.68
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LOCATION L0007913 VOLUME 462725.144 3809979.092 1084.04
LOCATION L0007914 VOLUME 462733.734 3809979.035 1084.00
LOCATION L0007915 VOLUME 462742.324 3809978.979 1084.00
LOCATION L0007916 VOLUME 462750.914 3809978.922 1084.00
LOCATION L0007917 VOLUME 462759.503 3809978.866 1084.00
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LOCATION L0007921 VOLUME 462793.863 3809978.640 1083.21
LOCATION L0007922 VOLUME 462802.453 3809978.583 1083.14

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   LOCATION L0007924     VOLUME   462819.632 3809978.470 1083.00
   LOCATION L0007925     VOLUME   462828.222 3809978.414 1083.00
   LOCATION L0007926     VOLUME   462836.812 3809978.357 1083.00
   LOCATION L0007927     VOLUME   462845.402 3809978.301 1083.00
   LOCATION L0007928     VOLUME   462853.991 3809978.244 1082.90
   LOCATION L0007929     VOLUME   462862.581 3809978.188 1082.69
   LOCATION L0007930     VOLUME   462871.171 3809978.131 1082.48
** End of LINE VOLUME Source ID = SLINE7
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE8
** DESCRSRC On-Site Travel Building 2 (N)
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0002615
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 6
** 462876.713, 3809880.850, 1083.93, 3.49, 4.00
** 462773.065, 3809877.644, 1084.65, 3.49, 4.00
** 462770.928, 3809925.729, 1084.14, 3.49, 4.00
** 462025.084, 3809928.935, 1091.13, 3.49, 4.00
** 462025.084, 3809891.535, 1092.00, 3.49, 4.00
** 461953.491, 3809882.987, 1091.30, 3.49, 4.00
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   LOCATION L0007933     VOLUME   462855.249 3809880.186 1084.00
   LOCATION L0007934     VOLUME   462846.663 3809879.921 1084.00
   LOCATION L0007935     VOLUME   462838.077 3809879.655 1084.00
   LOCATION L0007936     VOLUME   462829.491 3809879.390 1084.00
   LOCATION L0007937     VOLUME   462820.905 3809879.124 1084.00
   LOCATION L0007938     VOLUME   462812.319 3809878.858 1084.00
   LOCATION L0007939     VOLUME   462803.733 3809878.593 1084.00
   LOCATION L0007940     VOLUME   462795.147 3809878.327 1084.00
   LOCATION L0007941     VOLUME   462786.562 3809878.062 1084.11
   LOCATION L0007942     VOLUME   462777.976 3809877.796 1084.40
   LOCATION L0007943     VOLUME   462772.901 3809881.317 1084.57
   LOCATION L0007944     VOLUME   462772.520 3809889.899 1084.58
   LOCATION L0007945     VOLUME   462772.139 3809898.481 1084.54
   LOCATION L0007946     VOLUME   462771.757 3809907.062 1084.38
   LOCATION L0007947     VOLUME   462771.376 3809915.644 1084.21
   LOCATION L0007948     VOLUME   462770.994 3809924.225 1084.04
   LOCATION L0007949     VOLUME   462763.843 3809925.759 1084.00
   LOCATION L0007950     VOLUME   462755.253 3809925.796 1084.16
   LOCATION L0007951     VOLUME   462746.663 3809925.833 1084.45
   LOCATION L0007952     VOLUME   462738.073 3809925.870 1084.73
   LOCATION L0007953     VOLUME   462729.483 3809925.907 1085.00
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LOCATION L0007957 VOLUME 462695.124 3809926.055 1085.16
LOCATION L0007958 VOLUME 462686.534 3809926.092 1085.45
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LOCATION L0007969 VOLUME 462592.045 3809926.498 1086.00
LOCATION L0007970 VOLUME 462583.455 3809926.535 1086.00
LOCATION L0007971 VOLUME 462574.865 3809926.572 1086.17
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LOCATION L0007973 VOLUME 462557.685 3809926.645 1086.73
LOCATION L0007974 VOLUME 462549.095 3809926.682 1086.98
LOCATION L0007975 VOLUME 462540.505 3809926.719 1086.98
LOCATION L0007976 VOLUME 462531.915 3809926.756 1086.99
LOCATION L0007977 VOLUME 462523.325 3809926.793 1087.00
LOCATION L0007978 VOLUME 462514.735 3809926.830 1087.00
LOCATION L0007979 VOLUME 462506.145 3809926.867 1087.00
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LOCATION L0007981 VOLUME 462488.965 3809926.941 1087.00
LOCATION L0007982 VOLUME 462480.376 3809926.978 1087.00
LOCATION L0007983 VOLUME 462471.786 3809927.015 1087.00
LOCATION L0007984 VOLUME 462463.196 3809927.052 1087.00
LOCATION L0007985 VOLUME 462454.606 3809927.088 1087.17
LOCATION L0007986 VOLUME 462446.016 3809927.125 1087.45
LOCATION L0007987 VOLUME 462437.426 3809927.162 1087.72
LOCATION L0007988 VOLUME 462428.836 3809927.199 1087.96
LOCATION L0007989 VOLUME 462420.246 3809927.236 1087.97
LOCATION L0007990 VOLUME 462411.656 3809927.273 1087.98
LOCATION L0007991 VOLUME 462403.066 3809927.310 1088.00
LOCATION L0007992 VOLUME 462394.476 3809927.347 1088.00
LOCATION L0007993 VOLUME 462385.886 3809927.384 1088.00
LOCATION L0007994 VOLUME 462377.297 3809927.421 1088.00
LOCATION L0007995 VOLUME 462368.707 3809927.458 1088.00
LOCATION L0007996 VOLUME 462360.117 3809927.495 1088.00
LOCATION L0007997 VOLUME 462351.527 3809927.531 1088.00
LOCATION L0007998 VOLUME 462342.937 3809927.568 1088.00
LOCATION L0007999 VOLUME 462334.347 3809927.605 1088.18
LOCATION L0008000 VOLUME 462325.757 3809927.642 1088.45
LOCATION L0008001 VOLUME 462317.167 3809927.679 1088.72
LOCATION L0008002 VOLUME 462308.577 3809927.716 1088.94
LOCATION L0008003 VOLUME 462299.987 3809927.753 1088.96

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   LOCATION L0008006     VOLUME   462274.217 3809927.864 1089.00
   LOCATION L0008007     VOLUME   462265.628 3809927.901 1089.00
   LOCATION L0008008     VOLUME   462257.038 3809927.938 1089.00
   LOCATION L0008009     VOLUME   462248.448 3809927.975 1089.05
   LOCATION L0008010     VOLUME   462239.858 3809928.011 1089.31
   LOCATION L0008011     VOLUME   462231.268 3809928.048 1089.58
   LOCATION L0008012     VOLUME   462222.678 3809928.085 1089.84
   LOCATION L0008013     VOLUME   462214.088 3809928.122 1089.94
   LOCATION L0008014     VOLUME   462205.498 3809928.159 1089.96
   LOCATION L0008015     VOLUME   462196.908 3809928.196 1089.98
   LOCATION L0008016     VOLUME   462188.318 3809928.233 1090.00
   LOCATION L0008017     VOLUME   462179.728 3809928.270 1090.00
   LOCATION L0008018     VOLUME   462171.138 3809928.307 1090.00
   LOCATION L0008019     VOLUME   462162.548 3809928.344 1090.00
   LOCATION L0008020     VOLUME   462153.959 3809928.381 1090.00
   LOCATION L0008021     VOLUME   462145.369 3809928.418 1090.00
   LOCATION L0008022     VOLUME   462136.779 3809928.454 1090.00
   LOCATION L0008023     VOLUME   462128.189 3809928.491 1090.06
   LOCATION L0008024     VOLUME   462119.599 3809928.528 1090.32
   LOCATION L0008025     VOLUME   462111.009 3809928.565 1090.58
   LOCATION L0008026     VOLUME   462102.419 3809928.602 1090.84
   LOCATION L0008027     VOLUME   462093.829 3809928.639 1090.91
   LOCATION L0008028     VOLUME   462085.239 3809928.676 1090.91
   LOCATION L0008029     VOLUME   462076.649 3809928.713 1090.91
   LOCATION L0008030     VOLUME   462068.059 3809928.750 1090.91
   LOCATION L0008031     VOLUME   462059.469 3809928.787 1090.94
   LOCATION L0008032     VOLUME   462050.880 3809928.824 1090.96
   LOCATION L0008033     VOLUME   462042.290 3809928.861 1090.99
   LOCATION L0008034     VOLUME   462033.700 3809928.897 1091.00
   LOCATION L0008035     VOLUME   462025.110 3809928.934 1091.00
   LOCATION L0008036     VOLUME   462025.084 3809920.370 1091.18
   LOCATION L0008037     VOLUME   462025.084 3809911.780 1091.47
   LOCATION L0008038     VOLUME   462025.084 3809903.190 1091.76
   LOCATION L0008039     VOLUME   462025.084 3809894.600 1092.00
   LOCATION L0008040     VOLUME   462019.598 3809890.880 1092.00
   LOCATION L0008041     VOLUME   462011.068 3809889.862 1092.00
   LOCATION L0008042     VOLUME   462002.539 3809888.844 1092.00
   LOCATION L0008043     VOLUME   461994.010 3809887.825 1092.00
   LOCATION L0008044     VOLUME   461985.480 3809886.807 1092.00
   LOCATION L0008045     VOLUME   461976.951 3809885.788 1091.93
   LOCATION L0008046     VOLUME   461968.421 3809884.770 1091.76
   LOCATION L0008047     VOLUME   461959.892 3809883.751 1091.60
** End of LINE VOLUME Source ID = SLINE8
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE9
** DESCRSRC On-Site Travel Building 2 (S)
** PREFIX
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** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0002774
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 462875.645, 3809600.891, 1088.02, 3.49, 4.00
** 461807.101, 3809605.166, 1094.39, 3.49, 4.00
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   LOCATION L0008050     VOLUME   462854.170 3809600.977 1088.00
   LOCATION L0008051     VOLUME   462845.580 3809601.012 1088.12
   LOCATION L0008052     VOLUME   462836.990 3809601.046 1088.36
   LOCATION L0008053     VOLUME   462828.400 3809601.080 1088.60
   LOCATION L0008054     VOLUME   462819.810 3809601.115 1088.83
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   LOCATION L0008059     VOLUME   462776.861 3809601.287 1088.82
   LOCATION L0008060     VOLUME   462768.271 3809601.321 1088.82
   LOCATION L0008061     VOLUME   462759.681 3809601.355 1088.82
   LOCATION L0008062     VOLUME   462751.091 3809601.390 1088.87
   LOCATION L0008063     VOLUME   462742.501 3809601.424 1088.92
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   LOCATION L0008065     VOLUME   462725.321 3809601.493 1089.00
   LOCATION L0008066     VOLUME   462716.731 3809601.527 1089.00
   LOCATION L0008067     VOLUME   462708.141 3809601.562 1089.00
   LOCATION L0008068     VOLUME   462699.551 3809601.596 1089.01
   LOCATION L0008069     VOLUME   462690.961 3809601.630 1089.24
   LOCATION L0008070     VOLUME   462682.371 3809601.665 1089.48
   LOCATION L0008071     VOLUME   462673.782 3809601.699 1089.71
   LOCATION L0008072     VOLUME   462665.192 3809601.733 1089.81
   LOCATION L0008073     VOLUME   462656.602 3809601.768 1089.81
   LOCATION L0008074     VOLUME   462648.012 3809601.802 1089.80
   LOCATION L0008075     VOLUME   462639.422 3809601.836 1089.81
   LOCATION L0008076     VOLUME   462630.832 3809601.871 1089.86
   LOCATION L0008077     VOLUME   462622.242 3809601.905 1089.92
   LOCATION L0008078     VOLUME   462613.652 3809601.939 1089.98
   LOCATION L0008079     VOLUME   462605.062 3809601.974 1090.00
   LOCATION L0008080     VOLUME   462596.472 3809602.008 1090.00
   LOCATION L0008081     VOLUME   462587.882 3809602.043 1090.00
   LOCATION L0008082     VOLUME   462579.292 3809602.077 1090.00
   LOCATION L0008083     VOLUME   462570.702 3809602.111 1090.00
   LOCATION L0008084     VOLUME   462562.112 3809602.146 1090.00
   LOCATION L0008085     VOLUME   462553.522 3809602.180 1090.00
   LOCATION L0008086     VOLUME   462544.933 3809602.214 1090.00
   LOCATION L0008087     VOLUME   462536.343 3809602.249 1090.00
   LOCATION L0008088     VOLUME   462527.753 3809602.283 1090.00
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LOCATION L0008089     VOLUME   462519.163 3809602.317 1090.02
LOCATION L0008090     VOLUME   462510.573 3809602.352 1090.25
LOCATION L0008091     VOLUME   462501.983 3809602.386 1090.47
LOCATION L0008092     VOLUME   462493.393 3809602.421 1090.69
LOCATION L0008093     VOLUME   462484.803 3809602.455 1090.82
LOCATION L0008094     VOLUME   462476.213 3809602.489 1090.88
LOCATION L0008095     VOLUME   462467.623 3809602.524 1090.94
LOCATION L0008096     VOLUME   462459.033 3809602.558 1091.03
LOCATION L0008097     VOLUME   462450.443 3809602.592 1091.25
LOCATION L0008098     VOLUME   462441.853 3809602.627 1091.47
LOCATION L0008099     VOLUME   462433.263 3809602.661 1091.69
LOCATION L0008100     VOLUME   462424.674 3809602.695 1091.81
LOCATION L0008101     VOLUME   462416.084 3809602.730 1091.88
LOCATION L0008102     VOLUME   462407.494 3809602.764 1091.94
LOCATION L0008103     VOLUME   462398.904 3809602.798 1092.00
LOCATION L0008104     VOLUME   462390.314 3809602.833 1092.00
LOCATION L0008105     VOLUME   462381.724 3809602.867 1092.00
LOCATION L0008106     VOLUME   462373.134 3809602.902 1092.00
LOCATION L0008107     VOLUME   462364.544 3809602.936 1092.14
LOCATION L0008108     VOLUME   462355.954 3809602.970 1092.36
LOCATION L0008109     VOLUME   462347.364 3809603.005 1092.58
LOCATION L0008110     VOLUME   462338.774 3809603.039 1092.77
LOCATION L0008111     VOLUME   462330.184 3809603.073 1092.84
LOCATION L0008112     VOLUME   462321.594 3809603.108 1092.91
LOCATION L0008113     VOLUME   462313.004 3809603.142 1092.98
LOCATION L0008114     VOLUME   462304.414 3809603.176 1093.00
LOCATION L0008115     VOLUME   462295.825 3809603.211 1093.00
LOCATION L0008116     VOLUME   462287.235 3809603.245 1093.00
LOCATION L0008117     VOLUME   462278.645 3809603.279 1093.03
LOCATION L0008118     VOLUME   462270.055 3809603.314 1093.25
LOCATION L0008119     VOLUME   462261.465 3809603.348 1093.46
LOCATION L0008120     VOLUME   462252.875 3809603.383 1093.68
LOCATION L0008121     VOLUME   462244.285 3809603.417 1093.80
LOCATION L0008122     VOLUME   462235.695 3809603.451 1093.87
LOCATION L0008123     VOLUME   462227.105 3809603.486 1093.94
LOCATION L0008124     VOLUME   462218.515 3809603.520 1094.00
LOCATION L0008125     VOLUME   462209.925 3809603.554 1094.00
LOCATION L0008126     VOLUME   462201.335 3809603.589 1094.00
LOCATION L0008127     VOLUME   462192.745 3809603.623 1094.00
LOCATION L0008128     VOLUME   462184.155 3809603.657 1094.14
LOCATION L0008129     VOLUME   462175.566 3809603.692 1094.36
LOCATION L0008130     VOLUME   462166.976 3809603.726 1094.57
LOCATION L0008131     VOLUME   462158.386 3809603.761 1094.74
LOCATION L0008132     VOLUME   462149.796 3809603.795 1094.74
LOCATION L0008133     VOLUME   462141.206 3809603.829 1094.74
LOCATION L0008134     VOLUME   462132.616 3809603.864 1094.73
LOCATION L0008135     VOLUME   462124.026 3809603.898 1094.79
LOCATION L0008136     VOLUME   462115.436 3809603.932 1094.86
LOCATION L0008137     VOLUME   462106.846 3809603.967 1094.94
LOCATION L0008138     VOLUME   462098.256 3809604.001 1095.04
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   LOCATION L0008140     VOLUME   462081.076 3809604.070 1095.46
   LOCATION L0008141     VOLUME   462072.486 3809604.104 1095.67
   LOCATION L0008142     VOLUME   462063.896 3809604.138 1095.73
   LOCATION L0008143     VOLUME   462055.306 3809604.173 1095.72
   LOCATION L0008144     VOLUME   462046.717 3809604.207 1095.72
   LOCATION L0008145     VOLUME   462038.127 3809604.242 1095.74
   LOCATION L0008146     VOLUME   462029.537 3809604.276 1095.82
   LOCATION L0008147     VOLUME   462020.947 3809604.310 1095.90
   LOCATION L0008148     VOLUME   462012.357 3809604.345 1095.98
   LOCATION L0008149     VOLUME   462003.767 3809604.379 1096.15
   LOCATION L0008150     VOLUME   461995.177 3809604.413 1096.35
   LOCATION L0008151     VOLUME   461986.587 3809604.448 1096.56
   LOCATION L0008152     VOLUME   461977.997 3809604.482 1096.73
   LOCATION L0008153     VOLUME   461969.407 3809604.516 1096.81
   LOCATION L0008154     VOLUME   461960.817 3809604.551 1096.90
   LOCATION L0008155     VOLUME   461952.227 3809604.585 1096.98
   LOCATION L0008156     VOLUME   461943.637 3809604.620 1097.00
   LOCATION L0008157     VOLUME   461935.047 3809604.654 1097.00
   LOCATION L0008158     VOLUME   461926.458 3809604.688 1097.00
   LOCATION L0008159     VOLUME   461917.868 3809604.723 1097.05
   LOCATION L0008160     VOLUME   461909.278 3809604.757 1097.25
   LOCATION L0008161     VOLUME   461900.688 3809604.791 1097.45
   LOCATION L0008162     VOLUME   461892.098 3809604.826 1097.65
   LOCATION L0008163     VOLUME   461883.508 3809604.860 1097.70
   LOCATION L0008164     VOLUME   461874.918 3809604.894 1097.70
   LOCATION L0008165     VOLUME   461866.328 3809604.929 1097.70
   LOCATION L0008166     VOLUME   461857.738 3809604.963 1097.60
   LOCATION L0008167     VOLUME   461849.148 3809604.997 1097.23
   LOCATION L0008168     VOLUME   461840.558 3809605.032 1096.85
   LOCATION L0008169     VOLUME   461831.968 3809605.066 1096.47
   LOCATION L0008170     VOLUME   461823.378 3809605.101 1095.66
   LOCATION L0008171     VOLUME   461814.788 3809605.135 1094.71
** End of LINE VOLUME Source ID = SLINE9
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE10
** DESCRSRC On-Site Travel Building 3
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001306
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 4
** 463105.382, 3810114.861, 1078.55, 3.49, 4.00
** 463234.676, 3810116.998, 1077.18, 3.49, 4.00
** 463236.813, 3810093.490, 1077.49, 3.49, 4.00
** 462926.935, 3810095.627, 1080.28, 3.49, 4.00
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LOCATION L0008174     VOLUME   463126.854 3810115.216 1078.00
LOCATION L0008175     VOLUME   463135.443 3810115.358 1078.00
LOCATION L0008176     VOLUME   463144.032 3810115.500 1078.00
LOCATION L0008177     VOLUME   463152.620 3810115.642 1077.97
LOCATION L0008178     VOLUME   463161.209 3810115.784 1077.88
LOCATION L0008179     VOLUME   463169.798 3810115.926 1077.78
LOCATION L0008180     VOLUME   463178.387 3810116.068 1077.68
LOCATION L0008181     VOLUME   463186.976 3810116.210 1077.66
LOCATION L0008182     VOLUME   463195.565 3810116.352 1077.65
LOCATION L0008183     VOLUME   463204.153 3810116.494 1077.65
LOCATION L0008184     VOLUME   463212.742 3810116.636 1077.58
LOCATION L0008185     VOLUME   463221.331 3810116.778 1077.40
LOCATION L0008186     VOLUME   463229.920 3810116.920 1077.21
LOCATION L0008187     VOLUME   463235.023 3810113.181 1077.13
LOCATION L0008188     VOLUME   463235.800 3810104.626 1077.18
LOCATION L0008189     VOLUME   463236.578 3810096.071 1077.40
LOCATION L0008190     VOLUME   463230.814 3810093.532 1077.59
LOCATION L0008191     VOLUME   463222.225 3810093.591 1077.76
LOCATION L0008192     VOLUME   463213.635 3810093.650 1077.93
LOCATION L0008193     VOLUME   463205.045 3810093.709 1078.00
LOCATION L0008194     VOLUME   463196.455 3810093.769 1078.00
LOCATION L0008195     VOLUME   463187.865 3810093.828 1078.00
LOCATION L0008196     VOLUME   463179.276 3810093.887 1078.01
LOCATION L0008197     VOLUME   463170.686 3810093.946 1078.12
LOCATION L0008198     VOLUME   463162.096 3810094.006 1078.24
LOCATION L0008199     VOLUME   463153.506 3810094.065 1078.35
LOCATION L0008200     VOLUME   463144.916 3810094.124 1078.39
LOCATION L0008201     VOLUME   463136.327 3810094.183 1078.39
LOCATION L0008202     VOLUME   463127.737 3810094.243 1078.39
LOCATION L0008203     VOLUME   463119.147 3810094.302 1078.40
LOCATION L0008204     VOLUME   463110.557 3810094.361 1078.58
LOCATION L0008205     VOLUME   463101.967 3810094.420 1078.75
LOCATION L0008206     VOLUME   463093.378 3810094.480 1078.93
LOCATION L0008207     VOLUME   463084.788 3810094.539 1079.00
LOCATION L0008208     VOLUME   463076.198 3810094.598 1079.00
LOCATION L0008209     VOLUME   463067.608 3810094.657 1079.00
LOCATION L0008210     VOLUME   463059.018 3810094.716 1079.01
LOCATION L0008211     VOLUME   463050.429 3810094.776 1079.12
LOCATION L0008212     VOLUME   463041.839 3810094.835 1079.22
LOCATION L0008213     VOLUME   463033.249 3810094.894 1079.33
LOCATION L0008214     VOLUME   463024.659 3810094.953 1079.37
LOCATION L0008215     VOLUME   463016.069 3810095.013 1079.36
LOCATION L0008216     VOLUME   463007.480 3810095.072 1079.36
LOCATION L0008217     VOLUME   462998.890 3810095.131 1079.38
LOCATION L0008218     VOLUME   462990.300 3810095.190 1079.57
LOCATION L0008219     VOLUME   462981.710 3810095.250 1079.75
LOCATION L0008220     VOLUME   462973.120 3810095.309 1079.93
LOCATION L0008221     VOLUME   462964.531 3810095.368 1080.00
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   LOCATION L0008222     VOLUME   462955.941 3810095.427 1080.00
   LOCATION L0008223     VOLUME   462947.351 3810095.487 1080.00
   LOCATION L0008224     VOLUME   462938.761 3810095.546 1080.01
   LOCATION L0008225     VOLUME   462930.172 3810095.605 1080.11
** End of LINE VOLUME Source ID = SLINE10
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE11
** DESCRSRC 100% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0003617
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** 463251.528, 3809542.640, 1085.67, 3.49, 4.00
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   LOCATION L0008229     VOLUME   465035.263 3809545.267 1068.00
   LOCATION L0008230     VOLUME   465026.673 3809545.254 1068.00
   LOCATION L0008231     VOLUME   465018.083 3809545.242 1068.00
   LOCATION L0008232     VOLUME   465009.493 3809545.229 1068.00
   LOCATION L0008233     VOLUME   465000.903 3809545.217 1068.00
   LOCATION L0008234     VOLUME   464992.313 3809545.204 1068.00
   LOCATION L0008235     VOLUME   464983.723 3809545.191 1068.00
   LOCATION L0008236     VOLUME   464975.133 3809545.179 1068.00
   LOCATION L0008237     VOLUME   464966.543 3809545.166 1068.00
   LOCATION L0008238     VOLUME   464957.953 3809545.153 1068.00
   LOCATION L0008239     VOLUME   464949.363 3809545.141 1068.01
   LOCATION L0008240     VOLUME   464940.773 3809545.128 1068.21
   LOCATION L0008241     VOLUME   464932.184 3809545.115 1068.41
   LOCATION L0008242     VOLUME   464923.594 3809545.103 1068.61
   LOCATION L0008243     VOLUME   464915.004 3809545.090 1068.70
   LOCATION L0008244     VOLUME   464906.414 3809545.077 1068.70
   LOCATION L0008245     VOLUME   464897.824 3809545.065 1068.70
   LOCATION L0008246     VOLUME   464889.234 3809545.052 1068.70
   LOCATION L0008247     VOLUME   464880.644 3809545.039 1068.70
   LOCATION L0008248     VOLUME   464872.054 3809545.027 1068.70
   LOCATION L0008249     VOLUME   464863.464 3809545.014 1068.70
   LOCATION L0008250     VOLUME   464854.874 3809545.001 1068.75
   LOCATION L0008251     VOLUME   464846.284 3809544.989 1068.84
   LOCATION L0008252     VOLUME   464837.694 3809544.976 1068.92
   LOCATION L0008253     VOLUME   464829.104 3809544.963 1069.02
   LOCATION L0008254     VOLUME   464820.514 3809544.951 1069.22
   LOCATION L0008255     VOLUME   464811.924 3809544.938 1069.42
   LOCATION L0008256     VOLUME   464803.334 3809544.926 1069.62
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LOCATION L0008257 VOLUME 464794.744 3809544.913 1069.70
LOCATION L0008258 VOLUME 464786.154 3809544.900 1069.70
LOCATION L0008259 VOLUME 464777.564 3809544.888 1069.70
LOCATION L0008260 VOLUME 464768.974 3809544.875 1069.71
LOCATION L0008261 VOLUME 464760.384 3809544.862 1069.80
LOCATION L0008262 VOLUME 464751.794 3809544.850 1069.88
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** End of LINE VOLUME Source ID = SLINE11
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** Line Source Represented by Adjacent Volume Sources
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** DESCRSRC 95% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0003436
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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LOCATION L0008577 VOLUME 463858.435 3809543.534 1077.34
LOCATION L0008578 VOLUME 463849.845 3809543.521 1076.48
LOCATION L0008579 VOLUME 463841.255 3809543.509 1075.62
LOCATION L0008580 VOLUME 463832.665 3809543.496 1074.82
LOCATION L0008581 VOLUME 463824.075 3809543.483 1074.04
LOCATION L0008582 VOLUME 463815.485 3809543.471 1073.25
LOCATION L0008583 VOLUME 463806.895 3809543.458 1072.65
LOCATION L0008584 VOLUME 463798.305 3809543.445 1072.36
LOCATION L0008585 VOLUME 463789.715 3809543.433 1072.07
LOCATION L0008586 VOLUME 463781.125 3809543.420 1071.79
LOCATION L0008587 VOLUME 463772.535 3809543.407 1071.50
LOCATION L0008588 VOLUME 463763.945 3809543.395 1071.22
LOCATION L0008589 VOLUME 463755.355 3809543.382 1070.93
LOCATION L0008590 VOLUME 463746.765 3809543.369 1070.64
LOCATION L0008591 VOLUME 463738.175 3809543.357 1070.36

LOCATION L0008592 VOLUME 463729.585 3809543.344 1070.07
LOCATION L0008593 VOLUME 463720.995 3809543.332 1069.79
LOCATION L0008594 VOLUME 463712.405 3809543.319 1069.50
LOCATION L0008595 VOLUME 463703.815 3809543.306 1069.21
LOCATION L0008596 VOLUME 463695.225 3809543.294 1068.93
LOCATION L0008597 VOLUME 463686.635 3809543.281 1068.50
LOCATION L0008598 VOLUME 463678.045 3809543.268 1067.86
LOCATION L0008599 VOLUME 463669.455 3809543.256 1067.22
LOCATION L0008600 VOLUME 463660.865 3809543.243 1066.58
LOCATION L0008601 VOLUME 463652.275 3809543.230 1065.81
LOCATION L0008602 VOLUME 463643.685 3809543.218 1065.03
LOCATION L0008603 VOLUME 463635.095 3809543.205 1064.25
LOCATION L0008604 VOLUME 463626.505 3809543.192 1063.55
LOCATION L0008605 VOLUME 463617.915 3809543.180 1062.97
LOCATION L0008606 VOLUME 463609.325 3809543.167 1062.39
LOCATION L0008607 VOLUME 463600.735 3809543.154 1061.81
LOCATION L0008608 VOLUME 463592.145 3809543.142 1061.82
LOCATION L0008609 VOLUME 463583.555 3809543.129 1061.89
LOCATION L0008610 VOLUME 463574.965 3809543.116 1061.96
LOCATION L0008611 VOLUME 463566.375 3809543.104 1062.09
LOCATION L0008612 VOLUME 463557.785 3809543.091 1062.31
LOCATION L0008613 VOLUME 463549.195 3809543.078 1062.53
LOCATION L0008614 VOLUME 463540.605 3809543.066 1062.75
LOCATION L0008615 VOLUME 463532.015 3809543.053 1062.83
LOCATION L0008616 VOLUME 463523.425 3809543.041 1062.89
LOCATION L0008617 VOLUME 463514.835 3809543.028 1062.96
LOCATION L0008618 VOLUME 463506.245 3809543.015 1063.15
LOCATION L0008619 VOLUME 463497.655 3809543.003 1063.51
LOCATION L0008620 VOLUME 463489.065 3809542.990 1063.86
LOCATION L0008621 VOLUME 463480.475 3809542.977 1064.22
LOCATION L0008622 VOLUME 463471.885 3809542.965 1064.50
LOCATION L0008623 VOLUME 463463.295 3809542.952 1064.79
LOCATION L0008624 VOLUME 463454.705 3809542.939 1065.08
LOCATION L0008625 VOLUME 463446.115 3809542.927 1065.10
LOCATION L0008626 VOLUME 463437.525 3809542.914 1064.79
LOCATION L0008627 VOLUME 463428.935 3809542.901 1064.48
LOCATION L0008628 VOLUME 463420.345 3809542.889 1064.17
LOCATION L0008629 VOLUME 463411.755 3809542.876 1065.53
LOCATION L0008630 VOLUME 463403.165 3809542.863 1066.96
LOCATION L0008631 VOLUME 463394.575 3809542.851 1068.39
LOCATION L0008632 VOLUME 463385.985 3809542.838 1070.62
LOCATION L0008633 VOLUME 463377.395 3809542.825 1073.77
LOCATION L0008634 VOLUME 463368.805 3809542.813 1076.92
LOCATION L0008635 VOLUME 463360.215 3809542.800 1080.06
LOCATION L0008636 VOLUME 463351.625 3809542.788 1081.50
LOCATION L0008637 VOLUME 463343.035 3809542.775 1082.89
LOCATION L0008638 VOLUME 463334.445 3809542.762 1084.28
LOCATION L0008639 VOLUME 463325.855 3809542.750 1085.11
LOCATION L0008640 VOLUME 463317.265 3809542.737 1085.33
LOCATION L0008641 VOLUME 463308.675 3809542.724 1085.55

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   LOCATION L0008642     VOLUME   463300.085 3809542.712 1085.77
   LOCATION L0008643     VOLUME   463291.495 3809542.699 1085.62
   LOCATION L0008644     VOLUME   463282.905 3809542.686 1085.46
   LOCATION L0008645     VOLUME   463274.315 3809542.674 1085.30
   LOCATION L0008646     VOLUME   463265.725 3809542.661 1085.33
   LOCATION L0008647     VOLUME   463257.135 3809542.648 1085.56
** End of LINE VOLUME Source ID = SLINE17
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE12
** DESCRSRC 40% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00006455
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 463245.848, 3809547.393, 1085.81, 3.49, 4.00
** 463258.887, 3809678.966, 1084.19, 3.49, 4.00
** 463274.297, 3809827.134, 1081.90, 3.49, 4.00
** 463286.150, 3809961.077, 1080.00, 3.49, 4.00
** 463292.077, 3810354.610, 1072.06, 3.49, 4.00
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   LOCATION L0008648     VOLUME   463246.272 3809551.667 1085.90
   LOCATION L0008649     VOLUME   463247.119 3809560.215 1085.95
   LOCATION L0008650     VOLUME   463247.966 3809568.763 1086.00
   LOCATION L0008651     VOLUME   463248.813 3809577.312 1086.00
   LOCATION L0008652     VOLUME   463249.660 3809585.860 1086.00
   LOCATION L0008653     VOLUME   463250.508 3809594.408 1086.00
   LOCATION L0008654     VOLUME   463251.355 3809602.956 1085.77
   LOCATION L0008655     VOLUME   463252.202 3809611.504 1085.48
   LOCATION L0008656     VOLUME   463253.049 3809620.052 1085.20
   LOCATION L0008657     VOLUME   463253.896 3809628.600 1084.96
   LOCATION L0008658     VOLUME   463254.743 3809637.149 1084.82
   LOCATION L0008659     VOLUME   463255.590 3809645.697 1084.66
   LOCATION L0008660     VOLUME   463256.437 3809654.245 1084.48
   LOCATION L0008661     VOLUME   463257.284 3809662.793 1084.33
   LOCATION L0008662     VOLUME   463258.132 3809671.341 1084.19
   LOCATION L0008663     VOLUME   463258.983 3809679.889 1084.07
   LOCATION L0008664     VOLUME   463259.872 3809688.433 1084.00
   LOCATION L0008665     VOLUME   463260.760 3809696.977 1084.00
   LOCATION L0008666     VOLUME   463261.649 3809705.520 1084.00
   LOCATION L0008667     VOLUME   463262.537 3809714.064 1084.00
   LOCATION L0008668     VOLUME   463263.426 3809722.608 1083.78
   LOCATION L0008669     VOLUME   463264.315 3809731.152 1083.49
   LOCATION L0008670     VOLUME   463265.203 3809739.696 1083.21
   LOCATION L0008671     VOLUME   463266.092 3809748.240 1082.93
   LOCATION L0008672     VOLUME   463266.980 3809756.784 1082.67
   LOCATION L0008673     VOLUME   463267.869 3809765.328 1082.40
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LOCATION L0008674 VOLUME 463268.757 3809773.872 1082.11
LOCATION L0008675 VOLUME 463269.646 3809782.416 1082.01
LOCATION L0008676 VOLUME 463270.535 3809790.960 1082.00
LOCATION L0008677 VOLUME 463271.423 3809799.504 1082.00
LOCATION L0008678 VOLUME 463272.312 3809808.047 1081.99
LOCATION L0008679 VOLUME 463273.200 3809816.591 1081.96
LOCATION L0008680 VOLUME 463274.089 3809825.135 1081.91
LOCATION L0008681 VOLUME 463274.877 3809833.689 1081.85
LOCATION L0008682 VOLUME 463275.634 3809842.245 1081.64
LOCATION L0008683 VOLUME 463276.391 3809850.802 1081.40
LOCATION L0008684 VOLUME 463277.148 3809859.359 1081.17
LOCATION L0008685 VOLUME 463277.906 3809867.915 1080.98
LOCATION L0008686 VOLUME 463278.663 3809876.472 1080.90
LOCATION L0008687 VOLUME 463279.420 3809885.028 1080.80
LOCATION L0008688 VOLUME 463280.177 3809893.585 1080.69
LOCATION L0008689 VOLUME 463280.934 3809902.141 1080.50
LOCATION L0008690 VOLUME 463281.692 3809910.698 1080.31
LOCATION L0008691 VOLUME 463282.449 3809919.255 1080.13
LOCATION L0008692 VOLUME 463283.206 3809927.811 1080.00
LOCATION L0008693 VOLUME 463283.963 3809936.368 1080.00
LOCATION L0008694 VOLUME 463284.721 3809944.924 1080.00
LOCATION L0008695 VOLUME 463285.478 3809953.481 1080.00
LOCATION L0008696 VOLUME 463286.165 3809962.041 1079.80
LOCATION L0008697 VOLUME 463286.294 3809970.630 1079.51
LOCATION L0008698 VOLUME 463286.423 3809979.219 1079.22
LOCATION L0008699 VOLUME 463286.553 3809987.808 1078.97
LOCATION L0008700 VOLUME 463286.682 3809996.397 1078.81
LOCATION L0008701 VOLUME 463286.811 3810004.986 1078.64
LOCATION L0008702 VOLUME 463286.941 3810013.575 1078.48
LOCATION L0008703 VOLUME 463287.070 3810022.164 1078.34
LOCATION L0008704 VOLUME 463287.199 3810030.753 1078.22
LOCATION L0008705 VOLUME 463287.329 3810039.342 1078.09
LOCATION L0008706 VOLUME 463287.458 3810047.931 1077.96
LOCATION L0008707 VOLUME 463287.587 3810056.520 1077.79
LOCATION L0008708 VOLUME 463287.717 3810065.109 1077.62
LOCATION L0008709 VOLUME 463287.846 3810073.698 1077.45
LOCATION L0008710 VOLUME 463287.975 3810082.287 1077.32
LOCATION L0008711 VOLUME 463288.105 3810090.876 1077.20
LOCATION L0008712 VOLUME 463288.234 3810099.465 1077.08
LOCATION L0008713 VOLUME 463288.364 3810108.054 1076.93
LOCATION L0008714 VOLUME 463288.493 3810116.643 1076.64
LOCATION L0008715 VOLUME 463288.622 3810125.232 1076.36
LOCATION L0008716 VOLUME 463288.752 3810133.821 1076.07
LOCATION L0008717 VOLUME 463288.881 3810142.411 1076.00
LOCATION L0008718 VOLUME 463289.010 3810151.000 1076.00
LOCATION L0008719 VOLUME 463289.140 3810159.589 1076.00
LOCATION L0008720 VOLUME 463289.269 3810168.178 1075.92
LOCATION L0008721 VOLUME 463289.398 3810176.767 1075.64
LOCATION L0008722 VOLUME 463289.528 3810185.356 1075.35
LOCATION L0008723 VOLUME 463289.657 3810193.945 1075.07

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   LOCATION L0008724     VOLUME   463289.786 3810202.534 1074.85
   LOCATION L0008725     VOLUME   463289.916 3810211.123 1074.66
   LOCATION L0008726     VOLUME   463290.045 3810219.712 1074.47
   LOCATION L0008727     VOLUME   463290.174 3810228.301 1074.30
   LOCATION L0008728     VOLUME   463290.304 3810236.890 1074.20
   LOCATION L0008729     VOLUME   463290.433 3810245.479 1074.11
   LOCATION L0008730     VOLUME   463290.563 3810254.068 1074.02
   LOCATION L0008731     VOLUME   463290.692 3810262.657 1073.85
   LOCATION L0008732     VOLUME   463290.821 3810271.246 1073.65
   LOCATION L0008733     VOLUME   463290.951 3810279.835 1073.44
   LOCATION L0008734     VOLUME   463291.080 3810288.424 1073.27
   LOCATION L0008735     VOLUME   463291.209 3810297.013 1073.18
   LOCATION L0008736     VOLUME   463291.339 3810305.602 1073.10
   LOCATION L0008737     VOLUME   463291.468 3810314.191 1073.02
   LOCATION L0008738     VOLUME   463291.597 3810322.780 1072.77
   LOCATION L0008739     VOLUME   463291.727 3810331.369 1072.49
   LOCATION L0008740     VOLUME   463291.856 3810339.958 1072.20
   LOCATION L0008741     VOLUME   463291.985 3810348.547 1072.00
** End of LINE VOLUME Source ID = SLINE12
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE20
** DESCRSRC 40% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00006455
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 5
** 463245.848, 3809547.393, 1085.81, 3.49, 4.00
** 463258.887, 3809678.966, 1084.19, 3.49, 4.00
** 463274.297, 3809827.134, 1081.90, 3.49, 4.00
** 463286.150, 3809961.077, 1080.00, 3.49, 4.00
** 463292.077, 3810354.610, 1072.06, 3.49, 4.00
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   LOCATION L0008743     VOLUME   463247.119 3809560.215 1085.95
   LOCATION L0008744     VOLUME   463247.966 3809568.763 1086.00
   LOCATION L0008745     VOLUME   463248.813 3809577.312 1086.00
   LOCATION L0008746     VOLUME   463249.660 3809585.860 1086.00
   LOCATION L0008747     VOLUME   463250.508 3809594.408 1086.00
   LOCATION L0008748     VOLUME   463251.355 3809602.956 1085.77
   LOCATION L0008749     VOLUME   463252.202 3809611.504 1085.48
   LOCATION L0008750     VOLUME   463253.049 3809620.052 1085.20
   LOCATION L0008751     VOLUME   463253.896 3809628.600 1084.96
   LOCATION L0008752     VOLUME   463254.743 3809637.149 1084.82
   LOCATION L0008753     VOLUME   463255.590 3809645.697 1084.66
   LOCATION L0008754     VOLUME   463256.437 3809654.245 1084.48
   LOCATION L0008755     VOLUME   463257.284 3809662.793 1084.33
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LOCATION L0008756 VOLUME 463258.132 3809671.341 1084.19
LOCATION L0008757 VOLUME 463258.983 3809679.889 1084.07
LOCATION L0008758 VOLUME 463259.872 3809688.433 1084.00
LOCATION L0008759 VOLUME 463260.760 3809696.977 1084.00
LOCATION L0008760 VOLUME 463261.649 3809705.520 1084.00
LOCATION L0008761 VOLUME 463262.537 3809714.064 1084.00
LOCATION L0008762 VOLUME 463263.426 3809722.608 1083.78
LOCATION L0008763 VOLUME 463264.315 3809731.152 1083.49
LOCATION L0008764 VOLUME 463265.203 3809739.696 1083.21
LOCATION L0008765 VOLUME 463266.092 3809748.240 1082.93
LOCATION L0008766 VOLUME 463266.980 3809756.784 1082.67
LOCATION L0008767 VOLUME 463267.869 3809765.328 1082.40
LOCATION L0008768 VOLUME 463268.757 3809773.872 1082.11
LOCATION L0008769 VOLUME 463269.646 3809782.416 1082.01
LOCATION L0008770 VOLUME 463270.535 3809790.960 1082.00
LOCATION L0008771 VOLUME 463271.423 3809799.504 1082.00
LOCATION L0008772 VOLUME 463272.312 3809808.047 1081.99
LOCATION L0008773 VOLUME 463273.200 3809816.591 1081.96
LOCATION L0008774 VOLUME 463274.089 3809825.135 1081.91
LOCATION L0008775 VOLUME 463274.877 3809833.689 1081.85
LOCATION L0008776 VOLUME 463275.634 3809842.245 1081.64
LOCATION L0008777 VOLUME 463276.391 3809850.802 1081.40
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LOCATION L0008779 VOLUME 463277.906 3809867.915 1080.98
LOCATION L0008780 VOLUME 463278.663 3809876.472 1080.90
LOCATION L0008781 VOLUME 463279.420 3809885.028 1080.80
LOCATION L0008782 VOLUME 463280.177 3809893.585 1080.69
LOCATION L0008783 VOLUME 463280.934 3809902.141 1080.50
LOCATION L0008784 VOLUME 463281.692 3809910.698 1080.31
LOCATION L0008785 VOLUME 463282.449 3809919.255 1080.13
LOCATION L0008786 VOLUME 463283.206 3809927.811 1080.00
LOCATION L0008787 VOLUME 463283.963 3809936.368 1080.00
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LOCATION L0008789 VOLUME 463285.478 3809953.481 1080.00
LOCATION L0008790 VOLUME 463286.165 3809962.041 1079.80
LOCATION L0008791 VOLUME 463286.294 3809970.630 1079.51
LOCATION L0008792 VOLUME 463286.423 3809979.219 1079.22
LOCATION L0008793 VOLUME 463286.553 3809987.808 1078.97
LOCATION L0008794 VOLUME 463286.682 3809996.397 1078.81
LOCATION L0008795 VOLUME 463286.811 3810004.986 1078.64
LOCATION L0008796 VOLUME 463286.941 3810013.575 1078.48
LOCATION L0008797 VOLUME 463287.070 3810022.164 1078.34
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LOCATION L0008799 VOLUME 463287.329 3810039.342 1078.09
LOCATION L0008800 VOLUME 463287.458 3810047.931 1077.96
LOCATION L0008801 VOLUME 463287.587 3810056.520 1077.79
LOCATION L0008802 VOLUME 463287.717 3810065.109 1077.62
LOCATION L0008803 VOLUME 463287.846 3810073.698 1077.45
LOCATION L0008804 VOLUME 463287.975 3810082.287 1077.32
LOCATION L0008805 VOLUME 463288.105 3810090.876 1077.20

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   LOCATION L0008806     VOLUME   463288.234 3810099.465 1077.08
   LOCATION L0008807     VOLUME   463288.364 3810108.054 1076.93
   LOCATION L0008808     VOLUME   463288.493 3810116.643 1076.64
   LOCATION L0008809     VOLUME   463288.622 3810125.232 1076.36
   LOCATION L0008810     VOLUME   463288.752 3810133.821 1076.07
   LOCATION L0008811     VOLUME   463288.881 3810142.411 1076.00
   LOCATION L0008812     VOLUME   463289.010 3810151.000 1076.00
   LOCATION L0008813     VOLUME   463289.140 3810159.589 1076.00
   LOCATION L0008814     VOLUME   463289.269 3810168.178 1075.92
   LOCATION L0008815     VOLUME   463289.398 3810176.767 1075.64
   LOCATION L0008816     VOLUME   463289.528 3810185.356 1075.35
   LOCATION L0008817     VOLUME   463289.657 3810193.945 1075.07
   LOCATION L0008818     VOLUME   463289.786 3810202.534 1074.85
   LOCATION L0008819     VOLUME   463289.916 3810211.123 1074.66
   LOCATION L0008820     VOLUME   463290.045 3810219.712 1074.47
   LOCATION L0008821     VOLUME   463290.174 3810228.301 1074.30
   LOCATION L0008822     VOLUME   463290.304 3810236.890 1074.20
   LOCATION L0008823     VOLUME   463290.433 3810245.479 1074.11
   LOCATION L0008824     VOLUME   463290.563 3810254.068 1074.02
   LOCATION L0008825     VOLUME   463290.692 3810262.657 1073.85
   LOCATION L0008826     VOLUME   463290.821 3810271.246 1073.65
   LOCATION L0008827     VOLUME   463290.951 3810279.835 1073.44
   LOCATION L0008828     VOLUME   463291.080 3810288.424 1073.27
   LOCATION L0008829     VOLUME   463291.209 3810297.013 1073.18
   LOCATION L0008830     VOLUME   463291.339 3810305.602 1073.10
   LOCATION L0008831     VOLUME   463291.468 3810314.191 1073.02
   LOCATION L0008832     VOLUME   463291.597 3810322.780 1072.77
   LOCATION L0008833     VOLUME   463291.727 3810331.369 1072.49
   LOCATION L0008834     VOLUME   463291.856 3810339.958 1072.20
   LOCATION L0008835     VOLUME   463291.985 3810348.547 1072.00
** End of LINE VOLUME Source ID = SLINE20
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE13
** DESCRSRC 40% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00002815
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
** 463242.902, 3809541.530, 1085.96, 3.49, 4.00
** 462890.042, 3809543.754, 1089.06, 3.49, 4.00
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   LOCATION L0008836     VOLUME   463238.607 3809541.557 1086.00
   LOCATION L0008837     VOLUME   463230.017 3809541.611 1086.00
   LOCATION L0008838     VOLUME   463221.427 3809541.665 1086.00
   LOCATION L0008839     VOLUME   463212.837 3809541.719 1086.00
   LOCATION L0008840     VOLUME   463204.248 3809541.774 1086.00
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   LOCATION L0008841     VOLUME   463195.658 3809541.828 1086.00
   LOCATION L0008842     VOLUME   463187.068 3809541.882 1086.00
   LOCATION L0008843     VOLUME   463178.478 3809541.936 1086.05
   LOCATION L0008844     VOLUME   463169.888 3809541.990 1086.34
   LOCATION L0008845     VOLUME   463161.299 3809542.044 1086.62
   LOCATION L0008846     VOLUME   463152.709 3809542.098 1086.91
   LOCATION L0008847     VOLUME   463144.119 3809542.153 1087.00
   LOCATION L0008848     VOLUME   463135.529 3809542.207 1087.00
   LOCATION L0008849     VOLUME   463126.939 3809542.261 1087.00
   LOCATION L0008850     VOLUME   463118.349 3809542.315 1087.04
   LOCATION L0008851     VOLUME   463109.760 3809542.369 1087.27
   LOCATION L0008852     VOLUME   463101.170 3809542.423 1087.49
   LOCATION L0008853     VOLUME   463092.580 3809542.477 1087.71
   LOCATION L0008854     VOLUME   463083.990 3809542.531 1087.82
   LOCATION L0008855     VOLUME   463075.400 3809542.586 1087.89
   LOCATION L0008856     VOLUME   463066.810 3809542.640 1087.95
   LOCATION L0008857     VOLUME   463058.221 3809542.694 1088.00
   LOCATION L0008858     VOLUME   463049.631 3809542.748 1088.00
   LOCATION L0008859     VOLUME   463041.041 3809542.802 1088.00
   LOCATION L0008860     VOLUME   463032.451 3809542.856 1088.00
   LOCATION L0008861     VOLUME   463023.861 3809542.910 1088.16
   LOCATION L0008862     VOLUME   463015.271 3809542.965 1088.38
   LOCATION L0008863     VOLUME   463006.682 3809543.019 1088.59
   LOCATION L0008864     VOLUME   462998.092 3809543.073 1088.76
   LOCATION L0008865     VOLUME   462989.502 3809543.127 1088.76
   LOCATION L0008866     VOLUME   462980.912 3809543.181 1088.76
   LOCATION L0008867     VOLUME   462972.322 3809543.235 1088.76
   LOCATION L0008868     VOLUME   462963.732 3809543.289 1088.81
   LOCATION L0008869     VOLUME   462955.143 3809543.344 1088.88
   LOCATION L0008870     VOLUME   462946.553 3809543.398 1088.95
   LOCATION L0008871     VOLUME   462937.963 3809543.452 1089.00
   LOCATION L0008872     VOLUME   462929.373 3809543.506 1089.00
   LOCATION L0008873     VOLUME   462920.783 3809543.560 1089.00
   LOCATION L0008874     VOLUME   462912.193 3809543.614 1089.00
   LOCATION L0008875     VOLUME   462903.604 3809543.668 1089.00
   LOCATION L0008876     VOLUME   462895.014 3809543.723 1089.00
** End of LINE VOLUME Source ID = SLINE13
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE14
** DESCRSRC 20% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.0000573
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 3
** 463242.902, 3809541.530, 1085.96, 0.00, 4.00
** 462898.631, 3809543.700, 1089.06, 0.00, 4.00
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** 461806.440, 3809549.911, 1096.65, 0.00, 4.00
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   LOCATION L0008878     VOLUME   463230.017 3809541.611 1086.00
   LOCATION L0008879     VOLUME   463221.427 3809541.665 1086.00
   LOCATION L0008880     VOLUME   463212.837 3809541.719 1086.00
   LOCATION L0008881     VOLUME   463204.248 3809541.774 1086.00
   LOCATION L0008882     VOLUME   463195.658 3809541.828 1086.00
   LOCATION L0008883     VOLUME   463187.068 3809541.882 1086.00
   LOCATION L0008884     VOLUME   463178.478 3809541.936 1086.05
   LOCATION L0008885     VOLUME   463169.888 3809541.990 1086.34
   LOCATION L0008886     VOLUME   463161.299 3809542.044 1086.62
   LOCATION L0008887     VOLUME   463152.709 3809542.098 1086.91
   LOCATION L0008888     VOLUME   463144.119 3809542.153 1087.00
   LOCATION L0008889     VOLUME   463135.529 3809542.207 1087.00
   LOCATION L0008890     VOLUME   463126.939 3809542.261 1087.00
   LOCATION L0008891     VOLUME   463118.349 3809542.315 1087.04
   LOCATION L0008892     VOLUME   463109.760 3809542.369 1087.27
   LOCATION L0008893     VOLUME   463101.170 3809542.423 1087.49
   LOCATION L0008894     VOLUME   463092.580 3809542.477 1087.71
   LOCATION L0008895     VOLUME   463083.990 3809542.531 1087.82
   LOCATION L0008896     VOLUME   463075.400 3809542.586 1087.89
   LOCATION L0008897     VOLUME   463066.810 3809542.640 1087.95
   LOCATION L0008898     VOLUME   463058.221 3809542.694 1088.00
   LOCATION L0008899     VOLUME   463049.631 3809542.748 1088.00
   LOCATION L0008900     VOLUME   463041.041 3809542.802 1088.00
   LOCATION L0008901     VOLUME   463032.451 3809542.856 1088.00
   LOCATION L0008902     VOLUME   463023.861 3809542.910 1088.16
   LOCATION L0008903     VOLUME   463015.271 3809542.965 1088.38
   LOCATION L0008904     VOLUME   463006.682 3809543.019 1088.59
   LOCATION L0008905     VOLUME   462998.092 3809543.073 1088.76
   LOCATION L0008906     VOLUME   462989.502 3809543.127 1088.76
   LOCATION L0008907     VOLUME   462980.912 3809543.181 1088.76
   LOCATION L0008908     VOLUME   462972.322 3809543.235 1088.76
   LOCATION L0008909     VOLUME   462963.732 3809543.289 1088.81
   LOCATION L0008910     VOLUME   462955.143 3809543.344 1088.88
   LOCATION L0008911     VOLUME   462946.553 3809543.398 1088.95
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   LOCATION L0008913     VOLUME   462929.373 3809543.506 1089.00
   LOCATION L0008914     VOLUME   462920.783 3809543.560 1089.00
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   LOCATION L0008916     VOLUME   462903.604 3809543.668 1089.00
   LOCATION L0008917     VOLUME   462895.014 3809543.720 1089.00
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   LOCATION L0008921     VOLUME   462860.654 3809543.916 1089.00
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   LOCATION L0008923     VOLUME   462843.475 3809544.013 1089.16
   LOCATION L0008924     VOLUME   462834.885 3809544.062 1089.37
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LOCATION L0008927 VOLUME 462809.115 3809544.209 1089.72
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LOCATION L0008935 VOLUME 462740.396 3809544.600 1089.90
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LOCATION L0008948 VOLUME 462628.728 3809545.235 1090.26
LOCATION L0008949 VOLUME 462620.138 3809545.283 1090.46
LOCATION L0008950 VOLUME 462611.548 3809545.332 1090.65
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LOCATION L0008952 VOLUME 462594.369 3809545.430 1090.68
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LOCATION L0008956 VOLUME 462560.009 3809545.625 1090.68
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LOCATION L0008984 VOLUME 462319.493 3809546.993 1093.63
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LOCATION L0008996 VOLUME 462216.415 3809547.579 1094.66
LOCATION L0008997 VOLUME 462207.825 3809547.628 1094.77
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LOCATION L0009011 VOLUME 462087.567 3809548.312 1096.00
LOCATION L0009012 VOLUME 462078.977 3809548.361 1096.00
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LOCATION L0009016 VOLUME 462044.618 3809548.556 1096.49
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LOCATION L0009018 VOLUME 462027.438 3809548.654 1096.58
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   LOCATION L0009027     VOLUME   461950.129 3809549.094 1097.56
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   LOCATION L0009030     VOLUME   461924.359 3809549.240 1097.94
   LOCATION L0009031     VOLUME   461915.770 3809549.289 1098.00
   LOCATION L0009032     VOLUME   461907.180 3809549.338 1098.00
   LOCATION L0009033     VOLUME   461898.590 3809549.387 1098.00
   LOCATION L0009034     VOLUME   461890.000 3809549.435 1098.00
   LOCATION L0009035     VOLUME   461881.410 3809549.484 1098.00
   LOCATION L0009036     VOLUME   461872.820 3809549.533 1098.00
   LOCATION L0009037     VOLUME   461864.230 3809549.582 1098.00
   LOCATION L0009038     VOLUME   461855.641 3809549.631 1098.00
   LOCATION L0009039     VOLUME   461847.051 3809549.680 1098.00
   LOCATION L0009040     VOLUME   461838.461 3809549.729 1098.00
   LOCATION L0009041     VOLUME   461829.871 3809549.777 1097.99
   LOCATION L0009042     VOLUME   461821.281 3809549.826 1097.57
   LOCATION L0009043     VOLUME   461812.691 3809549.875 1097.15
** End of LINE VOLUME Source ID = SLINE14
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE18
** DESCRSRC 50% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00003519
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** 462890.042, 3809543.754, 1089.06, 3.49, 4.00
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   LOCATION L0009045     VOLUME   463230.017 3809541.611 1086.00
   LOCATION L0009046     VOLUME   463221.427 3809541.665 1086.00
   LOCATION L0009047     VOLUME   463212.837 3809541.719 1086.00
   LOCATION L0009048     VOLUME   463204.248 3809541.774 1086.00
   LOCATION L0009049     VOLUME   463195.658 3809541.828 1086.00
   LOCATION L0009050     VOLUME   463187.068 3809541.882 1086.00
   LOCATION L0009051     VOLUME   463178.478 3809541.936 1086.05
   LOCATION L0009052     VOLUME   463169.888 3809541.990 1086.34
   LOCATION L0009053     VOLUME   463161.299 3809542.044 1086.62
   LOCATION L0009054     VOLUME   463152.709 3809542.098 1086.91
   LOCATION L0009055     VOLUME   463144.119 3809542.153 1087.00
   LOCATION L0009056     VOLUME   463135.529 3809542.207 1087.00
   LOCATION L0009057     VOLUME   463126.939 3809542.261 1087.00
   LOCATION L0009058     VOLUME   463118.349 3809542.315 1087.04
   LOCATION L0009059     VOLUME   463109.760 3809542.369 1087.27
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   LOCATION L0009060     VOLUME   463101.170 3809542.423 1087.49
   LOCATION L0009061     VOLUME   463092.580 3809542.477 1087.71
   LOCATION L0009062     VOLUME   463083.990 3809542.531 1087.82
   LOCATION L0009063     VOLUME   463075.400 3809542.586 1087.89
   LOCATION L0009064     VOLUME   463066.810 3809542.640 1087.95
   LOCATION L0009065     VOLUME   463058.221 3809542.694 1088.00
   LOCATION L0009066     VOLUME   463049.631 3809542.748 1088.00
   LOCATION L0009067     VOLUME   463041.041 3809542.802 1088.00
   LOCATION L0009068     VOLUME   463032.451 3809542.856 1088.00
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   LOCATION L0009070     VOLUME   463015.271 3809542.965 1088.38
   LOCATION L0009071     VOLUME   463006.682 3809543.019 1088.59
   LOCATION L0009072     VOLUME   462998.092 3809543.073 1088.76
   LOCATION L0009073     VOLUME   462989.502 3809543.127 1088.76
   LOCATION L0009074     VOLUME   462980.912 3809543.181 1088.76
   LOCATION L0009075     VOLUME   462972.322 3809543.235 1088.76
   LOCATION L0009076     VOLUME   462963.732 3809543.289 1088.81
   LOCATION L0009077     VOLUME   462955.143 3809543.344 1088.88
   LOCATION L0009078     VOLUME   462946.553 3809543.398 1088.95
   LOCATION L0009079     VOLUME   462937.963 3809543.452 1089.00
   LOCATION L0009080     VOLUME   462929.373 3809543.506 1089.00
   LOCATION L0009081     VOLUME   462920.783 3809543.560 1089.00
   LOCATION L0009082     VOLUME   462912.193 3809543.614 1089.00
   LOCATION L0009083     VOLUME   462903.604 3809543.668 1089.00
   LOCATION L0009084     VOLUME   462895.014 3809543.723 1089.00
** End of LINE VOLUME Source ID = SLINE18
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE19
** DESCRSRC 5% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00001432
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 3
** 463242.902, 3809541.530, 1085.96, 0.00, 4.00
** 462898.631, 3809543.700, 1089.06, 0.00, 4.00
** 461806.440, 3809549.911, 1096.65, 0.00, 4.00
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   LOCATION L0009086     VOLUME   463230.017 3809541.611 1086.00
   LOCATION L0009087     VOLUME   463221.427 3809541.665 1086.00
   LOCATION L0009088     VOLUME   463212.837 3809541.719 1086.00
   LOCATION L0009089     VOLUME   463204.248 3809541.774 1086.00
   LOCATION L0009090     VOLUME   463195.658 3809541.828 1086.00
   LOCATION L0009091     VOLUME   463187.068 3809541.882 1086.00
   LOCATION L0009092     VOLUME   463178.478 3809541.936 1086.05
   LOCATION L0009093     VOLUME   463169.888 3809541.990 1086.34
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LOCATION L0009097 VOLUME 463135.529 3809542.207 1087.00
LOCATION L0009098 VOLUME 463126.939 3809542.261 1087.00
LOCATION L0009099 VOLUME 463118.349 3809542.315 1087.04
LOCATION L0009100 VOLUME 463109.760 3809542.369 1087.27
LOCATION L0009101 VOLUME 463101.170 3809542.423 1087.49
LOCATION L0009102 VOLUME 463092.580 3809542.477 1087.71
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LOCATION L0009104 VOLUME 463075.400 3809542.586 1087.89
LOCATION L0009105 VOLUME 463066.810 3809542.640 1087.95
LOCATION L0009106 VOLUME 463058.221 3809542.694 1088.00
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LOCATION L0009111 VOLUME 463015.271 3809542.965 1088.38
LOCATION L0009112 VOLUME 463006.682 3809543.019 1088.59
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LOCATION L0009120 VOLUME 462937.963 3809543.452 1089.00
LOCATION L0009121 VOLUME 462929.373 3809543.506 1089.00
LOCATION L0009122 VOLUME 462920.783 3809543.560 1089.00
LOCATION L0009123 VOLUME 462912.193 3809543.614 1089.00
LOCATION L0009124 VOLUME 462903.604 3809543.668 1089.00
LOCATION L0009125 VOLUME 462895.014 3809543.720 1089.00
LOCATION L0009126 VOLUME 462886.424 3809543.769 1089.00
LOCATION L0009127 VOLUME 462877.834 3809543.818 1089.00
LOCATION L0009128 VOLUME 462869.244 3809543.867 1089.00
LOCATION L0009129 VOLUME 462860.654 3809543.916 1089.00
LOCATION L0009130 VOLUME 462852.064 3809543.965 1089.00
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LOCATION L0009132 VOLUME 462834.885 3809544.062 1089.37
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LOCATION L0009136 VOLUME 462800.525 3809544.258 1089.72
LOCATION L0009137 VOLUME 462791.935 3809544.306 1089.72
LOCATION L0009138 VOLUME 462783.346 3809544.355 1089.72
LOCATION L0009139 VOLUME 462774.756 3809544.404 1089.72
LOCATION L0009140 VOLUME 462766.166 3809544.453 1089.72
LOCATION L0009141 VOLUME 462757.576 3809544.502 1089.74
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LOCATION L0009143 VOLUME 462740.396 3809544.600 1089.90

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LOCATION L0009151 VOLUME 462671.677 3809544.990 1090.00
LOCATION L0009152 VOLUME 462663.088 3809545.039 1090.00
LOCATION L0009153 VOLUME 462654.498 3809545.088 1090.00
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LOCATION L0009155 VOLUME 462637.318 3809545.186 1090.06
LOCATION L0009156 VOLUME 462628.728 3809545.235 1090.26
LOCATION L0009157 VOLUME 462620.138 3809545.283 1090.46
LOCATION L0009158 VOLUME 462611.548 3809545.332 1090.65
LOCATION L0009159 VOLUME 462602.959 3809545.381 1090.68
LOCATION L0009160 VOLUME 462594.369 3809545.430 1090.68
LOCATION L0009161 VOLUME 462585.779 3809545.479 1090.68
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LOCATION L0009167 VOLUME 462534.240 3809545.772 1090.84
LOCATION L0009168 VOLUME 462525.650 3809545.821 1090.94
LOCATION L0009169 VOLUME 462517.060 3809545.870 1091.00
LOCATION L0009170 VOLUME 462508.470 3809545.918 1091.00
LOCATION L0009171 VOLUME 462499.880 3809545.967 1091.00
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LOCATION L0009174 VOLUME 462474.111 3809546.114 1091.53
LOCATION L0009175 VOLUME 462465.521 3809546.163 1091.82
LOCATION L0009176 VOLUME 462456.931 3809546.212 1092.00
LOCATION L0009177 VOLUME 462448.341 3809546.260 1092.00
LOCATION L0009178 VOLUME 462439.751 3809546.309 1092.00
LOCATION L0009179 VOLUME 462431.161 3809546.358 1092.00
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LOCATION L0009183 VOLUME 462396.802 3809546.553 1092.68
LOCATION L0009184 VOLUME 462388.212 3809546.602 1092.78
LOCATION L0009185 VOLUME 462379.622 3809546.651 1092.89
LOCATION L0009186 VOLUME 462371.032 3809546.700 1092.99
LOCATION L0009187 VOLUME 462362.442 3809546.749 1093.16
LOCATION L0009188 VOLUME 462353.853 3809546.798 1093.34
LOCATION L0009189 VOLUME 462345.263 3809546.847 1093.52
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LOCATION L0009191 VOLUME 462328.083 3809546.944 1093.63
LOCATION L0009192 VOLUME 462319.493 3809546.993 1093.63
LOCATION L0009193 VOLUME 462310.903 3809547.042 1093.63

LOCATION L0009194 VOLUME 462302.313 3809547.091 1093.72
LOCATION L0009195 VOLUME 462293.724 3809547.140 1093.83
LOCATION L0009196 VOLUME 462285.134 3809547.188 1093.94
LOCATION L0009197 VOLUME 462276.544 3809547.237 1094.00
LOCATION L0009198 VOLUME 462267.954 3809547.286 1094.00
LOCATION L0009199 VOLUME 462259.364 3809547.335 1094.00
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LOCATION L0009208 VOLUME 462182.055 3809547.775 1095.16
LOCATION L0009209 VOLUME 462173.465 3809547.824 1095.33
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LOCATION L0009211 VOLUME 462156.286 3809547.921 1095.60
LOCATION L0009212 VOLUME 462147.696 3809547.970 1095.60
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LOCATION L0009214 VOLUME 462130.516 3809548.068 1095.59
LOCATION L0009215 VOLUME 462121.926 3809548.117 1095.70
LOCATION L0009216 VOLUME 462113.336 3809548.165 1095.82
LOCATION L0009217 VOLUME 462104.747 3809548.214 1095.94
LOCATION L0009218 VOLUME 462096.157 3809548.263 1096.00
LOCATION L0009219 VOLUME 462087.567 3809548.312 1096.00
LOCATION L0009220 VOLUME 462078.977 3809548.361 1096.00
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LOCATION L0009223 VOLUME 462053.207 3809548.507 1096.32
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LOCATION L0009225 VOLUME 462036.028 3809548.605 1096.58
LOCATION L0009226 VOLUME 462027.438 3809548.654 1096.58
LOCATION L0009227 VOLUME 462018.848 3809548.703 1096.57
LOCATION L0009228 VOLUME 462010.258 3809548.752 1096.57
LOCATION L0009229 VOLUME 462001.668 3809548.800 1096.69
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LOCATION L0009236 VOLUME 461941.539 3809549.142 1097.68
LOCATION L0009237 VOLUME 461932.949 3809549.191 1097.81
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LOCATION L0009239 VOLUME 461915.770 3809549.289 1098.00
LOCATION L0009240 VOLUME 461907.180 3809549.338 1098.00
LOCATION L0009241 VOLUME 461898.590 3809549.387 1098.00
LOCATION L0009242 VOLUME 461890.000 3809549.435 1098.00
LOCATION L0009243 VOLUME 461881.410 3809549.484 1098.00

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   LOCATION L0009245     VOLUME   461864.230 3809549.582 1098.00
   LOCATION L0009246     VOLUME   461855.641 3809549.631 1098.00
   LOCATION L0009247     VOLUME   461847.051 3809549.680 1098.00
   LOCATION L0009248     VOLUME   461838.461 3809549.729 1098.00
   LOCATION L0009249     VOLUME   461829.871 3809549.777 1097.99
   LOCATION L0009250     VOLUME   461821.281 3809549.826 1097.57
   LOCATION L0009251     VOLUME   461812.691 3809549.875 1097.15
** End of LINE VOLUME Source ID = SLINE19
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE15
** DESCRSRC 25% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00002036
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** 462881.481, 3810357.742, 1076.92, 3.49, 4.00
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   LOCATION L0009253     VOLUME   463276.854 3810356.897 1072.00
   LOCATION L0009254     VOLUME   463268.264 3810356.915 1072.04
   LOCATION L0009255     VOLUME   463259.674 3810356.934 1072.22
   LOCATION L0009256     VOLUME   463251.084 3810356.952 1072.40
   LOCATION L0009257     VOLUME   463242.494 3810356.971 1072.58
   LOCATION L0009258     VOLUME   463233.904 3810356.989 1072.71
   LOCATION L0009259     VOLUME   463225.314 3810357.007 1072.81
   LOCATION L0009260     VOLUME   463216.724 3810357.026 1072.92
   LOCATION L0009261     VOLUME   463208.134 3810357.044 1073.04
   LOCATION L0009262     VOLUME   463199.544 3810357.062 1073.22
   LOCATION L0009263     VOLUME   463190.954 3810357.081 1073.40
   LOCATION L0009264     VOLUME   463182.364 3810357.099 1073.58
   LOCATION L0009265     VOLUME   463173.774 3810357.117 1073.70
   LOCATION L0009266     VOLUME   463165.184 3810357.136 1073.81
   LOCATION L0009267     VOLUME   463156.594 3810357.154 1073.92
   LOCATION L0009268     VOLUME   463148.004 3810357.172 1074.00
   LOCATION L0009269     VOLUME   463139.414 3810357.191 1074.00
   LOCATION L0009270     VOLUME   463130.824 3810357.209 1074.00
   LOCATION L0009271     VOLUME   463122.234 3810357.228 1074.00
   LOCATION L0009272     VOLUME   463113.644 3810357.246 1074.13
   LOCATION L0009273     VOLUME   463105.055 3810357.264 1074.31
   LOCATION L0009274     VOLUME   463096.465 3810357.283 1074.49
   LOCATION L0009275     VOLUME   463087.875 3810357.301 1074.62
   LOCATION L0009276     VOLUME   463079.285 3810357.319 1074.62
   LOCATION L0009277     VOLUME   463070.695 3810357.338 1074.62
   LOCATION L0009278     VOLUME   463062.105 3810357.356 1074.62
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   LOCATION L0009281     VOLUME   463036.335 3810357.411 1074.92
   LOCATION L0009282     VOLUME   463027.745 3810357.429 1075.05
   LOCATION L0009283     VOLUME   463019.155 3810357.448 1075.22
   LOCATION L0009284     VOLUME   463010.565 3810357.466 1075.40
   LOCATION L0009285     VOLUME   463001.975 3810357.484 1075.57
   LOCATION L0009286     VOLUME   462993.385 3810357.503 1075.61
   LOCATION L0009287     VOLUME   462984.795 3810357.521 1075.61
   LOCATION L0009288     VOLUME   462976.205 3810357.540 1075.61
   LOCATION L0009289     VOLUME   462967.615 3810357.558 1075.64
   LOCATION L0009290     VOLUME   462959.025 3810357.576 1075.75
   LOCATION L0009291     VOLUME   462950.435 3810357.595 1075.86
   LOCATION L0009292     VOLUME   462941.845 3810357.613 1075.98
   LOCATION L0009293     VOLUME   462933.255 3810357.631 1076.00
   LOCATION L0009294     VOLUME   462924.665 3810357.650 1076.00
   LOCATION L0009295     VOLUME   462916.075 3810357.668 1076.00
   LOCATION L0009296     VOLUME   462907.485 3810357.686 1076.05
   LOCATION L0009297     VOLUME   462898.895 3810357.705 1076.22
   LOCATION L0009298     VOLUME   462890.305 3810357.723 1076.40
   LOCATION L0009299     VOLUME   462881.715 3810357.741 1076.57
** End of LINE VOLUME Source ID = SLINE15
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE16
** DESCRSRC 15% Inbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00003173
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 3
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   LOCATION L0005081     VOLUME   463268.264 3810356.915 1072.04
   LOCATION L0005082     VOLUME   463259.674 3810356.934 1072.22
   LOCATION L0005083     VOLUME   463251.084 3810356.952 1072.40
   LOCATION L0005084     VOLUME   463242.494 3810356.971 1072.58
   LOCATION L0005085     VOLUME   463233.904 3810356.989 1072.71
   LOCATION L0005086     VOLUME   463225.314 3810357.007 1072.81
   LOCATION L0005087     VOLUME   463216.724 3810357.026 1072.92
   LOCATION L0005088     VOLUME   463208.134 3810357.044 1073.04
   LOCATION L0005089     VOLUME   463199.544 3810357.062 1073.22
   LOCATION L0005090     VOLUME   463190.954 3810357.081 1073.40
   LOCATION L0005091     VOLUME   463182.364 3810357.099 1073.58
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LOCATION L0005100 VOLUME 463105.055 3810357.264 1074.31
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LOCATION L0005166 VOLUME 462538.115 3810357.732 1080.76
LOCATION L0005167 VOLUME 462529.525 3810357.733 1080.87
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LOCATION L0005176 VOLUME 462452.215 3810357.735 1081.71
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LOCATION L0005189 VOLUME 462340.545 3810357.738 1082.59
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LOCATION L0005191 VOLUME 462323.365 3810357.739 1082.61

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   LOCATION L0005193     VOLUME   462306.185 3810357.740 1082.66
   LOCATION L0005194     VOLUME   462297.595 3810357.740 1082.77
   LOCATION L0005195     VOLUME   462289.005 3810357.740 1082.88
   LOCATION L0005196     VOLUME   462280.415 3810357.740 1082.99
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   LOCATION L0005199     VOLUME   462254.645 3810357.741 1083.00
   LOCATION L0005200     VOLUME   462246.055 3810357.741 1083.08
   LOCATION L0005201     VOLUME   462237.465 3810357.742 1083.25
** End of LINE VOLUME Source ID = SLINE16
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE21
** DESCRSRC 30% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00002443
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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** 462881.481, 3810357.742, 1076.92, 3.49, 4.00
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   LOCATION L0005203     VOLUME   463276.854 3810356.897 1072.00
   LOCATION L0005204     VOLUME   463268.264 3810356.915 1072.04
   LOCATION L0005205     VOLUME   463259.674 3810356.934 1072.22
   LOCATION L0005206     VOLUME   463251.084 3810356.952 1072.40
   LOCATION L0005207     VOLUME   463242.494 3810356.971 1072.58
   LOCATION L0005208     VOLUME   463233.904 3810356.989 1072.71
   LOCATION L0005209     VOLUME   463225.314 3810357.007 1072.81
   LOCATION L0005210     VOLUME   463216.724 3810357.026 1072.92
   LOCATION L0005211     VOLUME   463208.134 3810357.044 1073.04
   LOCATION L0005212     VOLUME   463199.544 3810357.062 1073.22
   LOCATION L0005213     VOLUME   463190.954 3810357.081 1073.40
   LOCATION L0005214     VOLUME   463182.364 3810357.099 1073.58
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   LOCATION L0005216     VOLUME   463165.184 3810357.136 1073.81
   LOCATION L0005217     VOLUME   463156.594 3810357.154 1073.92
   LOCATION L0005218     VOLUME   463148.004 3810357.172 1074.00
   LOCATION L0005219     VOLUME   463139.414 3810357.191 1074.00
   LOCATION L0005220     VOLUME   463130.824 3810357.209 1074.00
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   LOCATION L0005222     VOLUME   463113.644 3810357.246 1074.13
   LOCATION L0005223     VOLUME   463105.055 3810357.264 1074.31
   LOCATION L0005224     VOLUME   463096.465 3810357.283 1074.49
   LOCATION L0005225     VOLUME   463087.875 3810357.301 1074.62
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   LOCATION L0005232     VOLUME   463027.745 3810357.429 1075.05
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   LOCATION L0005237     VOLUME   462984.795 3810357.521 1075.61
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   LOCATION L0005239     VOLUME   462967.615 3810357.558 1075.64
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   LOCATION L0005245     VOLUME   462916.075 3810357.668 1076.00
   LOCATION L0005246     VOLUME   462907.485 3810357.686 1076.05
   LOCATION L0005247     VOLUME   462898.895 3810357.705 1076.22
   LOCATION L0005248     VOLUME   462890.305 3810357.723 1076.40
   LOCATION L0005249     VOLUME   462881.715 3810357.741 1076.57
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** LINE VOLUME Source ID = SLINE22
** DESCRSRC 15% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 0.00003173
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 3
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   LOCATION L0005254     VOLUME   463251.084 3810356.952 1072.40
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   LOCATION L0005256     VOLUME   463233.904 3810356.989 1072.71
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LOCATION L0005302 VOLUME 462838.765 3810357.723 1077.23
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LOCATION L0005322     VOLUME   462666.965 3810357.728 1079.06
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LOCATION L0005324     VOLUME   462649.785 3810357.729 1079.41
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LOCATION L0005335     VOLUME   462555.295 3810357.732 1080.50
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LOCATION L0005341     VOLUME   462503.755 3810357.733 1081.00
LOCATION L0005342     VOLUME   462495.165 3810357.734 1081.00
LOCATION L0005343     VOLUME   462486.575 3810357.734 1081.07
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LOCATION L0005348     VOLUME   462443.625 3810357.735 1081.82
LOCATION L0005349     VOLUME   462435.035 3810357.736 1081.93
LOCATION L0005350     VOLUME   462426.445 3810357.736 1082.00
LOCATION L0005351     VOLUME   462417.855 3810357.736 1082.00
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LOCATION L0005360     VOLUME   462340.545 3810357.738 1082.59
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   LOCATION L0005365     VOLUME   462297.595 3810357.740 1082.77
   LOCATION L0005366     VOLUME   462289.005 3810357.740 1082.88
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   LOCATION L0005372     VOLUME   462237.465 3810357.742 1083.25
** End of LINE VOLUME Source ID = SLINE22
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** Line Source Represented by Adjacent Volume Sources
** LINE VOLUME Source ID = SLINE23
** DESCRSRC 5% Outbound
** PREFIX
** Length of Side = 8.59
** Configuration = Adjacent
** Emission Rate = 5.877E-06
** Vertical Dimension = 6.99
** SZINIT = 3.25
** Nodes = 2
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   LOCATION L0005382     VOLUME   463295.159 3810448.833 1071.00
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   LOCATION L0005384     VOLUME   463295.107 3810466.012 1071.00
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   LOCATION L0005387     VOLUME   463295.029 3810491.782 1070.28
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   LOCATION L0005389     VOLUME   463294.977 3810508.962 1070.09
   LOCATION L0005390     VOLUME   463294.951 3810517.552 1070.05
   LOCATION L0005391     VOLUME   463294.925 3810526.142 1070.00
   LOCATION L0005392     VOLUME   463294.900 3810534.732 1070.00
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   LOCATION L0005401     VOLUME   463294.666 3810612.042 1069.00
   LOCATION L0005402     VOLUME   463294.640 3810620.632 1068.84
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   LOCATION L0005410     VOLUME   463294.433 3810689.351 1067.64
   LOCATION L0005411     VOLUME   463294.407 3810697.941 1067.40
   LOCATION L0005412     VOLUME   463294.381 3810706.531 1067.18
   LOCATION L0005413     VOLUME   463294.355 3810715.121 1067.13
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   LOCATION L0005419     VOLUME   463294.199 3810766.661 1066.19
   LOCATION L0005420     VOLUME   463294.173 3810775.251 1066.13
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   LOCATION L0005422     VOLUME   463294.122 3810792.431 1066.02
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** Source Parameters **
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   SRCPARAM L0007470     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007471     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007472     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007473     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007474     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007475     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007476     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007477     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007478     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007479     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007480     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007481     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007482     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007483     0.000001407      3.49      4.00      3.25
   SRCPARAM L0007484     0.000001407      3.49      4.00      3.25
** ----------------------------------------------------------------
** LINE VOLUME Source ID = SLINE2
   SRCPARAM L0007485     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007486     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007487     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007488     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007489     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007490     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007491     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007492     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007493     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007494     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007495     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007496     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007497     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007498     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007499     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007500     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007501     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007502     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007503     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007504     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007505     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007506     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007507     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007508     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007509     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007510     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007511     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007512     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007513     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007514     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007515     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007516     0.000001428      3.49      4.00      3.25
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   SRCPARAM L0007517     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007518     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007519     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007520     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007521     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007522     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007523     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007524     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007525     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007526     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007527     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007528     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007529     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007530     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007531     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007532     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007533     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007534     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007535     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007536     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007537     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007538     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007539     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007540     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007541     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007542     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007543     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007544     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007545     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007546     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007547     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007548     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007549     0.000001428      3.49      4.00      3.25
   SRCPARAM L0007550     0.000001428      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE3
   SRCPARAM L0007551     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007552     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007553     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007554     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007555     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007556     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007557     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007558     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007559     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007560     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007561     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007562     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007563     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007564     0.00000135      3.49      4.00      3.25
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SRCPARAM L0007565     0.00000135      3.49      4.00      3.25
SRCPARAM L0007566     0.00000135      3.49      4.00      3.25
SRCPARAM L0007567     0.00000135      3.49      4.00      3.25
SRCPARAM L0007568     0.00000135      3.49      4.00      3.25
SRCPARAM L0007569     0.00000135      3.49      4.00      3.25
SRCPARAM L0007570     0.00000135      3.49      4.00      3.25
SRCPARAM L0007571     0.00000135      3.49      4.00      3.25
SRCPARAM L0007572     0.00000135      3.49      4.00      3.25
SRCPARAM L0007573     0.00000135      3.49      4.00      3.25
SRCPARAM L0007574     0.00000135      3.49      4.00      3.25
SRCPARAM L0007575     0.00000135      3.49      4.00      3.25
SRCPARAM L0007576     0.00000135      3.49      4.00      3.25
SRCPARAM L0007577     0.00000135      3.49      4.00      3.25
SRCPARAM L0007578     0.00000135      3.49      4.00      3.25
SRCPARAM L0007579     0.00000135      3.49      4.00      3.25
SRCPARAM L0007580     0.00000135      3.49      4.00      3.25
SRCPARAM L0007581     0.00000135      3.49      4.00      3.25
SRCPARAM L0007582     0.00000135      3.49      4.00      3.25
SRCPARAM L0007583     0.00000135      3.49      4.00      3.25
SRCPARAM L0007584     0.00000135      3.49      4.00      3.25
SRCPARAM L0007585     0.00000135      3.49      4.00      3.25
SRCPARAM L0007586     0.00000135      3.49      4.00      3.25
SRCPARAM L0007587     0.00000135      3.49      4.00      3.25
SRCPARAM L0007588     0.00000135      3.49      4.00      3.25
SRCPARAM L0007589     0.00000135      3.49      4.00      3.25
SRCPARAM L0007590     0.00000135      3.49      4.00      3.25
SRCPARAM L0007591     0.00000135      3.49      4.00      3.25
SRCPARAM L0007592     0.00000135      3.49      4.00      3.25
SRCPARAM L0007593     0.00000135      3.49      4.00      3.25
SRCPARAM L0007594     0.00000135      3.49      4.00      3.25
SRCPARAM L0007595     0.00000135      3.49      4.00      3.25
SRCPARAM L0007596     0.00000135      3.49      4.00      3.25
SRCPARAM L0007597     0.00000135      3.49      4.00      3.25
SRCPARAM L0007598     0.00000135      3.49      4.00      3.25
SRCPARAM L0007599     0.00000135      3.49      4.00      3.25
SRCPARAM L0007600     0.00000135      3.49      4.00      3.25
SRCPARAM L0007601     0.00000135      3.49      4.00      3.25
SRCPARAM L0007602     0.00000135      3.49      4.00      3.25
SRCPARAM L0007603     0.00000135      3.49      4.00      3.25
SRCPARAM L0007604     0.00000135      3.49      4.00      3.25
SRCPARAM L0007605     0.00000135      3.49      4.00      3.25
SRCPARAM L0007606     0.00000135      3.49      4.00      3.25
SRCPARAM L0007607     0.00000135      3.49      4.00      3.25
SRCPARAM L0007608     0.00000135      3.49      4.00      3.25
SRCPARAM L0007609     0.00000135      3.49      4.00      3.25
SRCPARAM L0007610     0.00000135      3.49      4.00      3.25
SRCPARAM L0007611     0.00000135      3.49      4.00      3.25
SRCPARAM L0007612     0.00000135      3.49      4.00      3.25
SRCPARAM L0007613     0.00000135      3.49      4.00      3.25
SRCPARAM L0007614     0.00000135      3.49      4.00      3.25
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   SRCPARAM L0007615     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007616     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007617     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007618     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007619     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007620     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007621     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007622     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007623     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007624     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007625     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007626     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007627     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007628     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007629     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007630     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007631     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007632     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007633     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007634     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007635     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007636     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007637     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007638     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007639     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007640     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007641     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007642     0.00000135      3.49      4.00      3.25
** ----------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE4
   SRCPARAM L0007643     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007644     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007645     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007646     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007647     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007648     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007649     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007650     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007651     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007652     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007653     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007654     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007655     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007656     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007657     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007658     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007659     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007660     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007661     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007662     0.00000135      3.49      4.00      3.25
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SRCPARAM L0007663     0.00000135      3.49      4.00      3.25
SRCPARAM L0007664     0.00000135      3.49      4.00      3.25
SRCPARAM L0007665     0.00000135      3.49      4.00      3.25
SRCPARAM L0007666     0.00000135      3.49      4.00      3.25
SRCPARAM L0007667     0.00000135      3.49      4.00      3.25
SRCPARAM L0007668     0.00000135      3.49      4.00      3.25
SRCPARAM L0007669     0.00000135      3.49      4.00      3.25
SRCPARAM L0007670     0.00000135      3.49      4.00      3.25
SRCPARAM L0007671     0.00000135      3.49      4.00      3.25
SRCPARAM L0007672     0.00000135      3.49      4.00      3.25
SRCPARAM L0007673     0.00000135      3.49      4.00      3.25
SRCPARAM L0007674     0.00000135      3.49      4.00      3.25
SRCPARAM L0007675     0.00000135      3.49      4.00      3.25
SRCPARAM L0007676     0.00000135      3.49      4.00      3.25
SRCPARAM L0007677     0.00000135      3.49      4.00      3.25
SRCPARAM L0007678     0.00000135      3.49      4.00      3.25
SRCPARAM L0007679     0.00000135      3.49      4.00      3.25
SRCPARAM L0007680     0.00000135      3.49      4.00      3.25
SRCPARAM L0007681     0.00000135      3.49      4.00      3.25
SRCPARAM L0007682     0.00000135      3.49      4.00      3.25
SRCPARAM L0007683     0.00000135      3.49      4.00      3.25
SRCPARAM L0007684     0.00000135      3.49      4.00      3.25
SRCPARAM L0007685     0.00000135      3.49      4.00      3.25
SRCPARAM L0007686     0.00000135      3.49      4.00      3.25
SRCPARAM L0007687     0.00000135      3.49      4.00      3.25
SRCPARAM L0007688     0.00000135      3.49      4.00      3.25
SRCPARAM L0007689     0.00000135      3.49      4.00      3.25
SRCPARAM L0007690     0.00000135      3.49      4.00      3.25
SRCPARAM L0007691     0.00000135      3.49      4.00      3.25
SRCPARAM L0007692     0.00000135      3.49      4.00      3.25
SRCPARAM L0007693     0.00000135      3.49      4.00      3.25
SRCPARAM L0007694     0.00000135      3.49      4.00      3.25
SRCPARAM L0007695     0.00000135      3.49      4.00      3.25
SRCPARAM L0007696     0.00000135      3.49      4.00      3.25
SRCPARAM L0007697     0.00000135      3.49      4.00      3.25
SRCPARAM L0007698     0.00000135      3.49      4.00      3.25
SRCPARAM L0007699     0.00000135      3.49      4.00      3.25
SRCPARAM L0007700     0.00000135      3.49      4.00      3.25
SRCPARAM L0007701     0.00000135      3.49      4.00      3.25
SRCPARAM L0007702     0.00000135      3.49      4.00      3.25
SRCPARAM L0007703     0.00000135      3.49      4.00      3.25
SRCPARAM L0007704     0.00000135      3.49      4.00      3.25
SRCPARAM L0007705     0.00000135      3.49      4.00      3.25
SRCPARAM L0007706     0.00000135      3.49      4.00      3.25
SRCPARAM L0007707     0.00000135      3.49      4.00      3.25
SRCPARAM L0007708     0.00000135      3.49      4.00      3.25
SRCPARAM L0007709     0.00000135      3.49      4.00      3.25
SRCPARAM L0007710     0.00000135      3.49      4.00      3.25
SRCPARAM L0007711     0.00000135      3.49      4.00      3.25
SRCPARAM L0007712     0.00000135      3.49      4.00      3.25
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   SRCPARAM L0007713     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007714     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007715     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007716     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007717     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007718     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007719     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007720     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007721     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007722     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007723     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007724     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007725     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007726     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007727     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007728     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007729     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007730     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007731     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007732     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007733     0.00000135      3.49      4.00      3.25
   SRCPARAM L0007734     0.00000135      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE5
   SRCPARAM L0007735     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007736     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007737     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007738     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007739     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007740     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007741     0.000001689      3.49      4.00      3.25
   SRCPARAM L0007742     0.000001689      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE6
   SRCPARAM L0007743     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007744     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007745     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007746     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007747     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007748     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007749     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007750     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007751     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007752     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007753     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007754     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007755     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007756     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007757     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007758     0.000001697      3.49      4.00      3.25
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SRCPARAM L0007759     0.000001697      3.49      4.00      3.25
SRCPARAM L0007760     0.000001697      3.49      4.00      3.25
SRCPARAM L0007761     0.000001697      3.49      4.00      3.25
SRCPARAM L0007762     0.000001697      3.49      4.00      3.25
SRCPARAM L0007763     0.000001697      3.49      4.00      3.25
SRCPARAM L0007764     0.000001697      3.49      4.00      3.25
SRCPARAM L0007765     0.000001697      3.49      4.00      3.25
SRCPARAM L0007766     0.000001697      3.49      4.00      3.25
SRCPARAM L0007767     0.000001697      3.49      4.00      3.25
SRCPARAM L0007768     0.000001697      3.49      4.00      3.25
SRCPARAM L0007769     0.000001697      3.49      4.00      3.25
SRCPARAM L0007770     0.000001697      3.49      4.00      3.25
SRCPARAM L0007771     0.000001697      3.49      4.00      3.25
SRCPARAM L0007772     0.000001697      3.49      4.00      3.25
SRCPARAM L0007773     0.000001697      3.49      4.00      3.25
SRCPARAM L0007774     0.000001697      3.49      4.00      3.25
SRCPARAM L0007775     0.000001697      3.49      4.00      3.25
SRCPARAM L0007776     0.000001697      3.49      4.00      3.25
SRCPARAM L0007777     0.000001697      3.49      4.00      3.25
SRCPARAM L0007778     0.000001697      3.49      4.00      3.25
SRCPARAM L0007779     0.000001697      3.49      4.00      3.25
SRCPARAM L0007780     0.000001697      3.49      4.00      3.25
SRCPARAM L0007781     0.000001697      3.49      4.00      3.25
SRCPARAM L0007782     0.000001697      3.49      4.00      3.25
SRCPARAM L0007783     0.000001697      3.49      4.00      3.25
SRCPARAM L0007784     0.000001697      3.49      4.00      3.25
SRCPARAM L0007785     0.000001697      3.49      4.00      3.25
SRCPARAM L0007786     0.000001697      3.49      4.00      3.25
SRCPARAM L0007787     0.000001697      3.49      4.00      3.25
SRCPARAM L0007788     0.000001697      3.49      4.00      3.25
SRCPARAM L0007789     0.000001697      3.49      4.00      3.25
SRCPARAM L0007790     0.000001697      3.49      4.00      3.25
SRCPARAM L0007791     0.000001697      3.49      4.00      3.25
SRCPARAM L0007792     0.000001697      3.49      4.00      3.25
SRCPARAM L0007793     0.000001697      3.49      4.00      3.25
SRCPARAM L0007794     0.000001697      3.49      4.00      3.25
SRCPARAM L0007795     0.000001697      3.49      4.00      3.25
SRCPARAM L0007796     0.000001697      3.49      4.00      3.25
SRCPARAM L0007797     0.000001697      3.49      4.00      3.25
SRCPARAM L0007798     0.000001697      3.49      4.00      3.25
SRCPARAM L0007799     0.000001697      3.49      4.00      3.25
SRCPARAM L0007800     0.000001697      3.49      4.00      3.25
SRCPARAM L0007801     0.000001697      3.49      4.00      3.25
SRCPARAM L0007802     0.000001697      3.49      4.00      3.25
SRCPARAM L0007803     0.000001697      3.49      4.00      3.25
SRCPARAM L0007804     0.000001697      3.49      4.00      3.25
SRCPARAM L0007805     0.000001697      3.49      4.00      3.25
SRCPARAM L0007806     0.000001697      3.49      4.00      3.25
SRCPARAM L0007807     0.000001697      3.49      4.00      3.25
SRCPARAM L0007808     0.000001697      3.49      4.00      3.25
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   SRCPARAM L0007809     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007810     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007811     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007812     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007813     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007814     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007815     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007816     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007817     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007818     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007819     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007820     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007821     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007822     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007823     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007824     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007825     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007826     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007827     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007828     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007829     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007830     0.000001697      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE7
   SRCPARAM L0007831     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007832     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007833     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007834     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007835     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007836     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007837     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007838     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007839     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007840     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007841     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007842     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007843     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007844     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007845     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007846     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007847     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007848     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007849     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007850     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007851     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007852     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007853     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007854     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007855     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007856     0.000001697      3.49      4.00      3.25
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SRCPARAM L0007857     0.000001697      3.49      4.00      3.25
SRCPARAM L0007858     0.000001697      3.49      4.00      3.25
SRCPARAM L0007859     0.000001697      3.49      4.00      3.25
SRCPARAM L0007860     0.000001697      3.49      4.00      3.25
SRCPARAM L0007861     0.000001697      3.49      4.00      3.25
SRCPARAM L0007862     0.000001697      3.49      4.00      3.25
SRCPARAM L0007863     0.000001697      3.49      4.00      3.25
SRCPARAM L0007864     0.000001697      3.49      4.00      3.25
SRCPARAM L0007865     0.000001697      3.49      4.00      3.25
SRCPARAM L0007866     0.000001697      3.49      4.00      3.25
SRCPARAM L0007867     0.000001697      3.49      4.00      3.25
SRCPARAM L0007868     0.000001697      3.49      4.00      3.25
SRCPARAM L0007869     0.000001697      3.49      4.00      3.25
SRCPARAM L0007870     0.000001697      3.49      4.00      3.25
SRCPARAM L0007871     0.000001697      3.49      4.00      3.25
SRCPARAM L0007872     0.000001697      3.49      4.00      3.25
SRCPARAM L0007873     0.000001697      3.49      4.00      3.25
SRCPARAM L0007874     0.000001697      3.49      4.00      3.25
SRCPARAM L0007875     0.000001697      3.49      4.00      3.25
SRCPARAM L0007876     0.000001697      3.49      4.00      3.25
SRCPARAM L0007877     0.000001697      3.49      4.00      3.25
SRCPARAM L0007878     0.000001697      3.49      4.00      3.25
SRCPARAM L0007879     0.000001697      3.49      4.00      3.25
SRCPARAM L0007880     0.000001697      3.49      4.00      3.25
SRCPARAM L0007881     0.000001697      3.49      4.00      3.25
SRCPARAM L0007882     0.000001697      3.49      4.00      3.25
SRCPARAM L0007883     0.000001697      3.49      4.00      3.25
SRCPARAM L0007884     0.000001697      3.49      4.00      3.25
SRCPARAM L0007885     0.000001697      3.49      4.00      3.25
SRCPARAM L0007886     0.000001697      3.49      4.00      3.25
SRCPARAM L0007887     0.000001697      3.49      4.00      3.25
SRCPARAM L0007888     0.000001697      3.49      4.00      3.25
SRCPARAM L0007889     0.000001697      3.49      4.00      3.25
SRCPARAM L0007890     0.000001697      3.49      4.00      3.25
SRCPARAM L0007891     0.000001697      3.49      4.00      3.25
SRCPARAM L0007892     0.000001697      3.49      4.00      3.25
SRCPARAM L0007893     0.000001697      3.49      4.00      3.25
SRCPARAM L0007894     0.000001697      3.49      4.00      3.25
SRCPARAM L0007895     0.000001697      3.49      4.00      3.25
SRCPARAM L0007896     0.000001697      3.49      4.00      3.25
SRCPARAM L0007897     0.000001697      3.49      4.00      3.25
SRCPARAM L0007898     0.000001697      3.49      4.00      3.25
SRCPARAM L0007899     0.000001697      3.49      4.00      3.25
SRCPARAM L0007900     0.000001697      3.49      4.00      3.25
SRCPARAM L0007901     0.000001697      3.49      4.00      3.25
SRCPARAM L0007902     0.000001697      3.49      4.00      3.25
SRCPARAM L0007903     0.000001697      3.49      4.00      3.25
SRCPARAM L0007904     0.000001697      3.49      4.00      3.25
SRCPARAM L0007905     0.000001697      3.49      4.00      3.25
SRCPARAM L0007906     0.000001697      3.49      4.00      3.25
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   SRCPARAM L0007907     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007908     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007909     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007910     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007911     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007912     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007913     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007914     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007915     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007916     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007917     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007918     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007919     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007920     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007921     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007922     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007923     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007924     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007925     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007926     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007927     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007928     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007929     0.000001697      3.49      4.00      3.25
   SRCPARAM L0007930     0.000001697      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE8
   SRCPARAM L0007931     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007932     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007933     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007934     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007935     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007936     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007937     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007938     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007939     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007940     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007941     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007942     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007943     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007944     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007945     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007946     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007947     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007948     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007949     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007950     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007951     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007952     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007953     0.000002235      3.49      4.00      3.25
   SRCPARAM L0007954     0.000002235      3.49      4.00      3.25
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SRCPARAM L0007955     0.000002235      3.49      4.00      3.25
SRCPARAM L0007956     0.000002235      3.49      4.00      3.25
SRCPARAM L0007957     0.000002235      3.49      4.00      3.25
SRCPARAM L0007958     0.000002235      3.49      4.00      3.25
SRCPARAM L0007959     0.000002235      3.49      4.00      3.25
SRCPARAM L0007960     0.000002235      3.49      4.00      3.25
SRCPARAM L0007961     0.000002235      3.49      4.00      3.25
SRCPARAM L0007962     0.000002235      3.49      4.00      3.25
SRCPARAM L0007963     0.000002235      3.49      4.00      3.25
SRCPARAM L0007964     0.000002235      3.49      4.00      3.25
SRCPARAM L0007965     0.000002235      3.49      4.00      3.25
SRCPARAM L0007966     0.000002235      3.49      4.00      3.25
SRCPARAM L0007967     0.000002235      3.49      4.00      3.25
SRCPARAM L0007968     0.000002235      3.49      4.00      3.25
SRCPARAM L0007969     0.000002235      3.49      4.00      3.25
SRCPARAM L0007970     0.000002235      3.49      4.00      3.25
SRCPARAM L0007971     0.000002235      3.49      4.00      3.25
SRCPARAM L0007972     0.000002235      3.49      4.00      3.25
SRCPARAM L0007973     0.000002235      3.49      4.00      3.25
SRCPARAM L0007974     0.000002235      3.49      4.00      3.25
SRCPARAM L0007975     0.000002235      3.49      4.00      3.25
SRCPARAM L0007976     0.000002235      3.49      4.00      3.25
SRCPARAM L0007977     0.000002235      3.49      4.00      3.25
SRCPARAM L0007978     0.000002235      3.49      4.00      3.25
SRCPARAM L0007979     0.000002235      3.49      4.00      3.25
SRCPARAM L0007980     0.000002235      3.49      4.00      3.25
SRCPARAM L0007981     0.000002235      3.49      4.00      3.25
SRCPARAM L0007982     0.000002235      3.49      4.00      3.25
SRCPARAM L0007983     0.000002235      3.49      4.00      3.25
SRCPARAM L0007984     0.000002235      3.49      4.00      3.25
SRCPARAM L0007985     0.000002235      3.49      4.00      3.25
SRCPARAM L0007986     0.000002235      3.49      4.00      3.25
SRCPARAM L0007987     0.000002235      3.49      4.00      3.25
SRCPARAM L0007988     0.000002235      3.49      4.00      3.25
SRCPARAM L0007989     0.000002235      3.49      4.00      3.25
SRCPARAM L0007990     0.000002235      3.49      4.00      3.25
SRCPARAM L0007991     0.000002235      3.49      4.00      3.25
SRCPARAM L0007992     0.000002235      3.49      4.00      3.25
SRCPARAM L0007993     0.000002235      3.49      4.00      3.25
SRCPARAM L0007994     0.000002235      3.49      4.00      3.25
SRCPARAM L0007995     0.000002235      3.49      4.00      3.25
SRCPARAM L0007996     0.000002235      3.49      4.00      3.25
SRCPARAM L0007997     0.000002235      3.49      4.00      3.25
SRCPARAM L0007998     0.000002235      3.49      4.00      3.25
SRCPARAM L0007999     0.000002235      3.49      4.00      3.25
SRCPARAM L0008000     0.000002235      3.49      4.00      3.25
SRCPARAM L0008001     0.000002235      3.49      4.00      3.25
SRCPARAM L0008002     0.000002235      3.49      4.00      3.25
SRCPARAM L0008003     0.000002235      3.49      4.00      3.25
SRCPARAM L0008004     0.000002235      3.49      4.00      3.25
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   SRCPARAM L0008005     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008006     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008007     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008008     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008009     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008010     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008011     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008012     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008013     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008014     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008015     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008016     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008017     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008018     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008019     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008020     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008021     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008022     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008023     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008024     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008025     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008026     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008027     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008028     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008029     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008030     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008031     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008032     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008033     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008034     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008035     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008036     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008037     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008038     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008039     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008040     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008041     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008042     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008043     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008044     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008045     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008046     0.000002235      3.49      4.00      3.25
   SRCPARAM L0008047     0.000002235      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE9
   SRCPARAM L0008048     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008049     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008050     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008051     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008052     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008057     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008060     0.000002237      3.49      4.00      3.25
SRCPARAM L0008061     0.000002237      3.49      4.00      3.25
SRCPARAM L0008062     0.000002237      3.49      4.00      3.25
SRCPARAM L0008063     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008069     0.000002237      3.49      4.00      3.25
SRCPARAM L0008070     0.000002237      3.49      4.00      3.25
SRCPARAM L0008071     0.000002237      3.49      4.00      3.25
SRCPARAM L0008072     0.000002237      3.49      4.00      3.25
SRCPARAM L0008073     0.000002237      3.49      4.00      3.25
SRCPARAM L0008074     0.000002237      3.49      4.00      3.25
SRCPARAM L0008075     0.000002237      3.49      4.00      3.25
SRCPARAM L0008076     0.000002237      3.49      4.00      3.25
SRCPARAM L0008077     0.000002237      3.49      4.00      3.25
SRCPARAM L0008078     0.000002237      3.49      4.00      3.25
SRCPARAM L0008079     0.000002237      3.49      4.00      3.25
SRCPARAM L0008080     0.000002237      3.49      4.00      3.25
SRCPARAM L0008081     0.000002237      3.49      4.00      3.25
SRCPARAM L0008082     0.000002237      3.49      4.00      3.25
SRCPARAM L0008083     0.000002237      3.49      4.00      3.25
SRCPARAM L0008084     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008086     0.000002237      3.49      4.00      3.25
SRCPARAM L0008087     0.000002237      3.49      4.00      3.25
SRCPARAM L0008088     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008090     0.000002237      3.49      4.00      3.25
SRCPARAM L0008091     0.000002237      3.49      4.00      3.25
SRCPARAM L0008092     0.000002237      3.49      4.00      3.25
SRCPARAM L0008093     0.000002237      3.49      4.00      3.25
SRCPARAM L0008094     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008096     0.000002237      3.49      4.00      3.25
SRCPARAM L0008097     0.000002237      3.49      4.00      3.25
SRCPARAM L0008098     0.000002237      3.49      4.00      3.25
SRCPARAM L0008099     0.000002237      3.49      4.00      3.25
SRCPARAM L0008100     0.000002237      3.49      4.00      3.25
SRCPARAM L0008101     0.000002237      3.49      4.00      3.25
SRCPARAM L0008102     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008109     0.000002237      3.49      4.00      3.25
SRCPARAM L0008110     0.000002237      3.49      4.00      3.25
SRCPARAM L0008111     0.000002237      3.49      4.00      3.25
SRCPARAM L0008112     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008114     0.000002237      3.49      4.00      3.25
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SRCPARAM L0008116     0.000002237      3.49      4.00      3.25
SRCPARAM L0008117     0.000002237      3.49      4.00      3.25
SRCPARAM L0008118     0.000002237      3.49      4.00      3.25
SRCPARAM L0008119     0.000002237      3.49      4.00      3.25
SRCPARAM L0008120     0.000002237      3.49      4.00      3.25
SRCPARAM L0008121     0.000002237      3.49      4.00      3.25
SRCPARAM L0008122     0.000002237      3.49      4.00      3.25
SRCPARAM L0008123     0.000002237      3.49      4.00      3.25
SRCPARAM L0008124     0.000002237      3.49      4.00      3.25
SRCPARAM L0008125     0.000002237      3.49      4.00      3.25
SRCPARAM L0008126     0.000002237      3.49      4.00      3.25
SRCPARAM L0008127     0.000002237      3.49      4.00      3.25
SRCPARAM L0008128     0.000002237      3.49      4.00      3.25
SRCPARAM L0008129     0.000002237      3.49      4.00      3.25
SRCPARAM L0008130     0.000002237      3.49      4.00      3.25
SRCPARAM L0008131     0.000002237      3.49      4.00      3.25
SRCPARAM L0008132     0.000002237      3.49      4.00      3.25
SRCPARAM L0008133     0.000002237      3.49      4.00      3.25
SRCPARAM L0008134     0.000002237      3.49      4.00      3.25
SRCPARAM L0008135     0.000002237      3.49      4.00      3.25
SRCPARAM L0008136     0.000002237      3.49      4.00      3.25
SRCPARAM L0008137     0.000002237      3.49      4.00      3.25
SRCPARAM L0008138     0.000002237      3.49      4.00      3.25
SRCPARAM L0008139     0.000002237      3.49      4.00      3.25
SRCPARAM L0008140     0.000002237      3.49      4.00      3.25
SRCPARAM L0008141     0.000002237      3.49      4.00      3.25
SRCPARAM L0008142     0.000002237      3.49      4.00      3.25
SRCPARAM L0008143     0.000002237      3.49      4.00      3.25
SRCPARAM L0008144     0.000002237      3.49      4.00      3.25
SRCPARAM L0008145     0.000002237      3.49      4.00      3.25
SRCPARAM L0008146     0.000002237      3.49      4.00      3.25
SRCPARAM L0008147     0.000002237      3.49      4.00      3.25
SRCPARAM L0008148     0.000002237      3.49      4.00      3.25
SRCPARAM L0008149     0.000002237      3.49      4.00      3.25
SRCPARAM L0008150     0.000002237      3.49      4.00      3.25
SRCPARAM L0008151     0.000002237      3.49      4.00      3.25
SRCPARAM L0008152     0.000002237      3.49      4.00      3.25
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   SRCPARAM L0008154     0.000002237      3.49      4.00      3.25
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   SRCPARAM L0008156     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008157     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008158     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008159     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008160     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008161     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008162     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008163     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008164     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008165     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008166     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008167     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008168     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008169     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008170     0.000002237      3.49      4.00      3.25
   SRCPARAM L0008171     0.000002237      3.49      4.00      3.25
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   SRCPARAM L0008173     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008174     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008175     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008176     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008177     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008178     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008179     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008180     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008181     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008182     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008183     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008184     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008185     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008186     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008187     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008188     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008189     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008190     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008191     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008192     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008193     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008194     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008195     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008196     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008197     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008198     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008199     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008200     0.0000002419      3.49      4.00      3.25
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   SRCPARAM L0008201     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008202     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008203     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008204     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008205     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008206     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008207     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008208     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008209     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008210     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008211     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008212     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008213     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008214     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008215     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008216     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008217     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008218     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008219     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008220     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008221     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008222     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008223     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008224     0.0000002419      3.49      4.00      3.25
   SRCPARAM L0008225     0.0000002419      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE11
   SRCPARAM L0008226     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008227     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008228     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008229     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008230     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008231     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008232     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008233     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008234     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008235     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008236     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008237     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008238     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008239     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008240     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008241     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008242     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008243     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008244     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008245     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008246     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008247     0.000001714      3.49      4.00      3.25
   SRCPARAM L0008248     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008249     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008252     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008255     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008257     0.000001714      3.49      4.00      3.25
SRCPARAM L0008258     0.000001714      3.49      4.00      3.25
SRCPARAM L0008259     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008261     0.000001714      3.49      4.00      3.25
SRCPARAM L0008262     0.000001714      3.49      4.00      3.25
SRCPARAM L0008263     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008267     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008288     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008290     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008293     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008295     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008297     0.000001714      3.49      4.00      3.25
SRCPARAM L0008298     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008308     0.000001714      3.49      4.00      3.25
SRCPARAM L0008309     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008312     0.000001714      3.49      4.00      3.25
SRCPARAM L0008313     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008319     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008322     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008325     0.000001714      3.49      4.00      3.25
SRCPARAM L0008326     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008328     0.000001714      3.49      4.00      3.25
SRCPARAM L0008329     0.000001714      3.49      4.00      3.25
SRCPARAM L0008330     0.000001714      3.49      4.00      3.25
SRCPARAM L0008331     0.000001714      3.49      4.00      3.25
SRCPARAM L0008332     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008334     0.000001714      3.49      4.00      3.25
SRCPARAM L0008335     0.000001714      3.49      4.00      3.25
SRCPARAM L0008336     0.000001714      3.49      4.00      3.25
SRCPARAM L0008337     0.000001714      3.49      4.00      3.25
SRCPARAM L0008338     0.000001714      3.49      4.00      3.25
SRCPARAM L0008339     0.000001714      3.49      4.00      3.25
SRCPARAM L0008340     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008342     0.000001714      3.49      4.00      3.25
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SRCPARAM L0008634     0.000001628      3.49      4.00      3.25
SRCPARAM L0008635     0.000001628      3.49      4.00      3.25
SRCPARAM L0008636     0.000001628      3.49      4.00      3.25
SRCPARAM L0008637     0.000001628      3.49      4.00      3.25
SRCPARAM L0008638     0.000001628      3.49      4.00      3.25
SRCPARAM L0008639     0.000001628      3.49      4.00      3.25
SRCPARAM L0008640     0.000001628      3.49      4.00      3.25
SRCPARAM L0008641     0.000001628      3.49      4.00      3.25
SRCPARAM L0008642     0.000001628      3.49      4.00      3.25
SRCPARAM L0008643     0.000001628      3.49      4.00      3.25
SRCPARAM L0008644     0.000001628      3.49      4.00      3.25
SRCPARAM L0008645     0.000001628      3.49      4.00      3.25
SRCPARAM L0008646     0.000001628      3.49      4.00      3.25
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   SRCPARAM L0008647     0.000001628      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE12
   SRCPARAM L0008648     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008649     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008650     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008651     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008652     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008653     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008654     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008655     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008656     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008657     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008658     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008659     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008660     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008661     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008662     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008663     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008664     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008665     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008666     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008667     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008668     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008669     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008670     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008671     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008672     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008673     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008674     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008675     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008676     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008677     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008678     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008679     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008680     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008681     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008682     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008683     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008684     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008685     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008686     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008687     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008688     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008689     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008690     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008691     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008692     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008693     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008694     0.0000006867      3.49      4.00      3.25
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   SRCPARAM L0008695     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008696     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008697     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008698     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008699     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008700     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008701     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008702     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008703     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008704     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008705     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008706     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008707     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008708     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008709     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008710     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008711     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008712     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008713     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008714     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008715     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008716     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008717     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008718     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008719     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008720     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008721     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008722     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008723     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008724     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008725     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008726     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008727     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008728     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008729     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008730     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008731     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008732     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008733     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008734     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008735     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008736     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008737     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008738     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008739     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008740     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008741     0.0000006867      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE20
   SRCPARAM L0008742     0.0000006867      3.49      4.00      3.25
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SRCPARAM L0008743     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008744     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008745     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008746     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008747     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008748     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008749     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008750     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008751     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008752     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008753     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008754     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008755     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008756     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008757     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008758     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008759     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008760     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008761     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008762     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008763     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008764     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008765     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008766     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008767     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008768     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008769     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008770     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008771     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008772     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008773     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008774     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008775     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008776     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008777     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008778     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008779     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008780     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008781     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008782     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008783     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008784     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008785     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008786     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008787     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008788     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008789     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008790     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008791     0.0000006867      3.49      4.00      3.25
SRCPARAM L0008792     0.0000006867      3.49      4.00      3.25
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   SRCPARAM L0008793     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008794     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008795     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008796     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008797     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008798     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008799     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008800     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008801     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008802     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008803     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008804     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008805     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008806     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008807     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008808     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008809     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008810     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008811     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008812     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008813     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008814     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008815     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008816     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008817     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008818     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008819     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008820     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008821     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008822     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008823     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008824     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008825     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008826     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008827     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008828     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008829     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008830     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008831     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008832     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008833     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008834     0.0000006867      3.49      4.00      3.25
   SRCPARAM L0008835     0.0000006867      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE13
   SRCPARAM L0008836     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008837     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008838     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008839     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008840     0.0000006866      3.49      4.00      3.25
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   SRCPARAM L0008841     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008842     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008843     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008844     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008845     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008846     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008847     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008848     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008849     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008850     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008851     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008852     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008853     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008854     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008855     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008856     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008857     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008858     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008859     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008860     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008861     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008862     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008863     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008864     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008865     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008866     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008867     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008868     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008869     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008870     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008871     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008872     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008873     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008874     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008875     0.0000006866      3.49      4.00      3.25
   SRCPARAM L0008876     0.0000006866      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE14
   SRCPARAM L0008877     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008878     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008879     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008880     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008881     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008882     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008883     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008884     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008885     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008886     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008887     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0008888     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008889     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008890     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008891     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008892     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008893     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008894     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008895     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008896     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008897     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008898     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008899     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008900     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008901     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008902     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008903     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008904     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008905     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008906     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008907     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008908     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008909     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008910     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008911     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008912     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008913     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008914     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008915     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008916     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008917     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008922     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008924     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008926     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008927     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008928     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008929     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008930     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008931     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008933     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008934     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008935     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008936     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008937     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008938     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008983     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008986     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008987     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008988     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008992     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008994     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0008998     0.0000003431      0.00      4.00      3.25
SRCPARAM L0008999     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009001     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009002     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009003     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009004     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009005     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009006     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009007     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009008     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009009     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009010     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009011     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009012     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009013     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009014     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009015     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009016     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009017     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009021     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009022     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009024     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009026     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009027     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009029     0.0000003431      0.00      4.00      3.25
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SRCPARAM L0009033     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009034     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009035     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009036     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009037     0.0000003431      0.00      4.00      3.25
SRCPARAM L0009038     0.0000003431      0.00      4.00      3.25
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   SRCPARAM L0009041     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0009042     0.0000003431      0.00      4.00      3.25
   SRCPARAM L0009043     0.0000003431      0.00      4.00      3.25
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** LINE VOLUME Source ID = SLINE18
   SRCPARAM L0009044     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009045     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009046     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009047     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009048     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009049     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009050     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009051     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009052     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009053     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009054     0.0000008583      3.49      4.00      3.25
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   SRCPARAM L0009057     0.0000008583      3.49      4.00      3.25
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   SRCPARAM L0009059     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009060     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009061     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009062     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009063     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009064     0.0000008583      3.49      4.00      3.25
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   SRCPARAM L0009066     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009067     0.0000008583      3.49      4.00      3.25
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   SRCPARAM L0009069     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009070     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009071     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009072     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009073     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009074     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009075     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009076     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009077     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009078     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009079     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009080     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009081     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009082     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009083     0.0000008583      3.49      4.00      3.25
   SRCPARAM L0009084     0.0000008583      3.49      4.00      3.25
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** LINE VOLUME Source ID = SLINE19
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SRCPARAM L0009085     0.00000008575      0.00      4.00      3.25
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SRCPARAM L0009087     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009088     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009089     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009090     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009091     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009092     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009093     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009094     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009095     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009096     0.00000008575      0.00      4.00      3.25
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SRCPARAM L0009098     0.00000008575      0.00      4.00      3.25
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SRCPARAM L0009102     0.00000008575      0.00      4.00      3.25
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SRCPARAM L0009133     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009134     0.00000008575      0.00      4.00      3.25
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SRCPARAM L0009208     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009209     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009210     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009211     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009212     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009213     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009214     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009215     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009216     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009217     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009218     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009219     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009220     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009221     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009222     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009223     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009224     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009225     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009226     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009227     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009228     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009229     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009230     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009231     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009232     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009233     0.00000008575      0.00      4.00      3.25
SRCPARAM L0009234     0.00000008575      0.00      4.00      3.25
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   SRCPARAM L0009235     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009236     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009237     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009238     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009239     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009240     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009241     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009242     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009243     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009244     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009245     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009246     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009247     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009248     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009249     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009250     0.00000008575      0.00      4.00      3.25
   SRCPARAM L0009251     0.00000008575      0.00      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE15
   SRCPARAM L0009252     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009253     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009254     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009255     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009256     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009257     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009258     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009259     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009260     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009261     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009262     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009263     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009264     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009265     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009266     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009267     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009268     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009269     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009270     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009271     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009272     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009273     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009274     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009275     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009276     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009277     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009278     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009279     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009280     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009281     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009282     0.0000004242      3.49      4.00      3.25
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   SRCPARAM L0009283     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009284     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009285     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009286     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009287     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009288     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009289     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009290     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009291     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009292     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009293     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009294     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009295     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009296     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009297     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009298     0.0000004242      3.49      4.00      3.25
   SRCPARAM L0009299     0.0000004242      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE16
   SRCPARAM L0005079     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005080     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005081     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005082     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005083     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005084     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005085     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005086     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005087     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005088     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005089     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005090     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005091     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005092     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005093     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005094     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005095     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005096     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005097     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005098     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005099     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005100     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005101     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005102     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005103     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005104     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005105     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005106     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005107     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005108     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005109     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005110     0.000000258      0.00      4.00      3.25
SRCPARAM L0005111     0.000000258      0.00      4.00      3.25
SRCPARAM L0005112     0.000000258      0.00      4.00      3.25
SRCPARAM L0005113     0.000000258      0.00      4.00      3.25
SRCPARAM L0005114     0.000000258      0.00      4.00      3.25
SRCPARAM L0005115     0.000000258      0.00      4.00      3.25
SRCPARAM L0005116     0.000000258      0.00      4.00      3.25
SRCPARAM L0005117     0.000000258      0.00      4.00      3.25
SRCPARAM L0005118     0.000000258      0.00      4.00      3.25
SRCPARAM L0005119     0.000000258      0.00      4.00      3.25
SRCPARAM L0005120     0.000000258      0.00      4.00      3.25
SRCPARAM L0005121     0.000000258      0.00      4.00      3.25
SRCPARAM L0005122     0.000000258      0.00      4.00      3.25
SRCPARAM L0005123     0.000000258      0.00      4.00      3.25
SRCPARAM L0005124     0.000000258      0.00      4.00      3.25
SRCPARAM L0005125     0.000000258      0.00      4.00      3.25
SRCPARAM L0005126     0.000000258      0.00      4.00      3.25
SRCPARAM L0005127     0.000000258      0.00      4.00      3.25
SRCPARAM L0005128     0.000000258      0.00      4.00      3.25
SRCPARAM L0005129     0.000000258      0.00      4.00      3.25
SRCPARAM L0005130     0.000000258      0.00      4.00      3.25
SRCPARAM L0005131     0.000000258      0.00      4.00      3.25
SRCPARAM L0005132     0.000000258      0.00      4.00      3.25
SRCPARAM L0005133     0.000000258      0.00      4.00      3.25
SRCPARAM L0005134     0.000000258      0.00      4.00      3.25
SRCPARAM L0005135     0.000000258      0.00      4.00      3.25
SRCPARAM L0005136     0.000000258      0.00      4.00      3.25
SRCPARAM L0005137     0.000000258      0.00      4.00      3.25
SRCPARAM L0005138     0.000000258      0.00      4.00      3.25
SRCPARAM L0005139     0.000000258      0.00      4.00      3.25
SRCPARAM L0005140     0.000000258      0.00      4.00      3.25
SRCPARAM L0005141     0.000000258      0.00      4.00      3.25
SRCPARAM L0005142     0.000000258      0.00      4.00      3.25
SRCPARAM L0005143     0.000000258      0.00      4.00      3.25
SRCPARAM L0005144     0.000000258      0.00      4.00      3.25
SRCPARAM L0005145     0.000000258      0.00      4.00      3.25
SRCPARAM L0005146     0.000000258      0.00      4.00      3.25
SRCPARAM L0005147     0.000000258      0.00      4.00      3.25
SRCPARAM L0005148     0.000000258      0.00      4.00      3.25
SRCPARAM L0005149     0.000000258      0.00      4.00      3.25
SRCPARAM L0005150     0.000000258      0.00      4.00      3.25
SRCPARAM L0005151     0.000000258      0.00      4.00      3.25
SRCPARAM L0005152     0.000000258      0.00      4.00      3.25
SRCPARAM L0005153     0.000000258      0.00      4.00      3.25
SRCPARAM L0005154     0.000000258      0.00      4.00      3.25
SRCPARAM L0005155     0.000000258      0.00      4.00      3.25
SRCPARAM L0005156     0.000000258      0.00      4.00      3.25
SRCPARAM L0005157     0.000000258      0.00      4.00      3.25
SRCPARAM L0005158     0.000000258      0.00      4.00      3.25
SRCPARAM L0005159     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005160     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005161     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005162     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005163     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005164     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005165     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005166     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005167     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005168     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005169     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005170     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005171     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005172     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005173     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005174     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005175     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005176     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005177     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005178     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005179     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005180     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005181     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005182     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005183     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005184     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005185     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005186     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005187     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005188     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005189     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005190     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005191     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005192     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005193     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005194     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005195     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005196     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005197     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005198     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005199     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005200     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005201     0.000000258      0.00      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE21
   SRCPARAM L0005202     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005203     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005204     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005205     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005206     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005207     0.000000509      3.49      4.00      3.25
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   SRCPARAM L0005208     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005209     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005210     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005211     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005212     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005213     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005214     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005215     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005216     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005217     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005218     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005219     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005220     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005221     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005222     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005223     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005224     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005225     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005226     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005227     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005228     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005229     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005230     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005231     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005232     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005233     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005234     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005235     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005236     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005237     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005238     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005239     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005240     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005241     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005242     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005243     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005244     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005245     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005246     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005247     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005248     0.000000509      3.49      4.00      3.25
   SRCPARAM L0005249     0.000000509      3.49      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE22
   SRCPARAM L0005250     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005251     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005252     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005253     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005254     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005255     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005256     0.000000258      0.00      4.00      3.25
SRCPARAM L0005257     0.000000258      0.00      4.00      3.25
SRCPARAM L0005258     0.000000258      0.00      4.00      3.25
SRCPARAM L0005259     0.000000258      0.00      4.00      3.25
SRCPARAM L0005260     0.000000258      0.00      4.00      3.25
SRCPARAM L0005261     0.000000258      0.00      4.00      3.25
SRCPARAM L0005262     0.000000258      0.00      4.00      3.25
SRCPARAM L0005263     0.000000258      0.00      4.00      3.25
SRCPARAM L0005264     0.000000258      0.00      4.00      3.25
SRCPARAM L0005265     0.000000258      0.00      4.00      3.25
SRCPARAM L0005266     0.000000258      0.00      4.00      3.25
SRCPARAM L0005267     0.000000258      0.00      4.00      3.25
SRCPARAM L0005268     0.000000258      0.00      4.00      3.25
SRCPARAM L0005269     0.000000258      0.00      4.00      3.25
SRCPARAM L0005270     0.000000258      0.00      4.00      3.25
SRCPARAM L0005271     0.000000258      0.00      4.00      3.25
SRCPARAM L0005272     0.000000258      0.00      4.00      3.25
SRCPARAM L0005273     0.000000258      0.00      4.00      3.25
SRCPARAM L0005274     0.000000258      0.00      4.00      3.25
SRCPARAM L0005275     0.000000258      0.00      4.00      3.25
SRCPARAM L0005276     0.000000258      0.00      4.00      3.25
SRCPARAM L0005277     0.000000258      0.00      4.00      3.25
SRCPARAM L0005278     0.000000258      0.00      4.00      3.25
SRCPARAM L0005279     0.000000258      0.00      4.00      3.25
SRCPARAM L0005280     0.000000258      0.00      4.00      3.25
SRCPARAM L0005281     0.000000258      0.00      4.00      3.25
SRCPARAM L0005282     0.000000258      0.00      4.00      3.25
SRCPARAM L0005283     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005301     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005303     0.000000258      0.00      4.00      3.25
SRCPARAM L0005304     0.000000258      0.00      4.00      3.25
SRCPARAM L0005305     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005310     0.000000258      0.00      4.00      3.25
SRCPARAM L0005311     0.000000258      0.00      4.00      3.25
SRCPARAM L0005312     0.000000258      0.00      4.00      3.25
SRCPARAM L0005313     0.000000258      0.00      4.00      3.25
SRCPARAM L0005314     0.000000258      0.00      4.00      3.25
SRCPARAM L0005315     0.000000258      0.00      4.00      3.25
SRCPARAM L0005316     0.000000258      0.00      4.00      3.25
SRCPARAM L0005317     0.000000258      0.00      4.00      3.25
SRCPARAM L0005318     0.000000258      0.00      4.00      3.25
SRCPARAM L0005319     0.000000258      0.00      4.00      3.25
SRCPARAM L0005320     0.000000258      0.00      4.00      3.25
SRCPARAM L0005321     0.000000258      0.00      4.00      3.25
SRCPARAM L0005322     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005324     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005332     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005335     0.000000258      0.00      4.00      3.25
SRCPARAM L0005336     0.000000258      0.00      4.00      3.25
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SRCPARAM L0005354     0.000000258      0.00      4.00      3.25
SRCPARAM L0005355     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005356     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005361     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005363     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005364     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005365     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005367     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005368     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005369     0.000000258      0.00      4.00      3.25
   SRCPARAM L0005370     0.000000258      0.00      4.00      3.25
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   SRCPARAM L0005372     0.000000258      0.00      4.00      3.25
** ------------------------------------------------------------------
** LINE VOLUME Source ID = SLINE23
   SRCPARAM L0005373     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005374     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005375     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005377     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005378     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005381     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005382     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005383     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005384     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005385     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005386     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005387     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005389     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005390     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005392     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005393     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005394     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005395     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005396     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005400     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005402     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005403     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005411     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005414     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005415     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005417     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005418     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005419     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005420     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005421     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005422     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005423     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005425     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005426     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005427     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005428     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005429     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005430     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005431     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005432     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005433     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005434     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005435     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005436     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005437     0.00000008517      3.49      4.00      3.25
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   SRCPARAM L0005439     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005440     0.00000008517      3.49      4.00      3.25
   SRCPARAM L0005441     0.00000008517      3.49      4.00      3.25
** ------------------------------------------------------------------
   URBANSRC ALL
   SRCGROUP ALL
SO FINISHED
**
**************************************
** AERMOD Receptor Pathway
**************************************
**
**
RE STARTING
   INCLUDED "12779 Ops HRA.rou"
```

```
RE FINISHED
**
**************************************
** AERMOD Meteorology Pathway
**************************************
**
**
ME STARTING
   SURFFILE 723825RR.SFC
   PROFFILE 723825RR.PFL
   SURFDATA 23131 2010
   UAIRDATA 3120 2010
   PROFBASE 879.4 METERS
ME FINISHED
**
**************************************
** AERMOD Output Pathway
**************************************
**
**
OU STARTING
** Auto-Generated Plotfiles
   PLOTFILE ANNUAL ALL "12779 Ops HRA.AD\AN00GALL.PLT" 31
   SUMMFILE "12779 Ops HRA.sum"
OU FINISHED

 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\12779 Ops HRA\12779
Ops HRA.isc                  ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                         ***        02:06:49

                                    PAGE   1
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                                              ***     MODEL SETUP OPTIONS SUMMARY
  ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - -

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  DEPOSITION LOGIC  --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION.  DRYDPLT  =  F
 **Model Uses NO WET DEPLETION.  WETDPLT  =  F
```

```
 **Model Uses URBAN Dispersion Algorithm for the SBL for  2245 Source(s),
   for Total of    1 Urban Area(s):
   Urban Population =   2035210.0 ;  Urban Roughness Length =  1.000 m

 **Model Uses Regulatory DEFAULT Options:
        1. Stack-tip Downwash.
        2. Model Accounts for ELEVated Terrain Effects.
        3. Use Calms Processing Routine.
        4. Use Missing Data Processing Routine.
        5. No Exponential Decay.
        6. Urban Roughness Length of 1.0 Meter Assumed.

 **Other Options Specified:
        CCVR_Sub - Meteorological data includes CCVR substitutions
        TEMP_Sub - Meteorological data includes TEMP substitutions

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of:  DPM

 **Model Calculates ANNUAL Averages Only

 **This Run Includes:   2245 Source(s);       1 Source Group(s); and      10
Receptor(s)

               with:      0 POINT(s), including
                          0 POINTCAP(s) and      0 POINTHOR(s)
                and:   2245 VOLUME source(s)
                and:      0 AREA type source(s)
                and:      0 LINE source(s)
                and:      0 RLINE/RLINEXT source(s)
                and:      0 OPENPIT source(s)
                and:      0 BUOYANT LINE source(s) with      0 line(s)


 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date:  14134

 **Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs External File(s) of High Values for Plotting (PLOTFILE
Keyword)
         Model Outputs Separate Summary File of High Ranked Values (SUMMFILE
Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing
Hours
```

b for Both Calm
and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 879.40 ; Decay
Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ;
Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 4.4 MB of RAM.

**Input Runstream File: aermod.inp

**Output Print File: aermod.out

**Detailed Error/Message File: 12779 Ops HRA.err

**File for Summary of Results: 12779 Ops HRA.sum

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER EMISSION RATE PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0007418	0	0.14070E-05	462204.3	3810238.4	1085.6	3.49	4.00	3.25	YES	
L0007419	0	0.14070E-05	462212.9	3810238.4	1085.6	3.49	4.00	3.25	YES	
L0007420	0	0.14070E-05	462221.5	3810238.4	1085.5	3.49	4.00	3.25	YES	
L0007421	0	0.14070E-05	462230.1	3810238.4	1085.4	3.49	4.00	3.25	YES	
L0007422	0	0.14070E-05	462238.7	3810238.4	1085.2	3.49	4.00	3.25	YES	

L0007423	0	0.14070E-05	462247.3	3810238.4	1085.0	3.49	4.00	3.25 YES
L0007424	0	0.14070E-05	462255.9	3810238.4	1085.0	3.49	4.00	3.25 YES
L0007425	0	0.14070E-05	462264.4	3810238.4	1085.0	3.49	4.00	3.25 YES
L0007426	0	0.14070E-05	462273.0	3810238.4	1085.0	3.49	4.00	3.25 YES
L0007427	0	0.14070E-05	462281.6	3810238.4	1085.0	3.49	4.00	3.25 YES
L0007428	0	0.14070E-05	462290.2	3810238.4	1084.9	3.49	4.00	3.25 YES
L0007429	0	0.14070E-05	462298.8	3810238.4	1084.7	3.49	4.00	3.25 YES
L0007430	0	0.14070E-05	462307.4	3810238.4	1084.6	3.49	4.00	3.25 YES
L0007431	0	0.14070E-05	462316.0	3810238.4	1084.6	3.49	4.00	3.25 YES
L0007432	0	0.14070E-05	462324.6	3810238.4	1084.6	3.49	4.00	3.25 YES
L0007433	0	0.14070E-05	462333.2	3810238.4	1084.6	3.49	4.00	3.25 YES
L0007434	0	0.14070E-05	462341.8	3810238.4	1084.5	3.49	4.00	3.25 YES
L0007435	0	0.14070E-05	462350.3	3810238.4	1084.4	3.49	4.00	3.25 YES
L0007436	0	0.14070E-05	462358.9	3810238.4	1084.2	3.49	4.00	3.25 YES
L0007437	0	0.14070E-05	462367.5	3810238.4	1084.0	3.49	4.00	3.25 YES
L0007438	0	0.14070E-05	462376.1	3810238.4	1084.0	3.49	4.00	3.25 YES
L0007439	0	0.14070E-05	462384.7	3810238.4	1084.0	3.49	4.00	3.25 YES
L0007440	0	0.14070E-05	462393.3	3810238.4	1084.0	3.49	4.00	3.25 YES
L0007441	0	0.14070E-05	462401.9	3810238.4	1084.0	3.49	4.00	3.25 YES
L0007442	0	0.14070E-05	462410.5	3810238.4	1083.8	3.49	4.00	3.25 YES
L0007443	0	0.14070E-05	462419.1	3810238.4	1083.7	3.49	4.00	3.25 YES
L0007444	0	0.14070E-05	462427.7	3810238.4	1083.6	3.49	4.00	3.25 YES
L0007445	0	0.14070E-05	462436.2	3810238.4	1083.6	3.49	4.00	3.25 YES
L0007446	0	0.14070E-05	462444.8	3810238.4	1083.6	3.49	4.00	3.25 YES
L0007447	0	0.14070E-05	462453.4	3810238.4	1083.6	3.49	4.00	3.25 YES

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0007448	0	0.14070E-05	462462.0	3810238.4	1083.5	3.49	4.00	3.25	YES	
L0007449	0	0.14070E-05	462470.6	3810238.4	1083.4	3.49	4.00	3.25	YES	
L0007450	0	0.14070E-05	462479.2	3810238.4	1083.2	3.49	4.00	3.25	YES	
L0007451	0	0.14070E-05	462487.8	3810238.4	1083.0	3.49	4.00	3.25	YES	
L0007452	0	0.14070E-05	462496.4	3810238.4	1082.9	3.49	4.00	3.25	YES	
L0007453	0	0.14070E-05	462505.0	3810238.4	1082.8	3.49	4.00	3.25	YES	
L0007454	0	0.14070E-05	462513.6	3810238.4	1082.7	3.49	4.00	3.25	YES	
L0007455	0	0.14070E-05	462522.1	3810238.4	1082.5	3.49	4.00	3.25	YES	
L0007456	0	0.14070E-05	462530.7	3810238.4	1082.4	3.49	4.00	3.25	YES	
L0007457	0	0.14070E-05	462539.3	3810238.4	1082.2	3.49	4.00	3.25	YES	
L0007458	0	0.14070E-05	462547.9	3810238.4	1082.0	3.49	4.00	3.25	YES	
L0007459	0	0.14070E-05	462556.5	3810238.4	1082.0	3.49	4.00	3.25	YES	
L0007460	0	0.14070E-05	462565.1	3810238.4	1082.0	3.49	4.00	3.25	YES	
L0007461	0	0.14070E-05	462573.7	3810238.4	1082.0	3.49	4.00	3.25	YES	
L0007462	0	0.14070E-05	462582.3	3810238.4	1082.0	3.49	4.00	3.25	YES	

L0007463	0	0.14070E-05	462590.9	3810238.4	1081.8	3.49	4.00	3.25 YES
L0007464	0	0.14070E-05	462599.5	3810238.4	1081.7	3.49	4.00	3.25 YES
L0007465	0	0.14070E-05	462608.0	3810238.4	1081.6	3.49	4.00	3.25 YES
L0007466	0	0.14070E-05	462616.6	3810238.4	1081.6	3.49	4.00	3.25 YES
L0007467	0	0.14070E-05	462625.2	3810238.4	1081.6	3.49	4.00	3.25 YES
L0007468	0	0.14070E-05	462633.8	3810238.4	1081.6	3.49	4.00	3.25 YES
L0007469	0	0.14070E-05	462642.4	3810238.4	1081.5	3.49	4.00	3.25 YES
L0007470	0	0.14070E-05	462651.0	3810238.4	1081.4	3.49	4.00	3.25 YES
L0007471	0	0.14070E-05	462659.6	3810238.4	1081.2	3.49	4.00	3.25 YES
L0007472	0	0.14070E-05	462668.2	3810238.4	1081.0	3.49	4.00	3.25 YES
L0007473	0	0.14070E-05	462676.8	3810238.4	1080.9	3.49	4.00	3.25 YES
L0007474	0	0.14070E-05	462685.4	3810238.4	1080.8	3.49	4.00	3.25 YES
L0007475	0	0.14070E-05	462693.9	3810238.4	1080.7	3.49	4.00	3.25 YES
L0007476	0	0.14070E-05	462702.5	3810238.4	1080.5	3.49	4.00	3.25 YES
L0007477	0	0.14070E-05	462711.1	3810238.4	1080.4	3.49	4.00	3.25 YES
L0007478	0	0.14070E-05	462719.7	3810238.4	1080.2	3.49	4.00	3.25 YES
L0007479	0	0.14070E-05	462728.3	3810238.4	1080.0	3.49	4.00	3.25 YES
L0007480	0	0.14070E-05	462736.9	3810238.4	1080.0	3.49	4.00	3.25 YES
L0007481	0	0.14070E-05	462745.5	3810238.4	1080.0	3.49	4.00	3.25 YES
L0007482	0	0.14070E-05	462754.1	3810238.4	1080.0	3.49	4.00	3.25 YES
L0007483	0	0.14070E-05	462762.7	3810238.4	1080.0	3.49	4.00	3.25 YES
L0007484	0	0.14070E-05	462771.3	3810238.4	1079.8	3.49	4.00	3.25 YES
L0007485	0	0.14280E-05	462205.8	3810000.3	1088.5	3.49	4.00	3.25 YES
L0007486	0	0.14280E-05	462214.4	3810000.3	1088.5	3.49	4.00	3.25 YES
L0007487	0	0.14280E-05	462223.0	3810000.3	1088.5	3.49	4.00	3.25 YES

 L0007488   0   0.14280E-05 462231.6 3810000.3 1088.3   3.49   4.00
3.25   YES
 L0007489   0   0.14280E-05 462240.2 3810000.3 1088.2   3.49   4.00
3.25   YES
 L0007490   0   0.14280E-05 462248.7 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007491   0   0.14280E-05 462257.3 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007492   0   0.14280E-05 462265.9 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007493   0   0.14280E-05 462274.5 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007494   0   0.14280E-05 462283.1 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007495   0   0.14280E-05 462291.7 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007496   0   0.14280E-05 462300.3 3810000.3 1088.0   3.49   4.00
3.25   YES
 L0007497   0   0.14280E-05 462308.9 3810000.3 1088.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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- - - - - - - - - - - - - - - - - - - -

 L0007498   0   0.14280E-05 462317.5 3810000.3 1087.9   3.49   4.00
3.25   YES
 L0007499   0   0.14280E-05 462326.1 3810000.3 1087.7   3.49   4.00
3.25   YES
 L0007500   0   0.14280E-05 462334.6 3810000.3 1087.6   3.49   4.00
3.25   YES
 L0007501   0   0.14280E-05 462343.2 3810000.3 1087.5   3.49   4.00
3.25   YES
 L0007502   0   0.14280E-05 462351.8 3810000.3 1087.5   3.49   4.00
3.25   YES

L0007503	0	0.14280E-05	462360.4	3810000.3	1087.5	3.49	4.00	3.25 YES
L0007504	0	0.14280E-05	462369.0	3810000.3	1087.5	3.49	4.00	3.25 YES
L0007505	0	0.14280E-05	462377.6	3810000.3	1087.4	3.49	4.00	3.25 YES
L0007506	0	0.14280E-05	462386.2	3810000.3	1087.2	3.49	4.00	3.25 YES
L0007507	0	0.14280E-05	462394.8	3810000.3	1087.1	3.49	4.00	3.25 YES
L0007508	0	0.14280E-05	462403.4	3810000.3	1087.0	3.49	4.00	3.25 YES
L0007509	0	0.14280E-05	462412.0	3810000.3	1087.0	3.49	4.00	3.25 YES
L0007510	0	0.14280E-05	462420.5	3810000.3	1087.0	3.49	4.00	3.25 YES
L0007511	0	0.14280E-05	462429.1	3810000.3	1087.0	3.49	4.00	3.25 YES
L0007512	0	0.14280E-05	462437.7	3810000.3	1086.9	3.49	4.00	3.25 YES
L0007513	0	0.14280E-05	462446.3	3810000.3	1086.7	3.49	4.00	3.25 YES
L0007514	0	0.14280E-05	462454.9	3810000.3	1086.6	3.49	4.00	3.25 YES
L0007515	0	0.14280E-05	462463.5	3810000.3	1086.5	3.49	4.00	3.25 YES
L0007516	0	0.14280E-05	462472.1	3810000.3	1086.3	3.49	4.00	3.25 YES
L0007517	0	0.14280E-05	462480.7	3810000.3	1086.2	3.49	4.00	3.25 YES
L0007518	0	0.14280E-05	462489.3	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007519	0	0.14280E-05	462497.9	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007520	0	0.14280E-05	462506.4	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007521	0	0.14280E-05	462515.0	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007522	0	0.14280E-05	462523.6	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007523	0	0.14280E-05	462532.2	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007524	0	0.14280E-05	462540.8	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007525	0	0.14280E-05	462549.4	3810000.3	1086.0	3.49	4.00	3.25 YES
L0007526	0	0.14280E-05	462558.0	3810000.3	1085.9	3.49	4.00	3.25 YES
L0007527	0	0.14280E-05	462566.6	3810000.3	1085.7	3.49	4.00	3.25 YES

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE VARY BY
L0007528	0	0.14280E-05	462575.2	3810000.3	1085.6	3.49	4.00	3.25	YES	
L0007529	0	0.14280E-05	462583.8	3810000.3	1085.5	3.49	4.00	3.25	YES	
L0007530	0	0.14280E-05	462592.3	3810000.3	1085.3	3.49	4.00	3.25	YES	
L0007531	0	0.14280E-05	462600.9	3810000.3	1085.2	3.49	4.00	3.25	YES	
L0007532	0	0.14280E-05	462609.5	3810000.3	1085.0	3.49	4.00	3.25	YES	
L0007533	0	0.14280E-05	462618.1	3810000.3	1085.0	3.49	4.00	3.25	YES	
L0007534	0	0.14280E-05	462626.7	3810000.3	1085.0	3.49	4.00	3.25	YES	
L0007535	0	0.14280E-05	462635.3	3810000.3	1085.0	3.49	4.00	3.25	YES	
L0007536	0	0.14280E-05	462643.9	3810000.3	1084.9	3.49	4.00	3.25	YES	
L0007537	0	0.14280E-05	462652.5	3810000.3	1084.8	3.49	4.00	3.25	YES	
L0007538	0	0.14280E-05	462661.1	3810000.3	1084.7	3.49	4.00	3.25	YES	
L0007539	0	0.14280E-05	462669.7	3810000.3	1084.5	3.49	4.00	3.25	YES	
L0007540	0	0.14280E-05	462678.2	3810000.3	1084.4	3.49	4.00	3.25	YES	
L0007541	0	0.14280E-05	462686.8	3810000.3	1084.2	3.49	4.00	3.25	YES	
L0007542	0	0.14280E-05	462695.4	3810000.3	1084.1	3.49	4.00	3.25	YES	

L0007543	0	0.14280E-05	462704.0	3810000.3	1084.0	3.49	4.00	3.25 YES
L0007544	0	0.14280E-05	462712.6	3810000.3	1084.0	3.49	4.00	3.25 YES
L0007545	0	0.14280E-05	462721.2	3810000.3	1084.0	3.49	4.00	3.25 YES
L0007546	0	0.14280E-05	462729.8	3810000.3	1084.0	3.49	4.00	3.25 YES
L0007547	0	0.14280E-05	462738.4	3810000.3	1083.9	3.49	4.00	3.25 YES
L0007548	0	0.14280E-05	462747.0	3810000.3	1083.7	3.49	4.00	3.25 YES
L0007549	0	0.14280E-05	462755.6	3810000.3	1083.6	3.49	4.00	3.25 YES
L0007550	0	0.14280E-05	462764.1	3810000.3	1083.5	3.49	4.00	3.25 YES
L0007551	0	0.13500E-05	461984.0	3809862.8	1092.0	3.49	4.00	3.25 YES
L0007552	0	0.13500E-05	461992.6	3809862.7	1092.0	3.49	4.00	3.25 YES
L0007553	0	0.13500E-05	462001.1	3809862.7	1092.0	3.49	4.00	3.25 YES
L0007554	0	0.13500E-05	462009.7	3809862.7	1092.0	3.49	4.00	3.25 YES
L0007555	0	0.13500E-05	462018.3	3809862.6	1092.0	3.49	4.00	3.25 YES
L0007556	0	0.13500E-05	462026.9	3809862.6	1092.0	3.49	4.00	3.25 YES
L0007557	0	0.13500E-05	462035.5	3809862.6	1092.0	3.49	4.00	3.25 YES
L0007558	0	0.13500E-05	462044.1	3809862.5	1092.0	3.49	4.00	3.25 YES
L0007559	0	0.13500E-05	462052.7	3809862.5	1092.0	3.49	4.00	3.25 YES
L0007560	0	0.13500E-05	462061.3	3809862.5	1092.0	3.49	4.00	3.25 YES
L0007561	0	0.13500E-05	462069.9	3809862.4	1092.0	3.49	4.00	3.25 YES
L0007562	0	0.13500E-05	462078.5	3809862.4	1092.0	3.49	4.00	3.25 YES
L0007563	0	0.13500E-05	462087.0	3809862.4	1092.0	3.49	4.00	3.25 YES
L0007564	0	0.13500E-05	462095.6	3809862.3	1092.0	3.49	4.00	3.25 YES
L0007565	0	0.13500E-05	462104.2	3809862.3	1091.9	3.49	4.00	3.25 YES
L0007566	0	0.13500E-05	462112.8	3809862.3	1091.6	3.49	4.00	3.25 YES
L0007567	0	0.13500E-05	462121.4	3809862.2	1091.4	3.49	4.00	3.25 YES

 L0007568   0   0.13500E-05 462130.0 3809862.2 1091.1   3.49   4.00
3.25   YES
 L0007569   0   0.13500E-05 462138.6 3809862.2 1091.1   3.49   4.00
3.25   YES
 L0007570   0   0.13500E-05 462147.2 3809862.2 1091.1   3.49   4.00
3.25   YES
 L0007571   0   0.13500E-05 462155.8 3809862.1 1091.1   3.49   4.00
3.25   YES
 L0007572   0   0.13500E-05 462164.4 3809862.1 1091.1   3.49   4.00
3.25   YES
 L0007573   0   0.13500E-05 462172.9 3809862.1 1091.1   3.49   4.00
3.25   YES
 L0007574   0   0.13500E-05 462181.5 3809862.0 1091.0   3.49   4.00
3.25   YES
 L0007575   0   0.13500E-05 462190.1 3809862.0 1091.0   3.49   4.00
3.25   YES
 L0007576   0   0.13500E-05 462198.7 3809862.0 1091.0   3.49   4.00
3.25   YES
 L0007577   0   0.13500E-05 462207.3 3809861.9 1091.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007578   0   0.13500E-05 462215.9 3809861.9 1091.0   3.49   4.00
3.25   YES
 L0007579   0   0.13500E-05 462224.5 3809861.9 1090.9   3.49   4.00
3.25   YES
 L0007580   0   0.13500E-05 462233.1 3809861.8 1090.6   3.49   4.00
3.25   YES
 L0007581   0   0.13500E-05 462241.7 3809861.8 1090.4   3.49   4.00
3.25   YES
 L0007582   0   0.13500E-05 462250.3 3809861.8 1090.1   3.49   4.00
3.25   YES

L0007583	0	0.13500E-05	462258.8	3809861.7	1090.1	3.49	4.00	3.25 YES
L0007584	0	0.13500E-05	462267.4	3809861.7	1090.1	3.49	4.00	3.25 YES
L0007585	0	0.13500E-05	462276.0	3809861.7	1090.0	3.49	4.00	3.25 YES
L0007586	0	0.13500E-05	462284.6	3809861.6	1090.0	3.49	4.00	3.25 YES
L0007587	0	0.13500E-05	462293.2	3809861.6	1090.0	3.49	4.00	3.25 YES
L0007588	0	0.13500E-05	462301.8	3809861.6	1090.0	3.49	4.00	3.25 YES
L0007589	0	0.13500E-05	462310.4	3809861.5	1090.0	3.49	4.00	3.25 YES
L0007590	0	0.13500E-05	462319.0	3809861.5	1089.7	3.49	4.00	3.25 YES
L0007591	0	0.13500E-05	462327.6	3809861.5	1089.5	3.49	4.00	3.25 YES
L0007592	0	0.13500E-05	462336.2	3809861.4	1089.3	3.49	4.00	3.25 YES
L0007593	0	0.13500E-05	462344.7	3809861.4	1089.1	3.49	4.00	3.25 YES
L0007594	0	0.13500E-05	462353.3	3809861.4	1089.1	3.49	4.00	3.25 YES
L0007595	0	0.13500E-05	462361.9	3809861.3	1089.0	3.49	4.00	3.25 YES
L0007596	0	0.13500E-05	462370.5	3809861.3	1089.0	3.49	4.00	3.25 YES
L0007597	0	0.13500E-05	462379.1	3809861.3	1089.0	3.49	4.00	3.25 YES
L0007598	0	0.13500E-05	462387.7	3809861.3	1089.0	3.49	4.00	3.25 YES
L0007599	0	0.13500E-05	462396.3	3809861.2	1089.0	3.49	4.00	3.25 YES
L0007600	0	0.13500E-05	462404.9	3809861.2	1088.9	3.49	4.00	3.25 YES
L0007601	0	0.13500E-05	462413.5	3809861.2	1088.6	3.49	4.00	3.25 YES
L0007602	0	0.13500E-05	462422.0	3809861.1	1088.4	3.49	4.00	3.25 YES
L0007603	0	0.13500E-05	462430.6	3809861.1	1088.2	3.49	4.00	3.25 YES
L0007604	0	0.13500E-05	462439.2	3809861.1	1088.1	3.49	4.00	3.25 YES
L0007605	0	0.13500E-05	462447.8	3809861.0	1088.1	3.49	4.00	3.25 YES
L0007606	0	0.13500E-05	462456.4	3809861.0	1088.0	3.49	4.00	3.25 YES
L0007607	0	0.13500E-05	462465.0	3809861.0	1088.0	3.49	4.00	3.25 YES

*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE VARY BY
L0007608	0	0.13500E-05	462473.6	3809860.9	1088.0	3.49	4.00	3.25	YES	
L0007609	0	0.13500E-05	462482.2	3809860.9	1088.0	3.49	4.00	3.25	YES	
L0007610	0	0.13500E-05	462490.8	3809860.9	1088.0	3.49	4.00	3.25	YES	
L0007611	0	0.13500E-05	462499.4	3809860.8	1088.0	3.49	4.00	3.25	YES	
L0007612	0	0.13500E-05	462507.9	3809860.8	1088.0	3.49	4.00	3.25	YES	
L0007613	0	0.13500E-05	462516.5	3809860.8	1088.0	3.49	4.00	3.25	YES	
L0007614	0	0.13500E-05	462525.1	3809860.7	1087.9	3.49	4.00	3.25	YES	
L0007615	0	0.13500E-05	462533.7	3809860.7	1087.6	3.49	4.00	3.25	YES	
L0007616	0	0.13500E-05	462542.3	3809860.7	1087.4	3.49	4.00	3.25	YES	
L0007617	0	0.13500E-05	462550.9	3809860.6	1087.2	3.49	4.00	3.25	YES	
L0007618	0	0.13500E-05	462559.5	3809860.6	1087.1	3.49	4.00	3.25	YES	
L0007619	0	0.13500E-05	462568.1	3809860.6	1087.1	3.49	4.00	3.25	YES	
L0007620	0	0.13500E-05	462576.7	3809860.5	1087.0	3.49	4.00	3.25	YES	
L0007621	0	0.13500E-05	462585.3	3809860.5	1087.0	3.49	4.00	3.25	YES	
L0007622	0	0.13500E-05	462593.8	3809860.5	1087.0	3.49	4.00	3.25	YES	

L0007623	0	0.13500E-05	462602.4	3809860.4	1087.0	3.49	4.00	3.25 YES
L0007624	0	0.13500E-05	462611.0	3809860.4	1087.0	3.49	4.00	3.25 YES
L0007625	0	0.13500E-05	462619.6	3809860.4	1086.7	3.49	4.00	3.25 YES
L0007626	0	0.13500E-05	462628.2	3809860.4	1086.5	3.49	4.00	3.25 YES
L0007627	0	0.13500E-05	462636.8	3809860.3	1086.3	3.49	4.00	3.25 YES
L0007628	0	0.13500E-05	462645.4	3809860.3	1086.1	3.49	4.00	3.25 YES
L0007629	0	0.13500E-05	462654.0	3809860.3	1086.1	3.49	4.00	3.25 YES
L0007630	0	0.13500E-05	462662.6	3809860.2	1086.0	3.49	4.00	3.25 YES
L0007631	0	0.13500E-05	462671.2	3809860.2	1086.0	3.49	4.00	3.25 YES
L0007632	0	0.13500E-05	462679.7	3809860.2	1086.0	3.49	4.00	3.25 YES
L0007633	0	0.13500E-05	462688.3	3809860.1	1086.0	3.49	4.00	3.25 YES
L0007634	0	0.13500E-05	462696.9	3809860.1	1086.0	3.49	4.00	3.25 YES
L0007635	0	0.13500E-05	462705.5	3809860.1	1085.8	3.49	4.00	3.25 YES
L0007636	0	0.13500E-05	462714.1	3809860.0	1085.6	3.49	4.00	3.25 YES
L0007637	0	0.13500E-05	462722.7	3809860.0	1085.4	3.49	4.00	3.25 YES
L0007638	0	0.13500E-05	462731.3	3809860.0	1085.2	3.49	4.00	3.25 YES
L0007639	0	0.13500E-05	462739.9	3809859.9	1085.1	3.49	4.00	3.25 YES
L0007640	0	0.13500E-05	462748.5	3809859.9	1085.1	3.49	4.00	3.25 YES
L0007641	0	0.13500E-05	462757.1	3809859.9	1085.0	3.49	4.00	3.25 YES
L0007642	0	0.13500E-05	462765.6	3809859.8	1084.8	3.49	4.00	3.25 YES
L0007643	0	0.13500E-05	461988.4	3809624.7	1096.0	3.49	4.00	3.25 YES
L0007644	0	0.13500E-05	461997.0	3809624.6	1096.0	3.49	4.00	3.25 YES
L0007645	0	0.13500E-05	462005.6	3809624.6	1096.0	3.49	4.00	3.25 YES
L0007646	0	0.13500E-05	462014.2	3809624.6	1095.9	3.49	4.00	3.25 YES
L0007647	0	0.13500E-05	462022.8	3809624.5	1095.6	3.49	4.00	3.25 YES

 L0007648   0   0.13500E-05 462031.3 3809624.5 1095.3   3.49   4.00
3.25   YES
 L0007649   0   0.13500E-05 462039.9 3809624.5 1095.0   3.49   4.00
3.25   YES
 L0007650   0   0.13500E-05 462048.5 3809624.4 1095.0   3.49   4.00
3.25   YES
 L0007651   0   0.13500E-05 462057.1 3809624.4 1095.0   3.49   4.00
3.25   YES
 L0007652   0   0.13500E-05 462065.7 3809624.4 1095.0   3.49   4.00
3.25   YES
 L0007653   0   0.13500E-05 462074.3 3809624.3 1095.0   3.49   4.00
3.25   YES
 L0007654   0   0.13500E-05 462082.9 3809624.3 1095.0   3.49   4.00
3.25   YES
 L0007655   0   0.13500E-05 462091.5 3809624.3 1095.0   3.49   4.00
3.25   YES
 L0007656   0   0.13500E-05 462100.1 3809624.2 1095.0   3.49   4.00
3.25   YES
 L0007657   0   0.13500E-05 462108.7 3809624.2 1094.7   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0007658   0   0.13500E-05 462117.2 3809624.2 1094.5   3.49   4.00
3.25   YES
 L0007659   0   0.13500E-05 462125.8 3809624.2 1094.2   3.49   4.00
3.25   YES
 L0007660   0   0.13500E-05 462134.4 3809624.1 1094.1   3.49   4.00
3.25   YES
 L0007661   0   0.13500E-05 462143.0 3809624.1 1094.1   3.49   4.00
3.25   YES
 L0007662   0   0.13500E-05 462151.6 3809624.1 1094.1   3.49   4.00
3.25   YES

L0007663	0	0.13500E-05	462160.2	3809624.0	1094.1	3.49	4.00	3.25 YES
L0007664	0	0.13500E-05	462168.8	3809624.0	1094.0	3.49	4.00	3.25 YES
L0007665	0	0.13500E-05	462177.4	3809624.0	1094.0	3.49	4.00	3.25 YES
L0007666	0	0.13500E-05	462186.0	3809623.9	1094.0	3.49	4.00	3.25 YES
L0007667	0	0.13500E-05	462194.6	3809623.9	1094.0	3.49	4.00	3.25 YES
L0007668	0	0.13500E-05	462203.1	3809623.9	1094.0	3.49	4.00	3.25 YES
L0007669	0	0.13500E-05	462211.7	3809623.8	1094.0	3.49	4.00	3.25 YES
L0007670	0	0.13500E-05	462220.3	3809623.8	1094.0	3.49	4.00	3.25 YES
L0007671	0	0.13500E-05	462228.9	3809623.8	1093.7	3.49	4.00	3.25 YES
L0007672	0	0.13500E-05	462237.5	3809623.7	1093.5	3.49	4.00	3.25 YES
L0007673	0	0.13500E-05	462246.1	3809623.7	1093.2	3.49	4.00	3.25 YES
L0007674	0	0.13500E-05	462254.7	3809623.7	1093.1	3.49	4.00	3.25 YES
L0007675	0	0.13500E-05	462263.3	3809623.6	1093.0	3.49	4.00	3.25 YES
L0007676	0	0.13500E-05	462271.9	3809623.6	1093.0	3.49	4.00	3.25 YES
L0007677	0	0.13500E-05	462280.5	3809623.6	1093.0	3.49	4.00	3.25 YES
L0007678	0	0.13500E-05	462289.0	3809623.5	1093.0	3.49	4.00	3.25 YES
L0007679	0	0.13500E-05	462297.6	3809623.5	1093.0	3.49	4.00	3.25 YES
L0007680	0	0.13500E-05	462306.2	3809623.5	1093.0	3.49	4.00	3.25 YES
L0007681	0	0.13500E-05	462314.8	3809623.4	1092.8	3.49	4.00	3.25 YES
L0007682	0	0.13500E-05	462323.4	3809623.4	1092.6	3.49	4.00	3.25 YES
L0007683	0	0.13500E-05	462332.0	3809623.4	1092.3	3.49	4.00	3.25 YES
L0007684	0	0.13500E-05	462340.6	3809623.3	1092.1	3.49	4.00	3.25 YES
L0007685	0	0.13500E-05	462349.2	3809623.3	1092.1	3.49	4.00	3.25 YES
L0007686	0	0.13500E-05	462357.8	3809623.3	1092.0	3.49	4.00	3.25 YES
L0007687	0	0.13500E-05	462366.4	3809623.2	1092.0	3.49	4.00	3.25 YES

 L0007688   0   0.13500E-05 462374.9 3809623.2 1092.0   3.49   4.00
3.25   YES
 L0007689   0   0.13500E-05 462383.5 3809623.2 1092.0   3.49   4.00
3.25   YES
 L0007690   0   0.13500E-05 462392.1 3809623.2 1092.0   3.49   4.00
3.25   YES
 L0007691   0   0.13500E-05 462400.7 3809623.1 1092.0   3.49   4.00
3.25   YES
 L0007692   0   0.13500E-05 462409.3 3809623.1 1091.7   3.49   4.00
3.25   YES
 L0007693   0   0.13500E-05 462417.9 3809623.1 1091.5   3.49   4.00
3.25   YES
 L0007694   0   0.13500E-05 462426.5 3809623.0 1091.2   3.49   4.00
3.25   YES
 L0007695   0   0.13500E-05 462435.1 3809623.0 1091.1   3.49   4.00
3.25   YES
 L0007696   0   0.13500E-05 462443.7 3809623.0 1091.0   3.49   4.00
3.25   YES
 L0007697   0   0.13500E-05 462452.3 3809622.9 1091.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0007698   0   0.13500E-05 462460.8 3809622.9 1091.0   3.49   4.00
3.25   YES
 L0007699   0   0.13500E-05 462469.4 3809622.9 1090.7   3.49   4.00
3.25   YES
 L0007700   0   0.13500E-05 462478.0 3809622.8 1090.5   3.49   4.00
3.25   YES
 L0007701   0   0.13500E-05 462486.6 3809622.8 1090.2   3.49   4.00
3.25   YES
 L0007702   0   0.13500E-05 462495.2 3809622.8 1090.1   3.49   4.00
3.25   YES

L0007703	0	0.13500E-05	462503.8	3809622.7	1090.1	3.49	4.00	3.25 YES
L0007704	0	0.13500E-05	462512.4	3809622.7	1090.0	3.49	4.00	3.25 YES
L0007705	0	0.13500E-05	462521.0	3809622.7	1090.0	3.49	4.00	3.25 YES
L0007706	0	0.13500E-05	462529.6	3809622.6	1090.0	3.49	4.00	3.25 YES
L0007707	0	0.13500E-05	462538.2	3809622.6	1090.0	3.49	4.00	3.25 YES
L0007708	0	0.13500E-05	462546.7	3809622.6	1090.0	3.49	4.00	3.25 YES
L0007709	0	0.13500E-05	462555.3	3809622.5	1090.0	3.49	4.00	3.25 YES
L0007710	0	0.13500E-05	462563.9	3809622.5	1090.0	3.49	4.00	3.25 YES
L0007711	0	0.13500E-05	462572.5	3809622.5	1090.0	3.49	4.00	3.25 YES
L0007712	0	0.13500E-05	462581.1	3809622.4	1090.0	3.49	4.00	3.25 YES
L0007713	0	0.13500E-05	462589.7	3809622.4	1090.0	3.49	4.00	3.25 YES
L0007714	0	0.13500E-05	462598.3	3809622.4	1090.0	3.49	4.00	3.25 YES
L0007715	0	0.13500E-05	462606.9	3809622.3	1090.0	3.49	4.00	3.25 YES
L0007716	0	0.13500E-05	462615.5	3809622.3	1089.8	3.49	4.00	3.25 YES
L0007717	0	0.13500E-05	462624.1	3809622.3	1089.6	3.49	4.00	3.25 YES
L0007718	0	0.13500E-05	462632.6	3809622.2	1089.3	3.49	4.00	3.25 YES
L0007719	0	0.13500E-05	462641.2	3809622.2	1089.1	3.49	4.00	3.25 YES
L0007720	0	0.13500E-05	462649.8	3809622.2	1089.1	3.49	4.00	3.25 YES
L0007721	0	0.13500E-05	462658.4	3809622.2	1089.1	3.49	4.00	3.25 YES
L0007722	0	0.13500E-05	462667.0	3809622.1	1089.1	3.49	4.00	3.25 YES
L0007723	0	0.13500E-05	462675.6	3809622.1	1089.1	3.49	4.00	3.25 YES
L0007724	0	0.13500E-05	462684.2	3809622.1	1089.1	3.49	4.00	3.25 YES
L0007725	0	0.13500E-05	462692.8	3809622.0	1089.0	3.49	4.00	3.25 YES
L0007726	0	0.13500E-05	462701.4	3809622.0	1089.0	3.49	4.00	3.25 YES
L0007727	0	0.13500E-05	462710.0	3809622.0	1089.0	3.49	4.00	3.25 YES

 L0007728   0   0.13500E-05 462718.5 3809621.9 1089.0   3.49   4.00
3.25   YES
 L0007729   0   0.13500E-05 462727.1 3809621.9 1089.0   3.49   4.00
3.25   YES
 L0007730   0   0.13500E-05 462735.7 3809621.9 1088.8   3.49   4.00
3.25   YES
 L0007731   0   0.13500E-05 462744.3 3809621.8 1088.6   3.49   4.00
3.25   YES
 L0007732   0   0.13500E-05 462752.9 3809621.8 1088.3   3.49   4.00
3.25   YES
 L0007733   0   0.13500E-05 462761.5 3809621.8 1088.1   3.49   4.00
3.25   YES
 L0007734   0   0.13500E-05 462770.1 3809621.7 1088.1   3.49   4.00
3.25   YES
 L0007735   0   0.16890E-05 463136.0 3810133.3 1078.0   3.49   4.00
3.25   YES
 L0007736   0   0.16890E-05 463144.6 3810133.1 1078.0   3.49   4.00
3.25   YES
 L0007737   0   0.16890E-05 463153.2 3810133.0 1077.9   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0007738   0   0.16890E-05 463161.8 3810132.8 1077.6   3.49   4.00
3.25   YES
 L0007739   0   0.16890E-05 463170.3 3810132.6 1077.4   3.49   4.00
3.25   YES
 L0007740   0   0.16890E-05 463178.9 3810132.4 1077.1   3.49   4.00
3.25   YES
 L0007741   0   0.16890E-05 463187.5 3810132.3 1077.1   3.49   4.00
3.25   YES
 L0007742   0   0.16890E-05 463196.1 3810132.1 1077.1   3.49   4.00
3.25   YES

L0007743	0	0.16970E-05	462873.5	3810255.0	1078.2	3.49	4.00	3.25 YES
L0007744	0	0.16970E-05	462864.9	3810255.3	1078.5	3.49	4.00	3.25 YES
L0007745	0	0.16970E-05	462856.3	3810255.5	1078.8	3.49	4.00	3.25 YES
L0007746	0	0.16970E-05	462847.7	3810255.8	1079.0	3.49	4.00	3.25 YES
L0007747	0	0.16970E-05	462839.1	3810256.1	1079.0	3.49	4.00	3.25 YES
L0007748	0	0.16970E-05	462830.6	3810256.4	1079.0	3.49	4.00	3.25 YES
L0007749	0	0.16970E-05	462822.0	3810256.7	1079.0	3.49	4.00	3.25 YES
L0007750	0	0.16970E-05	462813.4	3810257.0	1079.0	3.49	4.00	3.25 YES
L0007751	0	0.16970E-05	462804.8	3810257.2	1079.0	3.49	4.00	3.25 YES
L0007752	0	0.16970E-05	462796.2	3810257.5	1079.0	3.49	4.00	3.25 YES
L0007753	0	0.16970E-05	462787.6	3810257.8	1079.1	3.49	4.00	3.25 YES
L0007754	0	0.16970E-05	462780.5	3810259.5	1079.3	3.49	4.00	3.25 YES
L0007755	0	0.16970E-05	462780.5	3810268.1	1079.2	3.49	4.00	3.25 YES
L0007756	0	0.16970E-05	462780.5	3810276.7	1079.1	3.49	4.00	3.25 YES
L0007757	0	0.16970E-05	462780.5	3810285.3	1079.0	3.49	4.00	3.25 YES
L0007758	0	0.16970E-05	462780.5	3810293.9	1078.8	3.49	4.00	3.25 YES
L0007759	0	0.16970E-05	462777.8	3810299.7	1078.7	3.49	4.00	3.25 YES
L0007760	0	0.16970E-05	462769.2	3810299.8	1078.9	3.49	4.00	3.25 YES
L0007761	0	0.16970E-05	462760.6	3810299.9	1079.0	3.49	4.00	3.25 YES
L0007762	0	0.16970E-05	462752.0	3810300.0	1079.1	3.49	4.00	3.25 YES
L0007763	0	0.16970E-05	462743.4	3810300.1	1079.3	3.49	4.00	3.25 YES
L0007764	0	0.16970E-05	462734.8	3810300.2	1079.4	3.49	4.00	3.25 YES
L0007765	0	0.16970E-05	462726.2	3810300.3	1079.5	3.49	4.00	3.25 YES
L0007766	0	0.16970E-05	462717.6	3810300.4	1079.5	3.49	4.00	3.25 YES
L0007767	0	0.16970E-05	462709.1	3810300.5	1079.5	3.49	4.00	3.25 YES

 L0007768   0   0.16970E-05 462700.5 3810300.6 1079.5   3.49   4.00
3.25   YES
 L0007769   0   0.16970E-05 462691.9 3810300.7 1079.6   3.49   4.00
3.25   YES
 L0007770   0   0.16970E-05 462683.3 3810300.8 1079.8   3.49   4.00
3.25   YES
 L0007771   0   0.16970E-05 462674.7 3810300.9 1079.9   3.49   4.00
3.25   YES
 L0007772   0   0.16970E-05 462666.1 3810301.0 1080.0   3.49   4.00
3.25   YES
 L0007773   0   0.16970E-05 462657.5 3810301.0 1080.0   3.49   4.00
3.25   YES
 L0007774   0   0.16970E-05 462648.9 3810301.1 1080.0   3.49   4.00
3.25   YES
 L0007775   0   0.16970E-05 462640.3 3810301.2 1080.0   3.49   4.00
3.25   YES
 L0007776   0   0.16970E-05 462631.8 3810301.3 1080.1   3.49   4.00
3.25   YES
 L0007777   0   0.16970E-05 462623.2 3810301.4 1080.3   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0007778   0   0.16970E-05 462614.6 3810301.5 1080.4   3.49   4.00
3.25   YES
 L0007779   0   0.16970E-05 462606.0 3810301.6 1080.5   3.49   4.00
3.25   YES
 L0007780   0   0.16970E-05 462597.4 3810301.7 1080.7   3.49   4.00
3.25   YES
 L0007781   0   0.16970E-05 462588.8 3810301.8 1080.8   3.49   4.00
3.25   YES
 L0007782   0   0.16970E-05 462580.2 3810301.9 1081.0   3.49   4.00
3.25   YES

L0007783	0	0.16970E-05	462571.6	3810302.0	1081.1	3.49	4.00	3.25 YES
L0007784	0	0.16970E-05	462563.0	3810302.1	1081.3	3.49	4.00	3.25 YES
L0007785	0	0.16970E-05	462554.4	3810302.2	1081.4	3.49	4.00	3.25 YES
L0007786	0	0.16970E-05	462545.9	3810302.2	1081.5	3.49	4.00	3.25 YES
L0007787	0	0.16970E-05	462537.3	3810302.3	1081.7	3.49	4.00	3.25 YES
L0007788	0	0.16970E-05	462528.7	3810302.4	1081.8	3.49	4.00	3.25 YES
L0007789	0	0.16970E-05	462520.1	3810302.5	1082.0	3.49	4.00	3.25 YES
L0007790	0	0.16970E-05	462511.5	3810302.6	1082.0	3.49	4.00	3.25 YES
L0007791	0	0.16970E-05	462502.9	3810302.7	1082.0	3.49	4.00	3.25 YES
L0007792	0	0.16970E-05	462494.3	3810302.8	1082.0	3.49	4.00	3.25 YES
L0007793	0	0.16970E-05	462485.7	3810302.9	1082.1	3.49	4.00	3.25 YES
L0007794	0	0.16970E-05	462477.1	3810303.0	1082.2	3.49	4.00	3.25 YES
L0007795	0	0.16970E-05	462468.6	3810303.1	1082.3	3.49	4.00	3.25 YES
L0007796	0	0.16970E-05	462460.0	3810303.2	1082.4	3.49	4.00	3.25 YES
L0007797	0	0.16970E-05	462451.4	3810303.3	1082.4	3.49	4.00	3.25 YES
L0007798	0	0.16970E-05	462442.8	3810303.4	1082.4	3.49	4.00	3.25 YES
L0007799	0	0.16970E-05	462434.2	3810303.5	1082.4	3.49	4.00	3.25 YES
L0007800	0	0.16970E-05	462425.6	3810303.5	1082.5	3.49	4.00	3.25 YES
L0007801	0	0.16970E-05	462417.0	3810303.6	1082.7	3.49	4.00	3.25 YES
L0007802	0	0.16970E-05	462408.4	3810303.7	1082.8	3.49	4.00	3.25 YES
L0007803	0	0.16970E-05	462399.8	3810303.8	1083.0	3.49	4.00	3.25 YES
L0007804	0	0.16970E-05	462391.2	3810303.9	1083.1	3.49	4.00	3.25 YES
L0007805	0	0.16970E-05	462382.7	3810304.0	1083.2	3.49	4.00	3.25 YES
L0007806	0	0.16970E-05	462374.1	3810304.1	1083.3	3.49	4.00	3.25 YES
L0007807	0	0.16970E-05	462365.5	3810304.2	1083.4	3.49	4.00	3.25 YES

 L0007808   0   0.16970E-05 462356.9 3810304.3 1083.4   3.49   4.00
3.25   YES
 L0007809   0   0.16970E-05 462348.3 3810304.4 1083.4   3.49   4.00
3.25   YES
 L0007810   0   0.16970E-05 462339.7 3810304.5 1083.4   3.49   4.00
3.25   YES
 L0007811   0   0.16970E-05 462331.1 3810304.6 1083.6   3.49   4.00
3.25   YES
 L0007812   0   0.16970E-05 462322.5 3810304.7 1083.7   3.49   4.00
3.25   YES
 L0007813   0   0.16970E-05 462313.9 3810304.7 1083.9   3.49   4.00
3.25   YES
 L0007814   0   0.16970E-05 462305.4 3810304.8 1084.0   3.49   4.00
3.25   YES
 L0007815   0   0.16970E-05 462296.8 3810304.9 1084.0   3.49   4.00
3.25   YES
 L0007816   0   0.16970E-05 462288.2 3810305.0 1084.0   3.49   4.00
3.25   YES
 L0007817   0   0.16970E-05 462284.9 3810299.9 1084.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007818   0   0.16970E-05 462285.1 3810291.3 1084.0   3.49   4.00
3.25   YES
 L0007819   0   0.16970E-05 462285.4 3810282.7 1084.1   3.49   4.00
3.25   YES
 L0007820   0   0.16970E-05 462285.6 3810274.1 1084.3   3.49   4.00
3.25   YES
 L0007821   0   0.16970E-05 462283.7 3810267.5 1084.5   3.49   4.00
3.25   YES
 L0007822   0   0.16970E-05 462275.2 3810266.7 1084.6   3.49   4.00
3.25   YES

L0007823	0	0.16970E-05	462266.6	3810266.0	1084.7	3.49	4.00	3.25 YES
L0007824	0	0.16970E-05	462258.0	3810265.2	1084.7	3.49	4.00	3.25 YES
L0007825	0	0.16970E-05	462249.5	3810264.5	1084.7	3.49	4.00	3.25 YES
L0007826	0	0.16970E-05	462240.9	3810263.7	1084.8	3.49	4.00	3.25 YES
L0007827	0	0.16970E-05	462232.4	3810263.0	1084.9	3.49	4.00	3.25 YES
L0007828	0	0.16970E-05	462223.8	3810262.2	1085.0	3.49	4.00	3.25 YES
L0007829	0	0.16970E-05	462215.3	3810261.5	1085.0	3.49	4.00	3.25 YES
L0007830	0	0.16970E-05	462206.7	3810260.7	1085.0	3.49	4.00	3.25 YES
L0007831	0	0.16970E-05	462020.8	3809983.2	1090.1	3.49	4.00	3.25 YES
L0007832	0	0.16970E-05	462029.4	3809982.8	1090.1	3.49	4.00	3.25 YES
L0007833	0	0.16970E-05	462038.0	3809982.4	1090.1	3.49	4.00	3.25 YES
L0007834	0	0.16970E-05	462046.6	3809982.0	1090.1	3.49	4.00	3.25 YES
L0007835	0	0.16970E-05	462055.1	3809981.5	1090.1	3.49	4.00	3.25 YES
L0007836	0	0.16970E-05	462063.7	3809981.3	1090.0	3.49	4.00	3.25 YES
L0007837	0	0.16970E-05	462072.3	3809981.4	1090.0	3.49	4.00	3.25 YES
L0007838	0	0.16970E-05	462080.9	3809981.4	1090.0	3.49	4.00	3.25 YES
L0007839	0	0.16970E-05	462089.5	3809981.5	1090.0	3.49	4.00	3.25 YES
L0007840	0	0.16970E-05	462098.1	3809981.5	1090.0	3.49	4.00	3.25 YES
L0007841	0	0.16970E-05	462106.7	3809981.6	1090.0	3.49	4.00	3.25 YES
L0007842	0	0.16970E-05	462115.3	3809981.6	1090.0	3.49	4.00	3.25 YES
L0007843	0	0.16970E-05	462123.9	3809981.7	1090.0	3.49	4.00	3.25 YES
L0007844	0	0.16970E-05	462132.4	3809981.8	1089.9	3.49	4.00	3.25 YES
L0007845	0	0.16970E-05	462141.0	3809981.8	1089.7	3.49	4.00	3.25 YES
L0007846	0	0.16970E-05	462149.6	3809981.9	1089.4	3.49	4.00	3.25 YES
L0007847	0	0.16970E-05	462158.2	3809981.9	1089.2	3.49	4.00	3.25 YES

 L0007848   0   0.16970E-05 462166.8 3809982.0 1089.1   3.49   4.00
3.25   YES
 L0007849   0   0.16970E-05 462175.4 3809982.0 1089.1   3.49   4.00
3.25   YES
 L0007850   0   0.16970E-05 462184.0 3809982.1 1089.1   3.49   4.00
3.25   YES
 L0007851   0   0.16970E-05 462192.6 3809982.1 1089.1   3.49   4.00
3.25   YES
 L0007852   0   0.16970E-05 462201.2 3809982.2 1089.1   3.49   4.00
3.25   YES
 L0007853   0   0.16970E-05 462209.8 3809982.2 1089.0   3.49   4.00
3.25   YES
 L0007854   0   0.16970E-05 462218.3 3809982.3 1089.0   3.49   4.00
3.25   YES
 L0007855   0   0.16970E-05 462226.9 3809982.4 1088.8   3.49   4.00
3.25   YES
 L0007856   0   0.16970E-05 462235.5 3809982.3 1088.5   3.49   4.00
3.25   YES
 L0007857   0   0.16970E-05 462244.1 3809982.3 1088.3   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007858   0   0.16970E-05 462252.7 3809982.2 1088.1   3.49   4.00
3.25   YES
 L0007859   0   0.16970E-05 462261.3 3809982.1 1088.1   3.49   4.00
3.25   YES
 L0007860   0   0.16970E-05 462269.9 3809982.1 1088.1   3.49   4.00
3.25   YES
 L0007861   0   0.16970E-05 462278.5 3809982.0 1088.1   3.49   4.00
3.25   YES
 L0007862   0   0.16970E-05 462287.1 3809982.0 1088.1   3.49   4.00
3.25   YES

L0007863	0	0.16970E-05	462295.7	3809981.9	1088.1	3.49	4.00	3.25 YES
L0007864	0	0.16970E-05	462304.2	3809981.9	1088.0	3.49	4.00	3.25 YES
L0007865	0	0.16970E-05	462312.8	3809981.8	1088.0	3.49	4.00	3.25 YES
L0007866	0	0.16970E-05	462321.4	3809981.7	1088.0	3.49	4.00	3.25 YES
L0007867	0	0.16970E-05	462330.0	3809981.7	1088.0	3.49	4.00	3.25 YES
L0007868	0	0.16970E-05	462338.6	3809981.6	1088.0	3.49	4.00	3.25 YES
L0007869	0	0.16970E-05	462347.2	3809981.6	1088.0	3.49	4.00	3.25 YES
L0007870	0	0.16970E-05	462355.8	3809981.5	1088.0	3.49	4.00	3.25 YES
L0007871	0	0.16970E-05	462364.4	3809981.5	1088.0	3.49	4.00	3.25 YES
L0007872	0	0.16970E-05	462373.0	3809981.4	1087.9	3.49	4.00	3.25 YES
L0007873	0	0.16970E-05	462381.6	3809981.4	1087.7	3.49	4.00	3.25 YES
L0007874	0	0.16970E-05	462390.1	3809981.3	1087.4	3.49	4.00	3.25 YES
L0007875	0	0.16970E-05	462398.7	3809981.2	1087.2	3.49	4.00	3.25 YES
L0007876	0	0.16970E-05	462407.3	3809981.2	1087.1	3.49	4.00	3.25 YES
L0007877	0	0.16970E-05	462415.9	3809981.1	1087.1	3.49	4.00	3.25 YES
L0007878	0	0.16970E-05	462424.5	3809981.1	1087.0	3.49	4.00	3.25 YES
L0007879	0	0.16970E-05	462433.1	3809981.0	1087.0	3.49	4.00	3.25 YES
L0007880	0	0.16970E-05	462441.7	3809981.0	1087.0	3.49	4.00	3.25 YES
L0007881	0	0.16970E-05	462450.3	3809980.9	1087.0	3.49	4.00	3.25 YES
L0007882	0	0.16970E-05	462458.9	3809980.8	1087.0	3.49	4.00	3.25 YES
L0007883	0	0.16970E-05	462467.5	3809980.8	1086.8	3.49	4.00	3.25 YES
L0007884	0	0.16970E-05	462476.0	3809980.7	1086.6	3.49	4.00	3.25 YES
L0007885	0	0.16970E-05	462484.6	3809980.7	1086.3	3.49	4.00	3.25 YES
L0007886	0	0.16970E-05	462493.2	3809980.6	1086.2	3.49	4.00	3.25 YES
L0007887	0	0.16970E-05	462501.8	3809980.6	1086.2	3.49	4.00	3.25 YES

 L0007888   0   0.16970E-05 462510.4 3809980.5 1086.2   3.49   4.00
3.25   YES
 L0007889   0   0.16970E-05 462519.0 3809980.4 1086.2   3.49   4.00
3.25   YES
 L0007890   0   0.16970E-05 462527.6 3809980.4 1086.1   3.49   4.00
3.25   YES
 L0007891   0   0.16970E-05 462536.2 3809980.3 1086.1   3.49   4.00
3.25   YES
 L0007892   0   0.16970E-05 462544.8 3809980.3 1086.0   3.49   4.00
3.25   YES
 L0007893   0   0.16970E-05 462553.3 3809980.2 1086.0   3.49   4.00
3.25   YES
 L0007894   0   0.16970E-05 462561.9 3809980.2 1086.0   3.49   4.00
3.25   YES
 L0007895   0   0.16970E-05 462570.5 3809980.1 1086.0   3.49   4.00
3.25   YES
 L0007896   0   0.16970E-05 462579.1 3809980.1 1086.0   3.49   4.00
3.25   YES
 L0007897   0   0.16970E-05 462587.7 3809980.0 1085.8   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007898   0   0.16970E-05 462596.3 3809979.9 1085.6   3.49   4.00
3.25   YES
 L0007899   0   0.16970E-05 462604.9 3809979.9 1085.3   3.49   4.00
3.25   YES
 L0007900   0   0.16970E-05 462613.5 3809979.8 1085.2   3.49   4.00
3.25   YES
 L0007901   0   0.16970E-05 462622.1 3809979.8 1085.1   3.49   4.00
3.25   YES
 L0007902   0   0.16970E-05 462630.7 3809979.7 1085.1   3.49   4.00
3.25   YES

L0007903	0	0.16970E-05	462639.2	3809979.7	1085.0	3.49	4.00	3.25 YES
L0007904	0	0.16970E-05	462647.8	3809979.6	1085.0	3.49	4.00	3.25 YES
L0007905	0	0.16970E-05	462656.4	3809979.5	1085.0	3.49	4.00	3.25 YES
L0007906	0	0.16970E-05	462665.0	3809979.5	1085.0	3.49	4.00	3.25 YES
L0007907	0	0.16970E-05	462673.6	3809979.4	1084.9	3.49	4.00	3.25 YES
L0007908	0	0.16970E-05	462682.2	3809979.4	1084.7	3.49	4.00	3.25 YES
L0007909	0	0.16970E-05	462690.8	3809979.3	1084.5	3.49	4.00	3.25 YES
L0007910	0	0.16970E-05	462699.4	3809979.3	1084.2	3.49	4.00	3.25 YES
L0007911	0	0.16970E-05	462708.0	3809979.2	1084.2	3.49	4.00	3.25 YES
L0007912	0	0.16970E-05	462716.6	3809979.1	1084.1	3.49	4.00	3.25 YES
L0007913	0	0.16970E-05	462725.1	3809979.1	1084.0	3.49	4.00	3.25 YES
L0007914	0	0.16970E-05	462733.7	3809979.0	1084.0	3.49	4.00	3.25 YES
L0007915	0	0.16970E-05	462742.3	3809979.0	1084.0	3.49	4.00	3.25 YES
L0007916	0	0.16970E-05	462750.9	3809978.9	1084.0	3.49	4.00	3.25 YES
L0007917	0	0.16970E-05	462759.5	3809978.9	1084.0	3.49	4.00	3.25 YES
L0007918	0	0.16970E-05	462768.1	3809978.8	1083.8	3.49	4.00	3.25 YES
L0007919	0	0.16970E-05	462776.7	3809978.8	1083.6	3.49	4.00	3.25 YES
L0007920	0	0.16970E-05	462785.3	3809978.7	1083.4	3.49	4.00	3.25 YES
L0007921	0	0.16970E-05	462793.9	3809978.6	1083.2	3.49	4.00	3.25 YES
L0007922	0	0.16970E-05	462802.5	3809978.6	1083.1	3.49	4.00	3.25 YES
L0007923	0	0.16970E-05	462811.0	3809978.5	1083.1	3.49	4.00	3.25 YES
L0007924	0	0.16970E-05	462819.6	3809978.5	1083.0	3.49	4.00	3.25 YES
L0007925	0	0.16970E-05	462828.2	3809978.4	1083.0	3.49	4.00	3.25 YES
L0007926	0	0.16970E-05	462836.8	3809978.4	1083.0	3.49	4.00	3.25 YES
L0007927	0	0.16970E-05	462845.4	3809978.3	1083.0	3.49	4.00	3.25 YES

 L0007928   0   0.16970E-05 462854.0 3809978.2 1082.9   3.49   4.00
3.25   YES
 L0007929   0   0.16970E-05 462862.6 3809978.2 1082.7   3.49   4.00
3.25   YES
 L0007930   0   0.16970E-05 462871.2 3809978.1 1082.5   3.49   4.00
3.25   YES
 L0007931   0   0.22350E-05 462872.4 3809880.7 1084.0   3.49   4.00
3.25   YES
 L0007932   0   0.22350E-05 462863.8 3809880.5 1084.0   3.49   4.00
3.25   YES
 L0007933   0   0.22350E-05 462855.2 3809880.2 1084.0   3.49   4.00
3.25   YES
 L0007934   0   0.22350E-05 462846.7 3809879.9 1084.0   3.49   4.00
3.25   YES
 L0007935   0   0.22350E-05 462838.1 3809879.7 1084.0   3.49   4.00
3.25   YES
 L0007936   0   0.22350E-05 462829.5 3809879.4 1084.0   3.49   4.00
3.25   YES
 L0007937   0   0.22350E-05 462820.9 3809879.1 1084.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007938   0   0.22350E-05 462812.3 3809878.9 1084.0   3.49   4.00
3.25   YES
 L0007939   0   0.22350E-05 462803.7 3809878.6 1084.0   3.49   4.00
3.25   YES
 L0007940   0   0.22350E-05 462795.1 3809878.3 1084.0   3.49   4.00
3.25   YES
 L0007941   0   0.22350E-05 462786.6 3809878.1 1084.1   3.49   4.00
3.25   YES
 L0007942   0   0.22350E-05 462778.0 3809877.8 1084.4   3.49   4.00
3.25   YES

L0007943	0	0.22350E-05	462772.9	3809881.3	1084.6	3.49	4.00	3.25 YES
L0007944	0	0.22350E-05	462772.5	3809889.9	1084.6	3.49	4.00	3.25 YES
L0007945	0	0.22350E-05	462772.1	3809898.5	1084.5	3.49	4.00	3.25 YES
L0007946	0	0.22350E-05	462771.8	3809907.1	1084.4	3.49	4.00	3.25 YES
L0007947	0	0.22350E-05	462771.4	3809915.6	1084.2	3.49	4.00	3.25 YES
L0007948	0	0.22350E-05	462771.0	3809924.2	1084.0	3.49	4.00	3.25 YES
L0007949	0	0.22350E-05	462763.8	3809925.8	1084.0	3.49	4.00	3.25 YES
L0007950	0	0.22350E-05	462755.3	3809925.8	1084.2	3.49	4.00	3.25 YES
L0007951	0	0.22350E-05	462746.7	3809925.8	1084.5	3.49	4.00	3.25 YES
L0007952	0	0.22350E-05	462738.1	3809925.9	1084.7	3.49	4.00	3.25 YES
L0007953	0	0.22350E-05	462729.5	3809925.9	1085.0	3.49	4.00	3.25 YES
L0007954	0	0.22350E-05	462720.9	3809925.9	1085.0	3.49	4.00	3.25 YES
L0007955	0	0.22350E-05	462712.3	3809926.0	1085.0	3.49	4.00	3.25 YES
L0007956	0	0.22350E-05	462703.7	3809926.0	1085.0	3.49	4.00	3.25 YES
L0007957	0	0.22350E-05	462695.1	3809926.1	1085.2	3.49	4.00	3.25 YES
L0007958	0	0.22350E-05	462686.5	3809926.1	1085.5	3.49	4.00	3.25 YES
L0007959	0	0.22350E-05	462677.9	3809926.1	1085.7	3.49	4.00	3.25 YES
L0007960	0	0.22350E-05	462669.4	3809926.2	1086.0	3.49	4.00	3.25 YES
L0007961	0	0.22350E-05	462660.8	3809926.2	1086.0	3.49	4.00	3.25 YES
L0007962	0	0.22350E-05	462652.2	3809926.2	1086.0	3.49	4.00	3.25 YES
L0007963	0	0.22350E-05	462643.6	3809926.3	1086.0	3.49	4.00	3.25 YES
L0007964	0	0.22350E-05	462635.0	3809926.3	1086.0	3.49	4.00	3.25 YES
L0007965	0	0.22350E-05	462626.4	3809926.3	1086.0	3.49	4.00	3.25 YES
L0007966	0	0.22350E-05	462617.8	3809926.4	1086.0	3.49	4.00	3.25 YES
L0007967	0	0.22350E-05	462609.2	3809926.4	1086.0	3.49	4.00	3.25 YES

 L0007968   0   0.22350E-05 462600.6 3809926.5 1086.0   3.49   4.00
3.25   YES
 L0007969   0   0.22350E-05 462592.0 3809926.5 1086.0   3.49   4.00
3.25   YES
 L0007970   0   0.22350E-05 462583.5 3809926.5 1086.0   3.49   4.00
3.25   YES
 L0007971   0   0.22350E-05 462574.9 3809926.6 1086.2   3.49   4.00
3.25   YES
 L0007972   0   0.22350E-05 462566.3 3809926.6 1086.5   3.49   4.00
3.25   YES
 L0007973   0   0.22350E-05 462557.7 3809926.6 1086.7   3.49   4.00
3.25   YES
 L0007974   0   0.22350E-05 462549.1 3809926.7 1087.0   3.49   4.00
3.25   YES
 L0007975   0   0.22350E-05 462540.5 3809926.7 1087.0   3.49   4.00
3.25   YES
 L0007976   0   0.22350E-05 462531.9 3809926.8 1087.0   3.49   4.00
3.25   YES
 L0007977   0   0.22350E-05 462523.3 3809926.8 1087.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0007978   0   0.22350E-05 462514.7 3809926.8 1087.0   3.49   4.00
3.25   YES
 L0007979   0   0.22350E-05 462506.1 3809926.9 1087.0   3.49   4.00
3.25   YES
 L0007980   0   0.22350E-05 462497.6 3809926.9 1087.0   3.49   4.00
3.25   YES
 L0007981   0   0.22350E-05 462489.0 3809926.9 1087.0   3.49   4.00
3.25   YES
 L0007982   0   0.22350E-05 462480.4 3809927.0 1087.0   3.49   4.00
3.25   YES

L0007983	0	0.22350E-05	462471.8	3809927.0	1087.0	3.49	4.00	3.25 YES
L0007984	0	0.22350E-05	462463.2	3809927.1	1087.0	3.49	4.00	3.25 YES
L0007985	0	0.22350E-05	462454.6	3809927.1	1087.2	3.49	4.00	3.25 YES
L0007986	0	0.22350E-05	462446.0	3809927.1	1087.5	3.49	4.00	3.25 YES
L0007987	0	0.22350E-05	462437.4	3809927.2	1087.7	3.49	4.00	3.25 YES
L0007988	0	0.22350E-05	462428.8	3809927.2	1088.0	3.49	4.00	3.25 YES
L0007989	0	0.22350E-05	462420.2	3809927.2	1088.0	3.49	4.00	3.25 YES
L0007990	0	0.22350E-05	462411.7	3809927.3	1088.0	3.49	4.00	3.25 YES
L0007991	0	0.22350E-05	462403.1	3809927.3	1088.0	3.49	4.00	3.25 YES
L0007992	0	0.22350E-05	462394.5	3809927.3	1088.0	3.49	4.00	3.25 YES
L0007993	0	0.22350E-05	462385.9	3809927.4	1088.0	3.49	4.00	3.25 YES
L0007994	0	0.22350E-05	462377.3	3809927.4	1088.0	3.49	4.00	3.25 YES
L0007995	0	0.22350E-05	462368.7	3809927.5	1088.0	3.49	4.00	3.25 YES
L0007996	0	0.22350E-05	462360.1	3809927.5	1088.0	3.49	4.00	3.25 YES
L0007997	0	0.22350E-05	462351.5	3809927.5	1088.0	3.49	4.00	3.25 YES
L0007998	0	0.22350E-05	462342.9	3809927.6	1088.0	3.49	4.00	3.25 YES
L0007999	0	0.22350E-05	462334.3	3809927.6	1088.2	3.49	4.00	3.25 YES
L0008000	0	0.22350E-05	462325.8	3809927.6	1088.5	3.49	4.00	3.25 YES
L0008001	0	0.22350E-05	462317.2	3809927.7	1088.7	3.49	4.00	3.25 YES
L0008002	0	0.22350E-05	462308.6	3809927.7	1088.9	3.49	4.00	3.25 YES
L0008003	0	0.22350E-05	462300.0	3809927.8	1089.0	3.49	4.00	3.25 YES
L0008004	0	0.22350E-05	462291.4	3809927.8	1089.0	3.49	4.00	3.25 YES
L0008005	0	0.22350E-05	462282.8	3809927.8	1089.0	3.49	4.00	3.25 YES
L0008006	0	0.22350E-05	462274.2	3809927.9	1089.0	3.49	4.00	3.25 YES
L0008007	0	0.22350E-05	462265.6	3809927.9	1089.0	3.49	4.00	3.25 YES

 L0008008   0   0.22350E-05 462257.0 3809927.9 1089.0   3.49   4.00
3.25   YES
 L0008009   0   0.22350E-05 462248.4 3809928.0 1089.0   3.49   4.00
3.25   YES
 L0008010   0   0.22350E-05 462239.9 3809928.0 1089.3   3.49   4.00
3.25   YES
 L0008011   0   0.22350E-05 462231.3 3809928.0 1089.6   3.49   4.00
3.25   YES
 L0008012   0   0.22350E-05 462222.7 3809928.1 1089.8   3.49   4.00
3.25   YES
 L0008013   0   0.22350E-05 462214.1 3809928.1 1089.9   3.49   4.00
3.25   YES
 L0008014   0   0.22350E-05 462205.5 3809928.2 1090.0   3.49   4.00
3.25   YES
 L0008015   0   0.22350E-05 462196.9 3809928.2 1090.0   3.49   4.00
3.25   YES
 L0008016   0   0.22350E-05 462188.3 3809928.2 1090.0   3.49   4.00
3.25   YES
 L0008017   0   0.22350E-05 462179.7 3809928.3 1090.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008018   0   0.22350E-05 462171.1 3809928.3 1090.0   3.49   4.00
3.25   YES
 L0008019   0   0.22350E-05 462162.5 3809928.3 1090.0   3.49   4.00
3.25   YES
 L0008020   0   0.22350E-05 462154.0 3809928.4 1090.0   3.49   4.00
3.25   YES
 L0008021   0   0.22350E-05 462145.4 3809928.4 1090.0   3.49   4.00
3.25   YES
 L0008022   0   0.22350E-05 462136.8 3809928.5 1090.0   3.49   4.00
3.25   YES

L0008023	0	0.22350E-05	462128.2	3809928.5	1090.1	3.49	4.00	3.25 YES
L0008024	0	0.22350E-05	462119.6	3809928.5	1090.3	3.49	4.00	3.25 YES
L0008025	0	0.22350E-05	462111.0	3809928.6	1090.6	3.49	4.00	3.25 YES
L0008026	0	0.22350E-05	462102.4	3809928.6	1090.8	3.49	4.00	3.25 YES
L0008027	0	0.22350E-05	462093.8	3809928.6	1090.9	3.49	4.00	3.25 YES
L0008028	0	0.22350E-05	462085.2	3809928.7	1090.9	3.49	4.00	3.25 YES
L0008029	0	0.22350E-05	462076.6	3809928.7	1090.9	3.49	4.00	3.25 YES
L0008030	0	0.22350E-05	462068.1	3809928.8	1090.9	3.49	4.00	3.25 YES
L0008031	0	0.22350E-05	462059.5	3809928.8	1090.9	3.49	4.00	3.25 YES
L0008032	0	0.22350E-05	462050.9	3809928.8	1091.0	3.49	4.00	3.25 YES
L0008033	0	0.22350E-05	462042.3	3809928.9	1091.0	3.49	4.00	3.25 YES
L0008034	0	0.22350E-05	462033.7	3809928.9	1091.0	3.49	4.00	3.25 YES
L0008035	0	0.22350E-05	462025.1	3809928.9	1091.0	3.49	4.00	3.25 YES
L0008036	0	0.22350E-05	462025.1	3809920.4	1091.2	3.49	4.00	3.25 YES
L0008037	0	0.22350E-05	462025.1	3809911.8	1091.5	3.49	4.00	3.25 YES
L0008038	0	0.22350E-05	462025.1	3809903.2	1091.8	3.49	4.00	3.25 YES
L0008039	0	0.22350E-05	462025.1	3809894.6	1092.0	3.49	4.00	3.25 YES
L0008040	0	0.22350E-05	462019.6	3809890.9	1092.0	3.49	4.00	3.25 YES
L0008041	0	0.22350E-05	462011.1	3809889.9	1092.0	3.49	4.00	3.25 YES
L0008042	0	0.22350E-05	462002.5	3809888.8	1092.0	3.49	4.00	3.25 YES
L0008043	0	0.22350E-05	461994.0	3809887.8	1092.0	3.49	4.00	3.25 YES
L0008044	0	0.22350E-05	461985.5	3809886.8	1092.0	3.49	4.00	3.25 YES
L0008045	0	0.22350E-05	461977.0	3809885.8	1091.9	3.49	4.00	3.25 YES
L0008046	0	0.22350E-05	461968.4	3809884.8	1091.8	3.49	4.00	3.25 YES
L0008047	0	0.22350E-05	461959.9	3809883.8	1091.6	3.49	4.00	3.25 YES

 L0008048   0   0.22370E-05 462871.3 3809600.9 1088.0   3.49   4.00
3.25   YES
 L0008049   0   0.22370E-05 462862.8 3809600.9 1088.0   3.49   4.00
3.25   YES
 L0008050   0   0.22370E-05 462854.2 3809601.0 1088.0   3.49   4.00
3.25   YES
 L0008051   0   0.22370E-05 462845.6 3809601.0 1088.1   3.49   4.00
3.25   YES
 L0008052   0   0.22370E-05 462837.0 3809601.0 1088.4   3.49   4.00
3.25   YES
 L0008053   0   0.22370E-05 462828.4 3809601.1 1088.6   3.49   4.00
3.25   YES
 L0008054   0   0.22370E-05 462819.8 3809601.1 1088.8   3.49   4.00
3.25   YES
 L0008055   0   0.22370E-05 462811.2 3809601.1 1088.8   3.49   4.00
3.25   YES
 L0008056   0   0.22370E-05 462802.6 3809601.2 1088.8   3.49   4.00
3.25   YES
 L0008057   0   0.22370E-05 462794.0 3809601.2 1088.8   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008058   0   0.22370E-05 462785.5 3809601.3 1088.8   3.49   4.00
3.25   YES
 L0008059   0   0.22370E-05 462776.9 3809601.3 1088.8   3.49   4.00
3.25   YES
 L0008060   0   0.22370E-05 462768.3 3809601.3 1088.8   3.49   4.00
3.25   YES
 L0008061   0   0.22370E-05 462759.7 3809601.4 1088.8   3.49   4.00
3.25   YES
 L0008062   0   0.22370E-05 462751.1 3809601.4 1088.9   3.49   4.00
3.25   YES

L0008063	0	0.22370E-05	462742.5	3809601.4	1088.9	3.49	4.00	3.25 YES
L0008064	0	0.22370E-05	462733.9	3809601.5	1089.0	3.49	4.00	3.25 YES
L0008065	0	0.22370E-05	462725.3	3809601.5	1089.0	3.49	4.00	3.25 YES
L0008066	0	0.22370E-05	462716.7	3809601.5	1089.0	3.49	4.00	3.25 YES
L0008067	0	0.22370E-05	462708.1	3809601.6	1089.0	3.49	4.00	3.25 YES
L0008068	0	0.22370E-05	462699.6	3809601.6	1089.0	3.49	4.00	3.25 YES
L0008069	0	0.22370E-05	462691.0	3809601.6	1089.2	3.49	4.00	3.25 YES
L0008070	0	0.22370E-05	462682.4	3809601.7	1089.5	3.49	4.00	3.25 YES
L0008071	0	0.22370E-05	462673.8	3809601.7	1089.7	3.49	4.00	3.25 YES
L0008072	0	0.22370E-05	462665.2	3809601.7	1089.8	3.49	4.00	3.25 YES
L0008073	0	0.22370E-05	462656.6	3809601.8	1089.8	3.49	4.00	3.25 YES
L0008074	0	0.22370E-05	462648.0	3809601.8	1089.8	3.49	4.00	3.25 YES
L0008075	0	0.22370E-05	462639.4	3809601.8	1089.8	3.49	4.00	3.25 YES
L0008076	0	0.22370E-05	462630.8	3809601.9	1089.9	3.49	4.00	3.25 YES
L0008077	0	0.22370E-05	462622.2	3809601.9	1089.9	3.49	4.00	3.25 YES
L0008078	0	0.22370E-05	462613.7	3809601.9	1090.0	3.49	4.00	3.25 YES
L0008079	0	0.22370E-05	462605.1	3809602.0	1090.0	3.49	4.00	3.25 YES
L0008080	0	0.22370E-05	462596.5	3809602.0	1090.0	3.49	4.00	3.25 YES
L0008081	0	0.22370E-05	462587.9	3809602.0	1090.0	3.49	4.00	3.25 YES
L0008082	0	0.22370E-05	462579.3	3809602.1	1090.0	3.49	4.00	3.25 YES
L0008083	0	0.22370E-05	462570.7	3809602.1	1090.0	3.49	4.00	3.25 YES
L0008084	0	0.22370E-05	462562.1	3809602.1	1090.0	3.49	4.00	3.25 YES
L0008085	0	0.22370E-05	462553.5	3809602.2	1090.0	3.49	4.00	3.25 YES
L0008086	0	0.22370E-05	462544.9	3809602.2	1090.0	3.49	4.00	3.25 YES
L0008087	0	0.22370E-05	462536.3	3809602.2	1090.0	3.49	4.00	3.25 YES

 L0008088   0   0.22370E-05 462527.8 3809602.3 1090.0   3.49   4.00
3.25   YES
 L0008089   0   0.22370E-05 462519.2 3809602.3 1090.0   3.49   4.00
3.25   YES
 L0008090   0   0.22370E-05 462510.6 3809602.4 1090.2   3.49   4.00
3.25   YES
 L0008091   0   0.22370E-05 462502.0 3809602.4 1090.5   3.49   4.00
3.25   YES
 L0008092   0   0.22370E-05 462493.4 3809602.4 1090.7   3.49   4.00
3.25   YES
 L0008093   0   0.22370E-05 462484.8 3809602.5 1090.8   3.49   4.00
3.25   YES
 L0008094   0   0.22370E-05 462476.2 3809602.5 1090.9   3.49   4.00
3.25   YES
 L0008095   0   0.22370E-05 462467.6 3809602.5 1090.9   3.49   4.00
3.25   YES
 L0008096   0   0.22370E-05 462459.0 3809602.6 1091.0   3.49   4.00
3.25   YES
 L0008097   0   0.22370E-05 462450.4 3809602.6 1091.2   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008098   0   0.22370E-05 462441.9 3809602.6 1091.5   3.49   4.00
3.25   YES
 L0008099   0   0.22370E-05 462433.3 3809602.7 1091.7   3.49   4.00
3.25   YES
 L0008100   0   0.22370E-05 462424.7 3809602.7 1091.8   3.49   4.00
3.25   YES
 L0008101   0   0.22370E-05 462416.1 3809602.7 1091.9   3.49   4.00
3.25   YES
 L0008102   0   0.22370E-05 462407.5 3809602.8 1091.9   3.49   4.00
3.25   YES

L0008103	0	0.22370E-05	462398.9	3809602.8	1092.0	3.49	4.00	3.25 YES
L0008104	0	0.22370E-05	462390.3	3809602.8	1092.0	3.49	4.00	3.25 YES
L0008105	0	0.22370E-05	462381.7	3809602.9	1092.0	3.49	4.00	3.25 YES
L0008106	0	0.22370E-05	462373.1	3809602.9	1092.0	3.49	4.00	3.25 YES
L0008107	0	0.22370E-05	462364.5	3809602.9	1092.1	3.49	4.00	3.25 YES
L0008108	0	0.22370E-05	462356.0	3809603.0	1092.4	3.49	4.00	3.25 YES
L0008109	0	0.22370E-05	462347.4	3809603.0	1092.6	3.49	4.00	3.25 YES
L0008110	0	0.22370E-05	462338.8	3809603.0	1092.8	3.49	4.00	3.25 YES
L0008111	0	0.22370E-05	462330.2	3809603.1	1092.8	3.49	4.00	3.25 YES
L0008112	0	0.22370E-05	462321.6	3809603.1	1092.9	3.49	4.00	3.25 YES
L0008113	0	0.22370E-05	462313.0	3809603.1	1093.0	3.49	4.00	3.25 YES
L0008114	0	0.22370E-05	462304.4	3809603.2	1093.0	3.49	4.00	3.25 YES
L0008115	0	0.22370E-05	462295.8	3809603.2	1093.0	3.49	4.00	3.25 YES
L0008116	0	0.22370E-05	462287.2	3809603.2	1093.0	3.49	4.00	3.25 YES
L0008117	0	0.22370E-05	462278.6	3809603.3	1093.0	3.49	4.00	3.25 YES
L0008118	0	0.22370E-05	462270.1	3809603.3	1093.2	3.49	4.00	3.25 YES
L0008119	0	0.22370E-05	462261.5	3809603.3	1093.5	3.49	4.00	3.25 YES
L0008120	0	0.22370E-05	462252.9	3809603.4	1093.7	3.49	4.00	3.25 YES
L0008121	0	0.22370E-05	462244.3	3809603.4	1093.8	3.49	4.00	3.25 YES
L0008122	0	0.22370E-05	462235.7	3809603.5	1093.9	3.49	4.00	3.25 YES
L0008123	0	0.22370E-05	462227.1	3809603.5	1093.9	3.49	4.00	3.25 YES
L0008124	0	0.22370E-05	462218.5	3809603.5	1094.0	3.49	4.00	3.25 YES
L0008125	0	0.22370E-05	462209.9	3809603.6	1094.0	3.49	4.00	3.25 YES
L0008126	0	0.22370E-05	462201.3	3809603.6	1094.0	3.49	4.00	3.25 YES
L0008127	0	0.22370E-05	462192.7	3809603.6	1094.0	3.49	4.00	3.25 YES

 L0008128   0   0.22370E-05 462184.2 3809603.7 1094.1   3.49   4.00
3.25   YES
 L0008129   0   0.22370E-05 462175.6 3809603.7 1094.4   3.49   4.00
3.25   YES
 L0008130   0   0.22370E-05 462167.0 3809603.7 1094.6   3.49   4.00
3.25   YES
 L0008131   0   0.22370E-05 462158.4 3809603.8 1094.7   3.49   4.00
3.25   YES
 L0008132   0   0.22370E-05 462149.8 3809603.8 1094.7   3.49   4.00
3.25   YES
 L0008133   0   0.22370E-05 462141.2 3809603.8 1094.7   3.49   4.00
3.25   YES
 L0008134   0   0.22370E-05 462132.6 3809603.9 1094.7   3.49   4.00
3.25   YES
 L0008135   0   0.22370E-05 462124.0 3809603.9 1094.8   3.49   4.00
3.25   YES
 L0008136   0   0.22370E-05 462115.4 3809603.9 1094.9   3.49   4.00
3.25   YES
 L0008137   0   0.22370E-05 462106.8 3809604.0 1094.9   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008138   0   0.22370E-05 462098.3 3809604.0 1095.0   3.49   4.00
3.25   YES
 L0008139   0   0.22370E-05 462089.7 3809604.0 1095.2   3.49   4.00
3.25   YES
 L0008140   0   0.22370E-05 462081.1 3809604.1 1095.5   3.49   4.00
3.25   YES
 L0008141   0   0.22370E-05 462072.5 3809604.1 1095.7   3.49   4.00
3.25   YES
 L0008142   0   0.22370E-05 462063.9 3809604.1 1095.7   3.49   4.00
3.25   YES

L0008143	0	0.22370E-05	462055.3	3809604.2	1095.7	3.49	4.00	3.25 YES
L0008144	0	0.22370E-05	462046.7	3809604.2	1095.7	3.49	4.00	3.25 YES
L0008145	0	0.22370E-05	462038.1	3809604.2	1095.7	3.49	4.00	3.25 YES
L0008146	0	0.22370E-05	462029.5	3809604.3	1095.8	3.49	4.00	3.25 YES
L0008147	0	0.22370E-05	462020.9	3809604.3	1095.9	3.49	4.00	3.25 YES
L0008148	0	0.22370E-05	462012.4	3809604.3	1096.0	3.49	4.00	3.25 YES
L0008149	0	0.22370E-05	462003.8	3809604.4	1096.1	3.49	4.00	3.25 YES
L0008150	0	0.22370E-05	461995.2	3809604.4	1096.3	3.49	4.00	3.25 YES
L0008151	0	0.22370E-05	461986.6	3809604.4	1096.6	3.49	4.00	3.25 YES
L0008152	0	0.22370E-05	461978.0	3809604.5	1096.7	3.49	4.00	3.25 YES
L0008153	0	0.22370E-05	461969.4	3809604.5	1096.8	3.49	4.00	3.25 YES
L0008154	0	0.22370E-05	461960.8	3809604.6	1096.9	3.49	4.00	3.25 YES
L0008155	0	0.22370E-05	461952.2	3809604.6	1097.0	3.49	4.00	3.25 YES
L0008156	0	0.22370E-05	461943.6	3809604.6	1097.0	3.49	4.00	3.25 YES
L0008157	0	0.22370E-05	461935.0	3809604.7	1097.0	3.49	4.00	3.25 YES
L0008158	0	0.22370E-05	461926.5	3809604.7	1097.0	3.49	4.00	3.25 YES
L0008159	0	0.22370E-05	461917.9	3809604.7	1097.0	3.49	4.00	3.25 YES
L0008160	0	0.22370E-05	461909.3	3809604.8	1097.2	3.49	4.00	3.25 YES
L0008161	0	0.22370E-05	461900.7	3809604.8	1097.5	3.49	4.00	3.25 YES
L0008162	0	0.22370E-05	461892.1	3809604.8	1097.6	3.49	4.00	3.25 YES
L0008163	0	0.22370E-05	461883.5	3809604.9	1097.7	3.49	4.00	3.25 YES
L0008164	0	0.22370E-05	461874.9	3809604.9	1097.7	3.49	4.00	3.25 YES
L0008165	0	0.22370E-05	461866.3	3809604.9	1097.7	3.49	4.00	3.25 YES
L0008166	0	0.22370E-05	461857.7	3809605.0	1097.6	3.49	4.00	3.25 YES
L0008167	0	0.22370E-05	461849.1	3809605.0	1097.2	3.49	4.00	3.25 YES

 L0008168   0   0.22370E-05 461840.6 3809605.0 1096.8   3.49   4.00
3.25   YES
 L0008169   0   0.22370E-05 461832.0 3809605.1 1096.5   3.49   4.00
3.25   YES
 L0008170   0   0.22370E-05 461823.4 3809605.1 1095.7   3.49   4.00
3.25   YES
 L0008171   0   0.22370E-05 461814.8 3809605.1 1094.7   3.49   4.00
3.25   YES
 L0008172   0   0.24190E-06 463109.7 3810114.9 1078.2   3.49   4.00
3.25   YES
 L0008173   0   0.24190E-06 463118.3 3810115.1 1078.0   3.49   4.00
3.25   YES
 L0008174   0   0.24190E-06 463126.9 3810115.2 1078.0   3.49   4.00
3.25   YES
 L0008175   0   0.24190E-06 463135.4 3810115.4 1078.0   3.49   4.00
3.25   YES
 L0008176   0   0.24190E-06 463144.0 3810115.5 1078.0   3.49   4.00
3.25   YES
 L0008177   0   0.24190E-06 463152.6 3810115.6 1078.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008178   0   0.24190E-06 463161.2 3810115.8 1077.9   3.49   4.00
3.25   YES
 L0008179   0   0.24190E-06 463169.8 3810115.9 1077.8   3.49   4.00
3.25   YES
 L0008180   0   0.24190E-06 463178.4 3810116.1 1077.7   3.49   4.00
3.25   YES
 L0008181   0   0.24190E-06 463187.0 3810116.2 1077.7   3.49   4.00
3.25   YES
 L0008182   0   0.24190E-06 463195.6 3810116.4 1077.6   3.49   4.00
3.25   YES

L0008183	0	0.24190E-06	463204.2	3810116.5	1077.6	3.49	4.00	3.25 YES
L0008184	0	0.24190E-06	463212.7	3810116.6	1077.6	3.49	4.00	3.25 YES
L0008185	0	0.24190E-06	463221.3	3810116.8	1077.4	3.49	4.00	3.25 YES
L0008186	0	0.24190E-06	463229.9	3810116.9	1077.2	3.49	4.00	3.25 YES
L0008187	0	0.24190E-06	463235.0	3810113.2	1077.1	3.49	4.00	3.25 YES
L0008188	0	0.24190E-06	463235.8	3810104.6	1077.2	3.49	4.00	3.25 YES
L0008189	0	0.24190E-06	463236.6	3810096.1	1077.4	3.49	4.00	3.25 YES
L0008190	0	0.24190E-06	463230.8	3810093.5	1077.6	3.49	4.00	3.25 YES
L0008191	0	0.24190E-06	463222.2	3810093.6	1077.8	3.49	4.00	3.25 YES
L0008192	0	0.24190E-06	463213.6	3810093.6	1077.9	3.49	4.00	3.25 YES
L0008193	0	0.24190E-06	463205.0	3810093.7	1078.0	3.49	4.00	3.25 YES
L0008194	0	0.24190E-06	463196.5	3810093.8	1078.0	3.49	4.00	3.25 YES
L0008195	0	0.24190E-06	463187.9	3810093.8	1078.0	3.49	4.00	3.25 YES
L0008196	0	0.24190E-06	463179.3	3810093.9	1078.0	3.49	4.00	3.25 YES
L0008197	0	0.24190E-06	463170.7	3810093.9	1078.1	3.49	4.00	3.25 YES
L0008198	0	0.24190E-06	463162.1	3810094.0	1078.2	3.49	4.00	3.25 YES
L0008199	0	0.24190E-06	463153.5	3810094.1	1078.3	3.49	4.00	3.25 YES
L0008200	0	0.24190E-06	463144.9	3810094.1	1078.4	3.49	4.00	3.25 YES
L0008201	0	0.24190E-06	463136.3	3810094.2	1078.4	3.49	4.00	3.25 YES
L0008202	0	0.24190E-06	463127.7	3810094.2	1078.4	3.49	4.00	3.25 YES
L0008203	0	0.24190E-06	463119.1	3810094.3	1078.4	3.49	4.00	3.25 YES
L0008204	0	0.24190E-06	463110.6	3810094.4	1078.6	3.49	4.00	3.25 YES
L0008205	0	0.24190E-06	463102.0	3810094.4	1078.8	3.49	4.00	3.25 YES
L0008206	0	0.24190E-06	463093.4	3810094.5	1078.9	3.49	4.00	3.25 YES
L0008207	0	0.24190E-06	463084.8	3810094.5	1079.0	3.49	4.00	3.25 YES

 L0008208   0   0.24190E-06 463076.2 3810094.6 1079.0   3.49   4.00
3.25   YES
 L0008209   0   0.24190E-06 463067.6 3810094.7 1079.0   3.49   4.00
3.25   YES
 L0008210   0   0.24190E-06 463059.0 3810094.7 1079.0   3.49   4.00
3.25   YES
 L0008211   0   0.24190E-06 463050.4 3810094.8 1079.1   3.49   4.00
3.25   YES
 L0008212   0   0.24190E-06 463041.8 3810094.8 1079.2   3.49   4.00
3.25   YES
 L0008213   0   0.24190E-06 463033.2 3810094.9 1079.3   3.49   4.00
3.25   YES
 L0008214   0   0.24190E-06 463024.7 3810095.0 1079.4   3.49   4.00
3.25   YES
 L0008215   0   0.24190E-06 463016.1 3810095.0 1079.4   3.49   4.00
3.25   YES
 L0008216   0   0.24190E-06 463007.5 3810095.1 1079.4   3.49   4.00
3.25   YES
 L0008217   0   0.24190E-06 462998.9 3810095.1 1079.4   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008218   0   0.24190E-06 462990.3 3810095.2 1079.6   3.49   4.00
3.25   YES
 L0008219   0   0.24190E-06 462981.7 3810095.2 1079.8   3.49   4.00
3.25   YES
 L0008220   0   0.24190E-06 462973.1 3810095.3 1079.9   3.49   4.00
3.25   YES
 L0008221   0   0.24190E-06 462964.5 3810095.4 1080.0   3.49   4.00
3.25   YES
 L0008222   0   0.24190E-06 462955.9 3810095.4 1080.0   3.49   4.00
3.25   YES

L0008223	0	0.24190E-06	462947.4	3810095.5	1080.0	3.49	4.00	3.25 YES
L0008224	0	0.24190E-06	462938.8	3810095.5	1080.0	3.49	4.00	3.25 YES
L0008225	0	0.24190E-06	462930.2	3810095.6	1080.1	3.49	4.00	3.25 YES
L0008226	0	0.17140E-05	465061.0	3809545.3	1067.8	3.49	4.00	3.25 YES
L0008227	0	0.17140E-05	465052.4	3809545.3	1067.9	3.49	4.00	3.25 YES
L0008228	0	0.17140E-05	465043.9	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008229	0	0.17140E-05	465035.3	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008230	0	0.17140E-05	465026.7	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008231	0	0.17140E-05	465018.1	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008232	0	0.17140E-05	465009.5	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008233	0	0.17140E-05	465000.9	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008234	0	0.17140E-05	464992.3	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008235	0	0.17140E-05	464983.7	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008236	0	0.17140E-05	464975.1	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008237	0	0.17140E-05	464966.5	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008238	0	0.17140E-05	464958.0	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008239	0	0.17140E-05	464949.4	3809545.1	1068.0	3.49	4.00	3.25 YES
L0008240	0	0.17140E-05	464940.8	3809545.1	1068.2	3.49	4.00	3.25 YES
L0008241	0	0.17140E-05	464932.2	3809545.1	1068.4	3.49	4.00	3.25 YES
L0008242	0	0.17140E-05	464923.6	3809545.1	1068.6	3.49	4.00	3.25 YES
L0008243	0	0.17140E-05	464915.0	3809545.1	1068.7	3.49	4.00	3.25 YES
L0008244	0	0.17140E-05	464906.4	3809545.1	1068.7	3.49	4.00	3.25 YES
L0008245	0	0.17140E-05	464897.8	3809545.1	1068.7	3.49	4.00	3.25 YES
L0008246	0	0.17140E-05	464889.2	3809545.1	1068.7	3.49	4.00	3.25 YES
L0008247	0	0.17140E-05	464880.6	3809545.0	1068.7	3.49	4.00	3.25 YES

 L0008248   0   0.17140E-05 464872.1 3809545.0 1068.7   3.49   4.00
3.25   YES
 L0008249   0   0.17140E-05 464863.5 3809545.0 1068.7   3.49   4.00
3.25   YES
 L0008250   0   0.17140E-05 464854.9 3809545.0 1068.8   3.49   4.00
3.25   YES
 L0008251   0   0.17140E-05 464846.3 3809545.0 1068.8   3.49   4.00
3.25   YES
 L0008252   0   0.17140E-05 464837.7 3809545.0 1068.9   3.49   4.00
3.25   YES
 L0008253   0   0.17140E-05 464829.1 3809545.0 1069.0   3.49   4.00
3.25   YES
 L0008254   0   0.17140E-05 464820.5 3809545.0 1069.2   3.49   4.00
3.25   YES
 L0008255   0   0.17140E-05 464811.9 3809544.9 1069.4   3.49   4.00
3.25   YES
 L0008256   0   0.17140E-05 464803.3 3809544.9 1069.6   3.49   4.00
3.25   YES
 L0008257   0   0.17140E-05 464794.7 3809544.9 1069.7   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008258   0   0.17140E-05 464786.2 3809544.9 1069.7   3.49   4.00
3.25   YES
 L0008259   0   0.17140E-05 464777.6 3809544.9 1069.7   3.49   4.00
3.25   YES
 L0008260   0   0.17140E-05 464769.0 3809544.9 1069.7   3.49   4.00
3.25   YES
 L0008261   0   0.17140E-05 464760.4 3809544.9 1069.8   3.49   4.00
3.25   YES
 L0008262   0   0.17140E-05 464751.8 3809544.8 1069.9   3.49   4.00
3.25   YES

L0008263	0	0.17140E-05	464743.2	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008264	0	0.17140E-05	464734.6	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008265	0	0.17140E-05	464726.0	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008266	0	0.17140E-05	464717.4	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008267	0	0.17140E-05	464708.8	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008268	0	0.17140E-05	464700.3	3809544.8	1070.2	3.49	4.00	3.25 YES
L0008269	0	0.17140E-05	464691.7	3809544.8	1070.4	3.49	4.00	3.25 YES
L0008270	0	0.17140E-05	464683.1	3809544.7	1070.6	3.49	4.00	3.25 YES
L0008271	0	0.17140E-05	464674.5	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008272	0	0.17140E-05	464665.9	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008273	0	0.17140E-05	464657.3	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008274	0	0.17140E-05	464648.7	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008275	0	0.17140E-05	464640.1	3809544.7	1070.8	3.49	4.00	3.25 YES
L0008276	0	0.17140E-05	464631.5	3809544.7	1070.9	3.49	4.00	3.25 YES
L0008277	0	0.17140E-05	464622.9	3809544.7	1071.0	3.49	4.00	3.25 YES
L0008278	0	0.17140E-05	464614.4	3809544.6	1071.0	3.49	4.00	3.25 YES
L0008279	0	0.17140E-05	464605.8	3809544.6	1071.0	3.49	4.00	3.25 YES
L0008280	0	0.17140E-05	464597.2	3809544.6	1071.0	3.49	4.00	3.25 YES
L0008281	0	0.17140E-05	464588.6	3809544.6	1071.0	3.49	4.00	3.25 YES
L0008282	0	0.17140E-05	464580.0	3809544.6	1071.2	3.49	4.00	3.25 YES
L0008283	0	0.17140E-05	464571.4	3809544.6	1071.4	3.49	4.00	3.25 YES
L0008284	0	0.17140E-05	464562.8	3809544.6	1071.6	3.49	4.00	3.25 YES
L0008285	0	0.17140E-05	464554.2	3809544.6	1071.8	3.49	4.00	3.25 YES
L0008286	0	0.17140E-05	464545.6	3809544.5	1071.8	3.49	4.00	3.25 YES
L0008287	0	0.17140E-05	464537.0	3809544.5	1071.9	3.49	4.00	3.25 YES

 L0008288   0   0.17140E-05 464528.5 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008289   0   0.17140E-05 464519.9 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008290   0   0.17140E-05 464511.3 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008291   0   0.17140E-05 464502.7 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008292   0   0.17140E-05 464494.1 3809544.5 1072.1   3.49   4.00
3.25   YES
 L0008293   0   0.17140E-05 464485.5 3809544.5 1072.3   3.49   4.00
3.25   YES
 L0008294   0   0.17140E-05 464476.9 3809544.4 1072.5   3.49   4.00
3.25   YES
 L0008295   0   0.17140E-05 464468.3 3809544.4 1072.7   3.49   4.00
3.25   YES
 L0008296   0   0.17140E-05 464459.7 3809544.4 1072.8   3.49   4.00
3.25   YES
 L0008297   0   0.17140E-05 464451.1 3809544.4 1072.9   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008298   0   0.17140E-05 464442.6 3809544.4 1073.0   3.49   4.00
3.25   YES
 L0008299   0   0.17140E-05 464434.0 3809544.4 1073.1   3.49   4.00
3.25   YES
 L0008300   0   0.17140E-05 464425.4 3809544.4 1073.3   3.49   4.00
3.25   YES
 L0008301   0   0.17140E-05 464416.8 3809544.4 1073.6   3.49   4.00
3.25   YES
 L0008302   0   0.17140E-05 464408.2 3809544.3 1073.7   3.49   4.00
3.25   YES

L0008303	0	0.17140E-05	464399.6	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008304	0	0.17140E-05	464391.0	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008305	0	0.17140E-05	464382.4	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008306	0	0.17140E-05	464373.8	3809544.3	1073.8	3.49	4.00	3.25 YES
L0008307	0	0.17140E-05	464365.2	3809544.3	1073.9	3.49	4.00	3.25 YES
L0008308	0	0.17140E-05	464356.7	3809544.3	1073.9	3.49	4.00	3.25 YES
L0008309	0	0.17140E-05	464348.1	3809544.3	1074.0	3.49	4.00	3.25 YES
L0008310	0	0.17140E-05	464339.5	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008311	0	0.17140E-05	464330.9	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008312	0	0.17140E-05	464322.3	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008313	0	0.17140E-05	464313.7	3809544.2	1074.1	3.49	4.00	3.25 YES
L0008314	0	0.17140E-05	464305.1	3809544.2	1074.4	3.49	4.00	3.25 YES
L0008315	0	0.17140E-05	464296.5	3809544.2	1074.6	3.49	4.00	3.25 YES
L0008316	0	0.17140E-05	464287.9	3809544.2	1074.7	3.49	4.00	3.25 YES
L0008317	0	0.17140E-05	464279.3	3809544.2	1074.8	3.49	4.00	3.25 YES
L0008318	0	0.17140E-05	464270.8	3809544.1	1074.9	3.49	4.00	3.25 YES
L0008319	0	0.17140E-05	464262.2	3809544.1	1075.0	3.49	4.00	3.25 YES
L0008320	0	0.17140E-05	464253.6	3809544.1	1075.2	3.49	4.00	3.25 YES
L0008321	0	0.17140E-05	464245.0	3809544.1	1075.4	3.49	4.00	3.25 YES
L0008322	0	0.17140E-05	464236.4	3809544.1	1075.6	3.49	4.00	3.25 YES
L0008323	0	0.17140E-05	464227.8	3809544.1	1075.8	3.49	4.00	3.25 YES
L0008324	0	0.17140E-05	464219.2	3809544.1	1075.8	3.49	4.00	3.25 YES
L0008325	0	0.17140E-05	464210.6	3809544.1	1075.9	3.49	4.00	3.25 YES
L0008326	0	0.17140E-05	464202.0	3809544.0	1076.0	3.49	4.00	3.25 YES
L0008327	0	0.17140E-05	464193.4	3809544.0	1076.0	3.49	4.00	3.25 YES

 L0008328   0   0.17140E-05 464184.9 3809544.0 1076.0   3.49   4.00
3.25   YES
 L0008329   0   0.17140E-05 464176.3 3809544.0 1076.0   3.49   4.00
3.25   YES
 L0008330   0   0.17140E-05 464167.7 3809544.0 1076.1   3.49   4.00
3.25   YES
 L0008331   0   0.17140E-05 464159.1 3809544.0 1076.3   3.49   4.00
3.25   YES
 L0008332   0   0.17140E-05 464150.5 3809544.0 1076.5   3.49   4.00
3.25   YES
 L0008333   0   0.17140E-05 464141.9 3809544.0 1076.7   3.49   4.00
3.25   YES
 L0008334   0   0.17140E-05 464133.3 3809543.9 1076.8   3.49   4.00
3.25   YES
 L0008335   0   0.17140E-05 464124.7 3809543.9 1076.9   3.49   4.00
3.25   YES
 L0008336   0   0.17140E-05 464116.1 3809543.9 1077.0   3.49   4.00
3.25   YES
 L0008337   0   0.17140E-05 464107.5 3809543.9 1077.1   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008338   0   0.17140E-05 464099.0 3809543.9 1077.3   3.49   4.00
3.25   YES
 L0008339   0   0.17140E-05 464090.4 3809543.9 1077.5   3.49   4.00
3.25   YES
 L0008340   0   0.17140E-05 464081.8 3809543.9 1077.7   3.49   4.00
3.25   YES
 L0008341   0   0.17140E-05 464073.2 3809543.8 1077.8   3.49   4.00
3.25   YES
 L0008342   0   0.17140E-05 464064.6 3809543.8 1077.9   3.49   4.00
3.25   YES

L0008343	0	0.17140E-05	464056.0	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008344	0	0.17140E-05	464047.4	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008345	0	0.17140E-05	464038.8	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008346	0	0.17140E-05	464030.2	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008347	0	0.17140E-05	464021.6	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008348	0	0.17140E-05	464013.1	3809543.8	1078.2	3.49	4.00	3.25 YES
L0008349	0	0.17140E-05	464004.5	3809543.7	1078.5	3.49	4.00	3.25 YES
L0008350	0	0.17140E-05	463995.9	3809543.7	1078.8	3.49	4.00	3.25 YES
L0008351	0	0.17140E-05	463987.3	3809543.7	1079.1	3.49	4.00	3.25 YES
L0008352	0	0.17140E-05	463978.7	3809543.7	1079.4	3.49	4.00	3.25 YES
L0008353	0	0.17140E-05	463970.1	3809543.7	1079.7	3.49	4.00	3.25 YES
L0008354	0	0.17140E-05	463961.5	3809543.7	1080.0	3.49	4.00	3.25 YES
L0008355	0	0.17140E-05	463952.9	3809543.7	1079.9	3.49	4.00	3.25 YES
L0008356	0	0.17140E-05	463944.3	3809543.7	1079.9	3.49	4.00	3.25 YES
L0008357	0	0.17140E-05	463935.7	3809543.6	1079.8	3.49	4.00	3.25 YES
L0008358	0	0.17140E-05	463927.2	3809543.6	1079.7	3.49	4.00	3.25 YES
L0008359	0	0.17140E-05	463918.6	3809543.6	1079.5	3.49	4.00	3.25 YES
L0008360	0	0.17140E-05	463910.0	3809543.6	1079.2	3.49	4.00	3.25 YES
L0008361	0	0.17140E-05	463901.4	3809543.6	1079.0	3.49	4.00	3.25 YES
L0008362	0	0.17140E-05	463892.8	3809543.6	1078.9	3.49	4.00	3.25 YES
L0008363	0	0.17140E-05	463884.2	3809543.6	1078.7	3.49	4.00	3.25 YES
L0008364	0	0.17140E-05	463875.6	3809543.6	1078.6	3.49	4.00	3.25 YES
L0008365	0	0.17140E-05	463867.0	3809543.5	1078.2	3.49	4.00	3.25 YES
L0008366	0	0.17140E-05	463858.4	3809543.5	1077.3	3.49	4.00	3.25 YES
L0008367	0	0.17140E-05	463849.8	3809543.5	1076.5	3.49	4.00	3.25 YES

 L0008368   0   0.17140E-05 463841.3 3809543.5 1075.6   3.49   4.00
3.25   YES
 L0008369   0   0.17140E-05 463832.7 3809543.5 1074.8   3.49   4.00
3.25   YES
 L0008370   0   0.17140E-05 463824.1 3809543.5 1074.0   3.49   4.00
3.25   YES
 L0008371   0   0.17140E-05 463815.5 3809543.5 1073.2   3.49   4.00
3.25   YES
 L0008372   0   0.17140E-05 463806.9 3809543.5 1072.6   3.49   4.00
3.25   YES
 L0008373   0   0.17140E-05 463798.3 3809543.4 1072.4   3.49   4.00
3.25   YES
 L0008374   0   0.17140E-05 463789.7 3809543.4 1072.1   3.49   4.00
3.25   YES
 L0008375   0   0.17140E-05 463781.1 3809543.4 1071.8   3.49   4.00
3.25   YES
 L0008376   0   0.17140E-05 463772.5 3809543.4 1071.5   3.49   4.00
3.25   YES
 L0008377   0   0.17140E-05 463763.9 3809543.4 1071.2   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008378   0   0.17140E-05 463755.4 3809543.4 1070.9   3.49   4.00
3.25   YES
 L0008379   0   0.17140E-05 463746.8 3809543.4 1070.6   3.49   4.00
3.25   YES
 L0008380   0   0.17140E-05 463738.2 3809543.4 1070.4   3.49   4.00
3.25   YES
 L0008381   0   0.17140E-05 463729.6 3809543.3 1070.1   3.49   4.00
3.25   YES
 L0008382   0   0.17140E-05 463721.0 3809543.3 1069.8   3.49   4.00
3.25   YES

L0008383	0	0.17140E-05	463712.4	3809543.3	1069.5	3.49	4.00	3.25 YES
L0008384	0	0.17140E-05	463703.8	3809543.3	1069.2	3.49	4.00	3.25 YES
L0008385	0	0.17140E-05	463695.2	3809543.3	1068.9	3.49	4.00	3.25 YES
L0008386	0	0.17140E-05	463686.6	3809543.3	1068.5	3.49	4.00	3.25 YES
L0008387	0	0.17140E-05	463678.0	3809543.3	1067.9	3.49	4.00	3.25 YES
L0008388	0	0.17140E-05	463669.5	3809543.3	1067.2	3.49	4.00	3.25 YES
L0008389	0	0.17140E-05	463660.9	3809543.2	1066.6	3.49	4.00	3.25 YES
L0008390	0	0.17140E-05	463652.3	3809543.2	1065.8	3.49	4.00	3.25 YES
L0008391	0	0.17140E-05	463643.7	3809543.2	1065.0	3.49	4.00	3.25 YES
L0008392	0	0.17140E-05	463635.1	3809543.2	1064.2	3.49	4.00	3.25 YES
L0008393	0	0.17140E-05	463626.5	3809543.2	1063.5	3.49	4.00	3.25 YES
L0008394	0	0.17140E-05	463617.9	3809543.2	1063.0	3.49	4.00	3.25 YES
L0008395	0	0.17140E-05	463609.3	3809543.2	1062.4	3.49	4.00	3.25 YES
L0008396	0	0.17140E-05	463600.7	3809543.2	1061.8	3.49	4.00	3.25 YES
L0008397	0	0.17140E-05	463592.1	3809543.1	1061.8	3.49	4.00	3.25 YES
L0008398	0	0.17140E-05	463583.6	3809543.1	1061.9	3.49	4.00	3.25 YES
L0008399	0	0.17140E-05	463575.0	3809543.1	1062.0	3.49	4.00	3.25 YES
L0008400	0	0.17140E-05	463566.4	3809543.1	1062.1	3.49	4.00	3.25 YES
L0008401	0	0.17140E-05	463557.8	3809543.1	1062.3	3.49	4.00	3.25 YES
L0008402	0	0.17140E-05	463549.2	3809543.1	1062.5	3.49	4.00	3.25 YES
L0008403	0	0.17140E-05	463540.6	3809543.1	1062.8	3.49	4.00	3.25 YES
L0008404	0	0.17140E-05	463532.0	3809543.1	1062.8	3.49	4.00	3.25 YES
L0008405	0	0.17140E-05	463523.4	3809543.0	1062.9	3.49	4.00	3.25 YES
L0008406	0	0.17140E-05	463514.8	3809543.0	1063.0	3.49	4.00	3.25 YES
L0008407	0	0.17140E-05	463506.2	3809543.0	1063.1	3.49	4.00	3.25 YES

 L0008408   0   0.17140E-05 463497.7 3809543.0 1063.5   3.49   4.00
3.25   YES
 L0008409   0   0.17140E-05 463489.1 3809543.0 1063.9   3.49   4.00
3.25   YES
 L0008410   0   0.17140E-05 463480.5 3809543.0 1064.2   3.49   4.00
3.25   YES
 L0008411   0   0.17140E-05 463471.9 3809543.0 1064.5   3.49   4.00
3.25   YES
 L0008412   0   0.17140E-05 463463.3 3809543.0 1064.8   3.49   4.00
3.25   YES
 L0008413   0   0.17140E-05 463454.7 3809542.9 1065.1   3.49   4.00
3.25   YES
 L0008414   0   0.17140E-05 463446.1 3809542.9 1065.1   3.49   4.00
3.25   YES
 L0008415   0   0.17140E-05 463437.5 3809542.9 1064.8   3.49   4.00
3.25   YES
 L0008416   0   0.17140E-05 463428.9 3809542.9 1064.5   3.49   4.00
3.25   YES
 L0008417   0   0.17140E-05 463420.3 3809542.9 1064.2   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008418   0   0.17140E-05 463411.8 3809542.9 1065.5   3.49   4.00
3.25   YES
 L0008419   0   0.17140E-05 463403.2 3809542.9 1067.0   3.49   4.00
3.25   YES
 L0008420   0   0.17140E-05 463394.6 3809542.9 1068.4   3.49   4.00
3.25   YES
 L0008421   0   0.17140E-05 463386.0 3809542.8 1070.6   3.49   4.00
3.25   YES
 L0008422   0   0.17140E-05 463377.4 3809542.8 1073.8   3.49   4.00
3.25   YES

L0008423	0	0.17140E-05	463368.8	3809542.8	1076.9	3.49	4.00	3.25 YES
L0008424	0	0.17140E-05	463360.2	3809542.8	1080.1	3.49	4.00	3.25 YES
L0008425	0	0.17140E-05	463351.6	3809542.8	1081.5	3.49	4.00	3.25 YES
L0008426	0	0.17140E-05	463343.0	3809542.8	1082.9	3.49	4.00	3.25 YES
L0008427	0	0.17140E-05	463334.4	3809542.8	1084.3	3.49	4.00	3.25 YES
L0008428	0	0.17140E-05	463325.9	3809542.8	1085.1	3.49	4.00	3.25 YES
L0008429	0	0.17140E-05	463317.3	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008430	0	0.17140E-05	463308.7	3809542.7	1085.5	3.49	4.00	3.25 YES
L0008431	0	0.17140E-05	463300.1	3809542.7	1085.8	3.49	4.00	3.25 YES
L0008432	0	0.17140E-05	463291.5	3809542.7	1085.6	3.49	4.00	3.25 YES
L0008433	0	0.17140E-05	463282.9	3809542.7	1085.5	3.49	4.00	3.25 YES
L0008434	0	0.17140E-05	463274.3	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008435	0	0.17140E-05	463265.7	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008436	0	0.17140E-05	463257.1	3809542.6	1085.6	3.49	4.00	3.25 YES
L0008437	0	0.16280E-05	465061.0	3809545.3	1067.8	3.49	4.00	3.25 YES
L0008438	0	0.16280E-05	465052.4	3809545.3	1067.9	3.49	4.00	3.25 YES
L0008439	0	0.16280E-05	465043.9	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008440	0	0.16280E-05	465035.3	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008441	0	0.16280E-05	465026.7	3809545.3	1068.0	3.49	4.00	3.25 YES
L0008442	0	0.16280E-05	465018.1	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008443	0	0.16280E-05	465009.5	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008444	0	0.16280E-05	465000.9	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008445	0	0.16280E-05	464992.3	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008446	0	0.16280E-05	464983.7	3809545.2	1068.0	3.49	4.00	3.25 YES
L0008447	0	0.16280E-05	464975.1	3809545.2	1068.0	3.49	4.00	3.25 YES

 L0008448   0   0.16280E-05 464966.5 3809545.2 1068.0   3.49   4.00
3.25   YES
 L0008449   0   0.16280E-05 464958.0 3809545.2 1068.0   3.49   4.00
3.25   YES
 L0008450   0   0.16280E-05 464949.4 3809545.1 1068.0   3.49   4.00
3.25   YES
 L0008451   0   0.16280E-05 464940.8 3809545.1 1068.2   3.49   4.00
3.25   YES
 L0008452   0   0.16280E-05 464932.2 3809545.1 1068.4   3.49   4.00
3.25   YES
 L0008453   0   0.16280E-05 464923.6 3809545.1 1068.6   3.49   4.00
3.25   YES
 L0008454   0   0.16280E-05 464915.0 3809545.1 1068.7   3.49   4.00
3.25   YES
 L0008455   0   0.16280E-05 464906.4 3809545.1 1068.7   3.49   4.00
3.25   YES
 L0008456   0   0.16280E-05 464897.8 3809545.1 1068.7   3.49   4.00
3.25   YES
 L0008457   0   0.16280E-05 464889.2 3809545.1 1068.7   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008458   0   0.16280E-05 464880.6 3809545.0 1068.7   3.49   4.00
3.25   YES
 L0008459   0   0.16280E-05 464872.1 3809545.0 1068.7   3.49   4.00
3.25   YES
 L0008460   0   0.16280E-05 464863.5 3809545.0 1068.7   3.49   4.00
3.25   YES
 L0008461   0   0.16280E-05 464854.9 3809545.0 1068.8   3.49   4.00
3.25   YES
 L0008462   0   0.16280E-05 464846.3 3809545.0 1068.8   3.49   4.00
3.25   YES

L0008463	0	0.16280E-05	464837.7	3809545.0	1068.9	3.49	4.00	3.25 YES
L0008464	0	0.16280E-05	464829.1	3809545.0	1069.0	3.49	4.00	3.25 YES
L0008465	0	0.16280E-05	464820.5	3809545.0	1069.2	3.49	4.00	3.25 YES
L0008466	0	0.16280E-05	464811.9	3809544.9	1069.4	3.49	4.00	3.25 YES
L0008467	0	0.16280E-05	464803.3	3809544.9	1069.6	3.49	4.00	3.25 YES
L0008468	0	0.16280E-05	464794.7	3809544.9	1069.7	3.49	4.00	3.25 YES
L0008469	0	0.16280E-05	464786.2	3809544.9	1069.7	3.49	4.00	3.25 YES
L0008470	0	0.16280E-05	464777.6	3809544.9	1069.7	3.49	4.00	3.25 YES
L0008471	0	0.16280E-05	464769.0	3809544.9	1069.7	3.49	4.00	3.25 YES
L0008472	0	0.16280E-05	464760.4	3809544.9	1069.8	3.49	4.00	3.25 YES
L0008473	0	0.16280E-05	464751.8	3809544.8	1069.9	3.49	4.00	3.25 YES
L0008474	0	0.16280E-05	464743.2	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008475	0	0.16280E-05	464734.6	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008476	0	0.16280E-05	464726.0	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008477	0	0.16280E-05	464717.4	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008478	0	0.16280E-05	464708.8	3809544.8	1070.0	3.49	4.00	3.25 YES
L0008479	0	0.16280E-05	464700.3	3809544.8	1070.2	3.49	4.00	3.25 YES
L0008480	0	0.16280E-05	464691.7	3809544.8	1070.4	3.49	4.00	3.25 YES
L0008481	0	0.16280E-05	464683.1	3809544.7	1070.6	3.49	4.00	3.25 YES
L0008482	0	0.16280E-05	464674.5	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008483	0	0.16280E-05	464665.9	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008484	0	0.16280E-05	464657.3	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008485	0	0.16280E-05	464648.7	3809544.7	1070.7	3.49	4.00	3.25 YES
L0008486	0	0.16280E-05	464640.1	3809544.7	1070.8	3.49	4.00	3.25 YES
L0008487	0	0.16280E-05	464631.5	3809544.7	1070.9	3.49	4.00	3.25 YES

 L0008488   0   0.16280E-05 464622.9 3809544.7 1071.0   3.49   4.00
3.25   YES
 L0008489   0   0.16280E-05 464614.4 3809544.6 1071.0   3.49   4.00
3.25   YES
 L0008490   0   0.16280E-05 464605.8 3809544.6 1071.0   3.49   4.00
3.25   YES
 L0008491   0   0.16280E-05 464597.2 3809544.6 1071.0   3.49   4.00
3.25   YES
 L0008492   0   0.16280E-05 464588.6 3809544.6 1071.0   3.49   4.00
3.25   YES
 L0008493   0   0.16280E-05 464580.0 3809544.6 1071.2   3.49   4.00
3.25   YES
 L0008494   0   0.16280E-05 464571.4 3809544.6 1071.4   3.49   4.00
3.25   YES
 L0008495   0   0.16280E-05 464562.8 3809544.6 1071.6   3.49   4.00
3.25   YES
 L0008496   0   0.16280E-05 464554.2 3809544.6 1071.8   3.49   4.00
3.25   YES
 L0008497   0   0.16280E-05 464545.6 3809544.5 1071.8   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008498   0   0.16280E-05 464537.0 3809544.5 1071.9   3.49   4.00
3.25   YES
 L0008499   0   0.16280E-05 464528.5 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008500   0   0.16280E-05 464519.9 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008501   0   0.16280E-05 464511.3 3809544.5 1072.0   3.49   4.00
3.25   YES
 L0008502   0   0.16280E-05 464502.7 3809544.5 1072.0   3.49   4.00
3.25   YES

L0008503	0	0.16280E-05	464494.1	3809544.5	1072.1	3.49	4.00	3.25 YES
L0008504	0	0.16280E-05	464485.5	3809544.5	1072.3	3.49	4.00	3.25 YES
L0008505	0	0.16280E-05	464476.9	3809544.4	1072.5	3.49	4.00	3.25 YES
L0008506	0	0.16280E-05	464468.3	3809544.4	1072.7	3.49	4.00	3.25 YES
L0008507	0	0.16280E-05	464459.7	3809544.4	1072.8	3.49	4.00	3.25 YES
L0008508	0	0.16280E-05	464451.1	3809544.4	1072.9	3.49	4.00	3.25 YES
L0008509	0	0.16280E-05	464442.6	3809544.4	1073.0	3.49	4.00	3.25 YES
L0008510	0	0.16280E-05	464434.0	3809544.4	1073.1	3.49	4.00	3.25 YES
L0008511	0	0.16280E-05	464425.4	3809544.4	1073.3	3.49	4.00	3.25 YES
L0008512	0	0.16280E-05	464416.8	3809544.4	1073.6	3.49	4.00	3.25 YES
L0008513	0	0.16280E-05	464408.2	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008514	0	0.16280E-05	464399.6	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008515	0	0.16280E-05	464391.0	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008516	0	0.16280E-05	464382.4	3809544.3	1073.7	3.49	4.00	3.25 YES
L0008517	0	0.16280E-05	464373.8	3809544.3	1073.8	3.49	4.00	3.25 YES
L0008518	0	0.16280E-05	464365.2	3809544.3	1073.9	3.49	4.00	3.25 YES
L0008519	0	0.16280E-05	464356.7	3809544.3	1073.9	3.49	4.00	3.25 YES
L0008520	0	0.16280E-05	464348.1	3809544.3	1074.0	3.49	4.00	3.25 YES
L0008521	0	0.16280E-05	464339.5	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008522	0	0.16280E-05	464330.9	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008523	0	0.16280E-05	464322.3	3809544.2	1074.0	3.49	4.00	3.25 YES
L0008524	0	0.16280E-05	464313.7	3809544.2	1074.1	3.49	4.00	3.25 YES
L0008525	0	0.16280E-05	464305.1	3809544.2	1074.4	3.49	4.00	3.25 YES
L0008526	0	0.16280E-05	464296.5	3809544.2	1074.6	3.49	4.00	3.25 YES
L0008527	0	0.16280E-05	464287.9	3809544.2	1074.7	3.49	4.00	3.25 YES

 L0008528   0   0.16280E-05 464279.3 3809544.2 1074.8   3.49   4.00
3.25   YES
 L0008529   0   0.16280E-05 464270.8 3809544.1 1074.9   3.49   4.00
3.25   YES
 L0008530   0   0.16280E-05 464262.2 3809544.1 1075.0   3.49   4.00
3.25   YES
 L0008531   0   0.16280E-05 464253.6 3809544.1 1075.2   3.49   4.00
3.25   YES
 L0008532   0   0.16280E-05 464245.0 3809544.1 1075.4   3.49   4.00
3.25   YES
 L0008533   0   0.16280E-05 464236.4 3809544.1 1075.6   3.49   4.00
3.25   YES
 L0008534   0   0.16280E-05 464227.8 3809544.1 1075.8   3.49   4.00
3.25   YES
 L0008535   0   0.16280E-05 464219.2 3809544.1 1075.8   3.49   4.00
3.25   YES
 L0008536   0   0.16280E-05 464210.6 3809544.1 1075.9   3.49   4.00
3.25   YES
 L0008537   0   0.16280E-05 464202.0 3809544.0 1076.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008538   0   0.16280E-05 464193.4 3809544.0 1076.0   3.49   4.00
3.25   YES
 L0008539   0   0.16280E-05 464184.9 3809544.0 1076.0   3.49   4.00
3.25   YES
 L0008540   0   0.16280E-05 464176.3 3809544.0 1076.0   3.49   4.00
3.25   YES
 L0008541   0   0.16280E-05 464167.7 3809544.0 1076.1   3.49   4.00
3.25   YES
 L0008542   0   0.16280E-05 464159.1 3809544.0 1076.3   3.49   4.00
3.25   YES

L0008543	0	0.16280E-05	464150.5	3809544.0	1076.5	3.49	4.00	3.25 YES
L0008544	0	0.16280E-05	464141.9	3809544.0	1076.7	3.49	4.00	3.25 YES
L0008545	0	0.16280E-05	464133.3	3809543.9	1076.8	3.49	4.00	3.25 YES
L0008546	0	0.16280E-05	464124.7	3809543.9	1076.9	3.49	4.00	3.25 YES
L0008547	0	0.16280E-05	464116.1	3809543.9	1077.0	3.49	4.00	3.25 YES
L0008548	0	0.16280E-05	464107.5	3809543.9	1077.1	3.49	4.00	3.25 YES
L0008549	0	0.16280E-05	464099.0	3809543.9	1077.3	3.49	4.00	3.25 YES
L0008550	0	0.16280E-05	464090.4	3809543.9	1077.5	3.49	4.00	3.25 YES
L0008551	0	0.16280E-05	464081.8	3809543.9	1077.7	3.49	4.00	3.25 YES
L0008552	0	0.16280E-05	464073.2	3809543.8	1077.8	3.49	4.00	3.25 YES
L0008553	0	0.16280E-05	464064.6	3809543.8	1077.9	3.49	4.00	3.25 YES
L0008554	0	0.16280E-05	464056.0	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008555	0	0.16280E-05	464047.4	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008556	0	0.16280E-05	464038.8	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008557	0	0.16280E-05	464030.2	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008558	0	0.16280E-05	464021.6	3809543.8	1078.0	3.49	4.00	3.25 YES
L0008559	0	0.16280E-05	464013.1	3809543.8	1078.2	3.49	4.00	3.25 YES
L0008560	0	0.16280E-05	464004.5	3809543.7	1078.5	3.49	4.00	3.25 YES
L0008561	0	0.16280E-05	463995.9	3809543.7	1078.8	3.49	4.00	3.25 YES
L0008562	0	0.16280E-05	463987.3	3809543.7	1079.1	3.49	4.00	3.25 YES
L0008563	0	0.16280E-05	463978.7	3809543.7	1079.4	3.49	4.00	3.25 YES
L0008564	0	0.16280E-05	463970.1	3809543.7	1079.7	3.49	4.00	3.25 YES
L0008565	0	0.16280E-05	463961.5	3809543.7	1080.0	3.49	4.00	3.25 YES
L0008566	0	0.16280E-05	463952.9	3809543.7	1079.9	3.49	4.00	3.25 YES
L0008567	0	0.16280E-05	463944.3	3809543.7	1079.9	3.49	4.00	3.25 YES

 L0008568   0   0.16280E-05 463935.7 3809543.6 1079.8   3.49   4.00
3.25   YES
 L0008569   0   0.16280E-05 463927.2 3809543.6 1079.7   3.49   4.00
3.25   YES
 L0008570   0   0.16280E-05 463918.6 3809543.6 1079.5   3.49   4.00
3.25   YES
 L0008571   0   0.16280E-05 463910.0 3809543.6 1079.2   3.49   4.00
3.25   YES
 L0008572   0   0.16280E-05 463901.4 3809543.6 1079.0   3.49   4.00
3.25   YES
 L0008573   0   0.16280E-05 463892.8 3809543.6 1078.9   3.49   4.00
3.25   YES
 L0008574   0   0.16280E-05 463884.2 3809543.6 1078.7   3.49   4.00
3.25   YES
 L0008575   0   0.16280E-05 463875.6 3809543.6 1078.6   3.49   4.00
3.25   YES
 L0008576   0   0.16280E-05 463867.0 3809543.5 1078.2   3.49   4.00
3.25   YES
 L0008577   0   0.16280E-05 463858.4 3809543.5 1077.3   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008578   0   0.16280E-05 463849.8 3809543.5 1076.5   3.49   4.00
3.25   YES
 L0008579   0   0.16280E-05 463841.3 3809543.5 1075.6   3.49   4.00
3.25   YES
 L0008580   0   0.16280E-05 463832.7 3809543.5 1074.8   3.49   4.00
3.25   YES
 L0008581   0   0.16280E-05 463824.1 3809543.5 1074.0   3.49   4.00
3.25   YES
 L0008582   0   0.16280E-05 463815.5 3809543.5 1073.2   3.49   4.00
3.25   YES

L0008583	0	0.16280E-05	463806.9	3809543.5	1072.6	3.49	4.00	3.25 YES
L0008584	0	0.16280E-05	463798.3	3809543.4	1072.4	3.49	4.00	3.25 YES
L0008585	0	0.16280E-05	463789.7	3809543.4	1072.1	3.49	4.00	3.25 YES
L0008586	0	0.16280E-05	463781.1	3809543.4	1071.8	3.49	4.00	3.25 YES
L0008587	0	0.16280E-05	463772.5	3809543.4	1071.5	3.49	4.00	3.25 YES
L0008588	0	0.16280E-05	463763.9	3809543.4	1071.2	3.49	4.00	3.25 YES
L0008589	0	0.16280E-05	463755.4	3809543.4	1070.9	3.49	4.00	3.25 YES
L0008590	0	0.16280E-05	463746.8	3809543.4	1070.6	3.49	4.00	3.25 YES
L0008591	0	0.16280E-05	463738.2	3809543.4	1070.4	3.49	4.00	3.25 YES
L0008592	0	0.16280E-05	463729.6	3809543.3	1070.1	3.49	4.00	3.25 YES
L0008593	0	0.16280E-05	463721.0	3809543.3	1069.8	3.49	4.00	3.25 YES
L0008594	0	0.16280E-05	463712.4	3809543.3	1069.5	3.49	4.00	3.25 YES
L0008595	0	0.16280E-05	463703.8	3809543.3	1069.2	3.49	4.00	3.25 YES
L0008596	0	0.16280E-05	463695.2	3809543.3	1068.9	3.49	4.00	3.25 YES
L0008597	0	0.16280E-05	463686.6	3809543.3	1068.5	3.49	4.00	3.25 YES
L0008598	0	0.16280E-05	463678.0	3809543.3	1067.9	3.49	4.00	3.25 YES
L0008599	0	0.16280E-05	463669.5	3809543.3	1067.2	3.49	4.00	3.25 YES
L0008600	0	0.16280E-05	463660.9	3809543.2	1066.6	3.49	4.00	3.25 YES
L0008601	0	0.16280E-05	463652.3	3809543.2	1065.8	3.49	4.00	3.25 YES
L0008602	0	0.16280E-05	463643.7	3809543.2	1065.0	3.49	4.00	3.25 YES
L0008603	0	0.16280E-05	463635.1	3809543.2	1064.2	3.49	4.00	3.25 YES
L0008604	0	0.16280E-05	463626.5	3809543.2	1063.5	3.49	4.00	3.25 YES
L0008605	0	0.16280E-05	463617.9	3809543.2	1063.0	3.49	4.00	3.25 YES
L0008606	0	0.16280E-05	463609.3	3809543.2	1062.4	3.49	4.00	3.25 YES
L0008607	0	0.16280E-05	463600.7	3809543.2	1061.8	3.49	4.00	3.25 YES

 L0008608   0   0.16280E-05 463592.1 3809543.1 1061.8   3.49   4.00
3.25   YES
 L0008609   0   0.16280E-05 463583.6 3809543.1 1061.9   3.49   4.00
3.25   YES
 L0008610   0   0.16280E-05 463575.0 3809543.1 1062.0   3.49   4.00
3.25   YES
 L0008611   0   0.16280E-05 463566.4 3809543.1 1062.1   3.49   4.00
3.25   YES
 L0008612   0   0.16280E-05 463557.8 3809543.1 1062.3   3.49   4.00
3.25   YES
 L0008613   0   0.16280E-05 463549.2 3809543.1 1062.5   3.49   4.00
3.25   YES
 L0008614   0   0.16280E-05 463540.6 3809543.1 1062.8   3.49   4.00
3.25   YES
 L0008615   0   0.16280E-05 463532.0 3809543.1 1062.8   3.49   4.00
3.25   YES
 L0008616   0   0.16280E-05 463523.4 3809543.0 1062.9   3.49   4.00
3.25   YES
 L0008617   0   0.16280E-05 463514.8 3809543.0 1063.0   3.49   4.00
3.25   YES

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                                                    *** VOLUME SOURCE DATA ***

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(METERS)   BY
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 L0008618   0   0.16280E-05 463506.2 3809543.0 1063.1   3.49   4.00
3.25   YES
 L0008619   0   0.16280E-05 463497.7 3809543.0 1063.5   3.49   4.00
3.25   YES
 L0008620   0   0.16280E-05 463489.1 3809543.0 1063.9   3.49   4.00
3.25   YES
 L0008621   0   0.16280E-05 463480.5 3809543.0 1064.2   3.49   4.00
3.25   YES
 L0008622   0   0.16280E-05 463471.9 3809543.0 1064.5   3.49   4.00
3.25   YES

L0008623	0	0.16280E-05	463463.3	3809543.0	1064.8	3.49	4.00	3.25 YES
L0008624	0	0.16280E-05	463454.7	3809542.9	1065.1	3.49	4.00	3.25 YES
L0008625	0	0.16280E-05	463446.1	3809542.9	1065.1	3.49	4.00	3.25 YES
L0008626	0	0.16280E-05	463437.5	3809542.9	1064.8	3.49	4.00	3.25 YES
L0008627	0	0.16280E-05	463428.9	3809542.9	1064.5	3.49	4.00	3.25 YES
L0008628	0	0.16280E-05	463420.3	3809542.9	1064.2	3.49	4.00	3.25 YES
L0008629	0	0.16280E-05	463411.8	3809542.9	1065.5	3.49	4.00	3.25 YES
L0008630	0	0.16280E-05	463403.2	3809542.9	1067.0	3.49	4.00	3.25 YES
L0008631	0	0.16280E-05	463394.6	3809542.9	1068.4	3.49	4.00	3.25 YES
L0008632	0	0.16280E-05	463386.0	3809542.8	1070.6	3.49	4.00	3.25 YES
L0008633	0	0.16280E-05	463377.4	3809542.8	1073.8	3.49	4.00	3.25 YES
L0008634	0	0.16280E-05	463368.8	3809542.8	1076.9	3.49	4.00	3.25 YES
L0008635	0	0.16280E-05	463360.2	3809542.8	1080.1	3.49	4.00	3.25 YES
L0008636	0	0.16280E-05	463351.6	3809542.8	1081.5	3.49	4.00	3.25 YES
L0008637	0	0.16280E-05	463343.0	3809542.8	1082.9	3.49	4.00	3.25 YES
L0008638	0	0.16280E-05	463334.4	3809542.8	1084.3	3.49	4.00	3.25 YES
L0008639	0	0.16280E-05	463325.9	3809542.8	1085.1	3.49	4.00	3.25 YES
L0008640	0	0.16280E-05	463317.3	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008641	0	0.16280E-05	463308.7	3809542.7	1085.5	3.49	4.00	3.25 YES
L0008642	0	0.16280E-05	463300.1	3809542.7	1085.8	3.49	4.00	3.25 YES
L0008643	0	0.16280E-05	463291.5	3809542.7	1085.6	3.49	4.00	3.25 YES
L0008644	0	0.16280E-05	463282.9	3809542.7	1085.5	3.49	4.00	3.25 YES
L0008645	0	0.16280E-05	463274.3	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008646	0	0.16280E-05	463265.7	3809542.7	1085.3	3.49	4.00	3.25 YES
L0008647	0	0.16280E-05	463257.1	3809542.6	1085.6	3.49	4.00	3.25 YES

 L0008648   0   0.68670E-06 463246.3 3809551.7 1085.9   3.49   4.00
3.25   YES
 L0008649   0   0.68670E-06 463247.1 3809560.2 1086.0   3.49   4.00
3.25   YES
 L0008650   0   0.68670E-06 463248.0 3809568.8 1086.0   3.49   4.00
3.25   YES
 L0008651   0   0.68670E-06 463248.8 3809577.3 1086.0   3.49   4.00
3.25   YES
 L0008652   0   0.68670E-06 463249.7 3809585.9 1086.0   3.49   4.00
3.25   YES
 L0008653   0   0.68670E-06 463250.5 3809594.4 1086.0   3.49   4.00
3.25   YES
 L0008654   0   0.68670E-06 463251.4 3809603.0 1085.8   3.49   4.00
3.25   YES
 L0008655   0   0.68670E-06 463252.2 3809611.5 1085.5   3.49   4.00
3.25   YES
 L0008656   0   0.68670E-06 463253.0 3809620.1 1085.2   3.49   4.00
3.25   YES
 L0008657   0   0.68670E-06 463253.9 3809628.6 1085.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008658   0   0.68670E-06 463254.7 3809637.1 1084.8   3.49   4.00
3.25   YES
 L0008659   0   0.68670E-06 463255.6 3809645.7 1084.7   3.49   4.00
3.25   YES
 L0008660   0   0.68670E-06 463256.4 3809654.2 1084.5   3.49   4.00
3.25   YES
 L0008661   0   0.68670E-06 463257.3 3809662.8 1084.3   3.49   4.00
3.25   YES
 L0008662   0   0.68670E-06 463258.1 3809671.3 1084.2   3.49   4.00
3.25   YES

L0008663	0	0.68670E-06	463259.0	3809679.9	1084.1	3.49	4.00	3.25 YES
L0008664	0	0.68670E-06	463259.9	3809688.4	1084.0	3.49	4.00	3.25 YES
L0008665	0	0.68670E-06	463260.8	3809697.0	1084.0	3.49	4.00	3.25 YES
L0008666	0	0.68670E-06	463261.6	3809705.5	1084.0	3.49	4.00	3.25 YES
L0008667	0	0.68670E-06	463262.5	3809714.1	1084.0	3.49	4.00	3.25 YES
L0008668	0	0.68670E-06	463263.4	3809722.6	1083.8	3.49	4.00	3.25 YES
L0008669	0	0.68670E-06	463264.3	3809731.2	1083.5	3.49	4.00	3.25 YES
L0008670	0	0.68670E-06	463265.2	3809739.7	1083.2	3.49	4.00	3.25 YES
L0008671	0	0.68670E-06	463266.1	3809748.2	1082.9	3.49	4.00	3.25 YES
L0008672	0	0.68670E-06	463267.0	3809756.8	1082.7	3.49	4.00	3.25 YES
L0008673	0	0.68670E-06	463267.9	3809765.3	1082.4	3.49	4.00	3.25 YES
L0008674	0	0.68670E-06	463268.8	3809773.9	1082.1	3.49	4.00	3.25 YES
L0008675	0	0.68670E-06	463269.6	3809782.4	1082.0	3.49	4.00	3.25 YES
L0008676	0	0.68670E-06	463270.5	3809791.0	1082.0	3.49	4.00	3.25 YES
L0008677	0	0.68670E-06	463271.4	3809799.5	1082.0	3.49	4.00	3.25 YES
L0008678	0	0.68670E-06	463272.3	3809808.0	1082.0	3.49	4.00	3.25 YES
L0008679	0	0.68670E-06	463273.2	3809816.6	1082.0	3.49	4.00	3.25 YES
L0008680	0	0.68670E-06	463274.1	3809825.1	1081.9	3.49	4.00	3.25 YES
L0008681	0	0.68670E-06	463274.9	3809833.7	1081.8	3.49	4.00	3.25 YES
L0008682	0	0.68670E-06	463275.6	3809842.2	1081.6	3.49	4.00	3.25 YES
L0008683	0	0.68670E-06	463276.4	3809850.8	1081.4	3.49	4.00	3.25 YES
L0008684	0	0.68670E-06	463277.1	3809859.4	1081.2	3.49	4.00	3.25 YES
L0008685	0	0.68670E-06	463277.9	3809867.9	1081.0	3.49	4.00	3.25 YES
L0008686	0	0.68670E-06	463278.7	3809876.5	1080.9	3.49	4.00	3.25 YES
L0008687	0	0.68670E-06	463279.4	3809885.0	1080.8	3.49	4.00	3.25 YES

 L0008688   0   0.68670E-06 463280.2 3809893.6 1080.7   3.49   4.00
3.25   YES
 L0008689   0   0.68670E-06 463280.9 3809902.1 1080.5   3.49   4.00
3.25   YES
 L0008690   0   0.68670E-06 463281.7 3809910.7 1080.3   3.49   4.00
3.25   YES
 L0008691   0   0.68670E-06 463282.4 3809919.3 1080.1   3.49   4.00
3.25   YES
 L0008692   0   0.68670E-06 463283.2 3809927.8 1080.0   3.49   4.00
3.25   YES
 L0008693   0   0.68670E-06 463284.0 3809936.4 1080.0   3.49   4.00
3.25   YES
 L0008694   0   0.68670E-06 463284.7 3809944.9 1080.0   3.49   4.00
3.25   YES
 L0008695   0   0.68670E-06 463285.5 3809953.5 1080.0   3.49   4.00
3.25   YES
 L0008696   0   0.68670E-06 463286.2 3809962.0 1079.8   3.49   4.00
3.25   YES
 L0008697   0   0.68670E-06 463286.3 3809970.6 1079.5   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0008698   0   0.68670E-06 463286.4 3809979.2 1079.2   3.49   4.00
3.25   YES
 L0008699   0   0.68670E-06 463286.6 3809987.8 1079.0   3.49   4.00
3.25   YES
 L0008700   0   0.68670E-06 463286.7 3809996.4 1078.8   3.49   4.00
3.25   YES
 L0008701   0   0.68670E-06 463286.8 3810005.0 1078.6   3.49   4.00
3.25   YES
 L0008702   0   0.68670E-06 463286.9 3810013.6 1078.5   3.49   4.00
3.25   YES

L0008703	0	0.68670E-06	463287.1	3810022.2	1078.3	3.49	4.00	3.25 YES
L0008704	0	0.68670E-06	463287.2	3810030.8	1078.2	3.49	4.00	3.25 YES
L0008705	0	0.68670E-06	463287.3	3810039.3	1078.1	3.49	4.00	3.25 YES
L0008706	0	0.68670E-06	463287.5	3810047.9	1078.0	3.49	4.00	3.25 YES
L0008707	0	0.68670E-06	463287.6	3810056.5	1077.8	3.49	4.00	3.25 YES
L0008708	0	0.68670E-06	463287.7	3810065.1	1077.6	3.49	4.00	3.25 YES
L0008709	0	0.68670E-06	463287.8	3810073.7	1077.5	3.49	4.00	3.25 YES
L0008710	0	0.68670E-06	463288.0	3810082.3	1077.3	3.49	4.00	3.25 YES
L0008711	0	0.68670E-06	463288.1	3810090.9	1077.2	3.49	4.00	3.25 YES
L0008712	0	0.68670E-06	463288.2	3810099.5	1077.1	3.49	4.00	3.25 YES
L0008713	0	0.68670E-06	463288.4	3810108.1	1076.9	3.49	4.00	3.25 YES
L0008714	0	0.68670E-06	463288.5	3810116.6	1076.6	3.49	4.00	3.25 YES
L0008715	0	0.68670E-06	463288.6	3810125.2	1076.4	3.49	4.00	3.25 YES
L0008716	0	0.68670E-06	463288.8	3810133.8	1076.1	3.49	4.00	3.25 YES
L0008717	0	0.68670E-06	463288.9	3810142.4	1076.0	3.49	4.00	3.25 YES
L0008718	0	0.68670E-06	463289.0	3810151.0	1076.0	3.49	4.00	3.25 YES
L0008719	0	0.68670E-06	463289.1	3810159.6	1076.0	3.49	4.00	3.25 YES
L0008720	0	0.68670E-06	463289.3	3810168.2	1075.9	3.49	4.00	3.25 YES
L0008721	0	0.68670E-06	463289.4	3810176.8	1075.6	3.49	4.00	3.25 YES
L0008722	0	0.68670E-06	463289.5	3810185.4	1075.3	3.49	4.00	3.25 YES
L0008723	0	0.68670E-06	463289.7	3810193.9	1075.1	3.49	4.00	3.25 YES
L0008724	0	0.68670E-06	463289.8	3810202.5	1074.8	3.49	4.00	3.25 YES
L0008725	0	0.68670E-06	463289.9	3810211.1	1074.7	3.49	4.00	3.25 YES
L0008726	0	0.68670E-06	463290.0	3810219.7	1074.5	3.49	4.00	3.25 YES
L0008727	0	0.68670E-06	463290.2	3810228.3	1074.3	3.49	4.00	3.25 YES

 L0008728   0   0.68670E-06 463290.3 3810236.9 1074.2   3.49   4.00
3.25   YES
 L0008729   0   0.68670E-06 463290.4 3810245.5 1074.1   3.49   4.00
3.25   YES
 L0008730   0   0.68670E-06 463290.6 3810254.1 1074.0   3.49   4.00
3.25   YES
 L0008731   0   0.68670E-06 463290.7 3810262.7 1073.8   3.49   4.00
3.25   YES
 L0008732   0   0.68670E-06 463290.8 3810271.2 1073.6   3.49   4.00
3.25   YES
 L0008733   0   0.68670E-06 463291.0 3810279.8 1073.4   3.49   4.00
3.25   YES
 L0008734   0   0.68670E-06 463291.1 3810288.4 1073.3   3.49   4.00
3.25   YES
 L0008735   0   0.68670E-06 463291.2 3810297.0 1073.2   3.49   4.00
3.25   YES
 L0008736   0   0.68670E-06 463291.3 3810305.6 1073.1   3.49   4.00
3.25   YES
 L0008737   0   0.68670E-06 463291.5 3810314.2 1073.0   3.49   4.00
3.25   YES

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008738   0   0.68670E-06 463291.6 3810322.8 1072.8   3.49   4.00
3.25   YES
 L0008739   0   0.68670E-06 463291.7 3810331.4 1072.5   3.49   4.00
3.25   YES
 L0008740   0   0.68670E-06 463291.9 3810340.0 1072.2   3.49   4.00
3.25   YES
 L0008741   0   0.68670E-06 463292.0 3810348.5 1072.0   3.49   4.00
3.25   YES
 L0008742   0   0.68670E-06 463246.3 3809551.7 1085.9   3.49   4.00
3.25   YES

L0008743	0	0.68670E-06	463247.1	3809560.2	1086.0	3.49	4.00	3.25 YES
L0008744	0	0.68670E-06	463248.0	3809568.8	1086.0	3.49	4.00	3.25 YES
L0008745	0	0.68670E-06	463248.8	3809577.3	1086.0	3.49	4.00	3.25 YES
L0008746	0	0.68670E-06	463249.7	3809585.9	1086.0	3.49	4.00	3.25 YES
L0008747	0	0.68670E-06	463250.5	3809594.4	1086.0	3.49	4.00	3.25 YES
L0008748	0	0.68670E-06	463251.4	3809603.0	1085.8	3.49	4.00	3.25 YES
L0008749	0	0.68670E-06	463252.2	3809611.5	1085.5	3.49	4.00	3.25 YES
L0008750	0	0.68670E-06	463253.0	3809620.1	1085.2	3.49	4.00	3.25 YES
L0008751	0	0.68670E-06	463253.9	3809628.6	1085.0	3.49	4.00	3.25 YES
L0008752	0	0.68670E-06	463254.7	3809637.1	1084.8	3.49	4.00	3.25 YES
L0008753	0	0.68670E-06	463255.6	3809645.7	1084.7	3.49	4.00	3.25 YES
L0008754	0	0.68670E-06	463256.4	3809654.2	1084.5	3.49	4.00	3.25 YES
L0008755	0	0.68670E-06	463257.3	3809662.8	1084.3	3.49	4.00	3.25 YES
L0008756	0	0.68670E-06	463258.1	3809671.3	1084.2	3.49	4.00	3.25 YES
L0008757	0	0.68670E-06	463259.0	3809679.9	1084.1	3.49	4.00	3.25 YES
L0008758	0	0.68670E-06	463259.9	3809688.4	1084.0	3.49	4.00	3.25 YES
L0008759	0	0.68670E-06	463260.8	3809697.0	1084.0	3.49	4.00	3.25 YES
L0008760	0	0.68670E-06	463261.6	3809705.5	1084.0	3.49	4.00	3.25 YES
L0008761	0	0.68670E-06	463262.5	3809714.1	1084.0	3.49	4.00	3.25 YES
L0008762	0	0.68670E-06	463263.4	3809722.6	1083.8	3.49	4.00	3.25 YES
L0008763	0	0.68670E-06	463264.3	3809731.2	1083.5	3.49	4.00	3.25 YES
L0008764	0	0.68670E-06	463265.2	3809739.7	1083.2	3.49	4.00	3.25 YES
L0008765	0	0.68670E-06	463266.1	3809748.2	1082.9	3.49	4.00	3.25 YES
L0008766	0	0.68670E-06	463267.0	3809756.8	1082.7	3.49	4.00	3.25 YES
L0008767	0	0.68670E-06	463267.9	3809765.3	1082.4	3.49	4.00	3.25 YES

 L0008768   0   0.68670E-06 463268.8 3809773.9 1082.1   3.49   4.00
3.25   YES
 L0008769   0   0.68670E-06 463269.6 3809782.4 1082.0   3.49   4.00
3.25   YES
 L0008770   0   0.68670E-06 463270.5 3809791.0 1082.0   3.49   4.00
3.25   YES
 L0008771   0   0.68670E-06 463271.4 3809799.5 1082.0   3.49   4.00
3.25   YES
 L0008772   0   0.68670E-06 463272.3 3809808.0 1082.0   3.49   4.00
3.25   YES
 L0008773   0   0.68670E-06 463273.2 3809816.6 1082.0   3.49   4.00
3.25   YES
 L0008774   0   0.68670E-06 463274.1 3809825.1 1081.9   3.49   4.00
3.25   YES
 L0008775   0   0.68670E-06 463274.9 3809833.7 1081.8   3.49   4.00
3.25   YES
 L0008776   0   0.68670E-06 463275.6 3809842.2 1081.6   3.49   4.00
3.25   YES
 L0008777   0   0.68670E-06 463276.4 3809850.8 1081.4   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008778   0   0.68670E-06 463277.1 3809859.4 1081.2   3.49   4.00
3.25   YES
 L0008779   0   0.68670E-06 463277.9 3809867.9 1081.0   3.49   4.00
3.25   YES
 L0008780   0   0.68670E-06 463278.7 3809876.5 1080.9   3.49   4.00
3.25   YES
 L0008781   0   0.68670E-06 463279.4 3809885.0 1080.8   3.49   4.00
3.25   YES
 L0008782   0   0.68670E-06 463280.2 3809893.6 1080.7   3.49   4.00
3.25   YES

L0008783	0	0.68670E-06	463280.9	3809902.1	1080.5	3.49	4.00	3.25 YES
L0008784	0	0.68670E-06	463281.7	3809910.7	1080.3	3.49	4.00	3.25 YES
L0008785	0	0.68670E-06	463282.4	3809919.3	1080.1	3.49	4.00	3.25 YES
L0008786	0	0.68670E-06	463283.2	3809927.8	1080.0	3.49	4.00	3.25 YES
L0008787	0	0.68670E-06	463284.0	3809936.4	1080.0	3.49	4.00	3.25 YES
L0008788	0	0.68670E-06	463284.7	3809944.9	1080.0	3.49	4.00	3.25 YES
L0008789	0	0.68670E-06	463285.5	3809953.5	1080.0	3.49	4.00	3.25 YES
L0008790	0	0.68670E-06	463286.2	3809962.0	1079.8	3.49	4.00	3.25 YES
L0008791	0	0.68670E-06	463286.3	3809970.6	1079.5	3.49	4.00	3.25 YES
L0008792	0	0.68670E-06	463286.4	3809979.2	1079.2	3.49	4.00	3.25 YES
L0008793	0	0.68670E-06	463286.6	3809987.8	1079.0	3.49	4.00	3.25 YES
L0008794	0	0.68670E-06	463286.7	3809996.4	1078.8	3.49	4.00	3.25 YES
L0008795	0	0.68670E-06	463286.8	3810005.0	1078.6	3.49	4.00	3.25 YES
L0008796	0	0.68670E-06	463286.9	3810013.6	1078.5	3.49	4.00	3.25 YES
L0008797	0	0.68670E-06	463287.1	3810022.2	1078.3	3.49	4.00	3.25 YES
L0008798	0	0.68670E-06	463287.2	3810030.8	1078.2	3.49	4.00	3.25 YES
L0008799	0	0.68670E-06	463287.3	3810039.3	1078.1	3.49	4.00	3.25 YES
L0008800	0	0.68670E-06	463287.5	3810047.9	1078.0	3.49	4.00	3.25 YES
L0008801	0	0.68670E-06	463287.6	3810056.5	1077.8	3.49	4.00	3.25 YES
L0008802	0	0.68670E-06	463287.7	3810065.1	1077.6	3.49	4.00	3.25 YES
L0008803	0	0.68670E-06	463287.8	3810073.7	1077.5	3.49	4.00	3.25 YES
L0008804	0	0.68670E-06	463288.0	3810082.3	1077.3	3.49	4.00	3.25 YES
L0008805	0	0.68670E-06	463288.1	3810090.9	1077.2	3.49	4.00	3.25 YES
L0008806	0	0.68670E-06	463288.2	3810099.5	1077.1	3.49	4.00	3.25 YES
L0008807	0	0.68670E-06	463288.4	3810108.1	1076.9	3.49	4.00	3.25 YES

 L0008808   0   0.68670E-06 463288.5 3810116.6 1076.6   3.49   4.00
3.25   YES
 L0008809   0   0.68670E-06 463288.6 3810125.2 1076.4   3.49   4.00
3.25   YES
 L0008810   0   0.68670E-06 463288.8 3810133.8 1076.1   3.49   4.00
3.25   YES
 L0008811   0   0.68670E-06 463288.9 3810142.4 1076.0   3.49   4.00
3.25   YES
 L0008812   0   0.68670E-06 463289.0 3810151.0 1076.0   3.49   4.00
3.25   YES
 L0008813   0   0.68670E-06 463289.1 3810159.6 1076.0   3.49   4.00
3.25   YES
 L0008814   0   0.68670E-06 463289.3 3810168.2 1075.9   3.49   4.00
3.25   YES
 L0008815   0   0.68670E-06 463289.4 3810176.8 1075.6   3.49   4.00
3.25   YES
 L0008816   0   0.68670E-06 463289.5 3810185.4 1075.3   3.49   4.00
3.25   YES
 L0008817   0   0.68670E-06 463289.7 3810193.9 1075.1   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008818   0   0.68670E-06 463289.8 3810202.5 1074.8   3.49   4.00
3.25   YES
 L0008819   0   0.68670E-06 463289.9 3810211.1 1074.7   3.49   4.00
3.25   YES
 L0008820   0   0.68670E-06 463290.0 3810219.7 1074.5   3.49   4.00
3.25   YES
 L0008821   0   0.68670E-06 463290.2 3810228.3 1074.3   3.49   4.00
3.25   YES
 L0008822   0   0.68670E-06 463290.3 3810236.9 1074.2   3.49   4.00
3.25   YES

L0008823	0	0.68670E-06	463290.4	3810245.5	1074.1	3.49	4.00	3.25 YES
L0008824	0	0.68670E-06	463290.6	3810254.1	1074.0	3.49	4.00	3.25 YES
L0008825	0	0.68670E-06	463290.7	3810262.7	1073.8	3.49	4.00	3.25 YES
L0008826	0	0.68670E-06	463290.8	3810271.2	1073.6	3.49	4.00	3.25 YES
L0008827	0	0.68670E-06	463291.0	3810279.8	1073.4	3.49	4.00	3.25 YES
L0008828	0	0.68670E-06	463291.1	3810288.4	1073.3	3.49	4.00	3.25 YES
L0008829	0	0.68670E-06	463291.2	3810297.0	1073.2	3.49	4.00	3.25 YES
L0008830	0	0.68670E-06	463291.3	3810305.6	1073.1	3.49	4.00	3.25 YES
L0008831	0	0.68670E-06	463291.5	3810314.2	1073.0	3.49	4.00	3.25 YES
L0008832	0	0.68670E-06	463291.6	3810322.8	1072.8	3.49	4.00	3.25 YES
L0008833	0	0.68670E-06	463291.7	3810331.4	1072.5	3.49	4.00	3.25 YES
L0008834	0	0.68670E-06	463291.9	3810340.0	1072.2	3.49	4.00	3.25 YES
L0008835	0	0.68670E-06	463292.0	3810348.5	1072.0	3.49	4.00	3.25 YES
L0008836	0	0.68660E-06	463238.6	3809541.6	1086.0	3.49	4.00	3.25 YES
L0008837	0	0.68660E-06	463230.0	3809541.6	1086.0	3.49	4.00	3.25 YES
L0008838	0	0.68660E-06	463221.4	3809541.7	1086.0	3.49	4.00	3.25 YES
L0008839	0	0.68660E-06	463212.8	3809541.7	1086.0	3.49	4.00	3.25 YES
L0008840	0	0.68660E-06	463204.2	3809541.8	1086.0	3.49	4.00	3.25 YES
L0008841	0	0.68660E-06	463195.7	3809541.8	1086.0	3.49	4.00	3.25 YES
L0008842	0	0.68660E-06	463187.1	3809541.9	1086.0	3.49	4.00	3.25 YES
L0008843	0	0.68660E-06	463178.5	3809541.9	1086.0	3.49	4.00	3.25 YES
L0008844	0	0.68660E-06	463169.9	3809542.0	1086.3	3.49	4.00	3.25 YES
L0008845	0	0.68660E-06	463161.3	3809542.0	1086.6	3.49	4.00	3.25 YES
L0008846	0	0.68660E-06	463152.7	3809542.1	1086.9	3.49	4.00	3.25 YES
L0008847	0	0.68660E-06	463144.1	3809542.2	1087.0	3.49	4.00	3.25 YES

 L0008848   0   0.68660E-06 463135.5 3809542.2 1087.0   3.49   4.00
3.25   YES
 L0008849   0   0.68660E-06 463126.9 3809542.3 1087.0   3.49   4.00
3.25   YES
 L0008850   0   0.68660E-06 463118.3 3809542.3 1087.0   3.49   4.00
3.25   YES
 L0008851   0   0.68660E-06 463109.8 3809542.4 1087.3   3.49   4.00
3.25   YES
 L0008852   0   0.68660E-06 463101.2 3809542.4 1087.5   3.49   4.00
3.25   YES
 L0008853   0   0.68660E-06 463092.6 3809542.5 1087.7   3.49   4.00
3.25   YES
 L0008854   0   0.68660E-06 463084.0 3809542.5 1087.8   3.49   4.00
3.25   YES
 L0008855   0   0.68660E-06 463075.4 3809542.6 1087.9   3.49   4.00
3.25   YES
 L0008856   0   0.68660E-06 463066.8 3809542.6 1088.0   3.49   4.00
3.25   YES
 L0008857   0   0.68660E-06 463058.2 3809542.7 1088.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008858   0   0.68660E-06 463049.6 3809542.7 1088.0   3.49   4.00
3.25   YES
 L0008859   0   0.68660E-06 463041.0 3809542.8 1088.0   3.49   4.00
3.25   YES
 L0008860   0   0.68660E-06 463032.5 3809542.9 1088.0   3.49   4.00
3.25   YES
 L0008861   0   0.68660E-06 463023.9 3809542.9 1088.2   3.49   4.00
3.25   YES
 L0008862   0   0.68660E-06 463015.3 3809543.0 1088.4   3.49   4.00
3.25   YES

L0008863	0	0.68660E-06	463006.7	3809543.0	1088.6	3.49	4.00	3.25 YES
L0008864	0	0.68660E-06	462998.1	3809543.1	1088.8	3.49	4.00	3.25 YES
L0008865	0	0.68660E-06	462989.5	3809543.1	1088.8	3.49	4.00	3.25 YES
L0008866	0	0.68660E-06	462980.9	3809543.2	1088.8	3.49	4.00	3.25 YES
L0008867	0	0.68660E-06	462972.3	3809543.2	1088.8	3.49	4.00	3.25 YES
L0008868	0	0.68660E-06	462963.7	3809543.3	1088.8	3.49	4.00	3.25 YES
L0008869	0	0.68660E-06	462955.1	3809543.3	1088.9	3.49	4.00	3.25 YES
L0008870	0	0.68660E-06	462946.6	3809543.4	1089.0	3.49	4.00	3.25 YES
L0008871	0	0.68660E-06	462938.0	3809543.5	1089.0	3.49	4.00	3.25 YES
L0008872	0	0.68660E-06	462929.4	3809543.5	1089.0	3.49	4.00	3.25 YES
L0008873	0	0.68660E-06	462920.8	3809543.6	1089.0	3.49	4.00	3.25 YES
L0008874	0	0.68660E-06	462912.2	3809543.6	1089.0	3.49	4.00	3.25 YES
L0008875	0	0.68660E-06	462903.6	3809543.7	1089.0	3.49	4.00	3.25 YES
L0008876	0	0.68660E-06	462895.0	3809543.7	1089.0	3.49	4.00	3.25 YES
L0008877	0	0.34310E-06	463238.6	3809541.6	1086.0	0.00	4.00	3.25 YES
L0008878	0	0.34310E-06	463230.0	3809541.6	1086.0	0.00	4.00	3.25 YES
L0008879	0	0.34310E-06	463221.4	3809541.7	1086.0	0.00	4.00	3.25 YES
L0008880	0	0.34310E-06	463212.8	3809541.7	1086.0	0.00	4.00	3.25 YES
L0008881	0	0.34310E-06	463204.2	3809541.8	1086.0	0.00	4.00	3.25 YES
L0008882	0	0.34310E-06	463195.7	3809541.8	1086.0	0.00	4.00	3.25 YES
L0008883	0	0.34310E-06	463187.1	3809541.9	1086.0	0.00	4.00	3.25 YES
L0008884	0	0.34310E-06	463178.5	3809541.9	1086.0	0.00	4.00	3.25 YES
L0008885	0	0.34310E-06	463169.9	3809542.0	1086.3	0.00	4.00	3.25 YES
L0008886	0	0.34310E-06	463161.3	3809542.0	1086.6	0.00	4.00	3.25 YES
L0008887	0	0.34310E-06	463152.7	3809542.1	1086.9	0.00	4.00	3.25 YES

 L0008888   0   0.34310E-06 463144.1 3809542.2 1087.0   0.00   4.00
3.25   YES
 L0008889   0   0.34310E-06 463135.5 3809542.2 1087.0   0.00   4.00
3.25   YES
 L0008890   0   0.34310E-06 463126.9 3809542.3 1087.0   0.00   4.00
3.25   YES
 L0008891   0   0.34310E-06 463118.3 3809542.3 1087.0   0.00   4.00
3.25   YES
 L0008892   0   0.34310E-06 463109.8 3809542.4 1087.3   0.00   4.00
3.25   YES
 L0008893   0   0.34310E-06 463101.2 3809542.4 1087.5   0.00   4.00
3.25   YES
 L0008894   0   0.34310E-06 463092.6 3809542.5 1087.7   0.00   4.00
3.25   YES
 L0008895   0   0.34310E-06 463084.0 3809542.5 1087.8   0.00   4.00
3.25   YES
 L0008896   0   0.34310E-06 463075.4 3809542.6 1087.9   0.00   4.00
3.25   YES
 L0008897   0   0.34310E-06 463066.8 3809542.6 1088.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008898   0   0.34310E-06 463058.2 3809542.7 1088.0   0.00   4.00
3.25   YES
 L0008899   0   0.34310E-06 463049.6 3809542.7 1088.0   0.00   4.00
3.25   YES
 L0008900   0   0.34310E-06 463041.0 3809542.8 1088.0   0.00   4.00
3.25   YES
 L0008901   0   0.34310E-06 463032.5 3809542.9 1088.0   0.00   4.00
3.25   YES
 L0008902   0   0.34310E-06 463023.9 3809542.9 1088.2   0.00   4.00
3.25   YES

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 L0008903         0   0.34310E-06  463015.3 3809543.0  1088.4     0.00     4.00
3.25     YES
 L0008904         0   0.34310E-06  463006.7 3809543.0  1088.6     0.00     4.00
3.25     YES
 L0008905         0   0.34310E-06  462998.1 3809543.1  1088.8     0.00     4.00
3.25     YES
 L0008906         0   0.34310E-06  462989.5 3809543.1  1088.8     0.00     4.00
3.25     YES
 L0008907         0   0.34310E-06  462980.9 3809543.2  1088.8     0.00     4.00
3.25     YES
 L0008908         0   0.34310E-06  462972.3 3809543.2  1088.8     0.00     4.00
3.25     YES
 L0008909         0   0.34310E-06  462963.7 3809543.3  1088.8     0.00     4.00
3.25     YES
 L0008910         0   0.34310E-06  462955.1 3809543.3  1088.9     0.00     4.00
3.25     YES
 L0008911         0   0.34310E-06  462946.6 3809543.4  1089.0     0.00     4.00
3.25     YES
 L0008912         0   0.34310E-06  462938.0 3809543.5  1089.0     0.00     4.00
3.25     YES
 L0008913         0   0.34310E-06  462929.4 3809543.5  1089.0     0.00     4.00
3.25     YES
 L0008914         0   0.34310E-06  462920.8 3809543.6  1089.0     0.00     4.00
3.25     YES
 L0008915         0   0.34310E-06  462912.2 3809543.6  1089.0     0.00     4.00
3.25     YES
 L0008916         0   0.34310E-06  462903.6 3809543.7  1089.0     0.00     4.00
3.25     YES
 L0008917         0   0.34310E-06  462895.0 3809543.7  1089.0     0.00     4.00
3.25     YES
 L0008918         0   0.34310E-06  462886.4 3809543.8  1089.0     0.00     4.00
3.25     YES
 L0008919         0   0.34310E-06  462877.8 3809543.8  1089.0     0.00     4.00
3.25     YES
 L0008920         0   0.34310E-06  462869.2 3809543.9  1089.0     0.00     4.00
3.25     YES
 L0008921         0   0.34310E-06  462860.7 3809543.9  1089.0     0.00     4.00
3.25     YES
 L0008922         0   0.34310E-06  462852.1 3809544.0  1089.0     0.00     4.00
3.25     YES
 L0008923         0   0.34310E-06  462843.5 3809544.0  1089.2     0.00     4.00
3.25     YES
 L0008924         0   0.34310E-06  462834.9 3809544.1  1089.4     0.00     4.00
3.25     YES
 L0008925         0   0.34310E-06  462826.3 3809544.1  1089.6     0.00     4.00
3.25     YES
 L0008926         0   0.34310E-06  462817.7 3809544.2  1089.7     0.00     4.00
3.25     YES
 L0008927         0   0.34310E-06  462809.1 3809544.2  1089.7     0.00     4.00
3.25     YES
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 L0008928   0   0.34310E-06 462800.5 3809544.3 1089.7   0.00   4.00
3.25   YES
 L0008929   0   0.34310E-06 462791.9 3809544.3 1089.7   0.00   4.00
3.25   YES
 L0008930   0   0.34310E-06 462783.3 3809544.4 1089.7   0.00   4.00
3.25   YES
 L0008931   0   0.34310E-06 462774.8 3809544.4 1089.7   0.00   4.00
3.25   YES
 L0008932   0   0.34310E-06 462766.2 3809544.5 1089.7   0.00   4.00
3.25   YES
 L0008933   0   0.34310E-06 462757.6 3809544.5 1089.7   0.00   4.00
3.25   YES
 L0008934   0   0.34310E-06 462749.0 3809544.6 1089.8   0.00   4.00
3.25   YES
 L0008935   0   0.34310E-06 462740.4 3809544.6 1089.9   0.00   4.00
3.25   YES
 L0008936   0   0.34310E-06 462731.8 3809544.6 1090.0   0.00   4.00
3.25   YES
 L0008937   0   0.34310E-06 462723.2 3809544.7 1090.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008938   0   0.34310E-06 462714.6 3809544.7 1090.0   0.00   4.00
3.25   YES
 L0008939   0   0.34310E-06 462706.0 3809544.8 1090.0   0.00   4.00
3.25   YES
 L0008940   0   0.34310E-06 462697.4 3809544.8 1090.0   0.00   4.00
3.25   YES
 L0008941   0   0.34310E-06 462688.9 3809544.9 1090.0   0.00   4.00
3.25   YES
 L0008942   0   0.34310E-06 462680.3 3809544.9 1090.0   0.00   4.00
3.25   YES

L0008943	0	0.34310E-06	462671.7	3809545.0	1090.0	0.00	4.00	3.25 YES
L0008944	0	0.34310E-06	462663.1	3809545.0	1090.0	0.00	4.00	3.25 YES
L0008945	0	0.34310E-06	462654.5	3809545.1	1090.0	0.00	4.00	3.25 YES
L0008946	0	0.34310E-06	462645.9	3809545.1	1090.0	0.00	4.00	3.25 YES
L0008947	0	0.34310E-06	462637.3	3809545.2	1090.1	0.00	4.00	3.25 YES
L0008948	0	0.34310E-06	462628.7	3809545.2	1090.3	0.00	4.00	3.25 YES
L0008949	0	0.34310E-06	462620.1	3809545.3	1090.5	0.00	4.00	3.25 YES
L0008950	0	0.34310E-06	462611.5	3809545.3	1090.6	0.00	4.00	3.25 YES
L0008951	0	0.34310E-06	462603.0	3809545.4	1090.7	0.00	4.00	3.25 YES
L0008952	0	0.34310E-06	462594.4	3809545.4	1090.7	0.00	4.00	3.25 YES
L0008953	0	0.34310E-06	462585.8	3809545.5	1090.7	0.00	4.00	3.25 YES
L0008954	0	0.34310E-06	462577.2	3809545.5	1090.7	0.00	4.00	3.25 YES
L0008955	0	0.34310E-06	462568.6	3809545.6	1090.7	0.00	4.00	3.25 YES
L0008956	0	0.34310E-06	462560.0	3809545.6	1090.7	0.00	4.00	3.25 YES
L0008957	0	0.34310E-06	462551.4	3809545.7	1090.7	0.00	4.00	3.25 YES
L0008958	0	0.34310E-06	462542.8	3809545.7	1090.8	0.00	4.00	3.25 YES
L0008959	0	0.34310E-06	462534.2	3809545.8	1090.8	0.00	4.00	3.25 YES
L0008960	0	0.34310E-06	462525.6	3809545.8	1090.9	0.00	4.00	3.25 YES
L0008961	0	0.34310E-06	462517.1	3809545.9	1091.0	0.00	4.00	3.25 YES
L0008962	0	0.34310E-06	462508.5	3809545.9	1091.0	0.00	4.00	3.25 YES
L0008963	0	0.34310E-06	462499.9	3809546.0	1091.0	0.00	4.00	3.25 YES
L0008964	0	0.34310E-06	462491.3	3809546.0	1091.0	0.00	4.00	3.25 YES
L0008965	0	0.34310E-06	462482.7	3809546.1	1091.2	0.00	4.00	3.25 YES
L0008966	0	0.34310E-06	462474.1	3809546.1	1091.5	0.00	4.00	3.25 YES
L0008967	0	0.34310E-06	462465.5	3809546.2	1091.8	0.00	4.00	3.25 YES

 L0008968   0   0.34310E-06 462456.9 3809546.2 1092.0   0.00   4.00
3.25   YES
 L0008969   0   0.34310E-06 462448.3 3809546.3 1092.0   0.00   4.00
3.25   YES
 L0008970   0   0.34310E-06 462439.8 3809546.3 1092.0   0.00   4.00
3.25   YES
 L0008971   0   0.34310E-06 462431.2 3809546.4 1092.0   0.00   4.00
3.25   YES
 L0008972   0   0.34310E-06 462422.6 3809546.4 1092.2   0.00   4.00
3.25   YES
 L0008973   0   0.34310E-06 462414.0 3809546.5 1092.3   0.00   4.00
3.25   YES
 L0008974   0   0.34310E-06 462405.4 3809546.5 1092.5   0.00   4.00
3.25   YES
 L0008975   0   0.34310E-06 462396.8 3809546.6 1092.7   0.00   4.00
3.25   YES
 L0008976   0   0.34310E-06 462388.2 3809546.6 1092.8   0.00   4.00
3.25   YES
 L0008977   0   0.34310E-06 462379.6 3809546.7 1092.9   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0008978   0   0.34310E-06 462371.0 3809546.7 1093.0   0.00   4.00
3.25   YES
 L0008979   0   0.34310E-06 462362.4 3809546.7 1093.2   0.00   4.00
3.25   YES
 L0008980   0   0.34310E-06 462353.9 3809546.8 1093.3   0.00   4.00
3.25   YES
 L0008981   0   0.34310E-06 462345.3 3809546.8 1093.5   0.00   4.00
3.25   YES
 L0008982   0   0.34310E-06 462336.7 3809546.9 1093.6   0.00   4.00
3.25   YES

L0008983	0	0.34310E-06	462328.1	3809546.9	1093.6	0.00	4.00
3.25	YES						
L0008984	0	0.34310E-06	462319.5	3809547.0	1093.6	0.00	4.00
3.25	YES						
L0008985	0	0.34310E-06	462310.9	3809547.0	1093.6	0.00	4.00
3.25	YES						
L0008986	0	0.34310E-06	462302.3	3809547.1	1093.7	0.00	4.00
3.25	YES						
L0008987	0	0.34310E-06	462293.7	3809547.1	1093.8	0.00	4.00
3.25	YES						
L0008988	0	0.34310E-06	462285.1	3809547.2	1093.9	0.00	4.00
3.25	YES						
L0008989	0	0.34310E-06	462276.5	3809547.2	1094.0	0.00	4.00
3.25	YES						
L0008990	0	0.34310E-06	462268.0	3809547.3	1094.0	0.00	4.00
3.25	YES						
L0008991	0	0.34310E-06	462259.4	3809547.3	1094.0	0.00	4.00
3.25	YES						
L0008992	0	0.34310E-06	462250.8	3809547.4	1094.0	0.00	4.00
3.25	YES						
L0008993	0	0.34310E-06	462242.2	3809547.4	1094.2	0.00	4.00
3.25	YES						
L0008994	0	0.34310E-06	462233.6	3809547.5	1094.3	0.00	4.00
3.25	YES						
L0008995	0	0.34310E-06	462225.0	3809547.5	1094.5	0.00	4.00
3.25	YES						
L0008996	0	0.34310E-06	462216.4	3809547.6	1094.7	0.00	4.00
3.25	YES						
L0008997	0	0.34310E-06	462207.8	3809547.6	1094.8	0.00	4.00
3.25	YES						
L0008998	0	0.34310E-06	462199.2	3809547.7	1094.9	0.00	4.00
3.25	YES						
L0008999	0	0.34310E-06	462190.6	3809547.7	1095.0	0.00	4.00
3.25	YES						
L0009000	0	0.34310E-06	462182.1	3809547.8	1095.2	0.00	4.00
3.25	YES						
L0009001	0	0.34310E-06	462173.5	3809547.8	1095.3	0.00	4.00
3.25	YES						
L0009002	0	0.34310E-06	462164.9	3809547.9	1095.5	0.00	4.00
3.25	YES						
L0009003	0	0.34310E-06	462156.3	3809547.9	1095.6	0.00	4.00
3.25	YES						
L0009004	0	0.34310E-06	462147.7	3809548.0	1095.6	0.00	4.00
3.25	YES						
L0009005	0	0.34310E-06	462139.1	3809548.0	1095.6	0.00	4.00
3.25	YES						
L0009006	0	0.34310E-06	462130.5	3809548.1	1095.6	0.00	4.00
3.25	YES						
L0009007	0	0.34310E-06	462121.9	3809548.1	1095.7	0.00	4.00
3.25	YES						

 L0009008   0   0.34310E-06 462113.3 3809548.2 1095.8   0.00   4.00
3.25   YES
 L0009009   0   0.34310E-06 462104.7 3809548.2 1095.9   0.00   4.00
3.25   YES
 L0009010   0   0.34310E-06 462096.2 3809548.3 1096.0   0.00   4.00
3.25   YES
 L0009011   0   0.34310E-06 462087.6 3809548.3 1096.0   0.00   4.00
3.25   YES
 L0009012   0   0.34310E-06 462079.0 3809548.4 1096.0   0.00   4.00
3.25   YES
 L0009013   0   0.34310E-06 462070.4 3809548.4 1096.0   0.00   4.00
3.25   YES
 L0009014   0   0.34310E-06 462061.8 3809548.5 1096.2   0.00   4.00
3.25   YES
 L0009015   0   0.34310E-06 462053.2 3809548.5 1096.3   0.00   4.00
3.25   YES
 L0009016   0   0.34310E-06 462044.6 3809548.6 1096.5   0.00   4.00
3.25   YES
 L0009017   0   0.34310E-06 462036.0 3809548.6 1096.6   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009018   0   0.34310E-06 462027.4 3809548.7 1096.6   0.00   4.00
3.25   YES
 L0009019   0   0.34310E-06 462018.8 3809548.7 1096.6   0.00   4.00
3.25   YES
 L0009020   0   0.34310E-06 462010.3 3809548.8 1096.6   0.00   4.00
3.25   YES
 L0009021   0   0.34310E-06 462001.7 3809548.8 1096.7   0.00   4.00
3.25   YES
 L0009022   0   0.34310E-06 461993.1 3809548.8 1096.8   0.00   4.00
3.25   YES

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 L0009023         0   0.34310E-06  461984.5 3809548.9  1096.9     0.00     4.00
3.25     YES
 L0009024         0   0.34310E-06  461975.9 3809548.9  1097.1     0.00     4.00
3.25     YES
 L0009025         0   0.34310E-06  461967.3 3809549.0  1097.2     0.00     4.00
3.25     YES
 L0009026         0   0.34310E-06  461958.7 3809549.0  1097.4     0.00     4.00
3.25     YES
 L0009027         0   0.34310E-06  461950.1 3809549.1  1097.6     0.00     4.00
3.25     YES
 L0009028         0   0.34310E-06  461941.5 3809549.1  1097.7     0.00     4.00
3.25     YES
 L0009029         0   0.34310E-06  461932.9 3809549.2  1097.8     0.00     4.00
3.25     YES
 L0009030         0   0.34310E-06  461924.4 3809549.2  1097.9     0.00     4.00
3.25     YES
 L0009031         0   0.34310E-06  461915.8 3809549.3  1098.0     0.00     4.00
3.25     YES
 L0009032         0   0.34310E-06  461907.2 3809549.3  1098.0     0.00     4.00
3.25     YES
 L0009033         0   0.34310E-06  461898.6 3809549.4  1098.0     0.00     4.00
3.25     YES
 L0009034         0   0.34310E-06  461890.0 3809549.4  1098.0     0.00     4.00
3.25     YES
 L0009035         0   0.34310E-06  461881.4 3809549.5  1098.0     0.00     4.00
3.25     YES
 L0009036         0   0.34310E-06  461872.8 3809549.5  1098.0     0.00     4.00
3.25     YES
 L0009037         0   0.34310E-06  461864.2 3809549.6  1098.0     0.00     4.00
3.25     YES
 L0009038         0   0.34310E-06  461855.6 3809549.6  1098.0     0.00     4.00
3.25     YES
 L0009039         0   0.34310E-06  461847.1 3809549.7  1098.0     0.00     4.00
3.25     YES
 L0009040         0   0.34310E-06  461838.5 3809549.7  1098.0     0.00     4.00
3.25     YES
 L0009041         0   0.34310E-06  461829.9 3809549.8  1098.0     0.00     4.00
3.25     YES
 L0009042         0   0.34310E-06  461821.3 3809549.8  1097.6     0.00     4.00
3.25     YES
 L0009043         0   0.34310E-06  461812.7 3809549.9  1097.1     0.00     4.00
3.25     YES
 L0009044         0   0.85830E-06  463238.6 3809541.6  1086.0     3.49     4.00
3.25     YES
 L0009045         0   0.85830E-06  463230.0 3809541.6  1086.0     3.49     4.00
3.25     YES
 L0009046         0   0.85830E-06  463221.4 3809541.7  1086.0     3.49     4.00
3.25     YES
 L0009047         0   0.85830E-06  463212.8 3809541.7  1086.0     3.49     4.00
3.25     YES
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 L0009048   0   0.85830E-06 463204.2 3809541.8 1086.0   3.49   4.00
3.25   YES
 L0009049   0   0.85830E-06 463195.7 3809541.8 1086.0   3.49   4.00
3.25   YES
 L0009050   0   0.85830E-06 463187.1 3809541.9 1086.0   3.49   4.00
3.25   YES
 L0009051   0   0.85830E-06 463178.5 3809541.9 1086.0   3.49   4.00
3.25   YES
 L0009052   0   0.85830E-06 463169.9 3809542.0 1086.3   3.49   4.00
3.25   YES
 L0009053   0   0.85830E-06 463161.3 3809542.0 1086.6   3.49   4.00
3.25   YES
 L0009054   0   0.85830E-06 463152.7 3809542.1 1086.9   3.49   4.00
3.25   YES
 L0009055   0   0.85830E-06 463144.1 3809542.2 1087.0   3.49   4.00
3.25   YES
 L0009056   0   0.85830E-06 463135.5 3809542.2 1087.0   3.49   4.00
3.25   YES
 L0009057   0   0.85830E-06 463126.9 3809542.3 1087.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009058   0   0.85830E-06 463118.3 3809542.3 1087.0   3.49   4.00
3.25   YES
 L0009059   0   0.85830E-06 463109.8 3809542.4 1087.3   3.49   4.00
3.25   YES
 L0009060   0   0.85830E-06 463101.2 3809542.4 1087.5   3.49   4.00
3.25   YES
 L0009061   0   0.85830E-06 463092.6 3809542.5 1087.7   3.49   4.00
3.25   YES
 L0009062   0   0.85830E-06 463084.0 3809542.5 1087.8   3.49   4.00
3.25   YES

L0009063	0	0.85830E-06	463075.4	3809542.6	1087.9	3.49	4.00	3.25 YES
L0009064	0	0.85830E-06	463066.8	3809542.6	1088.0	3.49	4.00	3.25 YES
L0009065	0	0.85830E-06	463058.2	3809542.7	1088.0	3.49	4.00	3.25 YES
L0009066	0	0.85830E-06	463049.6	3809542.7	1088.0	3.49	4.00	3.25 YES
L0009067	0	0.85830E-06	463041.0	3809542.8	1088.0	3.49	4.00	3.25 YES
L0009068	0	0.85830E-06	463032.5	3809542.9	1088.0	3.49	4.00	3.25 YES
L0009069	0	0.85830E-06	463023.9	3809542.9	1088.2	3.49	4.00	3.25 YES
L0009070	0	0.85830E-06	463015.3	3809543.0	1088.4	3.49	4.00	3.25 YES
L0009071	0	0.85830E-06	463006.7	3809543.0	1088.6	3.49	4.00	3.25 YES
L0009072	0	0.85830E-06	462998.1	3809543.1	1088.8	3.49	4.00	3.25 YES
L0009073	0	0.85830E-06	462989.5	3809543.1	1088.8	3.49	4.00	3.25 YES
L0009074	0	0.85830E-06	462980.9	3809543.2	1088.8	3.49	4.00	3.25 YES
L0009075	0	0.85830E-06	462972.3	3809543.2	1088.8	3.49	4.00	3.25 YES
L0009076	0	0.85830E-06	462963.7	3809543.3	1088.8	3.49	4.00	3.25 YES
L0009077	0	0.85830E-06	462955.1	3809543.3	1088.9	3.49	4.00	3.25 YES
L0009078	0	0.85830E-06	462946.6	3809543.4	1089.0	3.49	4.00	3.25 YES
L0009079	0	0.85830E-06	462938.0	3809543.5	1089.0	3.49	4.00	3.25 YES
L0009080	0	0.85830E-06	462929.4	3809543.5	1089.0	3.49	4.00	3.25 YES
L0009081	0	0.85830E-06	462920.8	3809543.6	1089.0	3.49	4.00	3.25 YES
L0009082	0	0.85830E-06	462912.2	3809543.6	1089.0	3.49	4.00	3.25 YES
L0009083	0	0.85830E-06	462903.6	3809543.7	1089.0	3.49	4.00	3.25 YES
L0009084	0	0.85830E-06	462895.0	3809543.7	1089.0	3.49	4.00	3.25 YES
L0009085	0	0.85750E-07	463238.6	3809541.6	1086.0	0.00	4.00	3.25 YES
L0009086	0	0.85750E-07	463230.0	3809541.6	1086.0	0.00	4.00	3.25 YES
L0009087	0	0.85750E-07	463221.4	3809541.7	1086.0	0.00	4.00	3.25 YES

 L0009088   0   0.85750E-07 463212.8 3809541.7 1086.0   0.00   4.00
3.25   YES
 L0009089   0   0.85750E-07 463204.2 3809541.8 1086.0   0.00   4.00
3.25   YES
 L0009090   0   0.85750E-07 463195.7 3809541.8 1086.0   0.00   4.00
3.25   YES
 L0009091   0   0.85750E-07 463187.1 3809541.9 1086.0   0.00   4.00
3.25   YES
 L0009092   0   0.85750E-07 463178.5 3809541.9 1086.0   0.00   4.00
3.25   YES
 L0009093   0   0.85750E-07 463169.9 3809542.0 1086.3   0.00   4.00
3.25   YES
 L0009094   0   0.85750E-07 463161.3 3809542.0 1086.6   0.00   4.00
3.25   YES
 L0009095   0   0.85750E-07 463152.7 3809542.1 1086.9   0.00   4.00
3.25   YES
 L0009096   0   0.85750E-07 463144.1 3809542.2 1087.0   0.00   4.00
3.25   YES
 L0009097   0   0.85750E-07 463135.5 3809542.2 1087.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009098   0   0.85750E-07 463126.9 3809542.3 1087.0   0.00   4.00
3.25   YES
 L0009099   0   0.85750E-07 463118.3 3809542.3 1087.0   0.00   4.00
3.25   YES
 L0009100   0   0.85750E-07 463109.8 3809542.4 1087.3   0.00   4.00
3.25   YES
 L0009101   0   0.85750E-07 463101.2 3809542.4 1087.5   0.00   4.00
3.25   YES
 L0009102   0   0.85750E-07 463092.6 3809542.5 1087.7   0.00   4.00
3.25   YES

L0009103	0	0.85750E-07	463084.0	3809542.5	1087.8	0.00	4.00	3.25 YES
L0009104	0	0.85750E-07	463075.4	3809542.6	1087.9	0.00	4.00	3.25 YES
L0009105	0	0.85750E-07	463066.8	3809542.6	1088.0	0.00	4.00	3.25 YES
L0009106	0	0.85750E-07	463058.2	3809542.7	1088.0	0.00	4.00	3.25 YES
L0009107	0	0.85750E-07	463049.6	3809542.7	1088.0	0.00	4.00	3.25 YES
L0009108	0	0.85750E-07	463041.0	3809542.8	1088.0	0.00	4.00	3.25 YES
L0009109	0	0.85750E-07	463032.5	3809542.9	1088.0	0.00	4.00	3.25 YES
L0009110	0	0.85750E-07	463023.9	3809542.9	1088.2	0.00	4.00	3.25 YES
L0009111	0	0.85750E-07	463015.3	3809543.0	1088.4	0.00	4.00	3.25 YES
L0009112	0	0.85750E-07	463006.7	3809543.0	1088.6	0.00	4.00	3.25 YES
L0009113	0	0.85750E-07	462998.1	3809543.1	1088.8	0.00	4.00	3.25 YES
L0009114	0	0.85750E-07	462989.5	3809543.1	1088.8	0.00	4.00	3.25 YES
L0009115	0	0.85750E-07	462980.9	3809543.2	1088.8	0.00	4.00	3.25 YES
L0009116	0	0.85750E-07	462972.3	3809543.2	1088.8	0.00	4.00	3.25 YES
L0009117	0	0.85750E-07	462963.7	3809543.3	1088.8	0.00	4.00	3.25 YES
L0009118	0	0.85750E-07	462955.1	3809543.3	1088.9	0.00	4.00	3.25 YES
L0009119	0	0.85750E-07	462946.6	3809543.4	1089.0	0.00	4.00	3.25 YES
L0009120	0	0.85750E-07	462938.0	3809543.5	1089.0	0.00	4.00	3.25 YES
L0009121	0	0.85750E-07	462929.4	3809543.5	1089.0	0.00	4.00	3.25 YES
L0009122	0	0.85750E-07	462920.8	3809543.6	1089.0	0.00	4.00	3.25 YES
L0009123	0	0.85750E-07	462912.2	3809543.6	1089.0	0.00	4.00	3.25 YES
L0009124	0	0.85750E-07	462903.6	3809543.7	1089.0	0.00	4.00	3.25 YES
L0009125	0	0.85750E-07	462895.0	3809543.7	1089.0	0.00	4.00	3.25 YES
L0009126	0	0.85750E-07	462886.4	3809543.8	1089.0	0.00	4.00	3.25 YES
L0009127	0	0.85750E-07	462877.8	3809543.8	1089.0	0.00	4.00	3.25 YES

 L0009128   0   0.85750E-07 462869.2 3809543.9 1089.0   0.00   4.00
3.25   YES
 L0009129   0   0.85750E-07 462860.7 3809543.9 1089.0   0.00   4.00
3.25   YES
 L0009130   0   0.85750E-07 462852.1 3809544.0 1089.0   0.00   4.00
3.25   YES
 L0009131   0   0.85750E-07 462843.5 3809544.0 1089.2   0.00   4.00
3.25   YES
 L0009132   0   0.85750E-07 462834.9 3809544.1 1089.4   0.00   4.00
3.25   YES
 L0009133   0   0.85750E-07 462826.3 3809544.1 1089.6   0.00   4.00
3.25   YES
 L0009134   0   0.85750E-07 462817.7 3809544.2 1089.7   0.00   4.00
3.25   YES
 L0009135   0   0.85750E-07 462809.1 3809544.2 1089.7   0.00   4.00
3.25   YES
 L0009136   0   0.85750E-07 462800.5 3809544.3 1089.7   0.00   4.00
3.25   YES
 L0009137   0   0.85750E-07 462791.9 3809544.3 1089.7   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009138   0   0.85750E-07 462783.3 3809544.4 1089.7   0.00   4.00
3.25   YES
 L0009139   0   0.85750E-07 462774.8 3809544.4 1089.7   0.00   4.00
3.25   YES
 L0009140   0   0.85750E-07 462766.2 3809544.5 1089.7   0.00   4.00
3.25   YES
 L0009141   0   0.85750E-07 462757.6 3809544.5 1089.7   0.00   4.00
3.25   YES
 L0009142   0   0.85750E-07 462749.0 3809544.6 1089.8   0.00   4.00
3.25   YES

L0009143	0	0.85750E-07	462740.4	3809544.6	1089.9	0.00	4.00	3.25 YES
L0009144	0	0.85750E-07	462731.8	3809544.6	1090.0	0.00	4.00	3.25 YES
L0009145	0	0.85750E-07	462723.2	3809544.7	1090.0	0.00	4.00	3.25 YES
L0009146	0	0.85750E-07	462714.6	3809544.7	1090.0	0.00	4.00	3.25 YES
L0009147	0	0.85750E-07	462706.0	3809544.8	1090.0	0.00	4.00	3.25 YES
L0009148	0	0.85750E-07	462697.4	3809544.8	1090.0	0.00	4.00	3.25 YES
L0009149	0	0.85750E-07	462688.9	3809544.9	1090.0	0.00	4.00	3.25 YES
L0009150	0	0.85750E-07	462680.3	3809544.9	1090.0	0.00	4.00	3.25 YES
L0009151	0	0.85750E-07	462671.7	3809545.0	1090.0	0.00	4.00	3.25 YES
L0009152	0	0.85750E-07	462663.1	3809545.0	1090.0	0.00	4.00	3.25 YES
L0009153	0	0.85750E-07	462654.5	3809545.1	1090.0	0.00	4.00	3.25 YES
L0009154	0	0.85750E-07	462645.9	3809545.1	1090.0	0.00	4.00	3.25 YES
L0009155	0	0.85750E-07	462637.3	3809545.2	1090.1	0.00	4.00	3.25 YES
L0009156	0	0.85750E-07	462628.7	3809545.2	1090.3	0.00	4.00	3.25 YES
L0009157	0	0.85750E-07	462620.1	3809545.3	1090.5	0.00	4.00	3.25 YES
L0009158	0	0.85750E-07	462611.5	3809545.3	1090.6	0.00	4.00	3.25 YES
L0009159	0	0.85750E-07	462603.0	3809545.4	1090.7	0.00	4.00	3.25 YES
L0009160	0	0.85750E-07	462594.4	3809545.4	1090.7	0.00	4.00	3.25 YES
L0009161	0	0.85750E-07	462585.8	3809545.5	1090.7	0.00	4.00	3.25 YES
L0009162	0	0.85750E-07	462577.2	3809545.5	1090.7	0.00	4.00	3.25 YES
L0009163	0	0.85750E-07	462568.6	3809545.6	1090.7	0.00	4.00	3.25 YES
L0009164	0	0.85750E-07	462560.0	3809545.6	1090.7	0.00	4.00	3.25 YES
L0009165	0	0.85750E-07	462551.4	3809545.7	1090.7	0.00	4.00	3.25 YES
L0009166	0	0.85750E-07	462542.8	3809545.7	1090.8	0.00	4.00	3.25 YES
L0009167	0	0.85750E-07	462534.2	3809545.8	1090.8	0.00	4.00	3.25 YES

 L0009168   0   0.85750E-07 462525.6 3809545.8 1090.9   0.00   4.00
3.25   YES
 L0009169   0   0.85750E-07 462517.1 3809545.9 1091.0   0.00   4.00
3.25   YES
 L0009170   0   0.85750E-07 462508.5 3809545.9 1091.0   0.00   4.00
3.25   YES
 L0009171   0   0.85750E-07 462499.9 3809546.0 1091.0   0.00   4.00
3.25   YES
 L0009172   0   0.85750E-07 462491.3 3809546.0 1091.0   0.00   4.00
3.25   YES
 L0009173   0   0.85750E-07 462482.7 3809546.1 1091.2   0.00   4.00
3.25   YES
 L0009174   0   0.85750E-07 462474.1 3809546.1 1091.5   0.00   4.00
3.25   YES
 L0009175   0   0.85750E-07 462465.5 3809546.2 1091.8   0.00   4.00
3.25   YES
 L0009176   0   0.85750E-07 462456.9 3809546.2 1092.0   0.00   4.00
3.25   YES
 L0009177   0   0.85750E-07 462448.3 3809546.3 1092.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0009178   0   0.85750E-07 462439.8 3809546.3 1092.0   0.00   4.00
3.25   YES
 L0009179   0   0.85750E-07 462431.2 3809546.4 1092.0   0.00   4.00
3.25   YES
 L0009180   0   0.85750E-07 462422.6 3809546.4 1092.2   0.00   4.00
3.25   YES
 L0009181   0   0.85750E-07 462414.0 3809546.5 1092.3   0.00   4.00
3.25   YES
 L0009182   0   0.85750E-07 462405.4 3809546.5 1092.5   0.00   4.00
3.25   YES

L0009183	0	0.85750E-07	462396.8	3809546.6	1092.7	0.00	4.00	3.25 YES
L0009184	0	0.85750E-07	462388.2	3809546.6	1092.8	0.00	4.00	3.25 YES
L0009185	0	0.85750E-07	462379.6	3809546.7	1092.9	0.00	4.00	3.25 YES
L0009186	0	0.85750E-07	462371.0	3809546.7	1093.0	0.00	4.00	3.25 YES
L0009187	0	0.85750E-07	462362.4	3809546.7	1093.2	0.00	4.00	3.25 YES
L0009188	0	0.85750E-07	462353.9	3809546.8	1093.3	0.00	4.00	3.25 YES
L0009189	0	0.85750E-07	462345.3	3809546.8	1093.5	0.00	4.00	3.25 YES
L0009190	0	0.85750E-07	462336.7	3809546.9	1093.6	0.00	4.00	3.25 YES
L0009191	0	0.85750E-07	462328.1	3809546.9	1093.6	0.00	4.00	3.25 YES
L0009192	0	0.85750E-07	462319.5	3809547.0	1093.6	0.00	4.00	3.25 YES
L0009193	0	0.85750E-07	462310.9	3809547.0	1093.6	0.00	4.00	3.25 YES
L0009194	0	0.85750E-07	462302.3	3809547.1	1093.7	0.00	4.00	3.25 YES
L0009195	0	0.85750E-07	462293.7	3809547.1	1093.8	0.00	4.00	3.25 YES
L0009196	0	0.85750E-07	462285.1	3809547.2	1093.9	0.00	4.00	3.25 YES
L0009197	0	0.85750E-07	462276.5	3809547.2	1094.0	0.00	4.00	3.25 YES
L0009198	0	0.85750E-07	462268.0	3809547.3	1094.0	0.00	4.00	3.25 YES
L0009199	0	0.85750E-07	462259.4	3809547.3	1094.0	0.00	4.00	3.25 YES
L0009200	0	0.85750E-07	462250.8	3809547.4	1094.0	0.00	4.00	3.25 YES
L0009201	0	0.85750E-07	462242.2	3809547.4	1094.2	0.00	4.00	3.25 YES
L0009202	0	0.85750E-07	462233.6	3809547.5	1094.3	0.00	4.00	3.25 YES
L0009203	0	0.85750E-07	462225.0	3809547.5	1094.5	0.00	4.00	3.25 YES
L0009204	0	0.85750E-07	462216.4	3809547.6	1094.7	0.00	4.00	3.25 YES
L0009205	0	0.85750E-07	462207.8	3809547.6	1094.8	0.00	4.00	3.25 YES
L0009206	0	0.85750E-07	462199.2	3809547.7	1094.9	0.00	4.00	3.25 YES
L0009207	0	0.85750E-07	462190.6	3809547.7	1095.0	0.00	4.00	3.25 YES

 L0009208   0   0.85750E-07 462182.1 3809547.8 1095.2   0.00   4.00
3.25   YES
 L0009209   0   0.85750E-07 462173.5 3809547.8 1095.3   0.00   4.00
3.25   YES
 L0009210   0   0.85750E-07 462164.9 3809547.9 1095.5   0.00   4.00
3.25   YES
 L0009211   0   0.85750E-07 462156.3 3809547.9 1095.6   0.00   4.00
3.25   YES
 L0009212   0   0.85750E-07 462147.7 3809548.0 1095.6   0.00   4.00
3.25   YES
 L0009213   0   0.85750E-07 462139.1 3809548.0 1095.6   0.00   4.00
3.25   YES
 L0009214   0   0.85750E-07 462130.5 3809548.1 1095.6   0.00   4.00
3.25   YES
 L0009215   0   0.85750E-07 462121.9 3809548.1 1095.7   0.00   4.00
3.25   YES
 L0009216   0   0.85750E-07 462113.3 3809548.2 1095.8   0.00   4.00
3.25   YES
 L0009217   0   0.85750E-07 462104.7 3809548.2 1095.9   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009218   0   0.85750E-07 462096.2 3809548.3 1096.0   0.00   4.00
3.25   YES
 L0009219   0   0.85750E-07 462087.6 3809548.3 1096.0   0.00   4.00
3.25   YES
 L0009220   0   0.85750E-07 462079.0 3809548.4 1096.0   0.00   4.00
3.25   YES
 L0009221   0   0.85750E-07 462070.4 3809548.4 1096.0   0.00   4.00
3.25   YES
 L0009222   0   0.85750E-07 462061.8 3809548.5 1096.2   0.00   4.00
3.25   YES

L0009223	0	0.85750E-07	462053.2	3809548.5	1096.3	0.00	4.00	3.25 YES
L0009224	0	0.85750E-07	462044.6	3809548.6	1096.5	0.00	4.00	3.25 YES
L0009225	0	0.85750E-07	462036.0	3809548.6	1096.6	0.00	4.00	3.25 YES
L0009226	0	0.85750E-07	462027.4	3809548.7	1096.6	0.00	4.00	3.25 YES
L0009227	0	0.85750E-07	462018.8	3809548.7	1096.6	0.00	4.00	3.25 YES
L0009228	0	0.85750E-07	462010.3	3809548.8	1096.6	0.00	4.00	3.25 YES
L0009229	0	0.85750E-07	462001.7	3809548.8	1096.7	0.00	4.00	3.25 YES
L0009230	0	0.85750E-07	461993.1	3809548.8	1096.8	0.00	4.00	3.25 YES
L0009231	0	0.85750E-07	461984.5	3809548.9	1096.9	0.00	4.00	3.25 YES
L0009232	0	0.85750E-07	461975.9	3809548.9	1097.1	0.00	4.00	3.25 YES
L0009233	0	0.85750E-07	461967.3	3809549.0	1097.2	0.00	4.00	3.25 YES
L0009234	0	0.85750E-07	461958.7	3809549.0	1097.4	0.00	4.00	3.25 YES
L0009235	0	0.85750E-07	461950.1	3809549.1	1097.6	0.00	4.00	3.25 YES
L0009236	0	0.85750E-07	461941.5	3809549.1	1097.7	0.00	4.00	3.25 YES
L0009237	0	0.85750E-07	461932.9	3809549.2	1097.8	0.00	4.00	3.25 YES
L0009238	0	0.85750E-07	461924.4	3809549.2	1097.9	0.00	4.00	3.25 YES
L0009239	0	0.85750E-07	461915.8	3809549.3	1098.0	0.00	4.00	3.25 YES
L0009240	0	0.85750E-07	461907.2	3809549.3	1098.0	0.00	4.00	3.25 YES
L0009241	0	0.85750E-07	461898.6	3809549.4	1098.0	0.00	4.00	3.25 YES
L0009242	0	0.85750E-07	461890.0	3809549.4	1098.0	0.00	4.00	3.25 YES
L0009243	0	0.85750E-07	461881.4	3809549.5	1098.0	0.00	4.00	3.25 YES
L0009244	0	0.85750E-07	461872.8	3809549.5	1098.0	0.00	4.00	3.25 YES
L0009245	0	0.85750E-07	461864.2	3809549.6	1098.0	0.00	4.00	3.25 YES
L0009246	0	0.85750E-07	461855.6	3809549.6	1098.0	0.00	4.00	3.25 YES
L0009247	0	0.85750E-07	461847.1	3809549.7	1098.0	0.00	4.00	3.25 YES

 L0009248   0   0.85750E-07 461838.5 3809549.7 1098.0   0.00   4.00
3.25   YES
 L0009249   0   0.85750E-07 461829.9 3809549.8 1098.0   0.00   4.00
3.25   YES
 L0009250   0   0.85750E-07 461821.3 3809549.8 1097.6   0.00   4.00
3.25   YES
 L0009251   0   0.85750E-07 461812.7 3809549.9 1097.1   0.00   4.00
3.25   YES
 L0009252   0   0.42420E-06 463285.4 3810356.9 1072.0   3.49   4.00
3.25   YES
 L0009253   0   0.42420E-06 463276.9 3810356.9 1072.0   3.49   4.00
3.25   YES
 L0009254   0   0.42420E-06 463268.3 3810356.9 1072.0   3.49   4.00
3.25   YES
 L0009255   0   0.42420E-06 463259.7 3810356.9 1072.2   3.49   4.00
3.25   YES
 L0009256   0   0.42420E-06 463251.1 3810357.0 1072.4   3.49   4.00
3.25   YES
 L0009257   0   0.42420E-06 463242.5 3810357.0 1072.6   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

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SZ   SOURCE SCALAR VARY
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(METERS)   BY
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 L0009258   0   0.42420E-06 463233.9 3810357.0 1072.7   3.49   4.00
3.25   YES
 L0009259   0   0.42420E-06 463225.3 3810357.0 1072.8   3.49   4.00
3.25   YES
 L0009260   0   0.42420E-06 463216.7 3810357.0 1072.9   3.49   4.00
3.25   YES
 L0009261   0   0.42420E-06 463208.1 3810357.0 1073.0   3.49   4.00
3.25   YES
 L0009262   0   0.42420E-06 463199.5 3810357.1 1073.2   3.49   4.00
3.25   YES

L0009263	0	0.42420E-06	463191.0	3810357.1	1073.4	3.49	4.00	3.25 YES
L0009264	0	0.42420E-06	463182.4	3810357.1	1073.6	3.49	4.00	3.25 YES
L0009265	0	0.42420E-06	463173.8	3810357.1	1073.7	3.49	4.00	3.25 YES
L0009266	0	0.42420E-06	463165.2	3810357.1	1073.8	3.49	4.00	3.25 YES
L0009267	0	0.42420E-06	463156.6	3810357.2	1073.9	3.49	4.00	3.25 YES
L0009268	0	0.42420E-06	463148.0	3810357.2	1074.0	3.49	4.00	3.25 YES
L0009269	0	0.42420E-06	463139.4	3810357.2	1074.0	3.49	4.00	3.25 YES
L0009270	0	0.42420E-06	463130.8	3810357.2	1074.0	3.49	4.00	3.25 YES
L0009271	0	0.42420E-06	463122.2	3810357.2	1074.0	3.49	4.00	3.25 YES
L0009272	0	0.42420E-06	463113.6	3810357.2	1074.1	3.49	4.00	3.25 YES
L0009273	0	0.42420E-06	463105.1	3810357.3	1074.3	3.49	4.00	3.25 YES
L0009274	0	0.42420E-06	463096.5	3810357.3	1074.5	3.49	4.00	3.25 YES
L0009275	0	0.42420E-06	463087.9	3810357.3	1074.6	3.49	4.00	3.25 YES
L0009276	0	0.42420E-06	463079.3	3810357.3	1074.6	3.49	4.00	3.25 YES
L0009277	0	0.42420E-06	463070.7	3810357.3	1074.6	3.49	4.00	3.25 YES
L0009278	0	0.42420E-06	463062.1	3810357.4	1074.6	3.49	4.00	3.25 YES
L0009279	0	0.42420E-06	463053.5	3810357.4	1074.7	3.49	4.00	3.25 YES
L0009280	0	0.42420E-06	463044.9	3810357.4	1074.8	3.49	4.00	3.25 YES
L0009281	0	0.42420E-06	463036.3	3810357.4	1074.9	3.49	4.00	3.25 YES
L0009282	0	0.42420E-06	463027.7	3810357.4	1075.0	3.49	4.00	3.25 YES
L0009283	0	0.42420E-06	463019.2	3810357.4	1075.2	3.49	4.00	3.25 YES
L0009284	0	0.42420E-06	463010.6	3810357.5	1075.4	3.49	4.00	3.25 YES
L0009285	0	0.42420E-06	463002.0	3810357.5	1075.6	3.49	4.00	3.25 YES
L0009286	0	0.42420E-06	462993.4	3810357.5	1075.6	3.49	4.00	3.25 YES
L0009287	0	0.42420E-06	462984.8	3810357.5	1075.6	3.49	4.00	3.25 YES

 L0009288   0   0.42420E-06 462976.2 3810357.5 1075.6   3.49   4.00
3.25   YES
 L0009289   0   0.42420E-06 462967.6 3810357.6 1075.6   3.49   4.00
3.25   YES
 L0009290   0   0.42420E-06 462959.0 3810357.6 1075.8   3.49   4.00
3.25   YES
 L0009291   0   0.42420E-06 462950.4 3810357.6 1075.9   3.49   4.00
3.25   YES
 L0009292   0   0.42420E-06 462941.8 3810357.6 1076.0   3.49   4.00
3.25   YES
 L0009293   0   0.42420E-06 462933.3 3810357.6 1076.0   3.49   4.00
3.25   YES
 L0009294   0   0.42420E-06 462924.7 3810357.6 1076.0   3.49   4.00
3.25   YES
 L0009295   0   0.42420E-06 462916.1 3810357.7 1076.0   3.49   4.00
3.25   YES
 L0009296   0   0.42420E-06 462907.5 3810357.7 1076.0   3.49   4.00
3.25   YES
 L0009297   0   0.42420E-06 462898.9 3810357.7 1076.2   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0009298   0   0.42420E-06 462890.3 3810357.7 1076.4   3.49   4.00
3.25   YES
 L0009299   0   0.42420E-06 462881.7 3810357.7 1076.6   3.49   4.00
3.25   YES
 L0005079   0   0.25800E-06 463285.4 3810356.9 1072.0   0.00   4.00
3.25   YES
 L0005080   0   0.25800E-06 463276.9 3810356.9 1072.0   0.00   4.00
3.25   YES
 L0005081   0   0.25800E-06 463268.3 3810356.9 1072.0   0.00   4.00
3.25   YES

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 L0005082         0   0.25800E-06  463259.7 3810356.9  1072.2     0.00     4.00
3.25     YES
 L0005083         0   0.25800E-06  463251.1 3810357.0  1072.4     0.00     4.00
3.25     YES
 L0005084         0   0.25800E-06  463242.5 3810357.0  1072.6     0.00     4.00
3.25     YES
 L0005085         0   0.25800E-06  463233.9 3810357.0  1072.7     0.00     4.00
3.25     YES
 L0005086         0   0.25800E-06  463225.3 3810357.0  1072.8     0.00     4.00
3.25     YES
 L0005087         0   0.25800E-06  463216.7 3810357.0  1072.9     0.00     4.00
3.25     YES
 L0005088         0   0.25800E-06  463208.1 3810357.0  1073.0     0.00     4.00
3.25     YES
 L0005089         0   0.25800E-06  463199.5 3810357.1  1073.2     0.00     4.00
3.25     YES
 L0005090         0   0.25800E-06  463191.0 3810357.1  1073.4     0.00     4.00
3.25     YES
 L0005091         0   0.25800E-06  463182.4 3810357.1  1073.6     0.00     4.00
3.25     YES
 L0005092         0   0.25800E-06  463173.8 3810357.1  1073.7     0.00     4.00
3.25     YES
 L0005093         0   0.25800E-06  463165.2 3810357.1  1073.8     0.00     4.00
3.25     YES
 L0005094         0   0.25800E-06  463156.6 3810357.2  1073.9     0.00     4.00
3.25     YES
 L0005095         0   0.25800E-06  463148.0 3810357.2  1074.0     0.00     4.00
3.25     YES
 L0005096         0   0.25800E-06  463139.4 3810357.2  1074.0     0.00     4.00
3.25     YES
 L0005097         0   0.25800E-06  463130.8 3810357.2  1074.0     0.00     4.00
3.25     YES
 L0005098         0   0.25800E-06  463122.2 3810357.2  1074.0     0.00     4.00
3.25     YES
 L0005099         0   0.25800E-06  463113.6 3810357.2  1074.1     0.00     4.00
3.25     YES
 L0005100         0   0.25800E-06  463105.1 3810357.3  1074.3     0.00     4.00
3.25     YES
 L0005101         0   0.25800E-06  463096.5 3810357.3  1074.5     0.00     4.00
3.25     YES
 L0005102         0   0.25800E-06  463087.9 3810357.3  1074.6     0.00     4.00
3.25     YES
 L0005103         0   0.25800E-06  463079.3 3810357.3  1074.6     0.00     4.00
3.25     YES
 L0005104         0   0.25800E-06  463070.7 3810357.3  1074.6     0.00     4.00
3.25     YES
 L0005105         0   0.25800E-06  463062.1 3810357.4  1074.6     0.00     4.00
3.25     YES
 L0005106         0   0.25800E-06  463053.5 3810357.4  1074.7     0.00     4.00
3.25     YES
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 L0005107   0   0.25800E-06 463044.9 3810357.4 1074.8   0.00   4.00
3.25   YES
 L0005108   0   0.25800E-06 463036.3 3810357.4 1074.9   0.00   4.00
3.25   YES
 L0005109   0   0.25800E-06 463027.7 3810357.4 1075.0   0.00   4.00
3.25   YES
 L0005110   0   0.25800E-06 463019.2 3810357.4 1075.2   0.00   4.00
3.25   YES
 L0005111   0   0.25800E-06 463010.6 3810357.5 1075.4   0.00   4.00
3.25   YES
 L0005112   0   0.25800E-06 463002.0 3810357.5 1075.6   0.00   4.00
3.25   YES
 L0005113   0   0.25800E-06 462993.4 3810357.5 1075.6   0.00   4.00
3.25   YES
 L0005114   0   0.25800E-06 462984.8 3810357.5 1075.6   0.00   4.00
3.25   YES
 L0005115   0   0.25800E-06 462976.2 3810357.5 1075.6   0.00   4.00
3.25   YES
 L0005116   0   0.25800E-06 462967.6 3810357.6 1075.6   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
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SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005117   0   0.25800E-06 462959.0 3810357.6 1075.8   0.00   4.00
3.25   YES
 L0005118   0   0.25800E-06 462950.4 3810357.6 1075.9   0.00   4.00
3.25   YES
 L0005119   0   0.25800E-06 462941.8 3810357.6 1076.0   0.00   4.00
3.25   YES
 L0005120   0   0.25800E-06 462933.3 3810357.6 1076.0   0.00   4.00
3.25   YES
 L0005121   0   0.25800E-06 462924.7 3810357.6 1076.0   0.00   4.00
3.25   YES

L0005122	0	0.25800E-06	462916.1	3810357.7	1076.0	0.00	4.00	3.25 YES
L0005123	0	0.25800E-06	462907.5	3810357.7	1076.0	0.00	4.00	3.25 YES
L0005124	0	0.25800E-06	462898.9	3810357.7	1076.2	0.00	4.00	3.25 YES
L0005125	0	0.25800E-06	462890.3	3810357.7	1076.4	0.00	4.00	3.25 YES
L0005126	0	0.25800E-06	462881.7	3810357.7	1076.6	0.00	4.00	3.25 YES
L0005127	0	0.25800E-06	462873.1	3810357.7	1076.7	0.00	4.00	3.25 YES
L0005128	0	0.25800E-06	462864.5	3810357.7	1076.8	0.00	4.00	3.25 YES
L0005129	0	0.25800E-06	462855.9	3810357.7	1076.9	0.00	4.00	3.25 YES
L0005130	0	0.25800E-06	462847.4	3810357.7	1077.0	0.00	4.00	3.25 YES
L0005131	0	0.25800E-06	462838.8	3810357.7	1077.2	0.00	4.00	3.25 YES
L0005132	0	0.25800E-06	462830.2	3810357.7	1077.4	0.00	4.00	3.25 YES
L0005133	0	0.25800E-06	462821.6	3810357.7	1077.6	0.00	4.00	3.25 YES
L0005134	0	0.25800E-06	462813.0	3810357.7	1077.7	0.00	4.00	3.25 YES
L0005135	0	0.25800E-06	462804.4	3810357.7	1077.8	0.00	4.00	3.25 YES
L0005136	0	0.25800E-06	462795.8	3810357.7	1077.9	0.00	4.00	3.25 YES
L0005137	0	0.25800E-06	462787.2	3810357.7	1078.0	0.00	4.00	3.25 YES
L0005138	0	0.25800E-06	462778.6	3810357.7	1078.0	0.00	4.00	3.25 YES
L0005139	0	0.25800E-06	462770.0	3810357.7	1078.0	0.00	4.00	3.25 YES
L0005140	0	0.25800E-06	462761.5	3810357.7	1078.0	0.00	4.00	3.25 YES
L0005141	0	0.25800E-06	462752.9	3810357.7	1078.1	0.00	4.00	3.25 YES
L0005142	0	0.25800E-06	462744.3	3810357.7	1078.3	0.00	4.00	3.25 YES
L0005143	0	0.25800E-06	462735.7	3810357.7	1078.5	0.00	4.00	3.25 YES
L0005144	0	0.25800E-06	462727.1	3810357.7	1078.6	0.00	4.00	3.25 YES
L0005145	0	0.25800E-06	462718.5	3810357.7	1078.6	0.00	4.00	3.25 YES
L0005146	0	0.25800E-06	462709.9	3810357.7	1078.6	0.00	4.00	3.25 YES

 L0005147   0   0.25800E-06 462701.3 3810357.7 1078.6   0.00   4.00
3.25   YES
 L0005148   0   0.25800E-06 462692.7 3810357.7 1078.7   0.00   4.00
3.25   YES
 L0005149   0   0.25800E-06 462684.1 3810357.7 1078.8   0.00   4.00
3.25   YES
 L0005150   0   0.25800E-06 462675.6 3810357.7 1078.9   0.00   4.00
3.25   YES
 L0005151   0   0.25800E-06 462667.0 3810357.7 1079.1   0.00   4.00
3.25   YES
 L0005152   0   0.25800E-06 462658.4 3810357.7 1079.2   0.00   4.00
3.25   YES
 L0005153   0   0.25800E-06 462649.8 3810357.7 1079.4   0.00   4.00
3.25   YES
 L0005154   0   0.25800E-06 462641.2 3810357.7 1079.6   0.00   4.00
3.25   YES
 L0005155   0   0.25800E-06 462632.6 3810357.7 1079.7   0.00   4.00
3.25   YES
 L0005156   0   0.25800E-06 462624.0 3810357.7 1079.8   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005157   0   0.25800E-06 462615.4 3810357.7 1079.9   0.00   4.00
3.25   YES
 L0005158   0   0.25800E-06 462606.8 3810357.7 1080.0   0.00   4.00
3.25   YES
 L0005159   0   0.25800E-06 462598.2 3810357.7 1080.0   0.00   4.00
3.25   YES
 L0005160   0   0.25800E-06 462589.7 3810357.7 1080.0   0.00   4.00
3.25   YES
 L0005161   0   0.25800E-06 462581.1 3810357.7 1080.0   0.00   4.00
3.25   YES

L0005162	0	0.25800E-06	462572.5	3810357.7	1080.1	0.00	4.00	3.25 YES
L0005163	0	0.25800E-06	462563.9	3810357.7	1080.3	0.00	4.00	3.25 YES
L0005164	0	0.25800E-06	462555.3	3810357.7	1080.5	0.00	4.00	3.25 YES
L0005165	0	0.25800E-06	462546.7	3810357.7	1080.6	0.00	4.00	3.25 YES
L0005166	0	0.25800E-06	462538.1	3810357.7	1080.8	0.00	4.00	3.25 YES
L0005167	0	0.25800E-06	462529.5	3810357.7	1080.9	0.00	4.00	3.25 YES
L0005168	0	0.25800E-06	462520.9	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005169	0	0.25800E-06	462512.3	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005170	0	0.25800E-06	462503.8	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005171	0	0.25800E-06	462495.2	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005172	0	0.25800E-06	462486.6	3810357.7	1081.1	0.00	4.00	3.25 YES
L0005173	0	0.25800E-06	462478.0	3810357.7	1081.2	0.00	4.00	3.25 YES
L0005174	0	0.25800E-06	462469.4	3810357.7	1081.4	0.00	4.00	3.25 YES
L0005175	0	0.25800E-06	462460.8	3810357.7	1081.6	0.00	4.00	3.25 YES
L0005176	0	0.25800E-06	462452.2	3810357.7	1081.7	0.00	4.00	3.25 YES
L0005177	0	0.25800E-06	462443.6	3810357.7	1081.8	0.00	4.00	3.25 YES
L0005178	0	0.25800E-06	462435.0	3810357.7	1081.9	0.00	4.00	3.25 YES
L0005179	0	0.25800E-06	462426.4	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005180	0	0.25800E-06	462417.9	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005181	0	0.25800E-06	462409.3	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005182	0	0.25800E-06	462400.7	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005183	0	0.25800E-06	462392.1	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005184	0	0.25800E-06	462383.5	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005185	0	0.25800E-06	462374.9	3810357.7	1082.0	0.00	4.00	3.25 YES
L0005186	0	0.25800E-06	462366.3	3810357.7	1082.1	0.00	4.00	3.25 YES

 L0005187   0   0.25800E-06 462357.7 3810357.7 1082.2   0.00   4.00
3.25   YES
 L0005188   0   0.25800E-06 462349.1 3810357.7 1082.4   0.00   4.00
3.25   YES
 L0005189   0   0.25800E-06 462340.5 3810357.7 1082.6   0.00   4.00
3.25   YES
 L0005190   0   0.25800E-06 462332.0 3810357.7 1082.6   0.00   4.00
3.25   YES
 L0005191   0   0.25800E-06 462323.4 3810357.7 1082.6   0.00   4.00
3.25   YES
 L0005192   0   0.25800E-06 462314.8 3810357.7 1082.6   0.00   4.00
3.25   YES
 L0005193   0   0.25800E-06 462306.2 3810357.7 1082.7   0.00   4.00
3.25   YES
 L0005194   0   0.25800E-06 462297.6 3810357.7 1082.8   0.00   4.00
3.25   YES
 L0005195   0   0.25800E-06 462289.0 3810357.7 1082.9   0.00   4.00
3.25   YES
 L0005196   0   0.25800E-06 462280.4 3810357.7 1083.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005197   0   0.25800E-06 462271.8 3810357.7 1083.0   0.00   4.00
3.25   YES
 L0005198   0   0.25800E-06 462263.2 3810357.7 1083.0   0.00   4.00
3.25   YES
 L0005199   0   0.25800E-06 462254.6 3810357.7 1083.0   0.00   4.00
3.25   YES
 L0005200   0   0.25800E-06 462246.1 3810357.7 1083.1   0.00   4.00
3.25   YES
 L0005201   0   0.25800E-06 462237.5 3810357.7 1083.2   0.00   4.00
3.25   YES

L0005202	0	0.50900E-06	463285.4	3810356.9	1072.0	3.49	4.00	3.25 YES
L0005203	0	0.50900E-06	463276.9	3810356.9	1072.0	3.49	4.00	3.25 YES
L0005204	0	0.50900E-06	463268.3	3810356.9	1072.0	3.49	4.00	3.25 YES
L0005205	0	0.50900E-06	463259.7	3810356.9	1072.2	3.49	4.00	3.25 YES
L0005206	0	0.50900E-06	463251.1	3810357.0	1072.4	3.49	4.00	3.25 YES
L0005207	0	0.50900E-06	463242.5	3810357.0	1072.6	3.49	4.00	3.25 YES
L0005208	0	0.50900E-06	463233.9	3810357.0	1072.7	3.49	4.00	3.25 YES
L0005209	0	0.50900E-06	463225.3	3810357.0	1072.8	3.49	4.00	3.25 YES
L0005210	0	0.50900E-06	463216.7	3810357.0	1072.9	3.49	4.00	3.25 YES
L0005211	0	0.50900E-06	463208.1	3810357.0	1073.0	3.49	4.00	3.25 YES
L0005212	0	0.50900E-06	463199.5	3810357.1	1073.2	3.49	4.00	3.25 YES
L0005213	0	0.50900E-06	463191.0	3810357.1	1073.4	3.49	4.00	3.25 YES
L0005214	0	0.50900E-06	463182.4	3810357.1	1073.6	3.49	4.00	3.25 YES
L0005215	0	0.50900E-06	463173.8	3810357.1	1073.7	3.49	4.00	3.25 YES
L0005216	0	0.50900E-06	463165.2	3810357.1	1073.8	3.49	4.00	3.25 YES
L0005217	0	0.50900E-06	463156.6	3810357.2	1073.9	3.49	4.00	3.25 YES
L0005218	0	0.50900E-06	463148.0	3810357.2	1074.0	3.49	4.00	3.25 YES
L0005219	0	0.50900E-06	463139.4	3810357.2	1074.0	3.49	4.00	3.25 YES
L0005220	0	0.50900E-06	463130.8	3810357.2	1074.0	3.49	4.00	3.25 YES
L0005221	0	0.50900E-06	463122.2	3810357.2	1074.0	3.49	4.00	3.25 YES
L0005222	0	0.50900E-06	463113.6	3810357.2	1074.1	3.49	4.00	3.25 YES
L0005223	0	0.50900E-06	463105.1	3810357.3	1074.3	3.49	4.00	3.25 YES
L0005224	0	0.50900E-06	463096.5	3810357.3	1074.5	3.49	4.00	3.25 YES
L0005225	0	0.50900E-06	463087.9	3810357.3	1074.6	3.49	4.00	3.25 YES
L0005226	0	0.50900E-06	463079.3	3810357.3	1074.6	3.49	4.00	3.25 YES

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 L0005227         0   0.50900E-06  463070.7 3810357.3  1074.6     3.49     4.00
3.25     YES
 L0005228         0   0.50900E-06  463062.1 3810357.4  1074.6     3.49     4.00
3.25     YES
 L0005229         0   0.50900E-06  463053.5 3810357.4  1074.7     3.49     4.00
3.25     YES
 L0005230         0   0.50900E-06  463044.9 3810357.4  1074.8     3.49     4.00
3.25     YES
 L0005231         0   0.50900E-06  463036.3 3810357.4  1074.9     3.49     4.00
3.25     YES
 L0005232         0   0.50900E-06  463027.7 3810357.4  1075.0     3.49     4.00
3.25     YES
 L0005233         0   0.50900E-06  463019.2 3810357.4  1075.2     3.49     4.00
3.25     YES
 L0005234         0   0.50900E-06  463010.6 3810357.5  1075.4     3.49     4.00
3.25     YES
 L0005235         0   0.50900E-06  463002.0 3810357.5  1075.6     3.49     4.00
3.25     YES
 L0005236         0   0.50900E-06  462993.4 3810357.5  1075.6     3.49     4.00
3.25     YES
↑ *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\12779 Ops HRA\12779
Ops HRA.isc                 ***       08/12/20
 *** AERMET - VERSION  14134 ***   ***
                       ***       02:06:49

                                 PAGE  53
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE                    BASE    RELEASE    INIT.
INIT.   URBAN  EMISSION RATE
   SOURCE       PART.  (GRAMS/SEC)     X        Y      ELEV.   HEIGHT      SY
SZ     SOURCE  SCALAR VARY
     ID         CATS.               (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)             BY
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 L0005237         0   0.50900E-06  462984.8 3810357.5  1075.6     3.49     4.00
3.25     YES
 L0005238         0   0.50900E-06  462976.2 3810357.5  1075.6     3.49     4.00
3.25     YES
 L0005239         0   0.50900E-06  462967.6 3810357.6  1075.6     3.49     4.00
3.25     YES
 L0005240         0   0.50900E-06  462959.0 3810357.6  1075.8     3.49     4.00
3.25     YES
 L0005241         0   0.50900E-06  462950.4 3810357.6  1075.9     3.49     4.00
3.25     YES
```

L0005242	0	0.50900E-06	462941.8	3810357.6	1076.0	3.49	4.00	3.25 YES
L0005243	0	0.50900E-06	462933.3	3810357.6	1076.0	3.49	4.00	3.25 YES
L0005244	0	0.50900E-06	462924.7	3810357.6	1076.0	3.49	4.00	3.25 YES
L0005245	0	0.50900E-06	462916.1	3810357.7	1076.0	3.49	4.00	3.25 YES
L0005246	0	0.50900E-06	462907.5	3810357.7	1076.0	3.49	4.00	3.25 YES
L0005247	0	0.50900E-06	462898.9	3810357.7	1076.2	3.49	4.00	3.25 YES
L0005248	0	0.50900E-06	462890.3	3810357.7	1076.4	3.49	4.00	3.25 YES
L0005249	0	0.50900E-06	462881.7	3810357.7	1076.6	3.49	4.00	3.25 YES
L0005250	0	0.25800E-06	463285.4	3810356.9	1072.0	0.00	4.00	3.25 YES
L0005251	0	0.25800E-06	463276.9	3810356.9	1072.0	0.00	4.00	3.25 YES
L0005252	0	0.25800E-06	463268.3	3810356.9	1072.0	0.00	4.00	3.25 YES
L0005253	0	0.25800E-06	463259.7	3810356.9	1072.2	0.00	4.00	3.25 YES
L0005254	0	0.25800E-06	463251.1	3810357.0	1072.4	0.00	4.00	3.25 YES
L0005255	0	0.25800E-06	463242.5	3810357.0	1072.6	0.00	4.00	3.25 YES
L0005256	0	0.25800E-06	463233.9	3810357.0	1072.7	0.00	4.00	3.25 YES
L0005257	0	0.25800E-06	463225.3	3810357.0	1072.8	0.00	4.00	3.25 YES
L0005258	0	0.25800E-06	463216.7	3810357.0	1072.9	0.00	4.00	3.25 YES
L0005259	0	0.25800E-06	463208.1	3810357.0	1073.0	0.00	4.00	3.25 YES
L0005260	0	0.25800E-06	463199.5	3810357.1	1073.2	0.00	4.00	3.25 YES
L0005261	0	0.25800E-06	463191.0	3810357.1	1073.4	0.00	4.00	3.25 YES
L0005262	0	0.25800E-06	463182.4	3810357.1	1073.6	0.00	4.00	3.25 YES
L0005263	0	0.25800E-06	463173.8	3810357.1	1073.7	0.00	4.00	3.25 YES
L0005264	0	0.25800E-06	463165.2	3810357.1	1073.8	0.00	4.00	3.25 YES
L0005265	0	0.25800E-06	463156.6	3810357.2	1073.9	0.00	4.00	3.25 YES
L0005266	0	0.25800E-06	463148.0	3810357.2	1074.0	0.00	4.00	3.25 YES

 L0005267   0   0.25800E-06 463139.4 3810357.2 1074.0   0.00   4.00
3.25   YES
 L0005268   0   0.25800E-06 463130.8 3810357.2 1074.0   0.00   4.00
3.25   YES
 L0005269   0   0.25800E-06 463122.2 3810357.2 1074.0   0.00   4.00
3.25   YES
 L0005270   0   0.25800E-06 463113.6 3810357.2 1074.1   0.00   4.00
3.25   YES
 L0005271   0   0.25800E-06 463105.1 3810357.3 1074.3   0.00   4.00
3.25   YES
 L0005272   0   0.25800E-06 463096.5 3810357.3 1074.5   0.00   4.00
3.25   YES
 L0005273   0   0.25800E-06 463087.9 3810357.3 1074.6   0.00   4.00
3.25   YES
 L0005274   0   0.25800E-06 463079.3 3810357.3 1074.6   0.00   4.00
3.25   YES
 L0005275   0   0.25800E-06 463070.7 3810357.3 1074.6   0.00   4.00
3.25   YES
 L0005276   0   0.25800E-06 463062.1 3810357.4 1074.6   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005277   0   0.25800E-06 463053.5 3810357.4 1074.7   0.00   4.00
3.25   YES
 L0005278   0   0.25800E-06 463044.9 3810357.4 1074.8   0.00   4.00
3.25   YES
 L0005279   0   0.25800E-06 463036.3 3810357.4 1074.9   0.00   4.00
3.25   YES
 L0005280   0   0.25800E-06 463027.7 3810357.4 1075.0   0.00   4.00
3.25   YES
 L0005281   0   0.25800E-06 463019.2 3810357.4 1075.2   0.00   4.00
3.25   YES

L0005282	0	0.25800E-06	463010.6	3810357.5	1075.4	0.00	4.00	3.25 YES
L0005283	0	0.25800E-06	463002.0	3810357.5	1075.6	0.00	4.00	3.25 YES
L0005284	0	0.25800E-06	462993.4	3810357.5	1075.6	0.00	4.00	3.25 YES
L0005285	0	0.25800E-06	462984.8	3810357.5	1075.6	0.00	4.00	3.25 YES
L0005286	0	0.25800E-06	462976.2	3810357.5	1075.6	0.00	4.00	3.25 YES
L0005287	0	0.25800E-06	462967.6	3810357.6	1075.6	0.00	4.00	3.25 YES
L0005288	0	0.25800E-06	462959.0	3810357.6	1075.8	0.00	4.00	3.25 YES
L0005289	0	0.25800E-06	462950.4	3810357.6	1075.9	0.00	4.00	3.25 YES
L0005290	0	0.25800E-06	462941.8	3810357.6	1076.0	0.00	4.00	3.25 YES
L0005291	0	0.25800E-06	462933.3	3810357.6	1076.0	0.00	4.00	3.25 YES
L0005292	0	0.25800E-06	462924.7	3810357.6	1076.0	0.00	4.00	3.25 YES
L0005293	0	0.25800E-06	462916.1	3810357.7	1076.0	0.00	4.00	3.25 YES
L0005294	0	0.25800E-06	462907.5	3810357.7	1076.0	0.00	4.00	3.25 YES
L0005295	0	0.25800E-06	462898.9	3810357.7	1076.2	0.00	4.00	3.25 YES
L0005296	0	0.25800E-06	462890.3	3810357.7	1076.4	0.00	4.00	3.25 YES
L0005297	0	0.25800E-06	462881.7	3810357.7	1076.6	0.00	4.00	3.25 YES
L0005298	0	0.25800E-06	462873.1	3810357.7	1076.7	0.00	4.00	3.25 YES
L0005299	0	0.25800E-06	462864.5	3810357.7	1076.8	0.00	4.00	3.25 YES
L0005300	0	0.25800E-06	462855.9	3810357.7	1076.9	0.00	4.00	3.25 YES
L0005301	0	0.25800E-06	462847.4	3810357.7	1077.0	0.00	4.00	3.25 YES
L0005302	0	0.25800E-06	462838.8	3810357.7	1077.2	0.00	4.00	3.25 YES
L0005303	0	0.25800E-06	462830.2	3810357.7	1077.4	0.00	4.00	3.25 YES
L0005304	0	0.25800E-06	462821.6	3810357.7	1077.6	0.00	4.00	3.25 YES
L0005305	0	0.25800E-06	462813.0	3810357.7	1077.7	0.00	4.00	3.25 YES
L0005306	0	0.25800E-06	462804.4	3810357.7	1077.8	0.00	4.00	3.25 YES

 L0005307   0   0.25800E-06 462795.8 3810357.7 1077.9   0.00   4.00
3.25   YES
 L0005308   0   0.25800E-06 462787.2 3810357.7 1078.0   0.00   4.00
3.25   YES
 L0005309   0   0.25800E-06 462778.6 3810357.7 1078.0   0.00   4.00
3.25   YES
 L0005310   0   0.25800E-06 462770.0 3810357.7 1078.0   0.00   4.00
3.25   YES
 L0005311   0   0.25800E-06 462761.5 3810357.7 1078.0   0.00   4.00
3.25   YES
 L0005312   0   0.25800E-06 462752.9 3810357.7 1078.1   0.00   4.00
3.25   YES
 L0005313   0   0.25800E-06 462744.3 3810357.7 1078.3   0.00   4.00
3.25   YES
 L0005314   0   0.25800E-06 462735.7 3810357.7 1078.5   0.00   4.00
3.25   YES
 L0005315   0   0.25800E-06 462727.1 3810357.7 1078.6   0.00   4.00
3.25   YES
 L0005316   0   0.25800E-06 462718.5 3810357.7 1078.6   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005317   0   0.25800E-06 462709.9 3810357.7 1078.6   0.00   4.00
3.25   YES
 L0005318   0   0.25800E-06 462701.3 3810357.7 1078.6   0.00   4.00
3.25   YES
 L0005319   0   0.25800E-06 462692.7 3810357.7 1078.7   0.00   4.00
3.25   YES
 L0005320   0   0.25800E-06 462684.1 3810357.7 1078.8   0.00   4.00
3.25   YES
 L0005321   0   0.25800E-06 462675.6 3810357.7 1078.9   0.00   4.00
3.25   YES

L0005322	0	0.25800E-06	462667.0	3810357.7	1079.1	0.00	4.00	3.25 YES
L0005323	0	0.25800E-06	462658.4	3810357.7	1079.2	0.00	4.00	3.25 YES
L0005324	0	0.25800E-06	462649.8	3810357.7	1079.4	0.00	4.00	3.25 YES
L0005325	0	0.25800E-06	462641.2	3810357.7	1079.6	0.00	4.00	3.25 YES
L0005326	0	0.25800E-06	462632.6	3810357.7	1079.7	0.00	4.00	3.25 YES
L0005327	0	0.25800E-06	462624.0	3810357.7	1079.8	0.00	4.00	3.25 YES
L0005328	0	0.25800E-06	462615.4	3810357.7	1079.9	0.00	4.00	3.25 YES
L0005329	0	0.25800E-06	462606.8	3810357.7	1080.0	0.00	4.00	3.25 YES
L0005330	0	0.25800E-06	462598.2	3810357.7	1080.0	0.00	4.00	3.25 YES
L0005331	0	0.25800E-06	462589.7	3810357.7	1080.0	0.00	4.00	3.25 YES
L0005332	0	0.25800E-06	462581.1	3810357.7	1080.0	0.00	4.00	3.25 YES
L0005333	0	0.25800E-06	462572.5	3810357.7	1080.1	0.00	4.00	3.25 YES
L0005334	0	0.25800E-06	462563.9	3810357.7	1080.3	0.00	4.00	3.25 YES
L0005335	0	0.25800E-06	462555.3	3810357.7	1080.5	0.00	4.00	3.25 YES
L0005336	0	0.25800E-06	462546.7	3810357.7	1080.6	0.00	4.00	3.25 YES
L0005337	0	0.25800E-06	462538.1	3810357.7	1080.8	0.00	4.00	3.25 YES
L0005338	0	0.25800E-06	462529.5	3810357.7	1080.9	0.00	4.00	3.25 YES
L0005339	0	0.25800E-06	462520.9	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005340	0	0.25800E-06	462512.3	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005341	0	0.25800E-06	462503.8	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005342	0	0.25800E-06	462495.2	3810357.7	1081.0	0.00	4.00	3.25 YES
L0005343	0	0.25800E-06	462486.6	3810357.7	1081.1	0.00	4.00	3.25 YES
L0005344	0	0.25800E-06	462478.0	3810357.7	1081.2	0.00	4.00	3.25 YES
L0005345	0	0.25800E-06	462469.4	3810357.7	1081.4	0.00	4.00	3.25 YES
L0005346	0	0.25800E-06	462460.8	3810357.7	1081.6	0.00	4.00	3.25 YES

 L0005347   0   0.25800E-06 462452.2 3810357.7 1081.7   0.00   4.00
3.25   YES
 L0005348   0   0.25800E-06 462443.6 3810357.7 1081.8   0.00   4.00
3.25   YES
 L0005349   0   0.25800E-06 462435.0 3810357.7 1081.9   0.00   4.00
3.25   YES
 L0005350   0   0.25800E-06 462426.4 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005351   0   0.25800E-06 462417.9 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005352   0   0.25800E-06 462409.3 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005353   0   0.25800E-06 462400.7 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005354   0   0.25800E-06 462392.1 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005355   0   0.25800E-06 462383.5 3810357.7 1082.0   0.00   4.00
3.25   YES
 L0005356   0   0.25800E-06 462374.9 3810357.7 1082.0   0.00   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

              NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
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 L0005357   0   0.25800E-06 462366.3 3810357.7 1082.1   0.00   4.00
3.25   YES
 L0005358   0   0.25800E-06 462357.7 3810357.7 1082.2   0.00   4.00
3.25   YES
 L0005359   0   0.25800E-06 462349.1 3810357.7 1082.4   0.00   4.00
3.25   YES
 L0005360   0   0.25800E-06 462340.5 3810357.7 1082.6   0.00   4.00
3.25   YES
 L0005361   0   0.25800E-06 462332.0 3810357.7 1082.6   0.00   4.00
3.25   YES

L0005362	0	0.25800E-06	462323.4	3810357.7	1082.6	0.00	4.00	3.25 YES
L0005363	0	0.25800E-06	462314.8	3810357.7	1082.6	0.00	4.00	3.25 YES
L0005364	0	0.25800E-06	462306.2	3810357.7	1082.7	0.00	4.00	3.25 YES
L0005365	0	0.25800E-06	462297.6	3810357.7	1082.8	0.00	4.00	3.25 YES
L0005366	0	0.25800E-06	462289.0	3810357.7	1082.9	0.00	4.00	3.25 YES
L0005367	0	0.25800E-06	462280.4	3810357.7	1083.0	0.00	4.00	3.25 YES
L0005368	0	0.25800E-06	462271.8	3810357.7	1083.0	0.00	4.00	3.25 YES
L0005369	0	0.25800E-06	462263.2	3810357.7	1083.0	0.00	4.00	3.25 YES
L0005370	0	0.25800E-06	462254.6	3810357.7	1083.0	0.00	4.00	3.25 YES
L0005371	0	0.25800E-06	462246.1	3810357.7	1083.1	0.00	4.00	3.25 YES
L0005372	0	0.25800E-06	462237.5	3810357.7	1083.2	0.00	4.00	3.25 YES
L0005373	0	0.85170E-07	463295.4	3810371.5	1072.0	3.49	4.00	3.25 YES
L0005374	0	0.85170E-07	463295.4	3810380.1	1072.0	3.49	4.00	3.25 YES
L0005375	0	0.85170E-07	463295.3	3810388.7	1072.0	3.49	4.00	3.25 YES
L0005376	0	0.85170E-07	463295.3	3810397.3	1072.0	3.49	4.00	3.25 YES
L0005377	0	0.85170E-07	463295.3	3810405.9	1072.0	3.49	4.00	3.25 YES
L0005378	0	0.85170E-07	463295.3	3810414.5	1071.7	3.49	4.00	3.25 YES
L0005379	0	0.85170E-07	463295.2	3810423.1	1071.4	3.49	4.00	3.25 YES
L0005380	0	0.85170E-07	463295.2	3810431.7	1071.1	3.49	4.00	3.25 YES
L0005381	0	0.85170E-07	463295.2	3810440.2	1071.0	3.49	4.00	3.25 YES
L0005382	0	0.85170E-07	463295.2	3810448.8	1071.0	3.49	4.00	3.25 YES
L0005383	0	0.85170E-07	463295.1	3810457.4	1071.0	3.49	4.00	3.25 YES
L0005384	0	0.85170E-07	463295.1	3810466.0	1071.0	3.49	4.00	3.25 YES
L0005385	0	0.85170E-07	463295.1	3810474.6	1070.8	3.49	4.00	3.25 YES
L0005386	0	0.85170E-07	463295.1	3810483.2	1070.5	3.49	4.00	3.25 YES

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 L0005387         0   0.85170E-07  463295.0 3810491.8  1070.3     3.49     4.00
3.25     YES
 L0005388         0   0.85170E-07  463295.0 3810500.4  1070.1     3.49     4.00
3.25     YES
 L0005389         0   0.85170E-07  463295.0 3810509.0  1070.1     3.49     4.00
3.25     YES
 L0005390         0   0.85170E-07  463295.0 3810517.6  1070.0     3.49     4.00
3.25     YES
 L0005391         0   0.85170E-07  463294.9 3810526.1  1070.0     3.49     4.00
3.25     YES
 L0005392         0   0.85170E-07  463294.9 3810534.7  1070.0     3.49     4.00
3.25     YES
 L0005393         0   0.85170E-07  463294.9 3810543.3  1070.0     3.49     4.00
3.25     YES
 L0005394         0   0.85170E-07  463294.8 3810551.9  1070.0     3.49     4.00
3.25     YES
 L0005395         0   0.85170E-07  463294.8 3810560.5  1069.8     3.49     4.00
3.25     YES
 L0005396         0   0.85170E-07  463294.8 3810569.1  1069.6     3.49     4.00
3.25     YES
```


*** VOLUME SOURCE DATA ***

SOURCE ID	NUMBER PART. CATS.	EMISSION RATE (GRAMS/SEC)	X (METERS)	Y (METERS)	BASE ELEV. (METERS)	RELEASE HEIGHT (METERS)	INIT. SY (METERS)	INIT. SZ (METERS)	URBAN SOURCE BY	EMISSION RATE SCALAR VARY
L0005397	0	0.85170E-07	463294.8	3810577.7	1069.3	3.49	4.00	3.25	YES	
L0005398	0	0.85170E-07	463294.7	3810586.3	1069.0	3.49	4.00	3.25	YES	
L0005399	0	0.85170E-07	463294.7	3810594.9	1069.0	3.49	4.00	3.25	YES	
L0005400	0	0.85170E-07	463294.7	3810603.5	1069.0	3.49	4.00	3.25	YES	
L0005401	0	0.85170E-07	463294.7	3810612.0	1069.0	3.49	4.00	3.25	YES	

L0005402	0	0.85170E-07	463294.6	3810620.6	1068.8	3.49	4.00	3.25 YES
L0005403	0	0.85170E-07	463294.6	3810629.2	1068.6	3.49	4.00	3.25 YES
L0005404	0	0.85170E-07	463294.6	3810637.8	1068.3	3.49	4.00	3.25 YES
L0005405	0	0.85170E-07	463294.6	3810646.4	1068.0	3.49	4.00	3.25 YES
L0005406	0	0.85170E-07	463294.5	3810655.0	1068.0	3.49	4.00	3.25 YES
L0005407	0	0.85170E-07	463294.5	3810663.6	1068.0	3.49	4.00	3.25 YES
L0005408	0	0.85170E-07	463294.5	3810672.2	1068.0	3.49	4.00	3.25 YES
L0005409	0	0.85170E-07	463294.5	3810680.8	1067.9	3.49	4.00	3.25 YES
L0005410	0	0.85170E-07	463294.4	3810689.4	1067.6	3.49	4.00	3.25 YES
L0005411	0	0.85170E-07	463294.4	3810697.9	1067.4	3.49	4.00	3.25 YES
L0005412	0	0.85170E-07	463294.4	3810706.5	1067.2	3.49	4.00	3.25 YES
L0005413	0	0.85170E-07	463294.4	3810715.1	1067.1	3.49	4.00	3.25 YES
L0005414	0	0.85170E-07	463294.3	3810723.7	1067.1	3.49	4.00	3.25 YES
L0005415	0	0.85170E-07	463294.3	3810732.3	1067.0	3.49	4.00	3.25 YES
L0005416	0	0.85170E-07	463294.3	3810740.9	1066.9	3.49	4.00	3.25 YES
L0005417	0	0.85170E-07	463294.3	3810749.5	1066.6	3.49	4.00	3.25 YES
L0005418	0	0.85170E-07	463294.2	3810758.1	1066.4	3.49	4.00	3.25 YES
L0005419	0	0.85170E-07	463294.2	3810766.7	1066.2	3.49	4.00	3.25 YES
L0005420	0	0.85170E-07	463294.2	3810775.3	1066.1	3.49	4.00	3.25 YES
L0005421	0	0.85170E-07	463294.1	3810783.8	1066.1	3.49	4.00	3.25 YES
L0005422	0	0.85170E-07	463294.1	3810792.4	1066.0	3.49	4.00	3.25 YES
L0005423	0	0.85170E-07	463294.1	3810801.0	1066.0	3.49	4.00	3.25 YES
L0005424	0	0.85170E-07	463294.1	3810809.6	1066.0	3.49	4.00	3.25 YES
L0005425	0	0.85170E-07	463294.0	3810818.2	1066.0	3.49	4.00	3.25 YES
L0005426	0	0.85170E-07	463294.0	3810826.8	1066.0	3.49	4.00	3.25 YES

 L0005427   0   0.85170E-07 463294.0 3810835.4 1065.8   3.49   4.00
3.25   YES
 L0005428   0   0.85170E-07 463294.0 3810844.0 1065.5   3.49   4.00
3.25   YES
 L0005429   0   0.85170E-07 463293.9 3810852.6 1065.3   3.49   4.00
3.25   YES
 L0005430   0   0.85170E-07 463293.9 3810861.2 1065.2   3.49   4.00
3.25   YES
 L0005431   0   0.85170E-07 463293.9 3810869.7 1065.1   3.49   4.00
3.25   YES
 L0005432   0   0.85170E-07 463293.9 3810878.3 1065.0   3.49   4.00
3.25   YES
 L0005433   0   0.85170E-07 463293.8 3810886.9 1065.0   3.49   4.00
3.25   YES
 L0005434   0   0.85170E-07 463293.8 3810895.5 1065.0   3.49   4.00
3.25   YES
 L0005435   0   0.85170E-07 463293.8 3810904.1 1065.0   3.49   4.00
3.25   YES
 L0005436   0   0.85170E-07 463293.8 3810912.7 1065.0   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                    *** VOLUME SOURCE DATA ***

               NUMBER EMISSION RATE   BASE   RELEASE   INIT.
INIT.   URBAN EMISSION RATE
   SOURCE   PART. (GRAMS/SEC)   X   Y   ELEV.   HEIGHT   SY
SZ   SOURCE SCALAR VARY
     ID   CATS.   (METERS) (METERS) (METERS) (METERS) (METERS)
(METERS)   BY
 -
- - - - - - - - - - - - - - - - - - - -

 L0005437   0   0.85170E-07 463293.7 3810921.3 1065.0   3.49   4.00
3.25   YES
 L0005438   0   0.85170E-07 463293.7 3810929.9 1065.0   3.49   4.00
3.25   YES
 L0005439   0   0.85170E-07 463293.7 3810938.5 1065.0   3.49   4.00
3.25   YES
 L0005440   0   0.85170E-07 463293.7 3810947.0 1065.0   3.49   4.00
3.25   YES
 L0005441   0   0.85170E-07 463293.6 3810955.6 1064.7   3.49   4.00
3.25   YES

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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  ALL   L0007418   , L0007419   , L0007420   , L0007421   , L0007422   , L0007423   , L0007424   , L0007425   ,

             L0007426   , L0007427   , L0007428   , L0007429   , L0007430   , L0007431   , L0007432   , L0007433   ,

             L0007434   , L0007435   , L0007436   , L0007437   , L0007438   , L0007439   , L0007440   , L0007441   ,

             L0007442   , L0007443   , L0007444   , L0007445   , L0007446   , L0007447   , L0007448   , L0007449   ,

             L0007450   , L0007451   , L0007452   , L0007453   , L0007454   , L0007455   , L0007456   , L0007457   ,

             L0007458   , L0007459   , L0007460   , L0007461   , L0007462   , L0007463   , L0007464   , L0007465   ,

             L0007466   , L0007467   , L0007468   , L0007469   , L0007470   , L0007471   , L0007472   , L0007473   ,

             L0007474   , L0007475   , L0007476   , L0007477   , L0007478   , L0007479   , L0007480   , L0007481   ,

             L0007482   , L0007483   , L0007484   , L0007485   , L0007486   , L0007487   , L0007488   , L0007489   ,

             L0007490   , L0007491   , L0007492   , L0007493   , L0007494   , L0007495   , L0007496   , L0007497   ,

             L0007498   , L0007499   , L0007500   , L0007501   , L0007502   , L0007503   , L0007504   , L0007505   ,

             L0007506   , L0007507   , L0007508   , L0007509   , L0007510   ,

L0007511   , L0007512   , L0007513   ,

             L0007514   , L0007515   , L0007516   , L0007517   , L0007518   ,
L0007519   , L0007520   , L0007521   ,

             L0007522   , L0007523   , L0007524   , L0007525   , L0007526   ,
L0007527   , L0007528   , L0007529   ,

             L0007530   , L0007531   , L0007532   , L0007533   , L0007534   ,
L0007535   , L0007536   , L0007537   ,

             L0007538   , L0007539   , L0007540   , L0007541   , L0007542   ,
L0007543   , L0007544   , L0007545   ,

             L0007546   , L0007547   , L0007548   , L0007549   , L0007550   ,
L0007551   , L0007552   , L0007553   ,

             L0007554   , L0007555   , L0007556   , L0007557   , L0007558   ,
L0007559   , L0007560   , L0007561   ,

             L0007562   , L0007563   , L0007564   , L0007565   , L0007566   ,
L0007567   , L0007568   , L0007569   ,

             L0007570   , L0007571   , L0007572   , L0007573   , L0007574   ,
L0007575   , L0007576   , L0007577   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID   SOURCE IDs
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             L0007578   , L0007579   , L0007580   , L0007581   , L0007582   ,
L0007583   , L0007584   , L0007585   ,

             L0007586   , L0007587   , L0007588   , L0007589   , L0007590   ,
L0007591   , L0007592   , L0007593   ,

             L0007594   , L0007595   , L0007596   , L0007597   , L0007598   ,
L0007599   , L0007600   , L0007601   ,

L0007602 , L0007603 , L0007604 , L0007605 , L0007606 , L0007607 , L0007608 , L0007609 ,

L0007610 , L0007611 , L0007612 , L0007613 , L0007614 , L0007615 , L0007616 , L0007617 ,

L0007618 , L0007619 , L0007620 , L0007621 , L0007622 , L0007623 , L0007624 , L0007625 ,

L0007626 , L0007627 , L0007628 , L0007629 , L0007630 , L0007631 , L0007632 , L0007633 ,

L0007634 , L0007635 , L0007636 , L0007637 , L0007638 , L0007639 , L0007640 , L0007641 ,

L0007642 , L0007643 , L0007644 , L0007645 , L0007646 , L0007647 , L0007648 , L0007649 ,

L0007650 , L0007651 , L0007652 , L0007653 , L0007654 , L0007655 , L0007656 , L0007657 ,

L0007658 , L0007659 , L0007660 , L0007661 , L0007662 , L0007663 , L0007664 , L0007665 ,

L0007666 , L0007667 , L0007668 , L0007669 , L0007670 , L0007671 , L0007672 , L0007673 ,

L0007674 , L0007675 , L0007676 , L0007677 , L0007678 , L0007679 , L0007680 , L0007681 ,

L0007682 , L0007683 , L0007684 , L0007685 , L0007686 , L0007687 , L0007688 , L0007689 ,

L0007690 , L0007691 , L0007692 , L0007693 , L0007694 , L0007695 , L0007696 , L0007697 ,

L0007698 , L0007699 , L0007700 , L0007701 , L0007702 , L0007703 , L0007704 , L0007705 ,

L0007706 , L0007707 , L0007708 , L0007709 , L0007710 , L0007711 , L0007712 , L0007713 ,

L0007714 , L0007715 , L0007716 , L0007717 , L0007718 , L0007719 , L0007720 , L0007721 ,

L0007722 , L0007723 , L0007724 , L0007725 , L0007726 , L0007727 , L0007728 , L0007729 ,

L0007730 , L0007731 , L0007732 , L0007733 , L0007734 , L0007735 , L0007736 , L0007737 ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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             L0007738   , L0007739   , L0007740   , L0007741   , L0007742   ,
L0007743   , L0007744   , L0007745   ,

             L0007746   , L0007747   , L0007748   , L0007749   , L0007750   ,
L0007751   , L0007752   , L0007753   ,

             L0007754   , L0007755   , L0007756   , L0007757   , L0007758   ,
L0007759   , L0007760   , L0007761   ,

             L0007762   , L0007763   , L0007764   , L0007765   , L0007766   ,
L0007767   , L0007768   , L0007769   ,

             L0007770   , L0007771   , L0007772   , L0007773   , L0007774   ,
L0007775   , L0007776   , L0007777   ,

             L0007778   , L0007779   , L0007780   , L0007781   , L0007782   ,
L0007783   , L0007784   , L0007785   ,

             L0007786   , L0007787   , L0007788   , L0007789   , L0007790   ,
L0007791   , L0007792   , L0007793   ,

             L0007794   , L0007795   , L0007796   , L0007797   , L0007798   ,
L0007799   , L0007800   , L0007801   ,

             L0007802   , L0007803   , L0007804   , L0007805   , L0007806   ,
L0007807   , L0007808   , L0007809   ,

             L0007810   , L0007811   , L0007812   , L0007813   , L0007814   ,
L0007815   , L0007816   , L0007817   ,

             L0007818   , L0007819   , L0007820   , L0007821   , L0007822   ,
L0007823   , L0007824   , L0007825   ,

             L0007826   , L0007827   , L0007828   , L0007829   , L0007830   ,

L0007831   , L0007832   , L0007833   ,

             L0007834   , L0007835   , L0007836   , L0007837   , L0007838   ,
L0007839   , L0007840   , L0007841   ,

             L0007842   , L0007843   , L0007844   , L0007845   , L0007846   ,
L0007847   , L0007848   , L0007849   ,

             L0007850   , L0007851   , L0007852   , L0007853   , L0007854   ,
L0007855   , L0007856   , L0007857   ,

             L0007858   , L0007859   , L0007860   , L0007861   , L0007862   ,
L0007863   , L0007864   , L0007865   ,

             L0007866   , L0007867   , L0007868   , L0007869   , L0007870   ,
L0007871   , L0007872   , L0007873   ,

             L0007874   , L0007875   , L0007876   , L0007877   , L0007878   ,
L0007879   , L0007880   , L0007881   ,

             L0007882   , L0007883   , L0007884   , L0007885   , L0007886   ,
L0007887   , L0007888   , L0007889   ,

             L0007890   , L0007891   , L0007892   , L0007893   , L0007894   ,
L0007895   , L0007896   , L0007897   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID   SOURCE IDs
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             L0007898   , L0007899   , L0007900   , L0007901   , L0007902   ,
L0007903   , L0007904   , L0007905   ,

             L0007906   , L0007907   , L0007908   , L0007909   , L0007910   ,
L0007911   , L0007912   , L0007913   ,

             L0007914   , L0007915   , L0007916   , L0007917   , L0007918   ,
L0007919   , L0007920   , L0007921   ,

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             L0007922    , L0007923    , L0007924    , L0007925    , L0007926    ,
L0007927    , L0007928    , L0007929    ,

             L0007930    , L0007931    , L0007932    , L0007933    , L0007934    ,
L0007935    , L0007936    , L0007937    ,

             L0007938    , L0007939    , L0007940    , L0007941    , L0007942    ,
L0007943    , L0007944    , L0007945    ,

             L0007946    , L0007947    , L0007948    , L0007949    , L0007950    ,
L0007951    , L0007952    , L0007953    ,

             L0007954    , L0007955    , L0007956    , L0007957    , L0007958    ,
L0007959    , L0007960    , L0007961    ,

             L0007962    , L0007963    , L0007964    , L0007965    , L0007966    ,
L0007967    , L0007968    , L0007969    ,

             L0007970    , L0007971    , L0007972    , L0007973    , L0007974    ,
L0007975    , L0007976    , L0007977    ,

             L0007978    , L0007979    , L0007980    , L0007981    , L0007982    ,
L0007983    , L0007984    , L0007985    ,

             L0007986    , L0007987    , L0007988    , L0007989    , L0007990    ,
L0007991    , L0007992    , L0007993    ,

             L0007994    , L0007995    , L0007996    , L0007997    , L0007998    ,
L0007999    , L0008000    , L0008001    ,

             L0008002    , L0008003    , L0008004    , L0008005    , L0008006    ,
L0008007    , L0008008    , L0008009    ,

             L0008010    , L0008011    , L0008012    , L0008013    , L0008014    ,
L0008015    , L0008016    , L0008017    ,

             L0008018    , L0008019    , L0008020    , L0008021    , L0008022    ,
L0008023    , L0008024    , L0008025    ,

             L0008026    , L0008027    , L0008028    , L0008029    , L0008030    ,
L0008031    , L0008032    , L0008033    ,

             L0008034    , L0008035    , L0008036    , L0008037    , L0008038    ,
L0008039    , L0008040    , L0008041    ,

             L0008042    , L0008043    , L0008044    , L0008045    , L0008046    ,
L0008047    , L0008048    , L0008049    ,

             L0008050    , L0008051    , L0008052    , L0008053    , L0008054    ,
L0008055    , L0008056    , L0008057    ,
```

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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             L0008058   , L0008059   , L0008060   , L0008061   , L0008062   ,
L0008063   , L0008064   , L0008065   ,

             L0008066   , L0008067   , L0008068   , L0008069   , L0008070   ,
L0008071   , L0008072   , L0008073   ,

             L0008074   , L0008075   , L0008076   , L0008077   , L0008078   ,
L0008079   , L0008080   , L0008081   ,

             L0008082   , L0008083   , L0008084   , L0008085   , L0008086   ,
L0008087   , L0008088   , L0008089   ,

             L0008090   , L0008091   , L0008092   , L0008093   , L0008094   ,
L0008095   , L0008096   , L0008097   ,

             L0008098   , L0008099   , L0008100   , L0008101   , L0008102   ,
L0008103   , L0008104   , L0008105   ,

             L0008106   , L0008107   , L0008108   , L0008109   , L0008110   ,
L0008111   , L0008112   , L0008113   ,

             L0008114   , L0008115   , L0008116   , L0008117   , L0008118   ,
L0008119   , L0008120   , L0008121   ,

             L0008122   , L0008123   , L0008124   , L0008125   , L0008126   ,
L0008127   , L0008128   , L0008129   ,

             L0008130   , L0008131   , L0008132   , L0008133   , L0008134   ,
L0008135   , L0008136   , L0008137   ,

             L0008138   , L0008139   , L0008140   , L0008141   , L0008142   ,
L0008143   , L0008144   , L0008145   ,

             L0008146   , L0008147   , L0008148   , L0008149   , L0008150   ,

L0008151   , L0008152   , L0008153   ,

             L0008154   , L0008155   , L0008156   , L0008157   , L0008158   ,
L0008159   , L0008160   , L0008161   ,

             L0008162   , L0008163   , L0008164   , L0008165   , L0008166   ,
L0008167   , L0008168   , L0008169   ,

             L0008170   , L0008171   , L0008172   , L0008173   , L0008174   ,
L0008175   , L0008176   , L0008177   ,

             L0008178   , L0008179   , L0008180   , L0008181   , L0008182   ,
L0008183   , L0008184   , L0008185   ,

             L0008186   , L0008187   , L0008188   , L0008189   , L0008190   ,
L0008191   , L0008192   , L0008193   ,

             L0008194   , L0008195   , L0008196   , L0008197   , L0008198   ,
L0008199   , L0008200   , L0008201   ,

             L0008202   , L0008203   , L0008204   , L0008205   , L0008206   ,
L0008207   , L0008208   , L0008209   ,

             L0008210   , L0008211   , L0008212   , L0008213   , L0008214   ,
L0008215   , L0008216   , L0008217   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID   SOURCE IDs
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             L0008218   , L0008219   , L0008220   , L0008221   , L0008222   ,
L0008223   , L0008224   , L0008225   ,

             L0008226   , L0008227   , L0008228   , L0008229   , L0008230   ,
L0008231   , L0008232   , L0008233   ,

             L0008234   , L0008235   , L0008236   , L0008237   , L0008238   ,
L0008239   , L0008240   , L0008241   ,

L0008242 , L0008243 , L0008244 , L0008245 , L0008246 ,
L0008247 , L0008248 , L0008249 ,

L0008250 , L0008251 , L0008252 , L0008253 , L0008254 ,
L0008255 , L0008256 , L0008257 ,

L0008258 , L0008259 , L0008260 , L0008261 , L0008262 ,
L0008263 , L0008264 , L0008265 ,

L0008266 , L0008267 , L0008268 , L0008269 , L0008270 ,
L0008271 , L0008272 , L0008273 ,

L0008274 , L0008275 , L0008276 , L0008277 , L0008278 ,
L0008279 , L0008280 , L0008281 ,

L0008282 , L0008283 , L0008284 , L0008285 , L0008286 ,
L0008287 , L0008288 , L0008289 ,

L0008290 , L0008291 , L0008292 , L0008293 , L0008294 ,
L0008295 , L0008296 , L0008297 ,

L0008298 , L0008299 , L0008300 , L0008301 , L0008302 ,
L0008303 , L0008304 , L0008305 ,

L0008306 , L0008307 , L0008308 , L0008309 , L0008310 ,
L0008311 , L0008312 , L0008313 ,

L0008314 , L0008315 , L0008316 , L0008317 , L0008318 ,
L0008319 , L0008320 , L0008321 ,

L0008322 , L0008323 , L0008324 , L0008325 , L0008326 ,
L0008327 , L0008328 , L0008329 ,

L0008330 , L0008331 , L0008332 , L0008333 , L0008334 ,
L0008335 , L0008336 , L0008337 ,

L0008338 , L0008339 , L0008340 , L0008341 , L0008342 ,
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\12779 Ops HRA\12779
Ops HRA.isc                ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                          ***       02:06:49

                                    PAGE  66
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                              SOURCE IDs
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID   SOURCE IDs
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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             L0009042   , L0009043   , L0009044   , L0009045   , L0009046   ,
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L0009079   , L0009080   , L0009081   ,

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 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\12779 Ops HRA\12779
Ops HRA.isc                ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                          ***       02:06:49

                                    PAGE  70
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                          SOURCE IDs
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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 SRCGROUP ID   SOURCE IDs
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Ops HRA.isc                ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                          ***       02:06:49

                                    PAGE  72
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN


                                          *** SOURCE IDs DEFINING SOURCE GROUPS
***

 SRCGROUP ID                                              SOURCE IDs
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SRCGROUP ID	SOURCE IDs

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*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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		L0007602 , L0007603 , L0007604 , L0007605 , L0007606 , L0007607 , L0007608 , L0007609 ,
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		L0007634 , L0007635 , L0007636 , L0007637 , L0007638 , L0007639 , L0007640 , L0007641 ,
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES
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URBAN ID	URBAN POP	SOURCE IDs

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L0007767 , L0007768 , L0007769 ,

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*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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		L0007930 , L0007931 , L0007932 , L0007933 , L0007934 , L0007935 , L0007936 , L0007937 ,
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		L0007994 , L0007995 , L0007996 , L0007997 , L0007998 , L0007999 , L0008000 , L0008001 ,
		L0008002 , L0008003 , L0008004 , L0008005 , L0008006 , L0008007 , L0008008 , L0008009 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES
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URBAN ID	URBAN POP	SOURCE IDs

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 *** AERMET - VERSION  14134 ***   ***
                          ***       02:06:49

                                    PAGE  79
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN
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*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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		L0008226 , L0008227 , L0008228 , L0008229 , L0008230 , L0008231 , L0008232 , L0008233 ,
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES
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URBAN ID	URBAN POP	SOURCE IDs

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Ops HRA.isc                ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                          ***       02:06:49

                                    PAGE  81
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN
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*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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	L0008562	L0008563	L0008564	L0008565	L0008566	L0008567	L0008568	L0008569
	L0008570	L0008571	L0008572	L0008573	L0008574	L0008575	L0008576	L0008577
	L0008578	L0008579	L0008580	L0008581	L0008582	L0008583	L0008584	L0008585
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	L0008626	L0008627	L0008628	L0008629	L0008630	L0008631	L0008632	L0008633
	L0008634	L0008635	L0008636	L0008637	L0008638	L0008639	L0008640	L0008641
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*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

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 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
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		L0008882 , L0008883 , L0008884 , L0008885 , L0008886 , L0008887 , L0008888 , L0008889 ,
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		L0008914 , L0008915 , L0008916 , L0008917 , L0008918 , L0008919 , L0008920 , L0008921 ,
		L0008922 , L0008923 , L0008924 , L0008925 , L0008926 , L0008927 , L0008928 , L0008929 ,
		L0008930 , L0008931 , L0008932 , L0008933 , L0008934 , L0008935 , L0008936 , L0008937 ,
		L0008938 , L0008939 , L0008940 , L0008941 , L0008942 , L0008943 , L0008944 , L0008945 ,
		L0008946 , L0008947 , L0008948 , L0008949 , L0008950 , L0008951 , L0008952 , L0008953 ,
		L0008954 , L0008955 , L0008956 , L0008957 , L0008958 , L0008959 , L0008960 , L0008961 ,
		L0008962 , L0008963 , L0008964 , L0008965 , L0008966 , L0008967 , L0008968 , L0008969 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs

L0009018 , L0009019 , L0009020 , L0009021 , L0009022 ,
L0009023 , L0009024 , L0009025 ,

L0009026 , L0009027 , L0009028 , L0009029 , L0009030 ,
L0009031 , L0009032 , L0009033 ,

L0009034 , L0009035 , L0009036 , L0009037 , L0009038 ,
L0009039 , L0009040 , L0009041 ,

L0009042 , L0009043 , L0009044 , L0009045 , L0009046 ,
L0009047 , L0009048 , L0009049 ,

L0009050 , L0009051 , L0009052 , L0009053 , L0009054 ,
L0009055 , L0009056 , L0009057 ,

L0009058 , L0009059 , L0009060 , L0009061 , L0009062 ,

L0009063   , L0009064   , L0009065   ,

             L0009066   , L0009067   , L0009068   , L0009069   , L0009070   ,
L0009071   , L0009072   , L0009073   ,

             L0009074   , L0009075   , L0009076   , L0009077   , L0009078   ,
L0009079   , L0009080   , L0009081   ,

             L0009082   , L0009083   , L0009084   , L0009085   , L0009086   ,
L0009087   , L0009088   , L0009089   ,

             L0009090   , L0009091   , L0009092   , L0009093   , L0009094   ,
L0009095   , L0009096   , L0009097   ,

             L0009098   , L0009099   , L0009100   , L0009101   , L0009102   ,
L0009103   , L0009104   , L0009105   ,

             L0009106   , L0009107   , L0009108   , L0009109   , L0009110   ,
L0009111   , L0009112   , L0009113   ,

             L0009114   , L0009115   , L0009116   , L0009117   , L0009118   ,
L0009119   , L0009120   , L0009121   ,

             L0009122   , L0009123   , L0009124   , L0009125   , L0009126   ,
L0009127   , L0009128   , L0009129   ,

             L0009130   , L0009131   , L0009132   , L0009133   , L0009134   ,
L0009135   , L0009136   , L0009137   ,

             L0009138   , L0009139   , L0009140   , L0009141   , L0009142   ,
L0009143   , L0009144   , L0009145   ,

             L0009146   , L0009147   , L0009148   , L0009149   , L0009150   ,
L0009151   , L0009152   , L0009153   ,

             L0009154   , L0009155   , L0009156   , L0009157   , L0009158   ,
L0009159   , L0009160   , L0009161   ,

             L0009162   , L0009163   , L0009164   , L0009165   , L0009166   ,
L0009167   , L0009168   , L0009169   ,

             L0009170   , L0009171   , L0009172   , L0009173   , L0009174   ,
L0009175   , L0009176   , L0009177   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0009178 , L0009179 , L0009180 , L0009181 , L0009182 , L0009183 , L0009184 , L0009185 ,
		L0009186 , L0009187 , L0009188 , L0009189 , L0009190 , L0009191 , L0009192 , L0009193 ,
		L0009194 , L0009195 , L0009196 , L0009197 , L0009198 , L0009199 , L0009200 , L0009201 ,
		L0009202 , L0009203 , L0009204 , L0009205 , L0009206 , L0009207 , L0009208 , L0009209 ,
		L0009210 , L0009211 , L0009212 , L0009213 , L0009214 , L0009215 , L0009216 , L0009217 ,
		L0009218 , L0009219 , L0009220 , L0009221 , L0009222 , L0009223 , L0009224 , L0009225 ,
		L0009226 , L0009227 , L0009228 , L0009229 , L0009230 , L0009231 , L0009232 , L0009233 ,
		L0009234 , L0009235 , L0009236 , L0009237 , L0009238 , L0009239 , L0009240 , L0009241 ,
		L0009242 , L0009243 , L0009244 , L0009245 , L0009246 , L0009247 , L0009248 , L0009249 ,
		L0009250 , L0009251 , L0009252 , L0009253 , L0009254 , L0009255 , L0009256 , L0009257 ,
		L0009258 , L0009259 , L0009260 , L0009261 , L0009262 , L0009263 , L0009264 , L0009265 ,
		L0009266 , L0009267 , L0009268 , L0009269 , L0009270 , L0009271 , L0009272 , L0009273 ,
		L0009274 , L0009275 , L0009276 , L0009277 , L0009278 , L0009279 , L0009280 , L0009281 ,
		L0009282 , L0009283 , L0009284 , L0009285 , L0009286 , L0009287 , L0009288 , L0009289 ,

*** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0005117 , L0005118 , L0005119 , L0005120 , L0005121 , L0005122 , L0005123 , L0005124 ,
		L0005125 , L0005126 , L0005127 , L0005128 , L0005129 , L0005130 , L0005131 , L0005132 ,
		L0005133 , L0005134 , L0005135 , L0005136 , L0005137 , L0005138 , L0005139 , L0005140 ,
		L0005141 , L0005142 , L0005143 , L0005144 , L0005145 , L0005146 , L0005147 , L0005148 ,
		L0005149 , L0005150 , L0005151 , L0005152 , L0005153 , L0005154 , L0005155 , L0005156 ,
		L0005157 , L0005158 , L0005159 , L0005160 , L0005161 ,

L0005162   , L0005163   , L0005164   ,

             L0005165   , L0005166   , L0005167   , L0005168   , L0005169   ,
L0005170   , L0005171   , L0005172   ,

             L0005173   , L0005174   , L0005175   , L0005176   , L0005177   ,
L0005178   , L0005179   , L0005180   ,

             L0005181   , L0005182   , L0005183   , L0005184   , L0005185   ,
L0005186   , L0005187   , L0005188   ,

             L0005189   , L0005190   , L0005191   , L0005192   , L0005193   ,
L0005194   , L0005195   , L0005196   ,

             L0005197   , L0005198   , L0005199   , L0005200   , L0005201   ,
L0005202   , L0005203   , L0005204   ,

             L0005205   , L0005206   , L0005207   , L0005208   , L0005209   ,
L0005210   , L0005211   , L0005212   ,

             L0005213   , L0005214   , L0005215   , L0005216   , L0005217   ,
L0005218   , L0005219   , L0005220   ,

             L0005221   , L0005222   , L0005223   , L0005224   , L0005225   ,
L0005226   , L0005227   , L0005228   ,

             L0005229   , L0005230   , L0005231   , L0005232   , L0005233   ,
L0005234   , L0005235   , L0005236   ,

             L0005237   , L0005238   , L0005239   , L0005240   , L0005241   ,
L0005242   , L0005243   , L0005244   ,

             L0005245   , L0005246   , L0005247   , L0005248   , L0005249   ,
L0005250   , L0005251   , L0005252   ,

             L0005253   , L0005254   , L0005255   , L0005256   , L0005257   ,
L0005258   , L0005259   , L0005260   ,

             L0005261   , L0005262   , L0005263   , L0005264   , L0005265   ,
L0005266   , L0005267   , L0005268   ,

             L0005269   , L0005270   , L0005271   , L0005272   , L0005273   ,
L0005274   , L0005275   , L0005276   ,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** SOURCE IDs DEFINED AS URBAN SOURCES ***

URBAN ID	URBAN POP	SOURCE IDs
		L0005277 , L0005278 , L0005279 , L0005280 , L0005281 , L0005282 , L0005283 , L0005284 ,
		L0005285 , L0005286 , L0005287 , L0005288 , L0005289 , L0005290 , L0005291 , L0005292 ,
		L0005293 , L0005294 , L0005295 , L0005296 , L0005297 , L0005298 , L0005299 , L0005300 ,
		L0005301 , L0005302 , L0005303 , L0005304 , L0005305 , L0005306 , L0005307 , L0005308 ,
		L0005309 , L0005310 , L0005311 , L0005312 , L0005313 , L0005314 , L0005315 , L0005316 ,
		L0005317 , L0005318 , L0005319 , L0005320 , L0005321 , L0005322 , L0005323 , L0005324 ,
		L0005325 , L0005326 , L0005327 , L0005328 , L0005329 , L0005330 , L0005331 , L0005332 ,
		L0005333 , L0005334 , L0005335 , L0005336 , L0005337 , L0005338 , L0005339 , L0005340 ,
		L0005341 , L0005342 , L0005343 , L0005344 , L0005345 , L0005346 , L0005347 , L0005348 ,
		L0005349 , L0005350 , L0005351 , L0005352 , L0005353 , L0005354 , L0005355 , L0005356 ,
		L0005357 , L0005358 , L0005359 , L0005360 , L0005361 , L0005362 , L0005363 , L0005364 ,
		L0005365 , L0005366 , L0005367 , L0005368 , L0005369 , L0005370 , L0005371 , L0005372 ,
		L0005373 , L0005374 , L0005375 , L0005376 , L0005377 , L0005378 , L0005379 , L0005380 ,
		L0005381 , L0005382 , L0005383 , L0005384 , L0005385 , L0005386 , L0005387 , L0005388 ,

```
             L0005389    , L0005390    , L0005391    , L0005392    , L0005393    ,
L0005394    , L0005395    , L0005396    ,

             L0005397    , L0005398    , L0005399    , L0005400    , L0005401    ,
L0005402    , L0005403    , L0005404    ,

             L0005405    , L0005406    , L0005407    , L0005408    , L0005409    ,
L0005410    , L0005411    , L0005412    ,

             L0005413    , L0005414    , L0005415    , L0005416    , L0005417    ,
L0005418    , L0005419    , L0005420    ,

             L0005421    , L0005422    , L0005423    , L0005424    , L0005425    ,
L0005426    , L0005427    , L0005428    ,

             L0005429    , L0005430    , L0005431    , L0005432    , L0005433    ,
L0005434    , L0005435    , L0005436    ,
```

3810166.5,   1087.4,   1087.4,   0.0);
     (463116.6, 3810914.7,   1067.0,   1067.0,   0.0);   (463744.5,
3809595.7,   1068.8,   1068.8,   0.0);
     (461562.3, 3809757.3,   1096.5,   1096.5,   0.0);   (461541.1,
3809727.7,   1097.6,   1097.6,   0.0);
     (461509.0, 3809692.0,   1097.4,   1097.4,   0.0);   (462155.3,
3809428.8,   1097.1,   1097.1,   0.0);

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                                *** METEOROLOGICAL DAYS SELECTED FOR
PROCESSING ***
                                                                    (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1
1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

               NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON
WHAT IS INCLUDED IN THE DATA FILE.

                                   *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED
CATEGORIES ***
                                                          (METERS/SEC)

                                                     1.54,   3.09,   5.14,   8.23,
10.80,

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

   Surface file: 723825RR.SFC
                  Met Version: 14134
   Profile file: 723825RR.PFL

   Surface format: FREE

   Profile format: FREE

   Surface station no.:   23131   Upper air station no.:   3120
                  Name: UNKNOWN   Name: UNKNOWN

                  Year: 2010   Year: 2010

 First 24 hours of scalar data
 YR MO DY JDY HR   H0   U*   W* DT/DZ ZICNV ZIMCH M-O LEN   Z0 BOWEN
ALBEDO REF WS   WD   HT REF TA   HT
- -
- - - - - - - - - - - - - - - - - - -
 10 12 15 349 01 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 02 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 03 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 04 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 05 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 06 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
1.00 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 07 -45.5 0.446 -9.000 -9.000 -999. 714.   158.3 0.28   1.40
1.00   4.36 176.   10.0 281.1   2.0
 10 12 15 349 08 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
0.49 999.00 999.   -9.0 282.6   2.0
 10 12 15 349 09   44.5 0.452 -9.000 -9.000 -999. 729.   -168.5 0.27   1.40
0.30   3.86 263.   10.0 284.1   2.0
 10 12 15 349 10   94.2 0.570 -9.000 -9.000 -999. 1032.   -160.1 0.27   1.40
0.24   4.86 267.   10.0 285.1   2.0
 10 12 15 349 11 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
0.21 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 12 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40
0.20 999.00 999.   -9.0 999.0   -9.0
 10 12 15 349 13 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0 0.28   1.40

```
0.21  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 14  113.3  0.795 -9.000 -9.000 -999. 1700.   -359.2  0.27   1.40
0.22    6.96  256.   10.0  286.1    2.0
 10 12 15 349 15 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
0.26  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 16 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
0.37  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 17 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
0.71  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 18 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 19 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 20 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 21 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 22 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 23 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0
 10 12 15 349 24 -999.0 -9.000 -9.000 -9.000 -999. -999. -99999.0  0.28   1.40
1.00  999.00  999.   -9.0  999.0   -9.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 10 12 15 01   10.0 1 -999.  -99.00  -999.0   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  19191 ***   *** C:\Lakes\AERMOD View\12779 Ops HRA\12779
Ops HRA.isc                  ***        08/12/20
 *** AERMET - VERSION  14134 ***   ***
                       ***        02:06:49

                                  PAGE  92
 *** MODELOPTs:    RegDFAULT  CONC  ELEV  URBAN

                   *** THE ANNUAL AVERAGE CONCENTRATION    VALUES AVERAGED OVER   3
YEARS FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):     L0007418    , L0007419
 , L0007420    , L0007421    , L0007422    ,
                   L0007423    , L0007424    , L0007425    , L0007426    , L0007427
 , L0007428    , L0007429    , L0007430    ,
                   L0007431    , L0007432    , L0007433    , L0007434    , L0007435
 , L0007436    , L0007437    , L0007438    ,
                   L0007439    , L0007440    , L0007441    , L0007442    , L0007443
 , L0007444    , L0007445    ,  . . .      ,

                                                *** DISCRETE CARTESIAN RECEPTOR POINTS
```

***

                                        ** CONC OF DPM   IN MICROGRAMS/M**3
                  **

       X-COORD (M)   Y-COORD (M)   CONC   X-COORD (M)
Y-COORD (M)   CONC
 -
- -
         461835.34   3809495.15   0.00308   461599.42
3809813.71   0.00147
         461983.07   3810378.55   0.00377   461658.92
3810166.53   0.00195
         463116.56   3810914.72   0.00259   463744.46
3809595.71   0.01305
         461562.26   3809757.28   0.00115   461541.10
3809727.74   0.00099
         461509.01   3809692.00   0.00090   462155.33
3809428.85   0.00341

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

                                  *** THE SUMMARY OF MAXIMUM ANNUAL RESULTS
AVERAGED OVER   3 YEARS ***

                                   ** CONC OF DPM   IN MICROGRAMS/M**3
                **

                      NETWORK
GROUP ID   AVERAGE CONC   RECEPTOR (XR, YR,
ZELEV, ZHILL, ZFLAG) OF TYPE GRID-ID
- -
- - - - - - - - - - - - - - - - - - -

ALL   1ST HIGHEST VALUE IS   0.01305 AT (463744.46, 3809595.71,
1068.82, 1068.82,   0.00) DC
          2ND HIGHEST VALUE IS   0.00377 AT (461983.07, 3810378.55,
1083.82, 1083.82,   0.00) DC
          3RD HIGHEST VALUE IS   0.00341 AT (462155.33, 3809428.85,
1097.09, 1097.09,   0.00) DC
          4TH HIGHEST VALUE IS   0.00308 AT (461835.34, 3809495.15,
1098.00, 1098.00,   0.00) DC
          5TH HIGHEST VALUE IS   0.00259 AT (463116.56, 3810914.72,

1067.00, 1067.00,   0.00) DC
          6TH HIGHEST VALUE IS   0.00195 AT (461658.92, 3810166.53,
1087.38, 1087.38,   0.00) DC
          7TH HIGHEST VALUE IS   0.00147 AT (461599.42, 3809813.71,
1094.51, 1094.51,   0.00) DC
          8TH HIGHEST VALUE IS   0.00115 AT (461562.26, 3809757.28,
1096.55, 1096.55,   0.00) DC
          9TH HIGHEST VALUE IS   0.00099 AT (461541.10, 3809727.74,
1097.61, 1097.61,   0.00) DC
         10TH HIGHEST VALUE IS   0.00090 AT (461509.01, 3809692.00,
1097.44, 1097.44,   0.00) DC

 *** RECEPTOR TYPES: GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR

 *** MODELOPTs: RegDFAULT CONC ELEV URBAN

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of   0 Fatal Error Message(s)
 A Total of   1 Warning Message(s)
 A Total of   7221 Informational Message(s)

 A Total of   26760 Hours Were Processed

 A Total of   3453 Calm Hours Identified

 A Total of   3768 Missing Hours Identified (14.08 Percent)

 CAUTION!: Number of Missing Hours Exceeds 10 Percent of Total!
            Data May Not Be Acceptable for Regulatory Applications.
            See Section 5.3.2 of "Meteorological Monitoring Guidance
            for Regulatory Modeling Applications" (EPA-454/R-99-005).

    ******** FATAL ERROR MESSAGES ********
               *** NONE ***

    ********   WARNING MESSAGES   ********

```
MX W481   26761         MAIN: Data Remaining After End of Year. Number of Hours=
      456

   ***********************************
   *** AERMOD Finishes Successfully ***
   ***********************************
```

AVERAGE EMISSION FACTOR
MDAQMD 2021

Speed	LHD1	MHD	HHD
0	0.322301	0.154103	0.01277
5	0.036302	0.124341	0.04652
25	0.012587	0.048495	0.02256

Speed	**Weighted Average Emissions**
0	**0.13148**
5	**0.05528**
25	**0.02342**

Emission Rates - 2021 Emission Factors

Truck Emission Rates						
Source	Trucks Per Day	VMT [a] (miles/day)	Truck Emission Rate [b] (grams/mile)	Truck Emission Rate [b] (grams/idle-hour)	Daily Truck Emissions [c] (grams/day)	Modeled Emission Rates (g/second)
On-Site Idling Building 1 (N)	248			0.1315	8.14	9.426E-05
On-Site Idling Building 1 (S)	248			0.1315	8.14	9.426E-05
On-Site Idling Building 2 (N)	327			0.1315	10.73	1.242E-04
On-Site Idling Building 2 (S)	327			0.1315	10.73	1.242E-04
On-Site Idling Building 3	36			0.1315	1.17	1.351E-05
On-Site Travel Building 1 (N)	496	233.38	0.0553		12.90	1.493E-04
On-Site Travel Building 1 (S)	496	265.19	0.0553		14.66	1.697E-04
On-Site Travel Building 2 (N)	653	408.68	0.0553		22.59	2.615E-04
On-Site Travel Building 2 (S)	653	433.59	0.0553		23.97	2.774E-04
On-Site Travel Building 3	71	20.42	0.0553		1.13	1.306E-05
Off-Site Travel 100% Inbound	1184	1334.42	0.0234		31.25	3.617E-04
Off-Site Travel 95% Outbound	1125	1267.70	0.0234		29.69	3.436E-04
Off-Site Travel 40% Inbound	474	238.13	0.0234		5.58	6.455E-05
Off-Site Travel 40% Outbound	474	238.13	0.0234		5.58	6.455E-05
Off-Site Travel 40% Inbound	474	103.85	0.0234		2.43	2.815E-05
Off-Site Travel 20% Inbound	237	211.37	0.0234		4.95	5.730E-05
Off-Site Travel 50% Outbound	592	129.81	0.0234		3.04	3.519E-05
Off-Site Travel 5% Outbound	59	52.84	0.0234		1.24	1.432E-05
Off-Site Travel 25% Inbound	296	75.10	0.0234		1.76	2.036E-05
Off-Site Travel 15% Inbound	178	117.07	0.0234		2.74	3.173E-05
Off-Site Travel 30% Outbound	355	90.12	0.0234		2.11	2.443E-05
Off-Site Travel 15% Outbound	178	117.07	0.0234		2.74	3.173E-05
Off-Site Travel 5% Outbound	59	21.68	0.0234		0.51	5.877E-06

[a] Vehicle miles traveled are for modeled truck route only.

[b] Emission rates determined using EMFAC 2017. Idle emission rates are expressed in grams per idle hour rather than grams per mile.

[c] This column includes the total truck travel and truck idle emissions. For idle emissions this column includes emissions based on the assumption that each truck idles for 15 minutes.

calendar_y	season_m	sub_area	vehicle_cl	fuel	temperatu	relative_h	process	speed_tim	pollutant	emission_rate
2021	Annual	San Bernardino (MD)	HHDT	Dsl	60	70	RUNEX	5	PM10	0.050479
2021	Annual	San Bernardino (MD)	HHDT	Dsl	60	70	RUNEX	25	PM10	0.02448
2021	Annual	San Bernardino (MD)	LHDT1	Dsl	60	70	RUNEX	5	PM10	0.090888
2021	Annual	San Bernardino (MD)	LHDT1	Dsl	60	70	RUNEX	25	PM10	0.031514
2021	Annual	San Bernardino (MD)	MHDT	Dsl	60	70	RUNEX	5	PM10	0.15728
2021	Annual	San Bernardino (MD)	MHDT	Dsl	60	70	RUNEX	25	PM10	0.061342
2021	Annual	San Bernardino (MD)	HHDT	Dsl			IDLEX		PM10	0.013856
2021	Annual	San Bernardino (MD)	LHDT1	Dsl			IDLEX		PM10	0.806927
2021	Annual	San Bernardino (MD)	MHDT	Dsl			IDLEX		PM10	0.194927

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: Mojave Desert AQMD
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Population
Mojave De	2021	HHDT	Aggregate	Aggregate	Gasoline	2.84635
Mojave De	2021	HHDT	Aggregate	Aggregate	Diesel	16121.7
Mojave De	2021	HHDT	Aggregate	Aggregate	Natural Ga	4.344038
Mojave De	2021	LHDT1	Aggregate	Aggregate	Gasoline	11926.08
Mojave De	2021	LHDT1	Aggregate	Aggregate	Diesel	12111.5
Mojave De	2021	MHDT	Aggregate	Aggregate	Gasoline	979.8953
Mojave De	2021	MHDT	Aggregate	Aggregate	Diesel	3603.941

HHDT% GAS/NG	0.000446
HHDT% DSL	0.999554
LHDT1% GAS	0.496143
LHDT1% DSL	0.503857
MHDT% GAS	0.213772
MHDT% DSL	0.786228

APPENDIX 2.2:

RISK CALCULATIONS

Table 1
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
-0.25 to 0 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.01305	1.31E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	4.5E-06	1.4E-07	5.0E+00	1.4E-03	2.6E-03							
TOTAL								1.4E-07			2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	0.25
inhalation rate (L/kg-day))	361
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (age third trimeste	10

Table 2
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
0-2 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.01305	1.31E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	1.4E-05	3.5E-06	5.0E+00	1.4E-03	2.6E-03							
TOTAL								3.5E-06			2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	2
inhalation rate (L/kg-day))	1090
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.85
age sensitivity factor (0 to 2 years old)	10

Table 3
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
2-16 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			(ug/m^3)$^{-1}$	(mg/kg/day)$^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.01305	1.31E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	7.2E-06	3.2E-06	5.0E+00	1.4E-03	2.6E-03							
TOTAL								3.2E-06			2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	572
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.72
age sensitivity factor (ages 2 to 16 years	3

Table 4
Quantification of Carcinogenic Risks and Noncarcinogenic Hazards
16-30 Age Bin Exposure Scenario

Source	Mass GLC		Weight Fraction	Contaminant	Carcinogenic Risk				Noncarcinogenic Hazards/ Toxicological Endpoints**								
					URF	CPF	DOSE	RISK	REL	RfD	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES
	(ug/m^3)	(mg/m^3)			$(ug/m^3)^{-1}$	$(mg/kg/day)^{-1}$	(mg/kg-day)		(ug/m^3)	(mg/kg/day)								
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)	(s)
	0.01305	1.31E-05	1.00E+00	Diesel Particulate	3.0E-04	1.1E+00	3.3E-06	5.0E-07	5.0E+00	1.4E-03	2.6E-03							
TOTAL								5.0E-07			2.6E-03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
								0.50										

** Key to Toxicological Endpoints

RESP	Respiratory System
CNS/PNS	Central/Peripheral Nervous System
CV/BL	Cardiovascular/Blood System
IMMUN	Immune System
KIDN	Kidney
GI/LV	Gastrointestinal System/Liver
REPRO	Reproductive System (e.g. teratogenic and developmental effects)
EYES	Eye irritation and/or other effects

Note: Exposure factors used to calculate contaminant intake

exposure frequency (days/year)	350
exposure duration (years)	14
inhalation rate (L/kg-day))	261
inhalation absorption factor	1
averaging time (years)	70
fraction of time at home	0.73
age sensitivity factor (ages 16 to 30 years old)	1

Total Risk for All Age Bins (per million) 7.37

Appendix C-3

Health Effects of Criteria Air Pollutants

DRAFT
MEMORANDUM

To:	Memorandum to File
From:	Matthew Morales; Dudek
Subject:	Health Effects from Criteria Air Pollutants Associated with the Hesperia Commerce Center II Project
Date:	August 10, 2020

1 Purpose and Introduction

In response to the California Supreme Court's *Sierra Club v. County of Fresno* (2018) 6 Cal. 5th 502 decision (referred to herein as the Friant Ranch decision), this memorandum addresses the potential for adverse health effects related to emissions of criteria air pollutants associated with construction and operation of the proposed Hesperia Commerce Center II Project (Project), based on scientific information and technological methods available at the time of this memorandum's preparation. The published Friant Ranch decision (issued on December 24, 2018) addresses the need to correlate mass emission values for criteria air pollutants to specific health consequences, and contains the following direction from the California Supreme Court: "The Environmental Impact Report (EIR) must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further." (Italics original.) (Sierra Club v. County of Fresno 2018.)

As discussed below, at the time of this memorandum's preparation, no expert agency, including the Mojave Desert Air Quality Management District (MDAQMD), the California Air Resources Board (CARB), or the U.S. Environmental Protection Agency (EPA), have approved a quantitative method to reliably, meaningfully, and consistently translate the mass emission estimates for the criteria air pollutants resulting from a proposed project to specific health effects. No California air district or other expert agency/entity has published *quantitative* guidance on how to address the Friant Ranch decision.[1] However, in April 2019, the Sacramento Metropolitan Air Quality Management District (SMAQMD) published an Interim Recommendation on implementing the Friant Ranch decision in the review and analysis of proposed projects under the California Environmental Quality Act (CEQA) in Sacramento County. The SMAQMD Interim Recommendation, which does not endorse use of any quantitative methodology, is summarized in Section 4, below.

[1] The following air districts, state agencies and entities were contacted by Dudek in January 2019, which could not provide guidance on how to proceed in response to the Friant Ranch decision at that time: MDAQMD, San Diego Air Pollution Control District (APCD), South Coast Air Quality Management District (AQMD), San Joaquin Valley APCD, Santa Barbara County APCD, San Luis Obispo County APCD, Bay Area AQMD, California Air Resources Board, California Office of Planning and Research, California Air Pollution Control Officers Association, and Office of Environmental Health Hazard Assessment.

Nonetheless, following the Supreme Court's Friant Ranch decision, some EIRs where estimated criteria air pollutant emissions exceeded applicable air district thresholds, have included a quantitative analysis of potential project-generated health effects using a combination of a regional photochemical grid model (PGM) and the EPA Benefits Mapping and Analysis Program (BenMAP or BenMAP–Community Edition (CE)). The publically available health impact assessments (HIA) typically present results in terms of an increase in health incidences and/or the increase in background health incidence for various health outcomes resulting from the project's estimated increase in concentrations of ozone (O_3) and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$). To date, all of the HIAs that are publically available have concluded that the evaluated project's health effects associated with the estimated project-generated increase in concentrations of O_3 and $PM_{2.5}$ represent a small increase in incidences and a very small percent of the number of background incidences, indicating that these health impacts are negligible and potentially within the models' margin of error. A review of the publically available HIAs in CEQA documents is provided in Section 4.

2 National and California Ambient Air Quality Standards

As discussed in Section 4.2, Air Quality, of the Project's EIR, ambient air quality standards (AAQS) define clean air, and are established to protect even the most sensitive individuals (CARB 2019a). An AAQS defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. The EPA and CARB are both authorized to set AAQS.

The Clean Air Act Amendments of 1970 instruct the EPA to set primary National AAQS (NAAQS) to protect public health, and secondary NAAQS to protect plants, forests, crops and materials from damage due to exposure to the following criteria air pollutants: O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), $PM_{2.5}$, and lead.

The federal Clean Air Act requires that the EPA reassess, at least every five years, whether adopted standards are adequate to protect public health based on current scientific evidence. The EPA is required to rely on the advice of an independent scientific panel, the Clean Air Scientific Advisory Committee. Reviewing the NAAQS is a lengthy undertaking and includes the following major phases: planning, integrated science assessment, risk/exposure assessment, policy assessment, and rulemaking (EPA 2018a). During the integrated science assessment, a comprehensive review, synthesis, and evaluation of the most policy-relevant science is conducted, including key science judgments that are important to inform the development of the risk and exposure assessments (EPA 2018a). Then, the risk/exposure assessment draws upon information and conclusions presented in the integrated science assessment to develop quantitative characterizations of exposures and associated risks to human health or the environment associated with recent air quality conditions and with air quality estimated to just meet the current or alternative standard(s) under consideration (EPA 2018a). Scientific review during policy assessment development, and the NAAQS review process in general, is thorough and extensive.

In 1959, California enacted legislation requiring the state Department of Public Health to establish AAQS and necessary controls for motor vehicle emissions (CARB 2019b). California's AAQS (CAAQS) were adopted in 1971 (CARB 2019b). The CAAQS are established for O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$, as well as hydrogen sulfide, vinyl chloride, sulfates, and visibility reducing particles.

Air quality standard setting in California commences with a critical review of all relevant peer reviewed scientific literature. The Office of Environmental Health Hazard Assessment (OEHHA) uses the review of health literature to

develop a recommendation for the standard. The recommendation can be for no change, or can recommend a new standard. The review, including the OEHHA recommendation, is summarized in a document called the draft Initial Statement of Reasons (ISOR), which is released for comment by the public, and also for public peer review by the Air Quality Advisory Committee (AQAC). AQAC members are appointed by the President of the University of California for their expertise in the range of subjects covered in the ISOR, including health, exposure, air quality monitoring, atmospheric chemistry and physics, and effects on plants, trees, materials, and ecosystems. The Committee provides written comments on the draft ISOR. CARB staff next revises the ISOR based on comments from AQAC and the public. The revised ISOR is then released for a 45-day public comment period prior to consideration by the Board of CARB at a regularly scheduled Board hearing (CARB 2017a).

Federal law requires that all states attain the NAAQS. Failure of a state to reach attainment of the NAAQS by the target date can trigger penalties, including withholding of federal highway funds (CARB 2019b). California law similarly continues to mandate CAAQS, although attainment of the NAAQS has precedence over attainment of the CAAQS (CARB 2019b).

Of importance to this memorandum, California air districts have based their thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an AAQS is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the AAQS, this means that the thresholds established by air districts are also protective of human health. The particular thresholds of relevance to the Project are illustrated in Table 4.2-3 of the Project's EIR. Because O_3 is not emitted directly, air districts have established emissions-based thresholds for O_3 precursors—volatile organic compounds (VOCs) and oxides of nitrogen (NO_x)—which are intended to serve as a surrogate for an "O_3 significance threshold" (i.e., the potential for adverse O_3 impacts to occur).

The NAAQS and CAAQS for O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ are presented in Table 1. Hydrogen sulfide, vinyl chloride, sulfates, and visibility reducing particles are not addressed further in this evaluation because they are not routinely associated with land use development projects subject to CEQA review, and are thus not presented in Table 1.[2]

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	

[2] This Ambient Air Quality Standards table is also provided as Table 4.2-1 in the Project's EIR Section 4.2, Air Quality.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³

Source: CARB 2016.

Notes: μg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] CARB adopted new PM standards in June of 2002, responding to requirements of the Children's Environmental Health Protection Act (Senate Bill 25, Escutia 1999), specifically the evaluation of all health-based AAQS to determine if the standards adequately protect human health, particularly that of infants and children. The subsequent review of the PM standards resulted in the recommendation of more health-protective AAQS for PM_{10} and a new standard for $PM_{2.5}$. The new PM standards became effective in 2003. Upon further review, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³ on December 14, 2012. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35

μg/m^3, as was the annual secondary standard of 15 μg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m^3 were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

Pursuant to the 1990 Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Nonattainment areas must develop plans to attain the NAAQS. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than NAAQS. The attainment designations for O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$ for the area of the Mojave Desert Air Basin (MDAB) in which the Project is located are listed in Table 2.[3]

Table 2
Mojave Desert Air Basin Attainment Designation

Pollutant	National Designation	California Designation
O_3 – 1 hour	No federal standard	**Nonattainment**
O_3 – 8 hours	**Severe nonattainment**[b]	**Nonattainment**
NO_2	Unclassifiable/attainment	Attainment
CO	Unclassifiable/attainment	Attainment
SO_2	Unclassifiable/attainment	Attainment
PM_{10}	**Moderate nonattainment**[c]	**Nonattainment**
$PM_{2.5}$	Unclassifiable/attainment	Attainment[d]
Lead	Unclassifiable/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified[e]
Sulfates	No federal standard	Attainment
Visibility-reducing particles	No federal standard	Unclassified
Vinyl chloride	No federal standard	No designation

Sources: EPA 2020 (national); CARB 2020 (California).
Notes: O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Definitions: attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

[a] Designations/classifications in **bold** type are in nonattainment.
[b] West Mojave Desert portion of the basin, where the Project is located, is designated severe nonattainment. The Kern County portion of the MDAB is designated moderate nonattainment, and the remaining areas of the MDAB are designated unclassifiable/attainment.
[c] The Project is located in an area designated moderate nonattainment in the MDAB.
[d] The Project is located in an area designated attainment in the MDAB.

[3] The same discussion of the MDAB attainment designation is provided in Section 4.2.2 of the Project's EIR.

[e] The entire MDAB is designated unclassified, except for the Searles Valley portion of the basin, which is designated nonattainment.

As shown in Table 2, the area of the MDAB in which the Project is located is designated as a nonattainment area for O_3 and PM_{10} under the NAAQS and/or the CAAQS.

As discussed in Section 4.2.2 of the Project's EIR, the MDAQMD is responsible for developing and implementing the clean air plan for attainment and maintenance of the AAQS in the MDAB. The MDAQMD's most recent air quality plans are the PM_{10} attainment demonstration and maintenance plan (approved in 1995) and the O_3 attainment plan (approved in 2008). As the MDAQMD develops and implements plans and control measures designed to attain the AAQS, the MDCAQMD implements measures to reduce public health effects associated with criteria air pollutants.

3 Health Effects of Criteria Air Pollutants and their Precursors

Numerous scientific studies published over the past 50 years point to the harmful effects of air pollution (CARB 2019b). As explained above, the AAQS are designed to prevent these effects (CARB 2019b). The adverse health effects associated with air pollution are diverse and include (SCAQMD 2017):

- Premature mortality
- Cardiovascular effects
- Increased health care utilization (hospitalization, physician and emergency room visits)
- Increased respiratory illness and other morbidity (symptoms, infections, and asthma exacerbation)
- Decreased lung function (breathing capacity)
- Lung inflammation
- Potential immunological changes
- Increased airway reactivity to a known pharmacological agent exposure - a method used in laboratories to evaluate the tendency of airways to have an increased possibility of developing an asthmatic response
- A decreased tolerance for exercise
- Adverse birth outcomes such as low birth weights

The evidence linking these effects to air pollutants is derived from population-based observational and field studies (epidemiological) as well as controlled laboratory studies involving human subjects and animals. There have been an increasing number of studies focusing on the mechanisms (that is, on learning how specific organs, cell types, and biomarkers are involved in the human body's response to air pollution) and specific pollutants responsible for individual effects. Yet the underlying biological pathways for these effects are not always clearly understood (SCAQMD 2017).

Although individuals inhale pollutants as a mixture under ambient conditions, the regulatory framework and the control measures developed are pollutant-specific for six major outdoor pollutants covered under Sections 108 and 109 of the Clean Air Act. This is appropriate, in that different pollutants usually differ in their sources, their times and places of occurrence, the kinds of health effects they may cause, and their overall levels of health risk. Different pollutants, from the same or different sources, oftentimes occur together. Evidence for more than additive effects has not been strong and, as a practical matter, health scientists, as well as regulatory officials, usually must deal with one pollutant at a time in adopting AAQS (SCAQMD 2017).

Health effects associated with criteria air pollutants are discussed below; the same or similar information is provided in Section 4.2.1 of the Project's EIR.

Ozone (O_3). O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, respiratory symptoms, worsening of lung disease leading to premature death, increased susceptibility to infections, inflammation of and damage to the lung tissue, and some immunological changes (EPA 2013, CARB 2019c). These health problems are particularly acute in sensitive receptors such as the sick, older adults, and young children.

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in and cause shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies of O_3's effects on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019c).

A number of population groups are potentially at increased risk for O_3 exposure effects. In the ongoing review of O_3, the EPA has identified populations as having adequate evidence for increased risk from O_3 exposures include individuals with asthma, younger and older age groups, individuals with reduced intake of certain nutrients such as Vitamins C and E, and outdoor workers. There is suggestive evidence for other potential factors, such as variations in genes related to oxidative metabolism or inflammation, gender, socioeconomic status, and obesity. However further evidence is needed (SCAQMD 2017).

The adverse effects reported with short-term O_3 exposure are greater with increased activity because activity increases the breathing rate and the volume of air reaching the lungs, resulting in an increased amount of O_3 reaching the lungs. Children may be a particularly vulnerable population to air pollution effects because they spend more time outdoors, are generally more active, and have a higher specific ventilation relative to their body weight, compared to adults (SCAQMD 2017).

Volatile Organic Compounds (VOCs). The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group. Within this evaluation, VOC and reactive organic gases (ROGs) are used interchangeably.

Nitrogen Dioxide (NO_2). A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the AAQS for NO_2, is results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher compared to lower levels of exposure. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2019d).

Carbon Monoxide (CO). Carbon monoxide is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, and light-headedness, dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019e).

Sulfur Dioxide (SO_2). SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter (PM), SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can worsen asthma resulting in increased symptoms, increased medication usage, and emergency room visits.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the one-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 parts per million (ppm)) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. The elderly and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019f).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in PM (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter (PM_{10} and $PM_{2.5}$). A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and world-wide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017b).

Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that PM in outdoor air pollution causes lung cancer (CARB 2017b).

People with influenza, people with chronic respiratory and cardiovascular diseases, and older adults may suffer worsening illness and premature death as a result of breathing PM. People with bronchitis can expect aggravated symptoms from breathing PM. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

PM encompasses a physically and chemically diverse class of ambient air pollutants of both anthropogenic and biological origin. The PM standard is the only NAAQS that does not target a specific chemical or family of chemical species (NRC 2005). The range of human health effects associated with ambient PM levels or demonstrated in laboratory studies has expanded from earlier concerns for total mortality and respiratory morbidity to include cardiac mortality and morbidity, blood vessel constriction, stroke, premature birth, low birth weight, retarded lung growth, enhancement of allergic responses, reduced resistance to infection, degenerative lesions in the brain, and lung cancer (EPA 2004).

4 Scientific and Technological Complexities

At issue in the Friant Ranch decision was the fact that a development project's PEIR/PEIS did not connect its mass emission totals to specific adverse human health effects. Concerned with the sufficiency of the PEIR/PEIS as an informational document, and specifically whether the magnitude of project impacts was adequately disclosed, the California Supreme Court stated the following:

> "The task for real party and the County is clear: The EIR must provide an adequate analysis to inform the public how its bare numbers translate to create potential adverse impacts or it must adequately explain what the agency *does* know and why, given existing scientific constraints, it cannot translate potential health impacts further." (Sierra Club v. County of Fresno 2018; italics original)

As discussed further below, at the time of this writing, no available modeling tools have been proven to provide a reliable and meaningful analysis to correlate an increase in mass totals or concentrations of criteria air pollutants

from an individual project to specific health effects, or estimate additional pollutant nonattainment days relative to the NAAQS and CAAQS due to a single project.

Formation of Secondary Pollutants

The California Supreme Court noted, in the Friant Ranch decision, that: "The raw numbers estimating the tons per year of ROG and NO_x from the Project do not give any information to the reader about how much ozone is estimated to be produced as a result."

In response, the formation of O_3 and PM in the atmosphere, as secondary pollutants,[4] involves complex chemical and physical interactions of multiple pollutants from natural and anthropogenic sources, as further explained below. The complexity in how secondary pollutants are formed and dispersed has resulted in ongoing difficulties in measuring and regulating those pollutants.

Tropospheric, or ground level O_3, is not emitted directly into the air, but is created by chemical reactions between NO_x and VOCs (EPA 2018b). This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react in the presence of sunlight (EPA 2018b). O_3 is most likely to reach unhealthy levels on hot sunny days in urban environments, but can still reach high levels during colder months (EPA 2018b). O_3 can also be transported long distances by wind, so even rural areas can experience high O_3 levels (EPA 2018b).

The O_3 reaction is self-perpetuating (or catalytic) in the presence of sunlight because NO_2 is photochemically reformed from nitric oxide (NO). In this way, O_3 is controlled by both NO_x and VOC emissions (NRC 2005). The complexity of these interacting cycles of pollutants means that incremental decreases in one emission may not result in proportional decreases in O_3 (NRC 2005). Although these reactions and interactions are well understood, variability in emission source operations and meteorology creates uncertainty in the modeled O_3 concentrations to which downwind populations may be exposed (NRC 2005). This is especially true for individual projects, like the Project, where project-generated criteria air pollutant emissions are not derived from a single "point source," but from mobile sources (cars and trucks) driving to, from and around the project area and area sources (consumer products, architectural coating, natural gas fireplaces, etc.).

In many urban areas, O_3 nonattainment is not caused by emissions from the local area alone (EPA 2008). Due to atmospheric transport, contributions of precursors from the surrounding region can also be important (EPA 2008, O_3 NAAQS). Thus, in designing control strategies to reduce O_3 concentrations in a local area, it is often necessary to account for regional transport within the U.S. (EPA 2008). In some areas, such as California, global transport of O_3 from beyond North America also can contribute to nonattainment areas (EPA 2008).

PM can be divided into two categories: directly emitted PM and secondary PM. Secondary PM, like O_3, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as SO_x and NO_x (SJVAPCD 2015). In general, PM_{10} is composed largely of primary particles, and a much greater portion of $PM_{2.5}$ contains secondary particles (EPA 2015b). The secondary formation of $PM_{2.5}$ is dominated by a variety of chemical species or components of atmospheric particles, such as ammonium sulfate, ammonium nitrate, organic carbon mass,

[4] Air pollutants formed through chemical reactions in the atmosphere are referred to as secondary pollutants.

elemental carbon, and other soil compounds and oxidized metals. $PM_{2.5}$, sulfate, nitrate, and ammonium ions are predominantly the result of chemical reactions of the oxidized products of SO_2 and NO_x emissions with direct ammonia emission (EPA 2017a). Because of the complexity of secondary PM formation, including the potential to be transported long distances by wind, the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area (SJVAPCD 2015).

Because of the long-range transport of some pollutants, important emission sources may be far from the locations where measured pollutant concentrations exceed the AAQS (NRC 2005). Thus, for areas experiencing higher ambient concentrations of pollutants, such as O_3 and PM, controlling emissions of those pollutants and their precursors is typically a regional, often multistate, problem, not a local one (NRC 2005).

San Joaquin Valley Air Pollution Control District and South Coast Air Quality Management District Briefs

In connection with the judicial proceedings culminating in issuance of the Friant Ranch decision, the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the South Coast Air Quality Management District (SCAQMD) filed amicus briefs attesting to the extreme difficulty of correlating an individual project's criteria air pollutant emissions to specific health impacts. Both the SJVAPCD and the SCAQMD have among the most sophisticated air quality modeling and health impact evaluation capabilities of the air districts in the State. While the information and arguments presented in those briefs was considered by the California Supreme Court, the Court noted that such information was not part of the administrative record associated with the County's decision to approve the Friant Ranch project. A summary of the key, relevant points of the SJVAPCD and SCAQMD briefs is provided below.

Difference between Toxic Air Contaminants and Criteria Air Pollutants

A toxic air contaminant (TAC) is an air pollutant, identified in regulation by CARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.) than pollutants subject to CAAQS and NAAQS. Health effects to TACs may occur at extremely low levels and it is typically difficult to identify levels of exposure which do not produce adverse health effects. A criteria air pollutant, on the other hand, is an air pollutant for which acceptable levels of exposure can be determined and for which an AAQS has been set (CARB 2019g).

As the SJVAPCD explained in their brief, "Although criteria air pollutants can also be harmful to human health, they are distinguishable from TACs and are regulated separately. The most relevant difference between criteria pollutants and TACs for purposes of this case is the manner in which human health impacts are accounted for. While it is common practice to analyze the correlation between an individual facility's TAC emissions and the expected localized human health impacts, such is not the case for criteria pollutants" (SJVAPCD 2015). Unlike with TACs (where assessment occurs in conjunction with environmental analysis for individual projects), the human health impacts associated with criteria air pollutants are analyzed and taken into consideration when EPA sets the NAAQS for each criteria pollutant. (42 U.S.C. § 7409(b)(1).) The health impact of a particular criteria pollutant is analyzed on a regional and not a facility or individual project level based on how close the area is to complying with (attaining) the NAAQS (SJVAPCD 2015). The SJVAPCD concluded that while it is possible to perform a health impact analysis for TACs, "it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task" (SJVAPCD 2015).

Disconnect Between Mass and Concentration

Another important technical nuance is that health effects from air pollutants are related to the concentration of the air pollutant that an individual is exposed to, not necessarily the individual mass quantity of emissions associated with an individual project. For example, health effects from O_3 are correlated with increases in the ambient level of O_3 in the air a person breathes (SCAQMD 2015). However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region (SCAQMD 2015).

For CEQA analyses, project-generated emissions are typically estimated in pounds per day or tons per year and compared to mass daily or annual emission thresholds. While CEQA thresholds are established at levels that the air basin can accommodate without affecting the attainment date for the AAQS, even if a project exceeds established CEQA significance thresholds, this does not mean that one can easily determine the concentration of O_3 or PM that will be created at or near the project site on a particular day or month of the year, or what specific health impacts will occur (SJVAPCD 2015).

As the SJVAPCD points out, the tonnage of PM "emitted does not always equate to the local PM concentration because it can be transported long distances by wind," and "[s]econdary PM, like O_3, is formed via complex chemical reactions in the atmosphere between precursor chemicals such as sulfur dioxides (SO_x) and NO_x," meaning that "the tonnage of PM-forming precursor emissions in an area does not necessarily result in an equivalent concentration of secondary PM in that area" (SJVAPCD 2015). The disconnect between the tonnage of precursor pollutants (NO_x, SO_x and VOCs) and the concentration of O_3 or PM formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of resulting O_3 or PM (SJVAPCD 2015). As discussed previously, the AAQS are established as concentrations of O_3 or PM and not as tonnages of their precursor pollutants (SJVAPCD 2015). The disconnect between the amount of precursor pollutants and the concentration of O_3 or PM formed makes it difficult to determine potential health impacts, which are related to the concentration of O_3 and PM experienced by the receptor rather than levels of NO_x, SO_x, and VOCs produced by a source (SJVAPCD 2015).

As discussed above, attainment of a particular AAQS occurs when the concentration of the relevant pollutant remains below a set threshold on a consistent basis throughout a particular region (SJVAPCD 2015). Because the AAQS are focused on achieving a particular concentration of pollution region-wide, an air district's tools and plans for attaining the AAQS are regional in nature (SJVAPCD 2015). For instance, the computer models used to simulate and predict an attainment date for the O_3 or PM NAAQS in the San Joaquin Valley are based on regional inputs, such as regional inventories of precursor pollutants (NO_x, SO_x and VOCs) and the atmospheric chemistry and meteorology of the San Joaquin Valley (SJVAPCD 2015). At a very basic level, the models simulate future O_3 or PM levels based on predicted changes in precursor emissions San Joaquin Valley Air Basin-wide (SJVAPCD 2015). Because the AAQS are set levels necessary to protect human health, the closer a region is to attaining a particular AAQS, the lower the human health impact is from that pollutant (SJVAPCD 2015).

The goal of these modeling exercises is not to determine whether the emissions generated by a particular factory or development project will affect the date that the San Joaquin Valley Air Basin attains the AAQS (SJVAPCD 2015). Rather, the SJVAPCD's modeling and planning strategy is regional in nature and based on the extent to which all of the emission-generating sources in the San Joaquin Valley Air Basin (current and future) must be controlled in order to reach attainment (SJVAPCD 2015).

Correlation to Health Effects

The SJVAPCD ties the difficulty of correlating the emission of criteria pollutants to health impacts to how O_3 and PM are formed, as explained above. According to SJVAPCD, "even once a model is developed to accurately ascertain local increases in concentrations of photochemical pollutants like O_3 and some particulates, it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact [because] such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level" (SJVAPCD 2015).

SCAQMD used O_3, which is formed from the chemical reaction of NO_x and VOCs in the presence of sunlight, as an example of why it is impracticable to determine specific health outcomes from criteria pollutants for all but very large, regional-scale projects. First, forming O_3 "takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources" (SCAQMD 2015). Second, "it takes a large amount of additional precursor emissions (NO_x and VOCs) to cause a modeled increase in ambient ozone levels over an entire region," with a 2012 study showing that "reducing NO_x by 432 tons per day (157,680 tons/year) and reducing VOC by 187 tons per day (68,255 tons/year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion" (SCAQMD 2015). SCAQMD thus concludes that it "does not currently know of a way to accurately quantify O_3-related health impacts caused by NO_x or VOC emissions from relatively small projects" (SCAQMD 2015).

Essentially, SCAQMD takes the position that a project emitting only 10 tons per year of NO_x or VOC is small enough that its regional impact on ambient O_3 levels may not be detected in the regional air quality models that are currently used to determine O_3 levels; thus, in this case it would not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from O_3 (SCAQMD 2015). Therefore, lead agencies that use SCAQMD's thresholds of significance may determine that many projects have "significant" air quality impacts and must apply all feasible mitigation measures, yet will not be able to precisely correlate the project to quantifiable health impacts.

Effects on Number of Nonattainment Days

In regard to regional concentrations and air basin attainment, the SJVAPCD emphasized that attempting to identify a change in background pollutant concentrations that can be attributed to a single project, even one as large as the entire Friant Ranch Specific Plan, is a theoretical exercise. The SJVAPCD brief noted that it "would be extremely difficult to model the impact on NAAQS attainment that the emissions from the Friant Ranch project may have" (SJVAPCD 2015). The situation is further complicated by the fact that background concentrations of regional pollutants are not uniform either temporally or geographically throughout an air basin, but are constantly fluctuating based upon meteorology and other environmental factors. As discussed above, the currently available modeling tools are equipped to model the impact of all emission sources in the San Joaquin Valley Air Basin on attainment (SJVAPCD 2015). The SJVAPCD brief then indicated that, "Running the photochemical grid model used for predicting O_3 attainment with the emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_x and VOC in the Valley) is not likely to yield valid information given the relative scale involved" (SJVAPCD 2015).

Sacramento Metropolitan Air Quality Management District Interim Recommendation

As previously discussed, the SMAQMD is to date the only California air district to formally release guidance (Interim Recommendation, April 2019) for lead agencies and practitioners preparing CEQA documents for projects within Sacramento County to comply with the Friant Ranch decision. Consistent with the expert opinions submitted to the Court in Friant Ranch by SJVAPCD and SCAQMD, the SMAQMD guidance confirms the absence of an acceptable or reliable quantitative methodology that would correlate the expected criteria air pollutant emissions of projects to the likely health consequences to people of project-generated criteria air pollutant emissions. The SMAQMD guidance explains that while it is in the process of developing a methodology to assess these impacts, lead agencies should follow the Friant Court's advice to explain in meaningful detail why this analysis is not yet feasible.

The Interim Recommendation further states that, "neither the Sac Metro Air District nor any other air district currently have methodologies that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions" (SMAQMD 2019). The recommendation further explains that air districts have focused on reducing regional emissions from all sectors to meet the health-based concentration standards, thereby reducing the pollutant specific health impacts for the entire population. For example, the SMAQMD prepared plans to attain and maintain the O_3 and PM AAQS. These attainment plans include emissions inventories, air monitoring data, control measures, modeling, future pollutant-level estimates, and general health information. Attainment planning models rely on regional inputs to determine O_3 and PM formation and concentrations in a regional context, not a project specific context. Because of the complexity of O_3 formation, the pounds or tons of emissions from a Project in a specific geographical location does not equate to a specific concentration of ozone formation in a given area, because in addition to emission levels, O_3 formation is affected by atmospheric chemistry, geography, and weather. Secondary formation of PM is very similar to the complexity of O_3 formation, and localized impacts of directly emitted PM do not always equate to local PM concentrations due to transport of emissions. Accordingly, because air district attainment plans and supporting air model tools are regional in nature, they do not allow for analysis of the health impacts of specific projects on any given geographic location. The Interim Recommendation also references available health-related information, but indicates that the available information cannot be directly correlated to the pounds/day or tons/year of emissions estimated from a single, proposed project.

The Interim Recommendation is in place to assist lead agencies and practitioners with CEQA document preparation until SMAQMD develops a methodology that provides a consistent, reliable and meaningful analysis to address the Court's direction on correlating health impacts to a project's emissions.

Methods Available

At the time of writing, no specific tools have been developed for use in CEQA documents to connect criteria air pollutant emissions from an individual project to specific health effects in response to Friant Ranch. However, it has been demonstrated to be technically feasible to use existing regional models and an existing health effect modeling program to evaluate individual projects, which has been conducted for a few projects in 2019. The following CEQA documents included a quantitative HIA to address Friant Ranch:

1. California State University Dominguez Hills 2018 Campus Master Plan EIR (CSUDH MP) (Cal State University Dominguez Hills 2019)

2. March Joint Powers Association K4 Warehouse and Cactus Channel Improvements EIR (March JPA K4) (March JPA 2019)
3. Mineta San Jose Airport Amendment to the Airport Master Plan EIR (San Jose Airport) (City of San Jose 2019)
4. City of Inglewood Basketball and Entertainment Center Project EIR (IBEC) (City of Inglewood 2019)
5. San Diego State University Mission Valley Campus Master Plan EIR (SDSU) (San Diego State University 2019)

The first step in all of the five above listed examples including running a regional PGM, such as the Community Multiscale Air Quality (CMAQ)[5] model or the Comprehensive Air Quality Model with extensions (CAMx)[6] to estimate the increase in concentrations of O_3 and $PM_{2.5}$ as a result of project-generated emissions of criteria and precursor pollutants. Air districts, such as the MDAQMD, use photochemical air quality models for regional air quality planning. These photochemical models are large-scale air quality models that simulate the changes of pollutant concentrations in the atmosphere using a set of mathematical equations characterizing the chemical and physical processes in the atmosphere (EPA 2017b).

After estimating the increase in concentrations of O_3 and $PM_{2.5}$, the second step in the five examples includes use of BenMAP or BenMAP-CE to estimate the resulting associated health effects. BenMAP estimates the number of health incidences resulting from changes in air pollution concentrations (EPA 2018d). The health impact function in BenMAP-CE incorporates four key sources of data: (i) modeled or monitored air quality changes, (ii) population, (iii) baseline incidence rates, and (iv) an effect estimate. While BenMAP can estimate the health effects of emissions of VOC, NO_x, CO, SO_2, and $PM_{2.5}$, O_3 and $PM_{2.5}$ were determined to have the most critical health impacts and thus, were the pollutants evaluated to determine the project's health effects in three of the five examples (i.e., CSUDH MP, March JPA K4, and San Jose Airport). The current version of BenMAP-CE only has health impact functions associated with O_3 and $PM_{2.5}$, which is why the example HIA using BenMAP-CE only quantitatively addressed O_3 and $PM_{2.5}$ related health outcomes. As such, all example HIAs focused on O_3 and $PM_{2.5}$.

BenMAP outputs include O_3- and PM-related health endpoints such as premature mortality, hospital admissions, and emergency room visits (City of San Jose 2019). BenMAP uses the following simplified formula to relate changes in ambient air pollution to certain health endpoints (City of San Jose 2019):

$$Health\ Effect = Air\ Quality\ Change \times Health\ Effect\ Estimate \times Exposed\ Population \times Background\ Health\ Incidence$$

Population characteristics are a key variable in the BenMAP estimate of health incidences. As such, small increases in emissions in an area with a high population may have a much greater affect than large increases in emissions

[5] The CMAQ modeling system includes state-of-the-science capabilities for conducting urban-to-regional-to-hemispheric scale simulations of multiple air quality issues, including tropospheric O_3, fine particles, TACs, acid deposition, and visibility degradation. CMAQ brings together three kinds of models: (1) Meteorological models to represent atmospheric and weather activities, (2) Emission models to represent man-made and naturally-occurring contributions to the atmosphere, and (3) An air chemistry-transport model to predict the atmospheric fate of air pollutants under varying conditions (EPA 2018c).

[6] CAMx is a three-dimensional grid-based Eulerian air quality model designed to estimate the formation and fate of oxidant precursors, primary and secondary particulate matter concentrations, and deposition over regional and urban spatial scales (e.g., over the contiguous U.S.) (EPA 2015a).

over an area with a small population. While location and associated population is a key factor, making the five examples specific not only to the project-generated emissions, but also to the geographic location and underlying population estimates, the findings of the five examples are provided herein for context, particularly for the conclusions. For the CSUDH MP, the proposed project retains the existing campus enrollment cap of 20,000 full-time-equivalent students, while providing a framework for development of the CSUDH's campus in a forward-looking manner that accommodates growth from the current enrollment of approximately 11,000 full-time-equivalent students to the maximum enrollment of 20,000 full-time-equivalent students over a planning horizon extending to 2035. The project is located within Los Angeles County within the SCAQMD jurisdictional boundaries (within the South Coast Air Basin). For context, the maximum daily emissions of relevant pollutants generated by the CSUDH MP were estimated to be 482.6 pounds per day of VOC, 240.1 pounds per day of NO_x, 2.7 pounds per day of SO_2, and 79.5 pounds per day of $PM_{2.5}$.

The CSUDH MP presented HIA results in terms of an increase in health incidences and the increase in background health incidence for various health outcomes referred to as endpoints. The background health incidence is the actual incidence of health effects as measured in the local population in the absence of additional emissions from the project. (CSUDH 2019)

The two highest $PM_{2.5}$-related health outcomes attributed to the CSUDH MP project-related increases in ambient air concentrations included mortality (10.31 incidences per year, 0.0032% in background health incidence) and asthma-related emergency room visits (4.38 incidences per year, 0.0033% in background health incidence). The remaining health endpoints, including asthma-related hospital admissions, all cardiovascular-related hospital admissions (not including myocardial infarctions), all respiratory-related hospital admissions, and nonfatal acute myocardial infarction ranged from 0.00044 to 2.44 incidences per year (0.00047% to 0.0014% in background health incidence). (CSUDH 2019)

O_3-related health outcomes attributed to the CSDUDH project-related increases in ambient air concentrations included respiratory-related hospital admissions (0.67 incidences per year, 0.00034% in background health incidence), mortality (0.28 incidences per year, 0.00013% in background health incidence), and asthma-related emergency room visits for any age range (lower than 3.38 incidences per year for all age groups, lower than 0.0058% percent in background health incidence for all age groups). (CSUDH 2019)

The CSUDH MP HIA then concluded that "for all these health endpoints, the number of estimated incidences is less than 0.0058% of the background health incidence. … When taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health impacts are negligible in a developed, urban environment." (CSUDH 2019).

The March JPA K4 project is also located within the SCAQMD jurisdictional boundaries (within the South Coast Air Basin), but within Riverside County. The proposed project involves the development of the five parcels on the 35.4-acre K4 Parcel with a 718,000-square-foot building conservatively assumed to be occupied by High-Cube ecommerce/fulfillment center use. The mitigated maximum daily operational emissions of relevant pollutants generated by the March JPA K4 were estimated to be 41.0 pounds per day of VOC, 253.0 pounds per day of NO_x, 1.4 pounds per day of SO_x, and 30.3 pounds per day of $PM_{2.5}$. The March HPA K4 HIA determined that, "for all these health endpoints, the number of estimated incidences is less than 0.0042% of the baseline number of incidences," and that "these health impacts are conservatively estimated, and the actual impacts may be zero." (March JPA 2019).

The SDSU project is located within the City of San Diego. The SDSU project proposes construction and operation of the SDSU Mission Valley campus, stadium, parks, recreation, and innovation area to accommodate up to 15,000 full-time-equivalent students over time, resulting in a total student headcount of approximately 20,000 students. The maximum daily emissions of relevant pollutants generated by SDSU were estimated to be 314.1 pounds per day of VOC, 1,120.7 pounds per day of NO_x, 6.5 pounds per day of SO_2, and 205.9 pounds per day of $PM_{2.5}$ (SDSU 2019).

The $PM_{2.5}$-related health outcomes attributed to the SDSU project-related increases in ambient air concentrations included mortality (8.97 incidences per year, 0.0026% in background health incidence) and asthma-related emergency room visits (5.29 incidences per year, 0.0040% in background health incidence). The remaining health endpoints, including asthma-related hospital admissions, all cardiovascular-related hospital admissions (not including myocardial infarctions), all respiratory-related hospital admissions, and nonfatal acute myocardial infarction ranged from 0.00083 to 3.33 incidences per year (0.00223% to 0.00164% in background health incidence) (SDSU 2019)

O_3-related health outcomes attributed to the SDSU project-related increases in ambient air concentrations included respiratory-related hospital admissions (0.45 incidences per year, 0.0002% in background health incidence), mortality (0.21 incidences per year, 0.00010% in background health incidence), asthma-related emergency room visits for age groups 0-17 (1.73 incidences per year, 0.003% percent in background health incidence), and asthma-related emergency room visits for age groups 18-99 (2.02 incidences per year, 0.002% percent in background health incidence) (SDSU 2019)

The SDSU HIA found that "health effects estimation using the log-linear method presumes that effects seen at large concentration differences can be linearly scaled down to small increases in concentration, with no consideration of potential thresholds below which health effects may occur; thus, this potentially overstates the potential effects. In summary, health effects are conservatively estimated, and the actual effects may be zero." (SDSU 2019).

While the San Jose Airport project is not similar to the proposed Project based on land use type, emissions profile, and geographical location, the results still provide a relevant data point. San Jose Airport is located in Santa Clara County within the Bay Area AQMD jurisdictional boundaries (within the San Francisco Bay Area Air Basin). The San Jose Airport project includes amending the approved 2018 Airport Master Plan to a) shift the planning horizon year from 2027 to 2037, b) modify future facility requirements at the airport to reflect updated demand forecasts, and c) modify certain components of the airfield to reduce to potential for runway incursions. (City of San Jose 2019). The estimated maximum daily incremental operational emissions of relevant pollutants generated by the San Jose Airport project were estimated to be -49.4 pounds per day of VOC, 5,325 pounds per day of NO_x, and 52 pounds per day of $PM_{2.5}$. However, the following emissions inventory was assumed for the HIA: 57.3 pounds per day of VOC, 5,643.0 pounds per day of NO_x, and 51.6 pounds per day of $PM_{2.5}$.

The San Jose Airport HIA estimated that the highest health endpoint from $PM_{2.5}$ was mortality at 4.46 incidences (0.0017% percent in background health incidence). All other PM_{2-5}-related health incidences ranged from 0.00022 to 1.89 (0.00027% to 0.0016% percent in background health incidence). For O_3-related health endpoints, the highest was emergency room visits for asthma, which was estimated to be 11.05 incidences (0.028% percent in background health incidence) for ages 0-17 and 14.59 incidences (0.019% percent in background health incidence) for ages 18-99 (City of San Jose 2019). Of the five examples discussed herein, the San Jose Airport resulted in the greatest O_3 incidences, which correlates with the estimated high emissions of ozone-precursors,

specifically NO_x at 5,643 pounds per day. Nonetheless, the conclusion was that "when taken into context, the small increase in incidences and the very small percent of the number of background incidences indicate that these health impacts are negligible in a developed, urban environment." (City of San Jose 2019)

The IBEC project HIA provides another important data point for consideration. The IBEC project consists of an arena designed to host the LA Clippers basketball team with up to 18,000 fixed seals for National Basketball Association games and up to 500 additional temporary seats for events such as family shows, concerts, conventions, corporate events, and non-LA Clippers sporting events. The IBEC project is located within Los Angeles County within the jurisdictional boundaries of the SCAQMD (within the South Coast Air Basin). The IBEC EIR evaluated nine operational scenarios; across these multiple scenarios, the estimated maximum daily net increase in operational emissions of relevant pollutants was 94 pounds per day of VOC, 99 pounds per day of NO_x, 3 pounds per day of SO_x, and 89 pounds per day of $PM_{2.5}$.

The IBEC EIR analysis provided helpful context on using regional models for individual projects, as follows: "Generally, models that correlate criteria air pollutant concentrations with specific health effects focus on regulatory decision-making that will apply throughout an entire air basin or region. These models focus on the region-wide health effects of pollutants so that regulators can assess the costs and benefits of adopting a proposed regulation that applies to an entire category of air pollutant sources, rather than the health effects related to emissions from a specific proposed project or source. Because of the scale of these analyses, any one project is likely to have only very small incremental effects which may be difficult to differentiate from the effects of air pollutant concentrations in an entire air basin. … For regional pollutants, it is difficult to trace a particular project's criteria air pollutant emissions to a specific health effect. Moreover, the modeled results may be misleading because the margin of error in such modeling is large enough that, even if the modeled results report a given health effect, the model is sufficiently imprecise that the actual effect may differ from the reported results; that is, the modeled results suggest precision, when in fact available models cannot be that precise on a project level." (City of Inglewood 2019).

For O_3-related health endpoints, emergency room visits for asthma was estimated to be 0.087 incidence per year for all studied age groups combined, 0.016 incidence per year of respiratory-related hospital admissions, and less than 0.02 incidence per year of mortality; the amount of estimated incremental health effects incidence is less than 0.0001% of the baseline number of health effects incidences in the study area.

A key finding from the IBEC HIA was that the for $PM_{2.5}$-related health endpoints, due to the very small changes in ambient $PM_{2.5}$ concentrations as modeled by CMAQ, all of the estimated incremental health incidences were negative values. The IBEC HIA stated that this further confirms that the modeled $PM_{2.5}$ concentrations are within the model's margin of error, no meaningful conclusions can be reached on the specific health effects that may be caused by the proposed project O_3 precursor and $PM_{2.5}$ emissions, and health impacts may in fact be zero, and they would still be well within the models' margin of error (City of Inglewood 2019).

It is also important to note that while these results conclude that the project emissions do not result in a substantial increase in health incidences, the estimated emissions and assumed toxicity is also conservatively inputted into the HIA and thus, overestimate health incidences, particularly for $PM_{2.5}$. For example, as discussed in the San Jose Airport HIA, "the USEPA has also stated that results from various studies have shown the importance of considering particle size, composition, and particle source in determining the health impacts of PM. Further, USEPA found that studies have reported that particles from industrial sources and from coal combustion appear to be the most significant contributors to PM-related mortality, consistent with the findings by Rohr and Wyzga and others. This is

particularly important to note here, as the majority of PM emissions generated from the Project are from entrained roadway dust, and not from combustion. Therefore, by not considering the relative toxicity of PM components, the results presented here are conservative." (City of San Jose 2019).

As explained in the SJVAPCD brief and noted previously, running the PGM used for predicting O_3 attainment with the emissions solely from an individual project like the Friant Ranch project or the proposed Project is not likely to yield valid information given the relative scale involved. The five examples discussed herein support the SJVAPCD's brief contention that consistent, reliable, and meaningful results may not be provided by methods applied at this time. Accordingly, additional work in the industry and more importantly, air district participation, is needed to develop a more meaningful analysis to correlate project-level mass criteria air pollutant emissions and health effects for decision makers and the public. Furthermore, at the time of writing, no HIA has concluded that health effects estimated using the PGM and BenMAP approach are substantial provided that the estimated project-generated incidences represent a very small percent of the number of background incidences, potentially within the models' margin of error.

5 Evaluation of the Proposed Project's Health Effects

Based on the evaluation of methods available provided in Section 4, this evaluation does not attempt to quantify health effects, but builds upon the discussion provided in Sections 2 and 3 to disclose potential health effects associated with the Project. As explained in Section 2, the EPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts (like MDAQMD) have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS. Accordingly, elevated levels of criteria air pollutants as a result of a Project's emissions could cause adverse health effects associated with these pollutants.

In this case, construction of the Project would not exceed MDAQMD thresholds after mitigation is incorporated. Operation of the Project, however, would result in emissions that would exceed the MDAQMD thresholds for criteria air pollutants including VOC, NO_x, and PM_{10}, event after implementation of mitigation. As shown in Table 2 (Section 2), the MDAB is designated as a nonattainment area for O_3 and PM_{10} under the NAAQS and the CAAQS.

As discussed in Section 3, health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue (CARB 2019h). VOCs and NO_x are precursors to O_3, for which the MDAB is designated as nonattainment with respect to the NAAQS and CAAQS. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the MDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 AAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative because of the lack of quantitative methods to assess this impact. Nonetheless, because VOC and NO_x emissions associated with Project operation would exceed the MDAQMD mass daily construction threshold, it could minimally contribute to regional O_3 concentrations and the associated health effects.

Health effects associated with NO_x include lung irritation and enhanced allergic responses (see Section 3; CARB 2019h). Health impacts that result from NO_2 and NO_x include respiratory irritation. Although Project operations would generate NO_x emissions that would exceed the MDAQMD mass daily thresholds, the Project is not anticipated to contribute to exceedances of the NAAQS and CAAQS for NO_2 because the MDAB is designated as in attainment of the NAAQS and CAAQS for NO_2 and the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Nonetheless, because there are nearby receptors to be affected by on-road vehicle exhaust, the Project could result in potential health effects associated with NO_2 and NO_x during operations.

Health effects associated with CO include chest pain in patients with heart disease, headache, light-headedness, and reduced mental alertness (See Section 3; CARB 2019h). CO tends to be a localized impact associated with congested intersections. The potential for CO hotspots associated with the Project were discussed in Section 4.2.4 of the Project EIR and are determined to be a less-than-significant impact.

Operation of the Project would exceed the MDAQMD threshold for PM_{10}. As such, the Project would potentially contribute to exceedances of the NAAQS and CAAQS for particulate matter and obstruct the MDAB from coming into attainment for these pollutants. Because the Project has the potential to contribute substantial particulate matter during operation, the Project could result in associated health effects.

In summary, because operation of the Project could result in exceedances of the MDAQMD significance thresholds for VOC, NO_x, and PM_{10}, the Project would potentially result in health effects associated with those pollutants, as explained in Section 3. Because construction of the Project would not exceed any MDAQMD thresholds (after mitigation), and operation of the Project would not exceed the MDAQMD thresholds for CO, SO_x or $PM_{2.5}$, and because the MDAQMD thresholds are based on levels that the MDAB can accommodate without affecting the attainment date for the AAQS and the AAQS are established to protect public health and welfare, the Project is not anticipated to result in health effects associated with CO, SO_x or $PM_{2.5}$. Notably, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and methods available to quantitatively evaluate health effects may not be appropriate to apply to emissions associated with the proposed Project, which cannot be estimated with a high-level of accuracy.

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Appendix C-4

Supplemental Air Quality Assessment

October 13, 2021

Mr. Patrick Cruz
DUDEK
27372 Calle Arroyo
San Juan Capistrano, CA 92675

SUBJECT: HESPERIA COMMERCE CENTER II SUPPLEMENTAL ASSESSMENT

Dear Mr. Patrick Cruz:

Urban Crossroads, Inc. is pleased to provide the following Supplemental Assessment in support of the Hesperia Commerce Center II development. The purpose of this work effort is to evaluate soil import-related air quality emissions.

BACKGROUND

In September 2020, a Draft Environmental Impact Report (DEIR) was prepared for the subject project. At the time the underlying technical air quality study was prepared for the DEIR, precise grading quantities were not known, and a balanced site was evaluated for purposes of the DEIR. Since that time, it is our understanding that the Project site would require up to 112,438 cubic yards of soil import. This memorandum serves to update the air quality emissions calculations to determine if any additional air quality impacts would occur.

AIR QUALITY EMISSIONS SUMMARY

As the Project would require up to 112,438 cubic yards of soil import, it is our understanding based in information provided by the Project's engineering team, that the duration of grading would need to be extended to accommodate soil import activities. As such, the emissions were re-calculated for Project-related construction activity to include soil import with an extended duration of approximately 80 days, compared to the 30 days assumed in the DEIR. As shown on Table 1 below, even with the inclusion of soil import, the Project would not result in a significant air quality impact, consistent with the findings contained in the DEIR. Attachment A to this memo includes the revised modeling outputs.

TABLE 1: EMISSIONS SUMMARY OF CONSTRUCTION – WITH MITIGATION

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer						
2021	52.23	132.97	144.41	0.48	41.47	14.14
2022	12.21	102.03	98.37	0.39	21.28	7.05
Winter						
2021	52.12	133.12	133.29	0.46	41.46	14.14
2022	12.19	101.52	91.68	0.37	21.28	7.05
Maximum Daily Emissions	**52.23**	**126.72**	**144.41**	**0.48**	**41.47**	**14.14**
MDAQMD Regional Threshold	137	137	548	137	82	65
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

CONCLUSION

The Project would not result in a significant impact to air quality even with inclusion of soil import activity.

If you have any questions, please contact me at (949) 660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.



Haseeb Qureshi,
Associate Principal

ATTACHMENT A: CALEEMOD OUTPUTS

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.86	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Summer

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed January 2022

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	10.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	80.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	15.36	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	300.00	600.00
tblGrading	AcresOfGrading	0.00	400.00
tblGrading	MaterialImported	0.00	112,438.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LandUseSquareFeet	594,000.00	593,998.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblSolidWaste	SolidWasteGenerationRate	1,715.89	0.00
tblSolidWaste	SolidWasteGenerationRate	2,219.95	0.00
tblTripsAndVMT	VendorTripNumber	1,391.00	696.00
tblTripsAndVMT	WorkerTripNumber	3,564.00	1,782.00
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7730e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3300e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01

tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	HHD	1.17	0.04

tblVehicleEF	HHD	0.04	2.7740e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6800e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56
tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8400e-004

tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4810e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1000e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05

tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9820e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	0.96	0.68
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	LDA	4.6640e-003	2.6750e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30

tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6340e-003
tblVehicleEF	LDA	6.1500e-004	5.5000e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1450e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36

tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9150e-003
tblVehicleEF	LDA	6.1100e-004	5.4200e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5900e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58

tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5510e-003
tblVehicleEF	LDA	6.1500e-004	5.4900e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3480e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15

tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31

tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003

tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003

tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003

tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003

tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17

tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12

tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12

tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003

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tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003

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tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
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tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
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tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004

tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003

tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003

tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

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tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19

tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
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tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26

tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
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tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
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tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00

tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
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tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	1.88	0.00
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tblVehicleEF	MH	0.17	0.10
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tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	5.5780e-003	0.06

tblVehicleEF	MHD	8.2200e-004	1.9600e-004
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tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	0.05	0.09
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tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
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tblVehicleEF	MHD	0.02	0.03
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10

tblVehicleEF	MHD	0.02	0.21
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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
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tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02

tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
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tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003

tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003

tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003

tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.2276	132.9673	144.4130	0.4839	39.4241	4.0862	41.4696	12.2601	3.7635	14.1419	0.0000	48,984.3707	48,984.3707	4.6721	0.0000	49,082.9397
2022	12.2104	102.0274	98.3651	0.3910	19.3537	1.9247	21.2783	5.2404	1.8082	7.0485	0.0000	39,823.1336	39,823.1336	2.9376	0.0000	39,896.5725
Maximum	**52.2276**	**132.9673**	**144.4130**	**0.4839**	**39.4241**	**4.0862**	**41.4696**	**12.2601**	**3.7635**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**4.6721**	**0.0000**	**49,082.9397**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.2276	132.9673	144.4130	0.4839	39.4241	4.0862	41.4696	12.2601	3.7635	14.1419	0.0000	48,984.3707	48,984.3707	4.6721	0.0000	49,082.9397
2022	12.2104	102.0274	98.3651	0.3910	19.3537	1.9247	21.2783	5.2404	1.8082	7.0485	0.0000	39,823.1336	39,823.1336	2.9376	0.0000	39,896.5725
Maximum	**52.2276**	**132.9673**	**144.4130**	**0.4839**	**39.4241**	**4.0862**	**41.4696**	**12.2601**	**3.7635**	**14.1419**	**0.0000**	**48,984.3707**	**48,984.3707**	**4.6721**	**0.0000**	**49,082.9397**

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	5/21/2021	5	80	
3	Building Construction	Building Construction	5/22/2021	1/28/2022	5	180	
4	Architectural Coating	Architectural Coating	5/22/2021	12/17/2021	5	150	
5	Paving	Paving	5/22/2021	10/8/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	14,055.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0743	0.0430	0.5672	1.4600e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		145.7541	145.7541	4.2200e-003		145.8597
Total	**0.0743**	**0.0430**	**0.5672**	**1.4600e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**145.7541**	**145.7541**	**4.2200e-003**		**145.8597**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.1844	0.0000	17.1844	5.8541	0.0000	5.8541			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**17.1844**	**3.9707**	**21.1551**	**5.8541**	**3.6530**	**9.5071**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0439	40.0720	6.2065	0.1365	3.0746	0.1134	3.1879	0.8429	0.1085	0.9514		14,497.5512	14,497.5512	0.7771		14,516.9796
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**1.2090**	**40.1676**	**7.4669**	**0.1398**	**3.4032**	**0.1155**	**3.5187**	**0.9301**	**0.1105**	**1.0406**		**14,821.4492**	**14,821.4492**	**0.7865**		**14,841.1122**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.1844	0.0000	17.1844	5.8541	0.0000	5.8541			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**17.1844**	**3.9707**	**21.1551**	**5.8541**	**3.6530**	**9.5071**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0439	40.0720	6.2065	0.1365	3.0746	0.1134	3.1879	0.8429	0.1085	0.9514		14,497.5512	14,497.5512	0.7771		14,516.9796
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1651	0.0957	1.2604	3.2500e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		323.8980	323.8980	9.3800e-003		324.1326
Total	**1.2090**	**40.1676**	**7.4669**	**0.1398**	**3.4032**	**0.1155**	**3.5187**	**0.9301**	**0.1105**	**1.0406**		**14,821.4492**	**14,821.4492**	**0.7865**		**14,841.1122**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8457	68.2595	12.9059	0.1953	4.7150	0.1211	4.8361	1.3575	0.1158	1.4733		20,605.2099	20,605.2099	1.2641		20,636.8131
Worker	7.3554	4.2614	56.1502	0.1449	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		14,429.6551	14,429.6551	0.4180		14,440.1062
Total	**9.2011**	**72.5209**	**69.0561**	**0.3403**	**19.3537**	**0.2177**	**19.5715**	**5.2404**	**0.2048**	**5.4452**		**35,034.8650**	**35,034.8650**	**1.6822**		**35,076.9193**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6293	33.5341	34.8784	0.0576		1.7291	1.7291		1.6245	1.6245		5,474.3040	5,474.3040	1.3421		5,507.8576
Total	**3.6293**	**33.5341**	**34.8784**	**0.0576**		**1.7291**	**1.7291**		**1.6245**	**1.6245**		**5,474.3040**	**5,474.3040**	**1.3421**		**5,507.8576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7198	64.6641	11.9371	0.1937	4.7150	0.1018	4.8167	1.3575	0.0973	1.4548		20,439.5410	20,439.5410	1.2206		20,470.0553
Worker	6.8614	3.8292	51.5497	0.1397	14.6387	0.0939	14.7326	3.8829	0.0864	3.9693		13,909.2886	13,909.2886	0.3748		13,918.6596
Total	**8.5812**	**68.4933**	**63.4868**	**0.3334**	**19.3537**	**0.1956**	**19.5493**	**5.2404**	**0.1837**	**5.4241**		**34,348.8297**	**34,348.8297**	**1.5954**		**34,388.7149**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6293	33.5341	34.8784	0.0576		1.7291	1.7291		1.6245	1.6245	0.0000	5,474.3040	5,474.3040	1.3421		5,507.8576
Total	**3.6293**	**33.5341**	**34.8784**	**0.0576**		**1.7291**	**1.7291**		**1.6245**	**1.6245**	**0.0000**	**5,474.3040**	**5,474.3040**	**1.3421**		**5,507.8576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7198	64.6641	11.9371	0.1937	4.7150	0.1018	4.8167	1.3575	0.0973	1.4548		20,439.5410	20,439.5410	1.2206		20,470.0553
Worker	6.8614	3.8292	51.5497	0.1397	14.6387	0.0939	14.7326	3.8829	0.0864	3.9693		13,909.2886	13,909.2886	0.3748		13,918.6596
Total	**8.5812**	**68.4933**	**63.4868**	**0.3334**	**19.3537**	**0.1956**	**19.5493**	**5.2404**	**0.1837**	**5.4241**		**34,348.8297**	**34,348.8297**	**1.5954**		**34,388.7149**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.9430	1.7050	22.4664	0.0580	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,773.4815	5,773.4815	0.1673		5,777.6631
Total	**2.9430**	**1.7050**	**22.4664**	**0.0580**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,773.4815**	**5,773.4815**	**0.1673**		**5,777.6631**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0619	0.0359	0.4726	1.2200e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		121.4617	121.4617	3.5200e-003		121.5497
Total	**0.0619**	**0.0359**	**0.4726**	**1.2200e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**121.4617**	**121.4617**	**3.5200e-003**		**121.5497**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.86	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed January 2022

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	10.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	10.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	80.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	220.00	100.00
tblEnergyUse	LightingElect	2.93	0.00
tblEnergyUse	LightingElect	0.35	0.00
tblEnergyUse	LightingElect	1.17	0.00
tblEnergyUse	NT24E	5.02	0.00
tblEnergyUse	NT24E	0.82	0.00
tblEnergyUse	NT24NG	17.13	0.00
tblEnergyUse	NT24NG	0.03	0.00
tblEnergyUse	T24E	2.20	0.00
tblEnergyUse	T24E	0.37	0.00
tblEnergyUse	T24NG	15.36	0.00
tblEnergyUse	T24NG	2.00	0.00
tblGrading	AcresOfGrading	300.00	600.00
tblGrading	AcresOfGrading	0.00	400.00
tblGrading	MaterialImported	0.00	112,438.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LandUseSquareFeet	594,000.00	593,998.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblSolidWaste	SolidWasteGenerationRate	1,715.89	0.00
tblSolidWaste	SolidWasteGenerationRate	2,219.95	0.00
tblTripsAndVMT	VendorTripNumber	1,391.00	696.00
tblTripsAndVMT	WorkerTripNumber	3,564.00	1,782.00
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tblVehicleEF	LDT1	0.24	0.33
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tblVehicleEF	LDT1	0.22	0.31

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tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
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tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003

tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
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tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003

tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
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tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003

tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
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tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003

tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17

tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12

tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12

tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003

tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004

tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003

tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003

tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19

tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
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tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26

tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
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tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
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tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03

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tblVehicleEF	MDV	1.1700e-003	8.9200e-004
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tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
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tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
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tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00

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tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	1.88	0.00
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tblVehicleEF	MH	0.56	0.00
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tblVehicleEF	MHD	5.5780e-003	0.06

tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
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tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
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tblVehicleEF	MHD	6.4400e-004	1.4900e-004
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tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	3.6900e-004	1.4820e-003
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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
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tblVehicleEF	MHD	0.02	0.21
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tblVehicleEF	MHD	5.3200e-004	2.1320e-003
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tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	0.36	0.08

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tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
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tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
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tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02

tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
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tblVehicleEF	OBUS	1.08	1.17
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tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9580e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.7870e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005

tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.28	6.0120e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	1.0000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.31	6.5820e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4520e-003
tblVehicleEF	SBUS	0.06	8.8900e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59

tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003

tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003
tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003

tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003

tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003

tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003

tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.1216	133.1229	133.2889	0.4556	39.4241	4.0878	41.4696	12.2601	3.7650	14.1419	0.0000	46,133.8148	46,133.8148	4.7379	0.0000	46,234.0734
2022	12.1872	101.5231	91.6757	0.3694	19.3537	1.9275	21.2812	5.2404	1.8109	7.0513	0.0000	37,630.5583	37,630.5583	3.0274	0.0000	37,706.2430
Maximum	**52.1216**	**133.1229**	**133.2889**	**0.4556**	**39.4241**	**4.0878**	**41.4696**	**12.2601**	**3.7650**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.7379**	**0.0000**	**46,234.0734**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	52.1216	133.1229	133.2889	0.4556	39.4241	4.0878	41.4696	12.2601	3.7650	14.1419	0.0000	46,133.8148	46,133.8148	4.7379	0.0000	46,234.0733
2022	12.1872	101.5231	91.6757	0.3694	19.3537	1.9275	21.2812	5.2404	1.8109	7.0513	0.0000	37,630.5583	37,630.5583	3.0274	0.0000	37,706.2430
Maximum	**52.1216**	**133.1229**	**133.2889**	**0.4556**	**39.4241**	**4.0878**	**41.4696**	**12.2601**	**3.7650**	**14.1419**	**0.0000**	**46,133.8148**	**46,133.8148**	**4.7379**	**0.0000**	**46,234.0733**

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**	**0.0000**	**3.4700e-003**	**3.4700e-003**	**0.0000**	**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**	**0.0000**	**2.2088**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	5/21/2021	5	80	
3	Building Construction	Building Construction	5/22/2021	1/28/2022	5	180	
4	Architectural Coating	Architectural Coating	5/22/2021	12/17/2021	5	150	
5	Paving	Paving	5/22/2021	10/8/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	14,055.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					39.2763	0.0000	39.2763	12.2209	0.0000	12.2209			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**39.2763**	**2.0445**	**41.3207**	**12.2209**	**1.8809**	**14.1018**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0728	0.0453	0.4720	1.3100e-003	0.1479	9.8000e-004	0.1488	0.0392	9.0000e-004	0.0401		130.8293	130.8293	3.7300e-003		130.9226
Total	**0.0728**	**0.0453**	**0.4720**	**1.3100e-003**	**0.1479**	**9.8000e-004**	**0.1488**	**0.0392**	**9.0000e-004**	**0.0401**		**130.8293**	**130.8293**	**3.7300e-003**		**130.9226**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.1844	0.0000	17.1844	5.8541	0.0000	5.8541			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530		12,014.0869	12,014.0869	3.8856		12,111.2269
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**17.1844**	**3.9707**	**21.1551**	**5.8541**	**3.6530**	**9.5071**		**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0911	40.2226	7.0882	0.1329	3.0746	0.1149	3.1895	0.8429	0.1100	0.9529		14,117.6105	14,117.6105	0.8440		14,138.7094
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**1.2528**	**40.3232**	**8.1372**	**0.1358**	**3.4032**	**0.1171**	**3.5202**	**0.9301**	**0.1120**	**1.0421**		**14,408.3422**	**14,408.3422**	**0.8523**		**14,429.6486**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					17.1844	0.0000	17.1844	5.8541	0.0000	5.8541			0.0000			0.0000
Off-Road	8.3824	92.7997	61.7569	0.1240		3.9707	3.9707		3.6530	3.6530	0.0000	12,014.0869	12,014.0869	3.8856		12,111.2268
Total	**8.3824**	**92.7997**	**61.7569**	**0.1240**	**17.1844**	**3.9707**	**21.1551**	**5.8541**	**3.6530**	**9.5071**	**0.0000**	**12,014.0869**	**12,014.0869**	**3.8856**		**12,111.2268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.0911	40.2226	7.0882	0.1329	3.0746	0.1149	3.1895	0.8429	0.1100	0.9529		14,117.6105	14,117.6105	0.8440		14,138.7094
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1617	0.1006	1.0490	2.9200e-003	0.3286	2.1700e-003	0.3308	0.0872	2.0000e-003	0.0892		290.7317	290.7317	8.3000e-003		290.9392
Total	**1.2528**	**40.3232**	**8.1372**	**0.1358**	**3.4032**	**0.1171**	**3.5202**	**0.9301**	**0.1120**	**1.0421**		**14,408.3422**	**14,408.3422**	**0.8523**		**14,429.6486**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250		5,472.0876	5,472.0876	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**		**5,472.0876**	**5,472.0876**	**1.3502**		**5,505.8424**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.0455	37.4984	35.3413	0.0576		2.0503	2.0503		1.9250	1.9250	0.0000	5,472.0875	5,472.0875	1.3502		5,505.8424
Total	**4.0455**	**37.4984**	**35.3413**	**0.0576**		**2.0503**	**2.0503**		**1.9250**	**1.9250**	**0.0000**	**5,472.0875**	**5,472.0875**	**1.3502**		**5,505.8424**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9554	67.5981	15.0472	0.1881	4.7150	0.1243	4.8393	1.3575	0.1189	1.4764		19,835.8392	19,835.8392	1.3998		19,870.8337
Worker	7.2023	4.4831	46.7322	0.1300	14.6387	0.0967	14.7354	3.8829	0.0890	3.9719		12,952.0965	12,952.0965	0.3697		12,961.3394
Total	**9.1577**	**72.0811**	**61.7794**	**0.3181**	**19.3537**	**0.2210**	**19.5747**	**5.2404**	**0.2079**	**5.4483**		**32,787.9357**	**32,787.9357**	**1.7695**		**32,832.1731**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6293	33.5341	34.8784	0.0576		1.7291	1.7291		1.6245	1.6245		5,474.3040	5,474.3040	1.3421		5,507.8576
Total	**3.6293**	**33.5341**	**34.8784**	**0.0576**		**1.7291**	**1.7291**		**1.6245**	**1.6245**		**5,474.3040**	**5,474.3040**	**1.3421**		**5,507.8576**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8243	63.9623	13.9730	0.1864	4.7150	0.1046	4.8196	1.3575	0.1001	1.4575		19,670.3685	19,670.3685	1.3536		19,704.2079
Worker	6.7336	4.0267	42.8244	0.1253	14.6387	0.0939	14.7326	3.8829	0.0864	3.9693		12,485.8859	12,485.8859	0.3317		12,494.1775
Total	**8.5579**	**67.9890**	**56.7974**	**0.3117**	**19.3537**	**0.1985**	**19.5521**	**5.2404**	**0.1865**	**5.4268**		**32,156.2544**	**32,156.2544**	**1.6853**		**32,198.3854**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6293	33.5341	34.8784	0.0576		1.7291	1.7291		1.6245	1.6245	0.0000	5,474.3040	5,474.3040	1.3421		5,507.8576
Total	**3.6293**	**33.5341**	**34.8784**	**0.0576**		**1.7291**	**1.7291**		**1.6245**	**1.6245**	**0.0000**	**5,474.3040**	**5,474.3040**	**1.3421**		**5,507.8576**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.8243	63.9623	13.9730	0.1864	4.7150	0.1046	4.8196	1.3575	0.1001	1.4575		19,670.3685	19,670.3685	1.3536		19,704.2079
Worker	6.7336	4.0267	42.8244	0.1253	14.6387	0.0939	14.7326	3.8829	0.0864	3.9693		12,485.8859	12,485.8859	0.3317		12,494.1775
Total	**8.5579**	**67.9890**	**56.7974**	**0.3117**	**19.3537**	**0.1985**	**19.5521**	**5.2404**	**0.1865**	**5.4268**		**32,156.2544**	**32,156.2544**	**1.6853**		**32,198.3854**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	31.9352					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**32.2271**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	2.8817	1.7937	18.6981	0.0520	5.8571	0.0387	5.8958	1.5536	0.0356	1.5892		5,182.2923	5,182.2923	0.1479		5,185.9905
Total	**2.8817**	**1.7937**	**18.6981**	**0.0520**	**5.8571**	**0.0387**	**5.8958**	**1.5536**	**0.0356**	**1.5892**		**5,182.2923**	**5,182.2923**	**0.1479**		**5,185.9905**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	2.4935					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.7490**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0606	0.0377	0.3934	1.0900e-003	0.1232	8.1000e-004	0.1240	0.0327	7.5000e-004	0.0334		109.0244	109.0244	3.1100e-003		109.1022
Total	**0.0606**	**0.0377**	**0.3934**	**1.0900e-003**	**0.1232**	**8.1000e-004**	**0.1240**	**0.0327**	**7.5000e-004**	**0.0334**		**109.0244**	**109.0244**	**3.1100e-003**		**109.1022**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Unmitigated	106.6056	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	24.6838					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	81.8312					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0906	8.9000e-003	0.9701	7.0000e-005		3.4700e-003	3.4700e-003		3.4700e-003	3.4700e-003		2.0713	2.0713	5.5000e-003		2.2088
Total	**106.6056**	**8.9000e-003**	**0.9701**	**7.0000e-005**		**3.4700e-003**	**3.4700e-003**		**3.4700e-003**	**3.4700e-003**		**2.0713**	**2.0713**	**5.5000e-003**		**2.2088**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C-5

Supplemental GHG Memorandum

October 13, 2021

Mr. Patrick Cruz
DUDEK
27372 Calle Arroyo
San Juan Capistrano, CA 92675

SUBJECT: HESPERIA COMMERCE CENTER II SUPPLEMENTAL ASSESSMENT

Dear Mr. Patrick Cruz:

Urban Crossroads, Inc. is pleased to provide the following Supplemental Assessment in support of the Hesperia Commerce Center II development. The purpose of this work effort is to evaluate applicable greenhouse gas (GHG) emissions thresholds.

BACKGROUND

In September 2020, a Draft Environmental Impact Report (DEIR) was prepared for the subject project. The results of the DEIR identified a significant and unavoidable air quality impact and a less than significant greenhouse gas impact.

GHG THRESHOLD

Although the DEIR utilizes the applicable Mojave Desert Air Quality Management District (MDAQMD) GHG threshold of 90,719 Metric Tons CO2e per year, it may be more prudent to utilize a more stringent GHG threshold that is based on documentation and analysis by the South Coast Air Quality Management District (SCAQMD). More specifically, it may be more prudent to rely on SCAQMD's recommendation, as documented in their September 2010 meeting minutes, to use 3,000 MTCO2e as an appropriate threshold to determine if additional analysis is warranted. Based on the supporting analysis outlined in SCAQMD's draft GHG guidance and meeting notes, this 3,000 MTCO2e level would capture 90 percent of GHG emissions from new residential or commercial projects in the region. This type of market capture analysis captures a substantial fraction of the emissions from future development to accommodate for future population and job growth and excludes small development projects that would contribute a relatively small fraction of the cumulative statewide GHG emissions.

The City relies on use of this threshold because it has been recommended by SCAQMD and SCAQMD is an expert agency in the region. Further, the SCAQMD provides substantial evidence that the thresholds are consistent with the policy goals and GHG reduction targets set by the State. Specifically, the thresholds were set at levels that capture 90 percent of the GHG emissions from the above-described uses, consistent with the Executive Order S-3- 05 target of reducing GHGs to 80 percent below 1990 levels by 2050. As such, the Project would result in a significant and unavoidable GHG impact if the

recommended 3,000 MTCO2e per year numeric threshold were applied.

Mitigation measures have been identified within the Final EIR for the Project (*Hesperia Commerce Center II Environmental Impact Report*); however, as discussed in the Final EIR, the effectiveness of the mitigation and the associated emission reductions cannot be accurately quantified at this time. As such, impacts would remain **significant and unavoidable.**

CONCLUSION

The Project would result in a significant and unavoidable impact with respect to the Project's greenhouse gas emissions.

If you have any questions, please contact me at (949) 660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.



Haseeb Qureshi,
Associate Principal

Appendix D-1

Biological Resources Letter Report

BIOLOGICAL RESOURCES ASSESSMENT

HESPERIA COMMERCE CENTER II PROJECT

CITY OF HESPERIA

SAN BERNARDINO COUNTY, CALIFORNIA

LSA

June 2019

BIOLOGICAL RESOURCES ASSESSMENT

HESPERIA COMMERCE CENTER II PROJECT

CITY OF HESPERIA

SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for:

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Prepared by:

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1500 Iowa Avenue, Suite 200
Riverside, California 92507
(951) 781-9310

LSA Project No. CGI1801

LSA

June 2019

EXECUTIVE SUMMARY

LSA conducted a biological resources assessment for the Hesperia Commerce Center II Project (project) located in the City of Hesperia (City), San Bernardino County, California. The assessment included a literature review, field survey, and this report. The subject property is approximately 196 acres and is currently vacant. The City is the lead agency for the project and required this study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

Burrowing owl was not observed in the project area; however, suitable habitat exists on site and the species could eventually occupy the project area prior to construction. Pursuant to the California Fish and Game Code and the Migratory Bird Treaty Act (MBTA), a pre-construction survey will be required in compliance with *Staff Report on Burrowing Owl Mitigation, State of California Natural Resource Agency, Department of Fish and Game, May 7, 2012* (CDFW 2012).

Marginally suitable habitat is present within the project area for desert tortoise (*Gopherus agassizii*) and Mohave ground squirrel (*Xerospermophilus mohavensis*). Protocol surveys will be required to determine presence or absence of these species.

The project area contains suitable habitat for nesting birds protected by the MBTA and the California Fish and Game Code. However, the U.S. Fish and Wildlife Service (USFWS) has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities. It is recommended that vegetation removal be conducted outside the general bird nesting season (February 1 through August 31) to avoid impacts to nesting birds. If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal.

Joshua trees (*Yucca brevifolia*), cacti, and other desert plants occur throughout the project area. Many of these species are protected the California Desert Plants Act. A Desert Native Plant Survey shall be conducted in accordance with the California Desert Native Plant Act and City of Hesperia ordinances. Additionally, the preparation of a Joshua Tree Relocation Plan is required in accordance with Chapter 16.24 of the City of Hesperia's Municipal Code in order to mitigate impacts to Joshua trees as a result of the proposed project.

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Appendix

A: PLANT AND ANIMAL SPECIES OBSERVED

INTRODUCTION

LSA has prepared this Biological Resources Assessment (Assessment) for compliance with the California Environmental Quality Act (CEQA). This Assessment evaluates the proposed Hesperia Commerce Center II Project (project) located generally on the northwest corner of Phelan Road and State Route 395 (SR-395) in the City of Hesperia, San Bernardino County, California. The study area consists of Assessor's Parcel Numbers (APNs) 306435103, 306436101, 306439101, and 306440102. Specifically, the project area is located in Section 16, Township 4 North, Range 5 West, as depicted on the United States Geological Survey (USGS) *Baldy Mesa, California* 7.5-minute topographic quadrangle map (Figure 1).

PROJECT DESCRIPTION

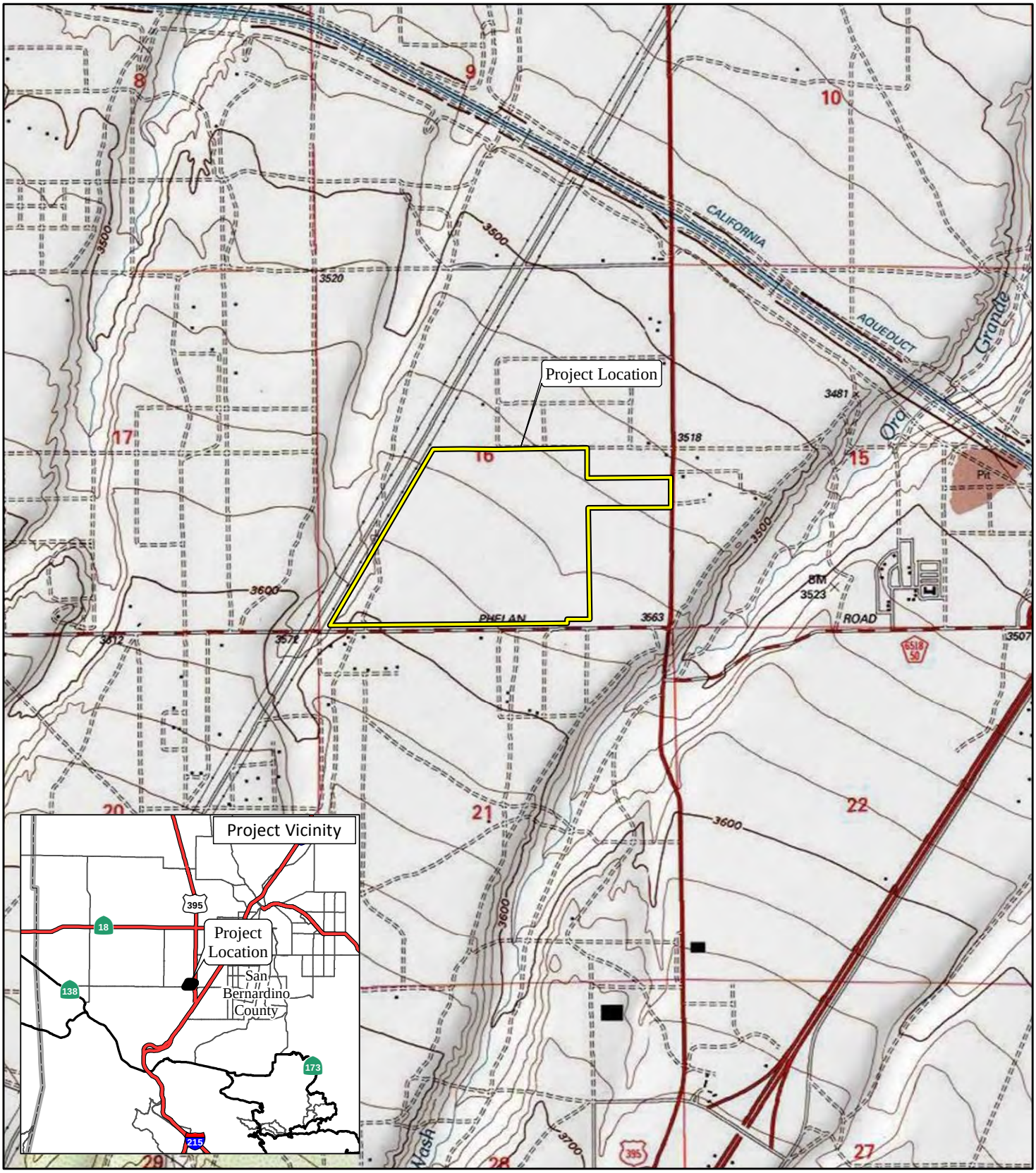
This project proposes to develop approximately 196 acres of undeveloped, vacant land into a commerce center. A preliminary site plan for the project indicates two large warehouse buildings with associated offices and parking plans.

METHODS

Literature Review

A literature review was conducted to assist in determining the existence or potential occurrence of special-status plant and animal species within the survey area and in the project vicinity. A records search of the California Department of Fish and Wildlife's Natural Diversity Data Base application *Rarefind 5* online edition (CDFW CNDDB 2018) and California Native Plant Society's *Online Inventory of Rare and Endangered Plants* (CNPS v7-18) for the *Baldy Mesa, California,* USGS 7.5-minute quadrangle and relevant neighboring quadrangles was conducted on November 21, 2018. Current and historic aerial photographs (Google 2018 and NETRonline Historic Aerials 2018) were reviewed, and U.S. Fish and Wildlife Service (USFWS) listed species and designated critical habitat information was used to determine the locations of any listed species sightings and critical habitat boundaries on and in the vicinity of the project. Soil types were determined using the WebSoil Survey (USDA/ NRCS). Geographic Information System (GIS) software was used to map the project location, habitat types, land uses, etc. Local policies and municipal codes were also consulted to review conservation measures that will apply to the proposed project. Reference materials included the following:

- Biological Resources Assessment for the City of Hesperia General Plan prepared by Michael Brandman Associates (MBA), dated February 2010;
- California Desert Native Plants Act (CDNPA), California Food and Agricultural Code Division 23;
- West Mojave Plan EIR Volume 1 and Volume 2 prepared by Bureau of Land Management (BLM), dated January 2005, and Record of Decision 2006; and
- The Desert Renewable Energy Conservation Plan (DRECP) (BLM 2015).



LSA

LEGEND

Project Location

FIGURE 1

N

0 1000 2000

FEET

Hesperia Commerce Center II

Project Location

SOURCE: USGS 7.5' Quad - Baldy Mesa (1988)

I:\CGI1801\GIS\MXD\Bio\Fig01_ProjectLocation.mxd (12/21/2018)

Field Survey

A general reconnaissance-level field survey was conducted on November 28, 2018, by LSA Biologist Andrea Haller. Weather conditions consisted of clear skies, temperatures ranging from 59 to 65 degrees Fahrenheit, and winds ranging from 5 to 15 miles per hour. Notes were taken on general site conditions, vegetation, and suitability of habitat for various special-status elements. All plant and animal species observed or otherwise detected during this field survey were noted and are listed in Appendix A.

RESULTS

Existing Site Conditions

The project area is vacant land generally located on the northwestern corner of Phelan Street and SR-395. Current land uses around the project area include rural residential and vacant land. The project is bordered by Los Angeles Bureau of Power and Lights Road to the west and Yucca Terrace Road to the north. The project study area has been affected by off-highway vehicle (OHV) use, unlawful dumping, and abandoned encampments.

Topography and Soils

Topography within the project area is generally flat and ranges in elevation from approximately 3,565 to 3,610 feet above mean sea level. The lowest and highest elevations both occur in the southwestern portion of the project area.

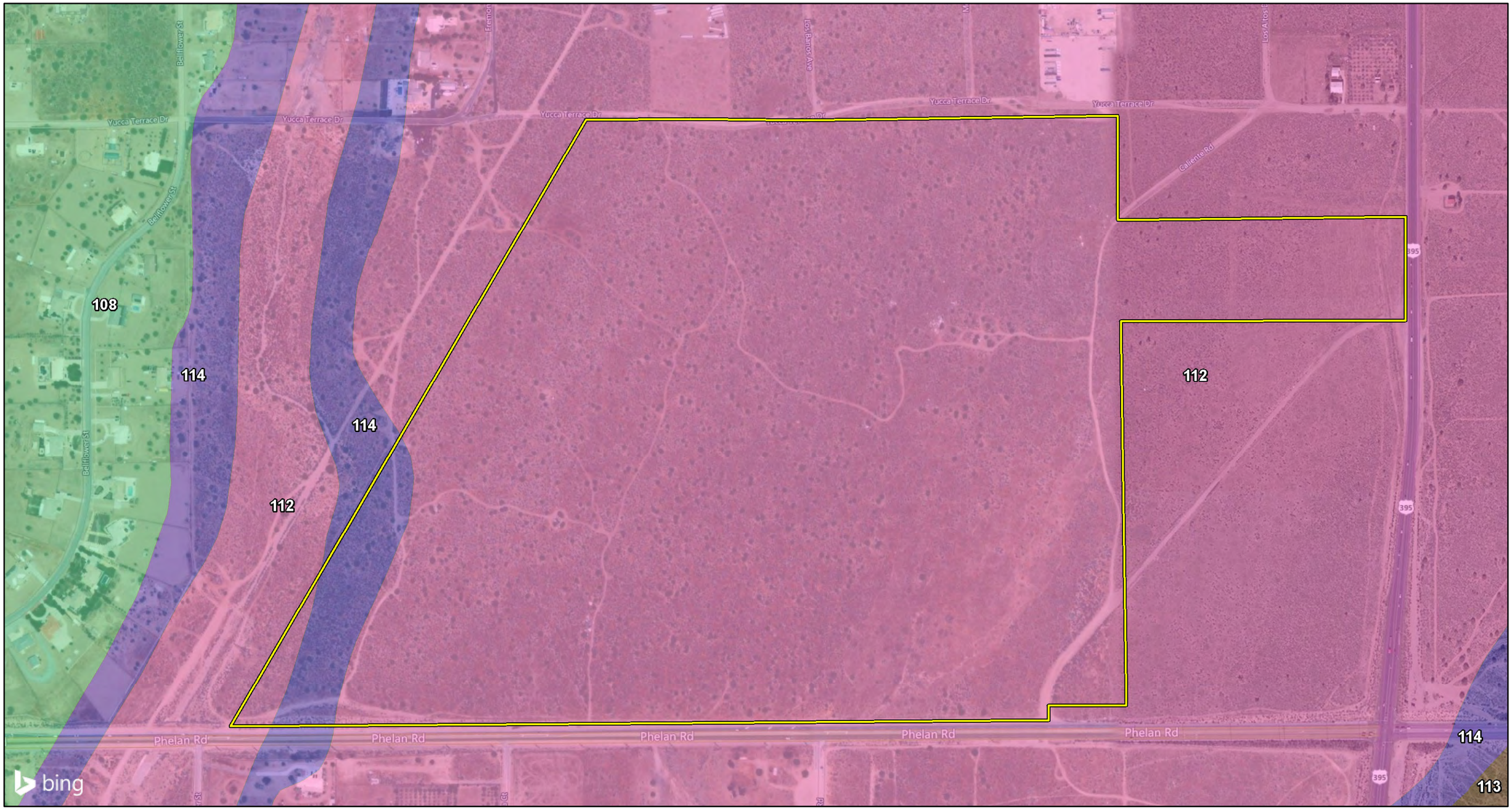
Soils on the site are mapped by the Natural Resource Conservation Service (NRCS) as *Cajon Sand, 0 to 2 percent slopes* and *Cajon Sand, 9 to 15 percent slopes* (Figure 2). Sandy soils were observed throughout the site and appear to be consistent with the soil mapping designation.

Vegetation

Vegetation within the project area is best described as Joshua Tree Woodland (Holland 1986), a designated CDFW Natural Community of Concern. Dominant species found on site include Joshua tree (*Yucca brevifolia*) and California juniper (*Juniperus californica*). Other species observed included creosote (*Larrea tridentata*), California buckwheat (*Eriogonum fasciculatum*), and rubber rabbitbrush (*Ericameria nauseosa*). Vegetation within the southeastern portion of the project area is more sparse and disturbed due to human activity. Figure 3 shows vegetation and land use, and Figure 4 shows site photographs.

Wildlife

Wildlife observed on site included common raven (*Corvus corax*), northern flicker (*Colaptes auratus*), cactus wren (*Campylorhynchus brunneicapillus*), black-tailed jackrabbit (*Lepus californicus*), and feral dog (*Canis familiaris*) scat. Small mammal burrows were observed throughout the study area. All plant and animal species observed or otherwise detected during this field survey were noted and are listed in Appendix A.



LSA

LEGEND

Project Limits

Soils

- 108 - BRYMAN LOAMY FINE SAND, 9 TO 15 PERCENT SLOPES
- 112 - CAJON SAND, 0 TO 2 PERCENT SLOPES
- 113 - CAJON SAND, 2 TO 9 PERCENT SLOPES
- 114 - CAJON SAND, 9 TO 15 PERCENT SLOPES

0 200 400
FEET

SOURCE: BING Maps (11/17); Ssurgo (2016)

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FIGURE 2

Hesperia Commerce Center II

Soils



LSA

LEGEND

- Project Limits
- Joshua Tree Woodland (193.30 ac)
- Photo Locations

0 200 400
FEET

SOURCE: BING Maps (11/17)

I:\CGI1801\GIS\MXD\Bio\Land Use and Photograph Key Locations.mxd (6/20/2019)

FIGURE 3

Hesperia Commerce Center II

Vegetation, Land Use and Photograph Key Location Map



Photo 1. View of Project area from the northwest corner looking southeast.



Photo 2. Plant diversity in the southwest Project area looking east.



Photo 3. View of the eastern Project area from the south central Project area.



Photo 4. View of the Project area from Caliente Road looking west.

LSA

FIGURE 4
Sheet 1 of 2

Hesperia Commerce Center II

Site Photographs

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Photo 5. View of the Project area looking southwest from an interior path.



Photo 6. Eastern Project area looking east.

LSA

FIGURE 4
Sheet 2 of 2

Hesperia Commerce Center II
Site Photographs

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Special-Status Species

This section discusses special-status species observed or potentially occurring within the limits of the survey area. Legal protection for special-status species varies widely, from the comprehensive protection extended to listed threatened/endangered species, to no legal status at present. The CDFW, USFWS, local agencies, and special-status groups such as the CNPS, publish watch lists of declining species. Species on watch lists can be included as part of the special-status species assessment. Species that are candidates for State and/or Federal listing and species on watch lists are included in the special-status species list. Inclusion of species described in the special-status species analysis is based on the following criteria:

- Direct observation of the species or its sign in the survey area or immediate vicinity during previous biological studies;
- Sighting by other qualified observers;
- Record reported by the CNDDB, published by the CDFW;
- Presence or location information for specific species provided by private groups (e.g., CNPS); and/or
- Survey area lies within known distribution of a given species and contains appropriate habitat.

Threatened and Endangered Species

Under provisions of Section 7(a)(2) of the Federal Endangered Species Act (FESA), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed threatened or endangered species or destroy or adversely modify critical habitat. The USFWS designates as threatened or endangered, species that are at risk of extinction and may also adopt recovery plans that identify specific areas that are essential to the conservation of a listed species. Critical habitat areas that may require special management considerations or protections can also be designated.

The California Endangered Species Act (CESA) is administered by the CDFW and prohibits the "take" of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (Fish and Game Code Section 2050 to 2097). "Take" is defined as hunt, pursue, catch, capture, or kill. Sections 2091 and 2081 of the CESA allow the CDFW to authorize exceptions to the prohibition of "take" of State-listed threatened or endangered plant and animal species for purposes such as public and private development. The CDFW requires formal consultation to ensure that a proposed project's actions would not jeopardize the continued existence of any listed species or destroy or adversely affect listed species' habitats.

Listed below are the Federal and/or State listed species and critical habitats reported to been found within a 2-mile radius of the project vicinity:

- Mohave ground squirrel (*Xerospermophilus mohavensis*; State listed as threatened); and
- Desert tortoise (*Gopherus agassizii*; federally and State listed as threatened).

The desert tortoise and Mohave ground squirrel (MGS) are discussed in further detail below.

Desert Tortoise. The Mojave population of the desert tortoise was listed as a federally endangered species by emergency rule on August 4, 1989, and as a threatened species by final rule on April 2, 1990. Federally designated critical habitat for the Mojave Desert population was finalized in February 1994. Mojave desert tortoises primarily inhabit creosote bush scrub, saltbush scrub, and Joshua tree woodland, generally below approximately 5,000 feet in elevation.

The project area is not within designated critical habitat for this species or within any Desert Wildlife Management Areas proposed for the desert tortoise identified in the draft West Mojave Plan (BLM 2005).

The vegetation on site provides low-quality habitat for the desert tortoise. Focused surveys for the desert tortoise would be required to determine its presence or absence and any potential project effects to this species. The focused desert tortoise survey would be conducted according to currently accepted protocol, *Preparing For Any Action That May Occur in the Range Of The Mojave Desert Tortoise* (Gopherus agassizii) (USFWS, Field Season 2010). According to the protocol, the focused survey must cover 100 percent of each site, using 30-foot transect widths. Surveys are to be conducted during the desert tortoise's most active periods: April through May or September through October.

Mohave Ground Squirrel. MGS was listed as threatened in 1984 under CESA. The MGS inhabits desert areas with deep sandy or gravelly friable soils and an abundance of annual herbaceous vegetation. This species prefers arid flat terrains with desert shrubs. Habitat for the MGS occurs in alluvial fans where desert pavement is absent including creosote bush scrub, shadscale scrub, alkali sink, and Joshua tree woodland. Nests are in underground burrows. Individuals may use several different burrows.

The project area is in an area that is cut off from known MGS populations by Interstate 15 (I-15) and SR-395 to the east and by the California Aqueduct to the north. The nearest known MGS population is a remnant population in Adelanto, which is more than 10 miles to the north. The nearest CNDDB records to the study area are north of the California Aqueduct. SR-395 abuts the site to the east. The properties to the north, west, and south of the site consist of rural residences and undeveloped parcels. Although these properties are minimally developed or vacant, undeveloped land, these parcels are heavily disturbed, scattered with miscellaneous household trash throughout, and bear evidence of being utilized for OHV use.

The vegetation on site provides low-quality habitat for MGS. Focused surveys for MGS would be required to determine its presence or absence and any potential project effects to this species. The focused MGS survey would be conducted in accordance with the January 1991 CDFW guidelines, as modified in January 2003. According to the protocol, a 100-trap grid is required for every 80 acres of suitable MGS habitat. Visual surveys to determine MGS activity and habitat quality must be undertaken between March 16 and April 15 during daylight hours by a qualified biologist permitted to handle MGS. If visual surveys do not reveal the presence of MGS, trapping grids will be established. The first trapping period must be conducted between March 21 and April 30. If a second period is required, it must begin at least two weeks after the first period but cannot begin earlier than May 1. The second period must be completed by May 31. If a third trapping period is

required, it must begin at least two weeks after the end of the second period but shall not begin earlier than June 15. The third period must be completed by July 15.

Non-Listed Special-Status Species

The CDFW, USFWS, local agencies, and special-status groups, such as the CNPS, maintain lists of species that they consider to be in need of monitoring. Legal protection for these special-status species varies widely. Table A summarizes special-status species known to occur in the region, along with their status, habitat and distribution, activity/bloom period, and probability of occurrence.

Table A: Special-Status Species Occurrence Probability

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Plants				
Castilleja plagiotoma **Mojave paintbrush**	US: – CA: 4	Historical distribution from the northern base of the San Bernardino and San Gabriel Mountains to the Piute Mountains and San Luis Obispo County. Occurs on dry flats and ridges in dry sagebrush scrub and pinyon woodland. Occurs in Joshua tree woodland. Elevations 275 to 2,500 meters (900 to 8,200 feet).	Year-round	**Moderate**. Moderately suitable habitat (Joshua tree woodland) is present within the project area.
Chorizanthe xanti var. *leucotheca* **White-bracted spineflower**	US: – CA: 1B	Sandy to gravelly places in Mojave desert scrub, pinyon and juniper woodland, or coastal scrub in the Transverse and Peninsular Ranges and desert edge foothills at 300 to 1,200 meters (980 to 3,900 feet) elevation in coastal southern California and adjacent desert areas. Known only from Los Angeles, Riverside, San Bernardino, and San Diego Counties, California.	Blooms April through June (annual herb)	**Moderate**. Moderately suitable habitat (juniper woodland) is present within the project area.
Eremothera boothii ssp. *boothii* **Booth's evening primrose**	US: – CA: 2B	Joshua tree woodland and pinyon-juniper woodland at 880 to 2,400 meters (2,900 to 7,900 feet) elevation. In California, known from Inyo, Mono, and San Bernardino Counties.	Blooms April through May (annual herb)	**Moderate**. Moderately suitable habitat (Joshua tree woodland) is present within the project area.
Muilla coronata **Crowned muilla**	US: – CA: 4	Historically distributed from the eastern side of the High Sierra south to the western Mojave desert. Occurs in heavy soils in open desert scrub and Joshua tree woodland; 975 to 1,600 meters (3,200 to 5,200 feet) elevation.	Blooms March through April	**Moderate**. Moderately suitable habitat (Joshua tree woodland) is present within the project area.
Opuntia basilaris var. *brachyclada* **Short-joint beavertail**	US: – CA: 1B	Sandy soil or coarse, granitic loam in chaparral, Joshua tree woodland, Mojavean desert scrub, and pinyon-juniper woodland at 425 to 1,800 meters (1,400 to 5,900 feet) elevation in the Providence Mountains and desert slopes of the San Gabriel and San Bernardino Mountains. Known only from Los Angeles and San Bernardino Counties, California.	Blooms April through June; identifiable year-round (perennial stem succulent)	**Moderate**. Moderately suitable habitat (sandy soil and Joshua tree woodland) is present within the project area.

Table A: Special-Status Species Occurrence Probability

Species	Status	Habitat and Distribution	Activity Period	Occurrence Probability
Pediomelum castoreum **Beaver dam breadroot**	US: – CA: 1B	Sandy soils, washes, and roadcuts in Joshua tree woodland and Mojave Desert scrub at 610 to 1,525 meters (2,000 to 5,000 feet) elevation. In California, known only from San Bernardino County. Also occurs in Arizona and Nevada.	Blooms April through May (perennial herb)	**Moderate**. Moderately suitable habitat (sandy soil and Joshua tree woodland) is present within the project area.
Reptiles				
Phrynosoma blainvillii (coronatum) **Coast horned lizard**	US: – CA: SSC	Primarily in sandy soil in open areas, especially washes and floodplains, in many plant communities. Requires open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of ants or other insects. Occurs west of the deserts from northern Baja California north to Shasta County below 2,400 meters (8,000 feet) elevation.	April through July with reduced activity August through October	**Low.** Marginally suitable habitat (sandy soil in open areas) is present within the project area.
Birds				
Athene cunicularia (burrow sites) **Burrowing owl**	US: – CA: SSC (breeding)	Open country in much of North and South America. Usually occupies ground squirrel burrows in open, dry grasslands, agricultural and range lands, railroad rights-of-way, and margins of highways, golf courses, and airports. Often utilizes man-made structures, such as earthen berms, cement culverts, cement, asphalt, rock, or wood debris piles. They avoid thick, tall vegetation, brush, and trees, but may occur in areas where brush or tree cover is less than 30 percent.	Year-round	**High.** Suitable habitat (open, dry grassland, manmade structures, low vegetation cover) is present within the project area.
Lanius ludovicianus (nesting) **Loggerhead shrike**	US: – CA: SSC (breeding)	Prefers open habitats with scattered small trees and with fences, utility lines, or other perches. Inhabits open country with short vegetation, pastures, old orchards, cemeteries, golf courses, riparian areas, and open woodlands. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Occurs only rarely in heavily urbanized areas, but often found in open cropland. Found in open country in much of North America.	Year-round	**Moderate.** Moderately suitable habitat (open Joshua tree area) is present within the project area.

CA: State Classifications
SSC Species of Special Concern. Refers to animals with vulnerable or seriously declining populations.
1B California Rare Plant Rank 1B – rare, threatened or endangered in California and elsewhere.
2B California Rare Plant Rank 2B – rare, threatened or endangered in California, but more common elsewhere
4 California Rare Plant Rank 4: A watch list of plants of limited distribution.

Burrowing owl was not observed on the project area; however, suitable habitat exists on site and the species could eventually occupy the project area prior to construction. Pursuant to the California Fish and Game Code and the MBTA, a pre-construction survey in compliance with *Staff Report on*

Burrowing Owl Mitigation, State of California Natural Resource Agency, Department of Fish and Game, May 7, 2012 (CDFW 2012) will be necessary to reevaluate the locations of potential burrowing owl burrows located within the project limits so take of owls or active owl nests can be avoided. The survey would include 100 percent coverage of the development area and within suitable habitat areas, within 500 feet of the project limits. If active burrowing owl burrows are determined to be present, they would be flagged and a 160-foot buffer would be created around the burrow during the nonbreeding season (September 1 to January 30). A 250-foot buffer would be created during the breeding season (February 1 to August 31). The buffer limits may vary depending on availability of access to adjacent lands. Any relocation efforts must be coordinated with the CDFW and USFWS.

There is a low likelihood of short-joint beavertail and coast horned lizard occurring within the project area due to the habitat conditions on the site. Additionally, they have a limited population distribution in southern California and development is reducing their ranges and numbers further. These species have no official State or federal protection status but require consideration under CEQA. Due to the existing disturbances and proximity to surrounding development, impacts to these sensitive species are not considered significant.

Nesting bird species with potential to occur within the project are protected by California Fish and Game Code Sections 3503, 3503.5, and 3800, and by the MBTA (16 USC 703–711). These laws regulate the take, possession, or destruction of the nest or eggs of any migratory bird or bird of prey. However, the USFWS has recently determined that the MBTA should apply only to "… affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs" and will not be applied to incidental take of migratory birds pursuant to otherwise lawful activities.

To ensure compliance with the California Fish and Game Code and to avoid potential impacts to nesting birds, it is recommended that the vegetation removal activities be conducted outside the general bird nesting season (January 15 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal.

Critical Habitat

The project area does not lie within any federally designated critical habitat.

Jurisdictional Waters

The U.S. Army Corps of Engineers (USACE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. The USACE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce), or it may be indirect (through a nexus identified in the USACE regulations). In order to be considered a jurisdictional wetland under Section 404, an area must possess three wetland characteristics, each with its unique set of mandatory wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology.

The CDFW, under Sections 1600 through 1616 of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams (defined by the presence of a channel bed and banks, and at least an intermittent flow of water) where fish or wildlife resources may be adversely affected.

The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA. Typically, the areas subject to jurisdiction of the RWQCB coincide with those of the USACE (i.e., waters of the U.S., including any wetlands). The RWQCB may also assert authority over "waters of the State" under waste discharge requirements pursuant to the Porter-Cologne Act.

No potential jurisdictional features subject to regulation by USACE, CDFW, or RWQCB were found to be present within the project limits and therefore is not discussed further in this report.

Wildlife Movement, Corridors, and Nursery Sites

The project study area is located in an area of encroaching development and has been regionally isolated by SR-395 to the east and by the California Aqueduct to the north. As a result, the project study area does not provide for regional wildlife movement or serve as a regional wildlife corridor. The project study area does not contain nursery sites, such as bat colony roosting sites or colonial bird nesting areas.

Natural Communities of Concern

Joshua Tree Woodland is a CDFW natural community of concern. Joshua trees are also protected from harvesting without a permit under the CDFW California Desert Native Plants Act (CDNPA), Division 23 of the Food and Agricultural Code, and Chapter 16.24 of the City of Hesperia's Municipal Code, established to comply with the CDNPA.

The project will result in the loss of 196 acres of Joshua tree woodland and is considered to be an incremental loss of this natural community in the region.

Local Policies and Ordinances

The project is subject to Chapter 16.24 of the City of Hesperia's Municipal Code, established to comply with the CDNPA, which protects non-listed native desert plants, such as Joshua tree. As stated previously, a Joshua tree relocation plan has been prepared to comply with Chapter 16.24 of the City of Hesperia's Municipal Code. A permit from the City of Hesperia will be required prior to any relocation of Joshua trees.

Adopted Habitat Conservation Plans

The project is within the California Desert Conservation Area Plan (CDCA) (BLM 1980). The project is also within the Draft West Mojave Plan (BLM 2005) and the Desert Renewable Energy Conservation Plan (DRECP) (BLM 2015) areas. The West Mojave Plan and DRECP are amendments to the CDCA.

The BLM issued a Record of Decision for the West Mojave Plan in 2006. The West Mojave Plan has not been formally adopted.

The BLM issued a Record of Decision for Phase 1 of the DRECP in 2016. The project is not within a DRECP renewable energy development focus area.

IMPACTS AND RECOMMENDATIONS

Threatened and Endangered Species

Marginally suitable habitat is present within the project area for desert tortoise and Mohave ground squirrel. Protocol surveys will be required to determine presence or absence of these species.

Non-listed Special-Status Species

To avoid effects to the burrowing owl (in compliance with *Staff Report on Burrowing Owl Mitigation, State of California Natural Resource Agency, Department of Fish and Game, May 7, 2012* [CDFW 2012]), a pre-construction burrowing owl clearance survey would be required to be completed no more than 14 days before initiation of grading, and a second survey be completed within 24 hours prior to grading. If burrowing owls are detected during the pre-construction surveys, coordination with the CDFW will be required to determine appropriate minimization and avoidance measures.

In addition, to ensure compliance with California Fish and Game Code and to avoid potential impacts to nesting birds, it is recommended that the vegetation removal activities be conducted outside the general bird nesting season (February 1 through August 31). If vegetation cannot be removed outside the bird nesting season, a pre-construction nesting bird survey by a qualified biologist is required prior to vegetation removal.

Wildlife Movement, Corridors, and Nursery Sites

Local wildlife movement will be temporarily disrupted during the vegetation removal and construction processes, but this effect would be localized and short term. Although the project will result in the incremental loss of habitat, the project does not provide habitat for regional wildlife movement due to the existing barriers including SR-395 to the east, California Aqueduct to the north, rural residential development to the west and south.

Natural Communities of Concern

The project will result in the loss of 196 acres of Joshua Tree Woodland and is considered to be an incremental loss of this natural community in the region.

A Desert Native Plant Survey will be required in accordance with the CDNPA and City of Hesperia ordinances. Additionally, the preparation of a Joshua tree relocation plan will be required in accordance with Chapter 16.24 of the City of Hesperia's Municipal Code in order to mitigate impacts to Joshua trees as a result of the proposed project.

Local Policies and Ordinances

The project is subject to Chapter 16.24 of the City of Hesperia's Municipal Code, established to comply with the CDNPA. The project's Joshua tree relocation plan will be implemented prior to the initiation of construction activities in accordance with Chapter 16.24 of the City of Hesperia's Municipal Code.

Adopted Habitat Conservation Plans

The project will not conflict with the conservation criteria associated with the CDCA or DRECP. The West Mojave Plan has not been formally adopted.

Cumulative Effects

According to Section 15130 of the *CEQA Guidelines*, "cumulative impacts" refers to incremental effects of an individual project when viewed in connection with the effects of past projects, current projects, and probable future projects. Through the implementation of mitigation, including habitat acquisition for species preservation, impacts will not be considered cumulatively significant in the future in the region.

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APPENDIX A

PLANT AND ANIMAL SPECIES OBSERVED

Plant and Animal Species Observed

Scientific Name	Common Name
GYMNOSPERMS	
Cupressaceae	**Cypress Family**
Calocedrus decurrens	California incense-cedar
Juniperus californica	California juniper
Ephedraceae	**Ephedra Family**
Ephedra nevadensis	Mormon tea
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Agavaceae	**Century Plant Family**
Yucca brevifolia	Joshua tree
Poaceae	**Grass Family**
Bromus diandrus (nonnative species)	Ripgut grass
Bromus madritensis ssp. *rubens* (nonnative species)	Red brome
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Asteraceae	**Sunflower Family**
Artemisia tridentata	Great Basin sagebrush
Ericameria nauseosa	Rubber rabbitbrush
Tetradymia axillaris	Longspine horsebrush
Cactaceae	**Cactus Family**
Cylindropuntia echinocarpa	Wiggins' cholla
Chenopodiaceae	**Saltbush Family**
Salsola tragus (nonnative species)	Russian thistle
Lamiaceae	**Mint Family**
Scutellaria mexicana	Mexican bladdersage
Polygonaceae	**Buckwheat Family**
Eriogonum fasciculatum	California buckwheat
Solonaceae	**Nightshade Family**
Lycium sp.	Boxthorn
Zygophyllaceae	**Caltrop Family**
Larrea tridentata	Creosote
REPTILIA	**REPTILES**
Crotaphytidae	**Collared and Leopard Lizards**
Uta stansburiana	Common side-blotched lizard
AVES	**BIRDS**
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Passerellidae	**American sparrows**
Colaptes auratus	White-crowned sparrow
Picidae	**Woodpeckers**
Colaptes auratus	Northern flicker

Plant and Animal Species Observed

Scientific Name	Common Name
Troglodytidae	**Wrens**
Campylorhynchus brunneicapillus	Cactus wren
MAMMALIA	**MAMMALS**
Leporidae	**Rabbits and Hares**
Lepus californicus	Black-tailed jackrabbit
Canidae	**Foxes, Wolves and Dogs**
Canis familiaris (nonnative species)(scat sign)	Feral dog

Appendix D-2

Desert Native Plant Survey Results

78-075 MAIN STREET, SUITE G-203
LA QUINTA, CALIFORNIA 92253
T 760.341.6660 F 760.346.6118

December 2, 2019 12122

Chris Borchert, Principal Planner
City of Hesperia
Planning Department
9700 Seventh Avenue
Hesperia, California 92345

Subject: Desert Native Plant Survey Results for the Hesperia Commerce Center II Project, City of Hesperia, San Bernardino County, California

Dear Mr. Borchert:

This report describes the methodology and results of a desert native plant survey for the Hesperia Commerce Center II Project (project). According to the Biological Resource Assessment prepared by LSA Associates Inc., implementation of the project would result in the loss of 196 acres of Joshua tree woodland supporting Joshua trees (*Yucca brevifolia*), cacti, and, other desert plants (LSA 2019). Therefore, Dudek conducted a focused desert native plant survey within the approximate 195-acre project site in accordance with the California Desert Native Plants Act and the Hesperia Municipal Code, Chapter 16.24 (City of Hesperia 1997). This effort did not include a survey or inventory for on-site Joshua trees.

This report is intended to describe the methodology and results of the desert native plant survey on the project site.

1 Project Location and Description

The approximately 194.8-acre project site is located in the western part of the City of Hesperia (City), which is found within the Victor Valley region of San Bernardino County (see Figure 1, Project Location; figures are included in Attachment A). The project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Power and Light utility corridor to the west. The project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the project site is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map. Regional access to the project site includes Highway 395, immediately adjacent to the east, and Interstate 15, located approximately 1 mile east.

The proposed project includes construction of three industrial/warehouse buildings on an approximately 194.8-acre project site generally located on the northwest corner of Phelan Road and Highway 395 in the City. Building 1 (the northwestern most building) would be 1,561,582 square feet; Building 2 (the southernmost building) would be 2,068,100 square feet, which would potentially be divided between two spaces within the same building; and Building 3 (the easternmost building) would be 112,908 square feet. In total, the project would provide 3,742,590 square feet of industrial/warehouse space and associated improvements, including loading docks, truck and vehicle parking, and landscape areas.

2 Site Description

According to the Biological Resource Assessment prepared by LSA Associates Inc., the project site is comprised of vacant land and ranges in elevation from approximately 3,565 feet to 3,610 feet above mean sea level (LSA 2019). Soils consist of Cajon Sand, 0% to 2% slopes and 9% to 15% slopes. Vegetation within the project site includes Joshua tree woodland that supports Joshua trees, cacti, and other desert plants.

3 Methods

3.1 Desert Native Plant Survey

On November 22, 2019, Dudek biologists Britney Strittmater, Anna Cassady, Tracy Park, and Eileen Salas visited the project site to conduct a desert native plant survey in accordance with the California Desert Native Plants Act and the Hesperia Municipal Code, Chapter 16.24. The survey was conducted from 7:25 a.m. to 3:00 p.m. under suitable weather conditions (39°F–56°F, 1–5 mph winds, and 0% cloud cover). The survey was conducted by walking transects spaced 20 meters apart in order to obtain 100% visual coverage (Figure 2, Focused Desert Native Plant Survey Area). The desert native plant survey conformed to California Natural Plants Society's Botanical Survey Guidelines (CNPS 2001); the California Department of Fish and Wildlife's Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Sensitive Natural Communities (CDFW 2018); and the U.S. Fish and Wildlife Service's General Rare Plant Survey Guidelines (Cypher 2002).

Dudek used geographic information system (GIS) software to map biological resources and provide figures.

3.2 Survey Limitations

Due to the timing of the survey, spring and summer blooming annuals and cryptic perennials may not have been detectable; however, all of the desert native plant target species are conspicuous shrubs that would have been identifiable during the survey. The survey was conducted during daylight hours under weather conditions that did not preclude observation of desert native plant species (e.g., surveys were not conducted during heavy fog or rain).

The current survey effort provides an accurate representation of the desert native plant species that occur in the project area. The survey conducted was thorough and comprehensive, and the results contained herein provide a reasonable, accurate assessment of desert native plant species within the project site.

4 Results

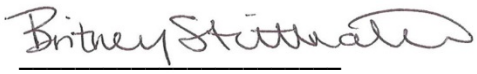
One desert native plant species was recorded within the project site—Wiggins' cholla (*Cylindropuntia echinocarpa*)—of which 66 individuals were mapped within the project site (Figure 3, Results). Additionally, 6 dead Wiggins' cholla were documented within the project site; these are not included on Figure 3.

5 Recommendations/Conclusions

The focused desert native plant survey was positive for Wiggins' cholla; therefore, further action is required prior to ground disturbance. In accordance with the California Desert Native Plants Act and the Hesperia Municipal Code, Chapter 16.24.040, a native plant removal permit must be obtained from the City of Hesperia prior to the removal of Wiggins' cholla.

This report acknowledges that 66 individuals of Wiggins' cholla would be removed because of project implementation. The applicant must submit native plant removal permit application to the City of Hesperia requesting the removal of the 66 individuals. No further mitigation is required; however, permit conditions may require salvage or that these species be incorporated into the landscape plan of the project. Any approved land use application and/or development permit shall be the permit for the removal of Wiggins' cholla once the City approves it.

If you have any questions regarding this report, please feel free to contact me at bstrittmater@dudek.com or by phone at 760.601.3416.
Sincerely,



Britney Strittmater
Biologist

Att.: Attachment A – Figures
cc: Collin Ramsey, Dudek

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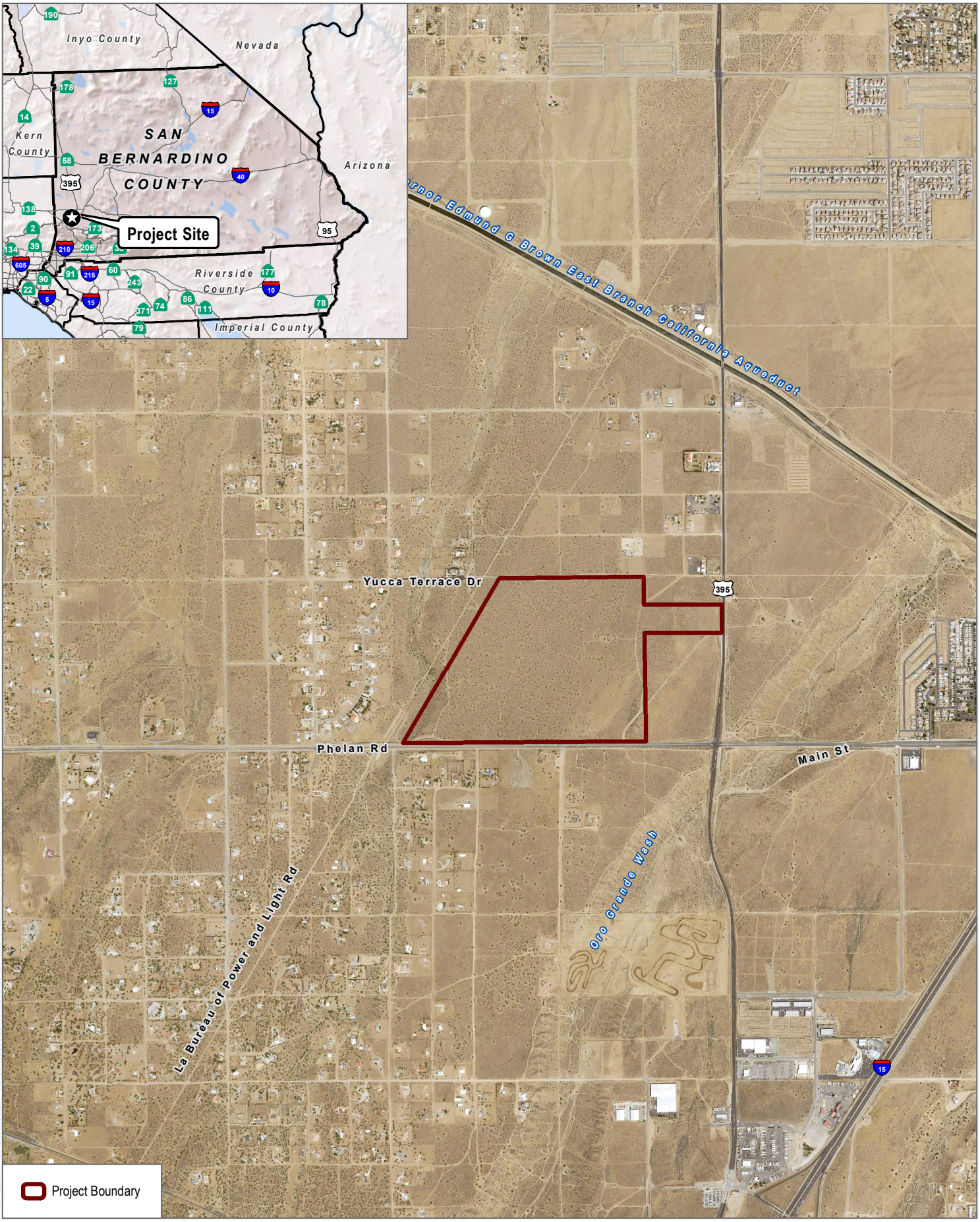
Attachment A

Figures



SOURCE: USDA 2016

DUDEK

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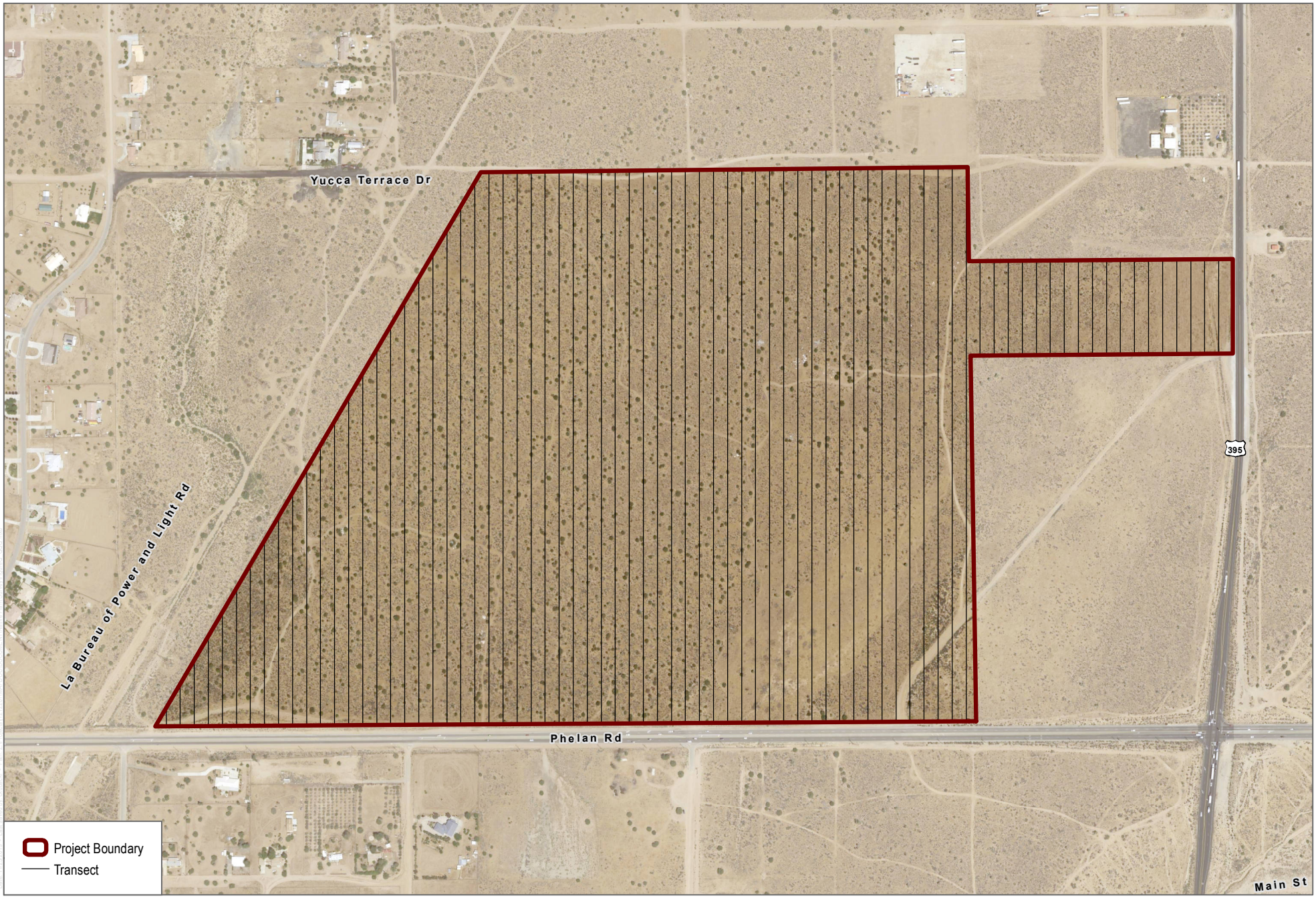
Figure 1

Project Location

Desert Native Plant Survey Results for the Hesperia Commerce Center II Project



SOURCE: USDA 2016

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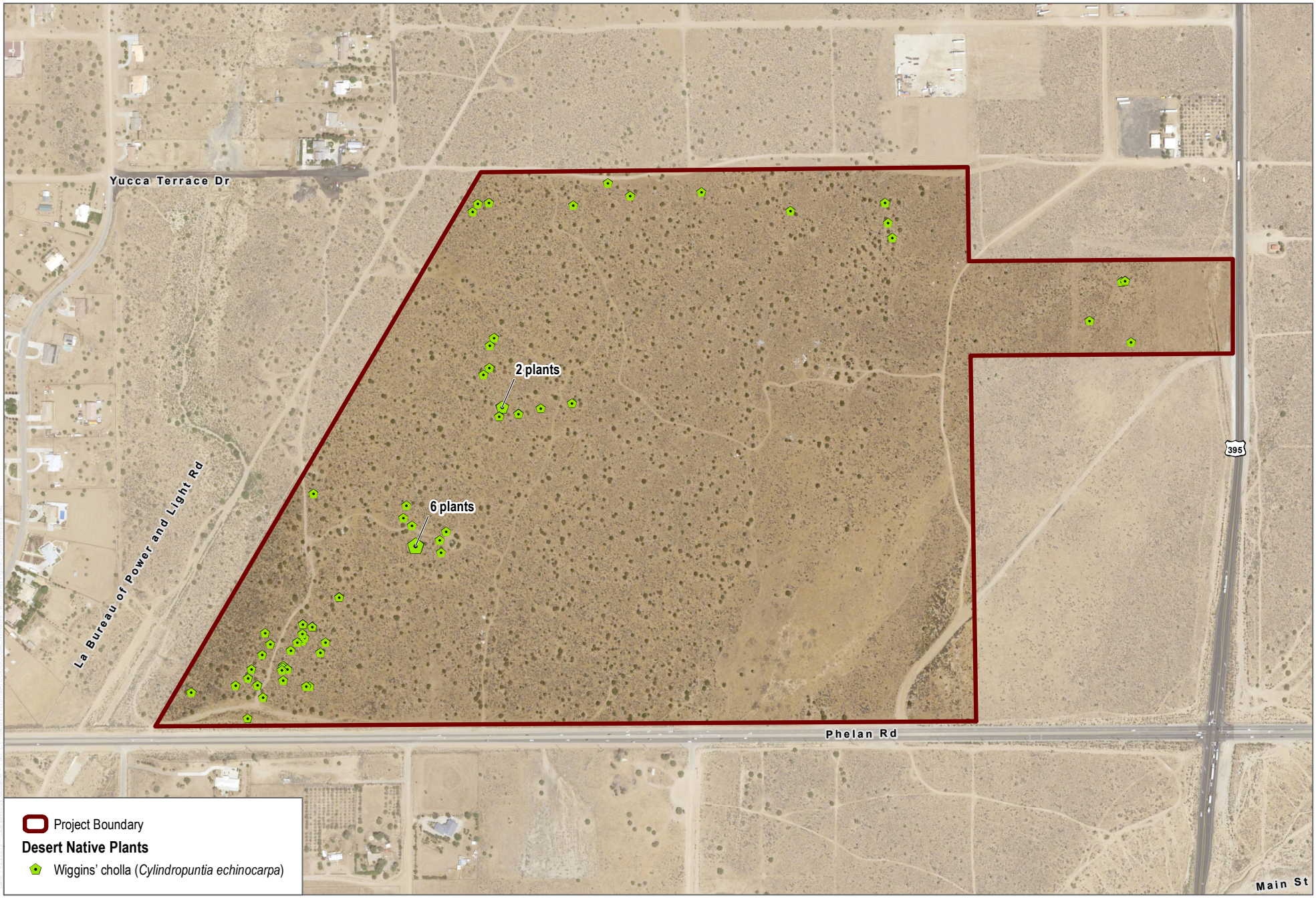
FIGURE 2

Focused Desert Native Plant Survey Area

Desert Native Plant Survey Results for the Hesperia Commerce Center II Project



SOURCE: USDA 2016

DUDEK

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FIGURE 3

Results

Desert Native Plant Survey Results for the Hesperia Commerce Center II Project

Appendix D-3

Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan

Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan for the Hesperia Commerce Center II Project

Prepared for:

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
City	City of Hesperia
Commission	California Fish and Game Commission
HMC	Hesperia Municipal Code
ISA	International Society of Arboriculture
ITP	Incidental Take Permit
Joshua Tree Plan	Joshua Tree Preservation, Protection, and Relocation Plan
project	Hesperia Commerce Center II Project

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1 Introduction

The purpose of this Joshua Tree Preservation, Protection, and Relocation Plan (Joshua Tree Plan) for the proposed Hesperia Commerce Center II Project (project) is to provide detailed specifications for the Covington Group to meet the requirements of Chapter 16.24 of the City of Hesperia (City) Municipal Code (City of Hesperia 2020a) and evolving California Department of Fish and Wildlife (CDFW) requirements to protect, preserve, and mitigate impacts to Joshua trees (*Yucca brevifolia*) as a result of the proposed project. On October 21, 2019, the California Fish and Game Commission (Commission) received a petition from the Center for Biological Diversity to list western Joshua tree as threatened under the California Endangered Species Act (CESA).[1] On November 1, 2019, the Commission referred the petition to CDFW for evaluation. CDFW evaluated the scientific information presented in the petition and other relevant information possessed by CDFW at the time of review and prepared a report for submittal to the Commission (CDFW 2020). The report states that CDFW recommended that the Commission accept the petition for further consideration of western Joshua tree under CESA. On September 22, 2020, the Commission approved the petition to accept the candidacy proposal for western Joshua tree, effective October 9, 2020. When a plant or wildlife species is granted candidacy under CESA, the species is given the same protection as a threatened or endangered species while the Commission evaluates whether formal listing as threatened or endangered under CESA is warranted. For this project, take or removal of western Joshua tree would require a 2081 Incidental Take Permit (ITP) from CDFW.

Furthermore, Chapter 16.24 of the Hesperia Municipal Code (HMC) states that "it is in the public interest to preserve and protect specified desert native plants and provide for the conservation and wise use of our desert resources, through regulation, guidelines and enforcement that manage the removal or harvesting of such plants. They are also necessary to augment and coordinate with the State Department of Food and Agriculture in its efforts to implement and enforce the Desert Native Plant Act." Furthermore, the City's Protected Plant Policy (HMC 16.24) states the following for Tentative Tract, non-single-family residential (commercial, industrial, apartments), projects (City of Hesperia 2020b):

- A protected plant plan shall be prepared by a certified arborist or registered botanist.
- An application and fee shall be completed and paid to the City.
- Healthy, transplantable plants shall be relocated on site or may be placed in an adoption program.

As such, this Joshua Tree Plan addresses the requirements of the City's Protected Plant Policy and the proposed mitigation required by CDFW under the 2081 ITP, and provides details regarding the site's Joshua trees, detailed specifications for the protection of trees to be preserved on site, and relocation/salvage requirements for those trees requiring removal and relocation.

1.1 Applicability

The provisions of this Joshua Tree Plan apply toward the protection and removal of Joshua trees located within the City of Hesperia, California, as defined in the City's Protected Plant Policy (HMC 16.24) (City of Hesperia 2020b).

[1] On October 21, 2019, the California Fish and Game Commission received a petition to list the following as threatened under the California Endangered Species Act: (1) western Joshua tree (*Yucca brevifolia*) throughout its California range, or, in the event the Commission determines that listing of *Yucca brevifolia* throughout its California range is not warranted, then (2) the western Joshua tree population within the northern part of western Joshua tree's California range, or (3) the western Joshua tree population within the southern part of western Joshua tree's California range.

1.2 Project Location

The project site is located in the eastern part of the City, within the Victor Valley region in San Bernardino County (Figure 1, Regional Map). The project site is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and Los Angeles Bureau of Power and Light Road to the west (Figure 2, Project Location). Freeway access to the project site includes Highway 395 immediately adjacent to the east, and Interstate 15 located approximately 1 mile east. The approximately 195 acres of vacant land is located at the northwest quadrant of Highway 395 and Phelan Road/Main Street. The project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the project site is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map (USGS 2007).

1.3 Project Characteristics

The project applicant, Covington Group, proposes to develop approximately 194.8 acres of vacant land in the City with the proposed Hesperia Commerce Center II Project, which would include construction and operation of three industrial distribution warehouse buildings.

Building 1 (the northwestern-most building) would be 1,571,582 square feet (inclusive of 20,000 square feet of office/mezzanine); Building 2 (the southernmost building) would be 2,073,000 square feet (inclusive of 20,000 square feet of office/mezzanine), which would potentially be divided into two spaces within the same building; and Building 3 (the eastern-most building) would be 108,366 square feet (inclusive of 20,000 square feet of office/mezzanine). In total, the project would provide 3,758,908 square feet of industrial/warehouse space and associated improvements, including loading docks, approximately 1,762 tractor-trailer stalls, roughly 1,635 passenger-vehicle parking spaces, and approximately 7% landscape area coverage.

1.4 Site Characteristics

The approximately 194.8-acre, irregularly shaped project site consists of vacant, undeveloped land that is generally located on the northwestern corner of Phelan Street and Highway 395. Directly north of the project site is vacant, undeveloped land and scattered commercial and light industrial uses. Highway 395; vacant, undeveloped land; and multi-family residential uses occur east of the project site. Vacant, undeveloped land and scattered rural single-family residential, commercial, and light industrial uses occur south of the project site. A utility corridor runs along the eastern edge of the project site. Additionally, vacant, undeveloped land and rural single-family residential uses occur east of the project site.

Topography on site is generally flat and ranges in elevation from approximately 3,565 to 3,610 feet above mean sea level. Vegetation on site is Joshua tree woodland, a designated CDFW Natural Community of Concern. Species found on site include Joshua tree, California juniper (*Juniperous californica*), creosote (*Larrea tridentata*), California buckwheat (*Eriogonum fasciculatum*), and rubber rabbitbrush (*Ericameria nauseosa*).

Climate

The Mojave Desert is characterized by cool winter temperatures and warm summer temperatures, with its annual rainfall occurring almost entirely in the winter. Data obtained from nearby weather stations indicates that the annual precipitation in Hesperia is on average 6.19 inches per year. Almost all of the precipitation occurs October through April, with minimal precipitation occurring May through September. The average maximum and minimum temperatures for Hesperia are 99°F and 31°F, respectively.

Topography and Soils

Topography within the project site is generally flat and ranges in elevation from approximately 3,565 to 3,610 feet above mean sea level. The lowest and highest elevations both occur in the southwestern portion of the project site. Soils on the project site are mapped by the Natural Resource Conservation Service as Cajon Sand, 0% to 2% slopes and Cajon Sand, 9% to 15% slopes (LSA 2019). Sandy soils were observed throughout the project site and are primarily composed of Cajon sand and Hesperia loamy fine sand. Many areas of the project site are moderately to-highly disturbed due to off-highway-vehicle activity and illegal debris dumping.

Vegetation

The project site is primarily composed of Joshua tree woodland. Dominant plants include Joshua tree and California juniper (*Juniperus californica*), followed by Cooper's goldenbush (*Ericameria cooperi*), Cooper's boxthorn (*Lycium cooperi*), Anderson's thornbush (*Lycium andersonii*), bladder sage (*Salazaria mexicana*), cheesebush (*Ambrosia salsola*), green ephedra (*Ephedra viridis*), cotton-thorn (*Tetradymia axillaris*), spiny hopsage (*Grayia spinosa*), and winterfat (*Krascheninnikovia lanata*). The herbaceous layer is primary dominated by fiddleneck (*Amsinckia tessellata*) and non-native annuals and grasses, such as red-stemmed filaree (*Erodium cicutarium*), red-brome (*Bromus madritensis*), and cheat grass (*Bromus tectorum*). Vegetation within the southeastern portion of the project site is sparser and more disturbed due to human activity.

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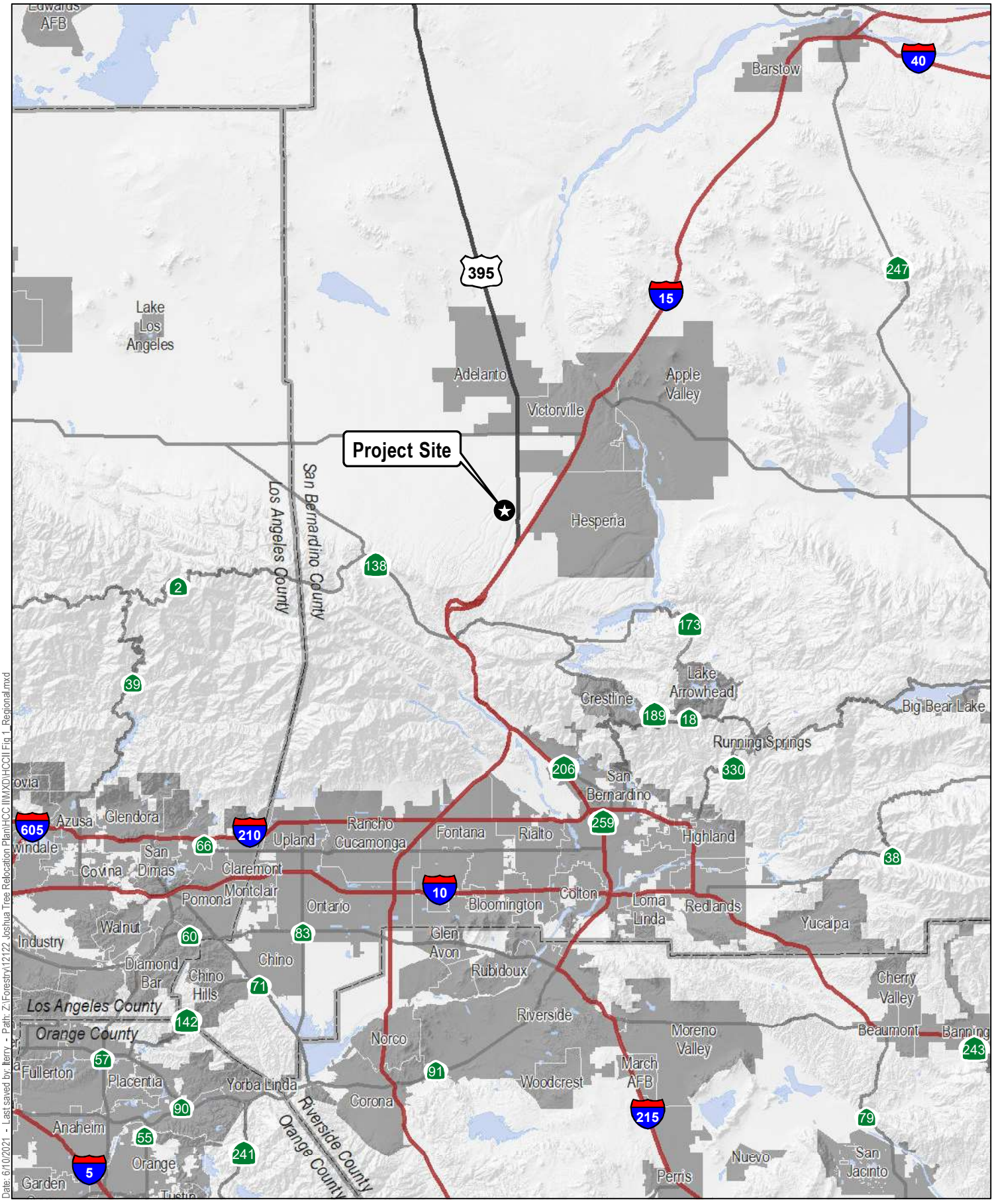

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SOURCE: ESRI

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FIGURE 1
Regional Map

Joshua Tree Preservation, Protection,and Relocation Plan for the Hesperia Commerce Center II Project

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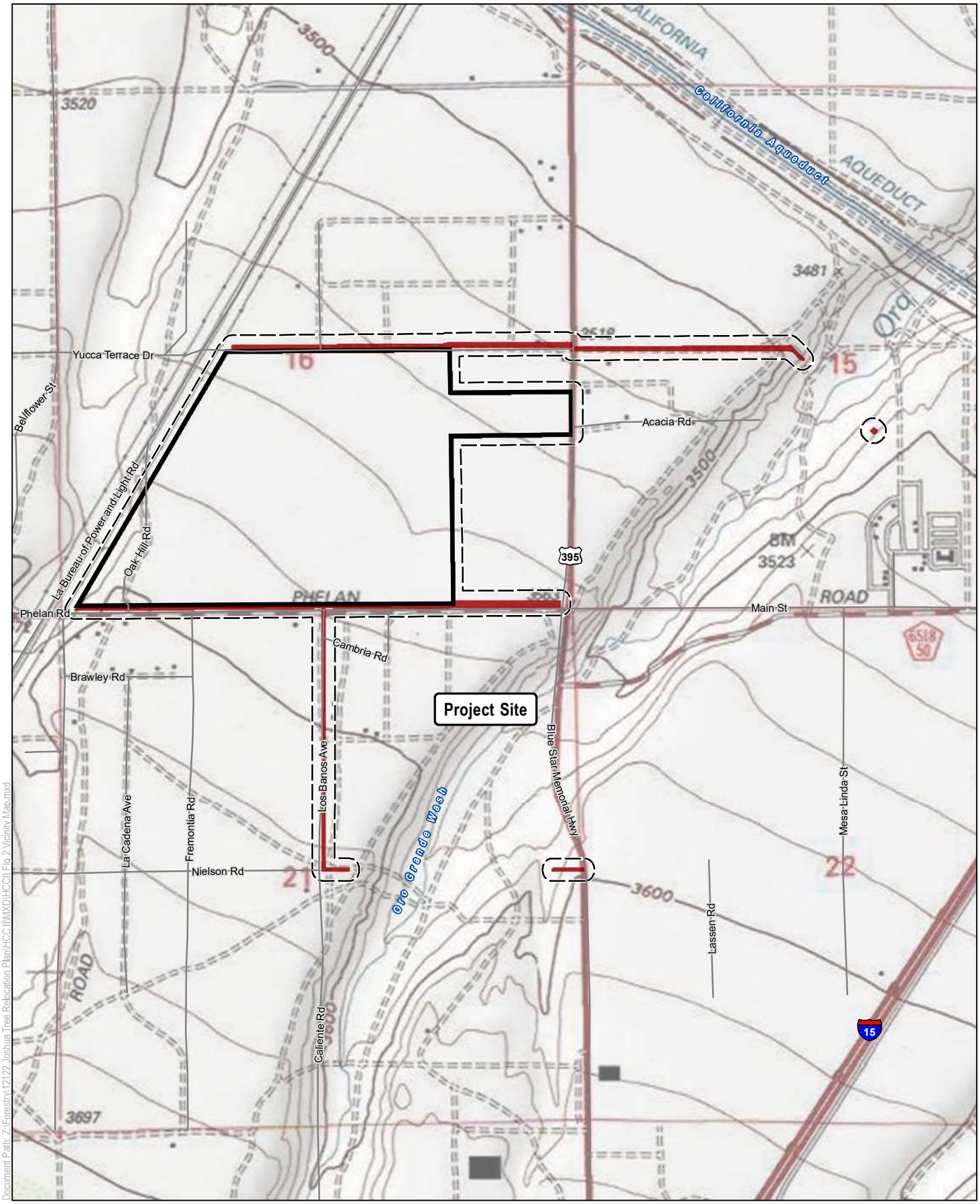

SOURCE: USGS 7.5 MINUTE SERIES, BALDY MESA QUADRANGLE
TOWNSHIP 4 NORTH, RANGE 5 WEST, SECTIONS 15-16, AND 21

Document Path: Z:\Forestry\12122 Joshua Tree Relocation Plan\HCC II\MXD\HCCII Fig 2 Vicinity Map.mxd

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FIGURE 2
Project Location
Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project

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2 Policy and Permits

2.1 City of Hesperia

2.1.1 City Policy

Per its Protected Plant Policy (HMC 16.24), the City seeks to preserve the natural environment in the City while respecting the lawful development of private property. As such, native protected plants create a dilemma because of their high public appeal coupled with very limited transplant success and potential safety concerns for the public. Furthermore, HMC 16.24 states the following regarding Tentative Tract, non-single-family residential (commercial, industrial, apartments) projects:

- A protected plant plan shall be prepared by a certified arborist or registered botanist.
- An application and fee shall be completed and paid to the City.
- Healthy, transplantable plants shall be relocated on site or may be placed in an adoption program.

In addition to the requirements above, HMC 16.24 discusses approval of an adoption program, as follows:

1. Approved Adoption Program

To qualify as an approved adoption program the developer shall provide a letter on company letterhead, describing the program and the community notification process. The program shall identify the following, as a minimum:

A. A public notice process which may include publication in local newspapers, radio advertisement, hand distributed fliers, and other noticing techniques. Noticing must occur over a period of not less than three weeks.

B. The location where the trees may be viewed by the public and a clearly identified period of at least two weeks (including weekends) when trees/plants are available for adoption.

C. The person that will be available on-site to assist those adopting trees to find the actual trees/plants for removal. An on-site or cell phone number for that person is required.

D. A note that a copy of the City Joshua Tree Transplanting Guidelines will be provided to each adopter.

E. A log showing the name, address, and phone number of each adopter and the number and type of trees/plants they received.

Note: At least 50% of the transplantable trees and plants shall be adopted or the remaining number below 50% shall be purchased at $350 per transplantable tree. Purchased trees must be recycled at Advance Disposal.

2.1.2 City Permits

Per the City's Protected Plant Policy (HMC 16.24), a Joshua tree relocation and removal application must be completed and a fee paid to the City prior to initiation of removal and/or relocation of Joshua trees. HMC Section 16.24.040, Removal Permit, states the following:

A. A removal permit shall be required for the removal of any native tree or plant that is subject to the provisions of this chapter.

B. A land use application, a building permit and all other development permits (e.g., grading, mobile home set downs, etc.), shall consider and include a review of any proposed native tree or plant removal. Any approved land use application and/or development permit shall be a permit for the removal of native plants, if such land use application or development permit specifically reviews and approves such removals. Such reviews shall consider and require compliance with the provisions of this chapter.

C. The reviewing authority may require certification from an appropriate tree expert or desert native plant expert that such tree removals are appropriate, supportive of a healthy environment and are in compliance with the provisions of this article.

D. Removals of native trees or plants that are not requested in conjunction with a land use application or development permit may be accomplished only under a permit issued by either the county agricultural commission or the fire marshal, subject to the provisions of this article.

E. The building official shall require a preconstruction inspection prior to approval of development permits.

F. The duration of a plant or tree removal permit when issued in conjunction with a land use application and/or a development permit shall be coterminous with the duration of the associated application or permit, unless otherwise specified. The reviewing authority shall specify the expiration date for all other tree and/or plant removal permits.

2.1.3 Findings for Removals

Per HMC Section 16.24.040, the reviewing authority must authorize the removal of a native tree or plant subject to the provisions of the HMC only if the following findings are made:

A. The removal of the native tree or plant does not have a significant adverse impact on any proposed mitigation measures, soil retention, soil erosion and sediment control measures, scenic routes, flood and surface water runoff and wildlife habitats (flora and fauna), especially those with limited habitats (e.g., eagles).

B. The removal of the native tree or plant is justified for one of the following reasons:

   1. The location of the native tree or plant and/or its drip line interferes with the reasonable improvement of the site with an allowed structure, sewage disposal area, paved area or other approved improvement or ground disturbing activity. Also such improvements have been designed in such a manner as to save as many healthy native trees and/or plants as reasonably practicable in conjunction with the proposed improvements;

   2. The location of the native tree or plant and/or its drip line interferes with the planned improvement of a street or development of an approved access to the subject or adjoining private property;

   3. The location of the native tree or plant is hazardous to pedestrian or vehicular travel or safety as determined by the director of transportation, flood control and airports or other county reviewing authority;

4. The native tree or plant or its presence interferes with or is causing excessive damage to utility services or facilities, roadways, sidewalks, curbs, gutters, pavement, sewer line(s), drainage or flood control improvements, foundations, existing structures, or municipal improvements;
5. The condition or location of the native plant or tree is adjacent to and in such close proximity to existing or proposed structure that the native plant or tree has or will sustain significant damage.

C. Joshua trees that are proposed to be removed have been transplanted or stockpiled for future transplanting wherever possible. In the instance of stockpiling the permittee has posted a bond to ensure such Joshua trees are transplanted appropriately.

2.2 California Department of Fish and Wildlife

2.2.1 California Fish and Game Code Section 2073.3

Pursuant to the provisions of Section 2073.3 of the California Fish and Game Code (CFGC), the Commission received a petition from the Center for Biological Diversity on October 21, 2019, to list western Joshua tree as a threatened species under CESA. Pursuant to CFGC Section 2073, on November 1, 2019, Commission staff transmitted the petition to CDFW for review pursuant to CFGC Section 2073.5. After reviewing the petition and other relevant information, CDFW determined that the petition provides sufficient information to indicate that the petitioned action may be warranted for western Joshua tree, and CDFW recommended that the Commission accept the petition for further consideration under CESA.

The Commission has the authority to list certain "species" or "subspecies" as threatened or endangered under CESA (CFGC Sections 2062, 2067, and 2070). The listing process is the same for species and subspecies (CFGC Sections 2070–2079.1). CESA sets forth a two-step process for listing a species as threatened or endangered. First, the Commission determines whether to designate a species as a candidate for listing by evaluating whether the petition provides "sufficient information to indicate that the petitioned action may be warranted" (CFGC Section 2074.2[e][2]). If the petition is accepted for consideration, the second step requires CDFW to produce, within 12 months of the Commission's acceptance of the petition, a peer-reviewed report based on the best scientific information available that indicates whether the petitioned action is warranted (CFGC Section 2074.6). Finally, the Commission, based on that report and other information in the administrative record, determines whether the petitioned action to list the species as threatened or endangered is warranted (CFGC Section 2075.5). A petition to list a species under CESA must include the following (CFGC Section 2072.3; see also 14 CCR 670.1[d][1]):

> Information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant.

The range of a species for CDFW's petition evaluation and recommendation is the species' California range (*California Forestry Association v. California Fish and Game Commission* [2007] 156 Cal.App.4th 1535, 1551).

CDFW must evaluate the petition on its face and in relation to other relevant information and submit to the Commission a written evaluation report with one of the following recommendations:

- Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected; or
- Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered.

CDFW's candidacy recommendation to the Commission is based on an evaluation of whether the petition provides sufficient scientific information relevant to the petition components set forth in CFGC Section 2072.3 and the California Code of Regulations, Title 14, Section 670.1(d)(1).

At its June 2020 meeting, after conversations with the petitioner and other stakeholders, the Commission continued to its August 2020 meeting the consideration and potential action on the petition to determine whether listing western Joshua tree under CESA may be warranted. The item was heard at the August 2020 Commission hearing, but once again continued to the September 2020 hearing (Commission 2020a). On September 22, 2020, the Commission approved the petition to accept the candidacy proposal for western Joshua tree, effective October 9, 2020. Western Joshua tree was made a candidate under CESA to determine whether the species should become listed (Commission 2020b). A second recommendation and vote will confer or deny final protection under the law. When a plant or wildlife species is granted candidacy under CESA, the species is given the same protection as a threatened or endangered species while the Commission evaluates whether formal listing as threatened or endangered under CESA is warranted.

3 Joshua Tree Survey

3.1 Joshua Tree Survey Methods

Per the City's Protected Plant Policy (City of Hesperia 2020b), Dudek's International Society of Arboriculture (ISA)-certified arborists performed a Joshua tree survey to inventory and evaluate the health and relocation potential for each Joshua tree located on the project site. The survey encompassed the entire project site (Appendix A, Joshua Tree Locations). The inventory was conducted by ISA-certified arborists Chris LaCroix, Ryan Allen, Jeffrey Cloud, and Noah Stamm over a 2-week period from November 9, 2020 to November 17, 2020, and then again from April 6 to April 15, 2021. During the inventory, the GPS position of each Joshua tree found on site was recorded. Furthermore, the following attributes of each tree were collected:

- Species
- Diameter at standard height (4.5 feet above ground level)
- Height (feet)
- Spread (feet)
- Health (excellent, good, fair, poor, critical, and dead)[2]
- Number of branches
- Clonal status (clone or single trunk)

All inventoried and assessed protected trees were tagged with an aluminum tag bearing a unique identification number, which was placed on the main trunk on the north side of each Joshua tree. Tagging on the north side allows for proper orientation during relocation (each relocated Joshua tree will need to be oriented in the same direction as it was in its original location).

3.2 Joshua Tree Survey Findings

Dudek's arborists recorded 1,448 Joshua trees within the limits of the project site, as presented in Appendix B, Tree Information Matrix. Trees on the project site vary in size and stature according to age and location. In total, 1,246 single-trunk Joshua trees and 202 clonal (multiple trunks or those trees within 3 feet of an individual) were mapped throughout the project site. Stem diameter for single and clonal trees range from 3 to 24 inches. Tree heights vary from 0 feet (prostrate on the ground) for younger trees to 45 feet for mature Joshua trees. Tree crown extents range from 1 foot to nearly 25 feet at their widest location for single-stemmed trees, and up to 25 feet across for clonal groupings. The total number of branches on the Joshua trees range from 0 (single trunk) to 9.

[2] **Health Rating Descriptions:**
Excellent. Tree has excellent health and strong vigor. No damage. Flowering and fruiting expected. Typically, only given to large, high-quality specimens (taller than 15 feet in height). Transplanting generally not recommended due to size.
Good. Tree has good health and vigor. All branches are alive and healthy. Damage is very localized and minimal. Flowering and fruiting likely, if tree is large enough. Tree is transplantable.
Fair. Tree health is average. Some stressors or damage possible, but any damage is minimal to moderate (e.g., rodent grazing, insect damage). No dead/broken branches. Tree is transplantable.
Poor. Tree is under stress, and overall health is in decline, or tree has taken significant damage. Mortality likely unless stressors relieved and/or conditions change. Broken/dead limbs likely present. Tree is generally not transplantable.
Critical. Tree is in extreme decline. One or more branches dead. One or more branches dying. Physical damage likely present. Damage is significant and extensive. Mortality expected within 2 to 4 years. Tree is not transplantable.
Dead. Tree is dead.

The health of the Joshua trees varies across the site, and ranges from excellent condition to dead. In total, 1,010 trees (69.75%) exhibit good health, 389 trees (26.86%) show signs of fair health, 40 trees (2.76%) exhibit poor health, 7 trees (0.41%) exhibit critical health, and 2 trees (0.14%) are dead. Individual attributes of each tree are presented in Appendix B, and representative photographs are presented in Appendix C, Site Photographs.

3.3 Project Impacts – Joshua Trees

There is wide variation in tolerance to construction impacts among tree species, and the response of an individual tree to impacts also varies with age and condition. Impacts assessed for the proposed project include those trees with protected zones within 20 feet of proposed improvements and identified disturbance areas (as defined in the project site plan). The impact discussion in this section identifies all impacts to protected Joshua trees that are anticipated to occur based on an evaluation of tree locations compared with the project site plan. Trees identified for retention and removal are graphically presented in Appendix D, Tree Impacts.

Based on grading and development plans for the proposed project, it is estimated that 1,422 trees (98.2%) would require removal to accommodate the proposed project. The proposed project would preserve the remaining 26 trees (1.79%) that would remain in place. Table 1 summarizes impact determinations for Joshua trees within the project site that are subject to regulation under HMC Section 16.24.060, Plot Plan Requirements.

Table 1. Summary of Protected Tree Impact Determinations

Health	Impact Determination		Total (number)
	Removal (number)	*No Impact (number)*	
Good	1,008	2	1,010
Fair	366	23	389
Poor	39	1	40
Critical	7	0	7
Dead	2	0	2
Total	**1,422**	**26**	**1,448**

4 City of Hesperia Requirements

4.1 Plot Plan Requirements

HMC Section 16.24.060 states the following:

> Prior to the issuance of a native tree or plant removal permit in conjunction with a development permit and/or approval of a land use application which authorizes such removal, a plot plan or grading plan shall be approved by the appropriate City review authority for each site indicating exactly which trees of plants are authorized to be removed. The required information can be added to any other required site plan. Prior to issuance of development permits in areas with native trees or plants that are subject to the provisions of this chapter, a preconstruction inspection shall be conducted by the appropriate authority. Such preconstruction inspections may be combined with any other required inspection.

As such, Appendix D details the post-construction status of each mapped and evaluated Joshua tree found on the project site.

4.2 Relocation and Protection Trees

Per HMC Section 16.24.060, each tree was evaluated for its relocation potential. Due to the low success rate of mature Joshua tree relocation, only single-stemmed trees in good health and less than 15 feet in height were selected. Based on project-related impacts, 1,422 Joshua trees would be directly impacted by the proposed project. Of the 1,422 direct impacts, 601 Joshua trees met the defined criteria for improved likelihood of post-transplant success. As such, per the City ordinance, relocation and/or mitigation is required for the 601 trees meeting the minimum requirements for relocation. Due to post-construction site constraints, the project site can accommodate up to 450 Joshua trees. As such, the remaining 151 will require entry into an approved adoption program. Furthermore, at least 50% of the transplantable trees and plants will be adopted or the remaining number below 50% will be purchased at $350 per transplantable tree. Purchased trees must be recycled at Advance Disposal if not relocated.

Furthermore, based on the impact analysis, 26 Joshua trees would not be directly impacted by the proposed project. As such, it is recommended that the 26 non-impacted trees be protected in place in accordance with the tree protection measures identified in this Joshua Tree Plan. The locations of the 601 potentially relocatable Joshua trees recommended for relocation and 26 Joshua trees recommended for preservation are shown in Appendix D.

4.3 Relocation Specifications

The following sections identify the designated storage and relocation locations for the proposed transplanted/ salvaged trees. Details and specifications for Joshua tree relocation, storage, and care in the post-development landscape are also provided in this section.

4.3.1 Salvage

Joshua trees have fragile, shallow root systems that are easily damaged during the salvaging and relocation process. During excavation of the rootball, it is important that as much of the existing root structure as possible be captured so that an intact rootball is maintained during the salvaging and relocation process. The following sections include recommendations to help increase the chances of successful salvage/relocation.

4.3.1.1 Contractor

Joshua tree salvage and relocation must be completed by an experienced Joshua tree relocation specialist.

4.3.1.2 Pre-Salvage Meeting

Prior to initiating Joshua tree salvage, all contractors involved in the salvage project will attend a site meeting with the project arborist. The project arborist will provide the contractor(s) with a copy of the Joshua Tree Plan and review all relevant components of the Joshua Tree Plan.

4.3.1.3 Salvage Timing

To increase the chances of a successful relocation, it is recommended that the trees be relocated within the window of October through February. To increase Joshua tree survivability, the trees should not be dug out and/or salvaged in warmer months (April through September). However, should project limitations and timing require a different start date than the recommended October through February salvage period, it is recommended that the salvaged trees be stored in a temporary, on-site location per the recommendations in Section 4.4, Storage.

4.3.1.4 Pre-Irrigation

Prior to Joshua tree digging, each identified Joshua tree relocation candidate shall be pre-watered. Specifically, each tree shall be pre-watered 24 hours prior to relocation. Pre-watering shall thoroughly soak the rootball of each tree.

4.3.1.5 Equipment Sanitization

Equipment shall be sterilized prior to digging up and transplanting each tree. Equipment sterilization will reduce the likelihood of pathogens being passed from tree to tree.

4.3.1.6 Joshua Tree Digging

Tree relocation is best completed through the use of machinery. A front-end loader or hydraulic tree spade is recommended. The hydraulic tree spade may be best used in instances where the soil type is sandy or silty. However, hand-digging of smaller Joshua trees (1 to 2 feet in height) is acceptable. The goal of relocation is to maintain a high root-to-shoot ratio. Joshua tree excavation shall capture as much of the rootball as possible; however, due to the tree's shallow root system, holes do not need to be deep. In general, the digging holes may range from 12 to 18 inches in depth for smaller trees (1 to 2 feet tall), to 24 to 36 inches deep for larger trees. The entire rootball shall be removed intact to the extent possible.

4.3.1.7 Root Maintenance

All attempts shall be made to minimize exposure of the rootball to air; exposed roots shall be kept wet at all times during the relocation process. Damaged and exposed roots shall be cleaned and dusted with sulfur or a fungicide to decrease the likelihood of root pathogens.

4.4 Storage

All 450 Joshua trees recommended for relocation shall be transplanted to the locations shown on the Conceptual Site Plan for Hesperia Commerce Center II (Appendix E). Due to project constraints, the 450 relocated Joshua trees will require storage or stockpiling in the short term (i.e., 2 to 4 months). The following sections provide instructions for temporary tree storage. Storage locations for the 450 relocated trees is dependent on the project development timeline and on which building will be developed first. The storage location will be on site and will follow the storage and care details provided in the following sections.

4.4.1 Storage

Trees stockpiled for longer than 2 weeks shall be temporarily stored in shallow ditches, backfilled with native soils, and tamped down. The shallow ditches shall be dug prior to tree relocation, and the final depth shall be comparable to the depth at which each Joshua tree is dug. Temporary storage trench depths shall be approximately 12 to 24 inches deep, depending on the size of the tree's rootball. The trench widths shall be 1 foot larger than the rootball of the trees and long enough to accommodate the trees, with enough room for equipment between each tree. Multiple trenches may be required to accommodate all salvaged trees.

4.4.2 Storage Direction

During storage all trees shall be oriented in the same direction that they were prior to removal. Each Joshua tree is tagged on its northern side and shall be reoriented with the tagged side facing north. Prior to tree relocation, each tag shall be inspected to ensure that it is securely attached to the tree.

4.4.3 Stabilization

Larger plants, over 5 feet tall, may require stabilization until the roots have had the opportunity to become reestablished. To support larger trees, guy-wire staking may be necessary. Guy-wires shall be connected to the ground (i.e., preferably via a "dead-man" anchor below grade) and attached to the trunk or limbs with an expandable, non-abrasive connector. Multiple guy-wires may be required (i.e., recommended three equally spaced around the rootball for stability). Trees requiring stabilization are identified in Appendix B.

4.4.4 Irrigation

Stored trees shall be watered 1 to 2 times per week during the storage period to ensure tree health and increase relocation success. During the storage period, the trees shall be watered by hand or by temporary irrigation. Should temporary irrigation be installed, the use of drip emitters is recommended. Irrigation emitters shall be spaced according to the watering zone specified for each tree. The watering zone for each tree is identified in Appendix B.

The total amount of water required for each tree will be dependent on the season and tree size. Irrigation needs may range from 2 to 20 gallons per watering cycle and will be dependent on ambient daytime temperatures and rainfall totals. Additionally, persistent wet soil will cause mildew and root rot. As such, soil moisture levels shall be routinely checked at the time of watering, and soil allowed to dry out between watering cycles. The irrigation schedule shall be adjusted to meet the conditions described above.

4.4.5 Duration

Trees shall not be stockpiled or stored for longer than 45 days.

4.4.6 Summer Salvage: Temporary Shade Structure

Per Section 4.3.1.3, Salvage Timing, should project limitations and timing require a different start date than the recommended October through February salvage period, it is recommended that the salvaged trees be stored as described in Section 4.3.1, Salvage. Furthermore, to reduce tree stress and reduce the risk of post-transplant mortality, it is recommended that the salvaged trees be stored underneath a temporary shade structure. The temporary shade structure shall be sufficient in size to cover the salvaged trees and provide protection from the direct heat of the summer sun. The shade structure shall use a minimum 30% shade cloth to shade the trees during the warmer months. The shade structure shall be attached to galvanized steel structural poles (or similar) to ensure the shade structure is structurally stable. It is recommended that the shade structures be installed per the manufacture's recommendations. Due to the potential for high winds, it is recommended that the shade structure be attached to the ground using diagonal dead-man cable supports and concrete post footings. The shade structure shall be of adequate height to cover the trees. For trees that are greater than 10 feet in height (8 trees), individual shade structures may be established for each tree. The remaining trees shorter than 10 feet in height may be stored under a contiguous structure. In addition to the temporary shade structure, all salvaged trees shall be relocated and maintained per the recommendations specified throughout this Joshua Tree Plan.

4.5 Transplant Planting

All 450 salvaged Joshua trees shall be relocated into the post-construction landscape, as shown in Appendix E. The 450 final planting locations are shown in Appendix E. The following sections detail transplanting guidelines for the salvaged Joshua trees.

4.5.1 Site Preparation

Prior to transplantation, each receiver location shall be dug. The locations of the receiver sites are presented in Appendix E. Prior to digging, the sites shall be flagged for identification by the project arborist or registered botanist. In general, the digging hole may range from 12 to 18 inches in depth for smaller trees (1 to 2 feet tall), to 24 to 36 inches deep for larger trees. The width of the hole shall be approximately 1 foot larger than the rootball of the transplanted tree. Holes may require additional digging prior to Joshua tree installation.

4.5.2 Pre-Watering

A water and root hormone mixture shall be prepared prior to transplanting the trees. The mixture shall be composed of vitamin B1, which is commonly sold by nurseries. The mixture shall be mixed per the manufacturer's directions, which is typically 1:250 (B1-to-water ratio). The receiving hole shall be filled with the diluted mixture of rooting hormone and water, and allowed to drain prior to placing the tree in the hole.

4.5.3 Planting Direction

Proper orientation of the relocated trees is important to the success of the salvaged trees. Improper planting can result in sunburn and growth distortion. As such, the north side of each tree shall be clearly marked/tagged prior to digging, and each tree shall be replanted (and stored) in the same orientation as it was in prior to removal.

4.5.4 Planting

Prior to final installation, the hole size shall be inspected by the project arborist to ensure that the planting hole is, at minimum, 1 foot wider than the rootball and is neither too deep nor too shallow. The hole may require minor adjustments prior to installation. The depth of the hole must be less than the height of the rootball. If the hole was inadvertently dug too deep, soil shall be added and compacted by hand or foot. Breaking up compacted soil in a large area around the tree (outside the drip line of the tree) provides the newly emerging roots room to expand into loose soil. This will hasten root growth, translating into quicker establishment. Once the size of the hole is finalized, the tree shall be lowered into the hole in the proper orientation, backfilled with native soil, and watered again. Following backfilling and placement, the rootball shall be tamped down into the hole to eliminate water pockets.

Following planting, a water basin shall be installed approximately 1 foot outside of the pre-determined watering zone. The watering basin shall be approximately 3 to 4 inches in height and shall surround the tree. The basin shall be left intact throughout the establishment period.

4.5.5 Post-Transplant Stabilization

Larger plants, over 5 feet tall, may require stabilization until the roots have had the opportunity to become reestablished. To support larger trees, guy-wire staking may be necessary. Guy-wires shall be connected to the ground (i.e., preferably via a dead-man anchor below grade) and attached to the trunk or limbs with an expandable, non-abrasive connector. Multiple guy-wires may be required (i.e., recommended three equally spaced around the rootball for stability). Guy-wires shall be removed once the tree is determined to be established by the project arborist. Trees requiring stabilization are identified in Appendix B.

4.6 Post-Relocation Care

4.6.1 Irrigation

Trees that have been relocated to their final planting location shall be watered 1 to 2 times per week for an initial 2 to 3 months, depending on the season, rainfall totals, tree size, and watering zone size. Irrigation shall be adjusted

seasonally, with a goal of removing the transplanted trees from supplemental irrigation after 2 years have passed and growth has resumed. The total amount of water required for each tree will be dependent on the season and tree size. Persistent wet soil will cause mildew and root rot. As such, soil moisture levels shall be routinely checked at the time of watering, and the soil shall be allowed to drain and dry out between watering cycles. Watering shall be accomplished by hand or by a temporary irrigation system. During irrigation, the tree basin shall be filled and allowed to fully drain. Irrigation needs may range from 2 to 20 gallons per watering. The watering cycle shall be adjusted based on tree health and season. The watering zone for each tree (distance from the trunk) is defined for each tree in Appendix B.

4.6.2 Stabilization

Trees that have been stabilized shall be routinely inspected by the project arborist to ensure that the guy-wires and straps are not damaging the trees. The expandable, non-abrasive connectors shall be adjusted, as needed, to minimize damage to the trees. The guy-wires can be removed once the project arborist has determined that the tree has become established. In general, little to no movement should be observed on the rootball when the tree is gently pushed. Once the roots are well established, it is important to remove the tree stakes. This will encourage a natural strengthening of the tree trunk so it can support the weight of the branches as they begin to grow and spread.

4.6.3 Fertilization

Post-transplantation fertilization is not required.

4.7 Monitoring and Reporting

Tree relocation, stockpiling, maintenance, and watering shall be monitored by a certified arborist or registered botanist.

4.7.1 Monitoring

The City does not define a minimum post-transplantation monitoring period. However, an annual inspection and report for 4 years is recommended. As such, for the initial 3 months following transplantation, weekly monitoring by a certified arborist or registered botanist shall occur to ensure that the watering needs of each relocated tree are being met. Following the initial 3-month monitoring period, the relocated trees shall be monitored on a monthly basis for 9 months. Following the first year of monitoring, the trees shall be monitored quarterly (every 3 months) for 3 years to ensure tree establishment. Monitoring may be adjusted based on tree health and observations by the project arborist. The monitoring period will begin once all 250 trees have been installed.

4.7.2 Reporting

Annual reports will be prepared at the end of each calendar year to document the status of the transplantation program and the health/survivability of the relocated trees. Reports of all monitoring will be submitted to the City. Monitoring will track the location, health, and status of each transplanted Joshua tree. The monitoring arborist or registered botanist will include recommendations for maintenance and irrigation, should they be needed.

4.8 Transplantation Success Criteria

The City does not define a minimum success ratio for transplanted Joshua trees. Due to the low relocation success rate of Joshua trees, the transplantation program would be considered successful if, after four growing seasons (4 years)—including two growing seasons with supplemental irrigation and two without—the transplanted trees maintain a minimum of 70% survivability. As such, based on 250 potential relocation trees, the relocation plan would be considered successful should 175 Joshua trees survive past the 4-year threshold. Should the surviving number of trees drop below 70%, it is recommended that trees be obtained from a local adoption program or from a local nursery to meet the 4-year, 70% threshold. It should be noted that the City may define an alternative minimum success criteria threshold.

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5 California Department of Fish and Wildlife Mitigation

The following section details the proposed mitigation program described within the Incidental Take Permit Application for the Hesperia Commerce Center II (Item No. 9).

5.1 Proposed Measures to Minimize and Fully Mitigate the Impacts of the Proposed Taking

Conservation efforts for western Joshua tree should focus on the conservation of large, interconnected Joshua tree woodlands on lands where edge effects are limited versus lands in urban settings that are subject to habitat fragmentation and edge effects, such as the project site.

Mitigation efforts should contribute to the conservation of large, interconnected Joshua tree woodlands. Larger preserves have several advantages over multiple smaller preserves, even if the total area preserved is the same. Larger preserves have a greater chance of preserving habitat diversity at all scales, supporting larger local populations, helping maintain functioning metapopulations (partially isolated subpopulations of the same species that support immigration and emigration and provide for recolonization following local extirpations), and supporting greater species genetic diversity, and are more likely to maintain intact watershed functions. Larger preserves also have less habitat fragmentation and provide greater protection from edge effects due to a larger area-to-perimeter ratio compared to smaller preserves. Additionally, large preserves usually facilitate more cost-effective land management.

Natural land covers preserved as habitat linkages connect larger habitat tracts that would otherwise be isolated to movement of wildlife and movement of plant species pollinators between preserves (i.e., movement corridors). Movement corridors should be as wide, continuous, natural, and vegetatively diverse as possible to accommodate as many species as possible and protect against adverse edge effects. Some smaller, less-mobile species may actually reside within a linkage, and larger and/or more mobile species may only use each linkage as a movement corridor.

Species populations with larger numbers of individuals are known to be more stable in the long term, less vulnerable to adverse demographic effects caused by environmental stochasticity (probabilistic events such as floods, fires, and disease), and less vulnerable to extirpation (extermination) compared to smaller populations. Larger populations tend to possess higher genetic diversity, which can reduce the chance of genetic bottlenecks, genetic drift, and inbreeding depression. Larger populations better cope with and/or adapt to changing environmental conditions and local stochastic effects due to their greater number of individuals and likely greater genetic heterogeneity.

Mitigation for Direct Impacts

Mitigation for direct impacts to western Joshua trees will be fulfilled through conservation of western Joshua trees at a 1:1 habitat replacement of equal or better functions and values to those impacted by the project. Mitigation can be through purchases of credits at a California Department of Fish and Wildlife-approved mitigation bank for western Joshua tree or through conservation lands that meet the functions and values criteria. If mitigation is not purchased through a mitigation bank and lands are conserved separately, a cost estimate will be prepared to estimate the initial start-up costs, and ongoing annual costs, of management activities for the management of the conservation easement(s) area in perpetuity. The funding source will be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The

endowment amount will be established following the completion of a project-specific Property Analysis Record (PAR) to calculate the costs of in perpetuity land management. The PAR will take into account all of the management activities required in the Incidental Take Permit to fulfill the requirements of the conservation easement(s), which are currently in review and development.

Furthermore, the ITP states that western Joshua trees will be relocated and planted on site, as feasible. Addition details related to CDFW requirements can be found within the proposed mitigation program described within the ITP Application for the Hesperia Commerce Center II.

6 Tree Protection

For Joshua trees that do not require relocation, the following measures are recommended to protect the remaining Joshua trees so that they have protected zones (crown/canopy width plus 6 feet) around each tree within and immediately adjacent to (within 25 feet of) all active construction areas. For protected trees on site that remain within undisturbed areas, similar tree protection measures are recommended to ensure against potential inadvertent disturbance.

6.1 Tree Protection Measures Prior to Construction

Fencing: Orange polyethylene construction fencing, no less than 4 feet in height, with tree protection signs, shall be erected around all undisturbed trees (or tree groups). The protective fencing shall be installed at the protected zone boundary of each tree (or tree group), which is defined as 6 feet beyond the tree crown/canopy dripline. The intent of protective fencing is to prevent root damage and/or compaction of the soil by grading equipment. An ISA-certified arborist may be required on site if grading activities occur within a tree's protected zone. Fencing shall be secured to 6-foot-tall, heavy-gauge T-bar posts pounded into the ground a minimum of 18 inches and spaced a minimum of 8 feet on center. Fencing shall be attached to the T-bar posts, with minimum 14-gauge wire fastened to the top, middle, and bottom of each post. Tree protection signs shall be attached to every fourth post. The contractor shall maintain the fence to keep it upright, taut, and aligned at all times. Fencing shall be removed only after all construction activities in the vicinity of the protected tree(s) are complete.

Pre-Construction Meeting: A pre-construction meeting shall be held between all contractors (including grading, tree removal/pruning, and builders) and an ISA-certified arborist or registered botanist. The meeting shall focus on instructing the contractors on tree protection practices and on answering any questions. All equipment operators and spotters, assistants, and those directing operators from the ground shall provide written acknowledgment of having received tree protection training. This training shall include information on the location and marking of protected trees, the necessity of preventing damage, and the discussion of work practices that will accomplish these tasks.

6.2 Protection and Maintenance During Construction

Once construction activities have begun, the following protection measures shall be followed:

Equipment Operation and Storage: Contractors shall avoid heavy equipment operation around protected trees. Operating heavy machinery around the root zones of trees increases soil compaction, which decreases soil aeration and consequently reduces water penetration into the soil. All heavy equipment and vehicles shall, at minimum, stay out of the fenced protected tree zone except where specifically approved in writing and under the supervision of a certified arborist or registered botanist.

Materials Storage and Disposal: Contractors shall not store or discard any supplies or materials, including paint, lumber, and concrete overflow, within the protected zone, and shall remove all foreign debris within the protected zone. However, the contractors shall leave the duff, mulch, chips, and other organic material around the retained trees for water retention and nutrient supply. In addition, the contractors shall avoid draining or leakage of equipment fluids near retained trees. Fluids such as gasoline; diesel; oils; hydraulic, brake, and transmission fluids; paint; paint thinners; and glycol (anti-freeze) shall be disposed of properly. Contractors shall ensure that equipment is parked outside of the protected zone to avoid the possibility of leakage of equipment fluids into the soil. Toxic fluids on the trees could result in tree decline and mortality.

Grade Changes: Contractors shall ensure that grade changes, including adding fill, are not permitted within the protected zone without special written authorization and under supervision by an ISA-certified arborist or registered botanist. Lowering the grade within the protected zone would necessitate cutting main support and feeder roots, jeopardizing the health and structural integrity of the trees. Adding soil, even temporarily, on top of the existing grade would compact the soil and decrease water and air availability to the tree roots. Contractors shall ensure that grade changes made outside of the protected tree zone will not create conditions that allow water to pond at the base of trees. Water trapped at the base of a tree could lead to root rot and other detrimental tree impacts.

Moving Construction Materials: Contractors shall ensure that care is exercised when moving construction equipment and supplies near undisturbed Joshua trees, especially overhead. Contractors shall ensure that damage to the trees is avoided when transporting or moving construction materials and working around trees (even outside of the fenced protected zone). Contractors shall flag aboveground tree parts that could be damaged (e.g., low limbs, scaffold branches, and trunks) with high-visibility flagging, such as fluorescent red or orange flagging.

Trenching: Except where specifically approved in writing beforehand, all trenching shall be outside the fenced protected zone. Where trenching is necessary in areas that contain roots from retained trees, contractors shall use trenching techniques that include the use of either a root pruner (Dosko root pruner or equivalent) or an Air-Spade to limit root impacts. An ISA-certified arborist or registered botanist shall ensure that all pruning cuts are clean and sharp to minimize ripping, tearing, and fracturing of the root system. Root damage caused by backhoes, earthmovers, dozers, or graders is severe and may result in tree mortality. Use of root-pruning and Air-Spade equipment shall be accompanied only by hand removal of soil from trench locations. The trench shall be made no deeper than necessary to accommodate the intended materials.

Irrigation/Hand Watering: Irrigation/hand watering of retained Joshua trees on site shall seek to mimic natural rainfall patterns in Southern California. As such, irrigation/hand watering is not required unless recommended by the monitoring ISA-certified arborist or registered botanist.

Inspection/Reporting: An ISA-certified arborist or registered botanist shall inspect the preserved trees adjacent to grading and construction activities on a monthly basis for the duration of the proposed project's construction period. A site observation report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage shall be submitted by the ISA-certified arborist or registered botanist following each inspection. Annual monitoring reports to document year-end conditions shall also be submitted.

6.3 Maintenance after Construction

Following completion of the construction activity within 20 feet of the protected zones of undisturbed Joshua trees, the tree protection fencing may be removed, and the following measures should be performed to sustain and enhance the vigor of the trees:

Pruning: Regular pruning of the trees is not required.

Watering: The retained trees should not require regular irrigation/hand watering other than during the 12 months following substantial root pruning, if applicable. Supplemental irrigation/hand watering for any newly planted trees and the retained trees that sustained root pruning may be necessary, especially in years with low winter rainfall.

Watering Adjacent Plant Material: All watering near retained Joshua trees and adjacent vegetation must mimic natural rainfall patterns. Supplemental irrigation of adjacent plant material should not be required.

Monitoring: For the initial 3 months, weekly monitoring by an ISA-certified arborist or registered botanist is recommended to ensure that the watering needs of each tree is being met. Following the initial 3-month monitoring period, it is recommended that the trees be monitored on a monthly basis for 9 months. Following the first year of monitoring, it is recommended that the trees be monitored quarterly (every 3 months) for 3 years. Following each monitoring visit, a site observation report summarizing site conditions, observations, tree health, and recommendations for promoting tree health should be submitted. Any tree mortality will be noted, and any tree dying during the monitoring period will be replaced with the same species as specified per City replacement standards.

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7 Adoption Program

Per the City's Protected Plant Policy (HMC 16.24), "healthy, transplantable plants shall be relocated on site or may be placed in an adoption program." As such, of the 1,422 direct impacts, 601 Joshua trees meet the defined criteria for improved likelihood of post-transplant success. Per the City ordinance, relocation and/or mitigation is required for the 601' trees meeting the minimum requirements for relocation. Due to post-construction site constraints, the project site can accommodate up to 450 Joshua trees. As such, the remaining 151 will require entry into an approved adoption program. Furthermore, at least 50% of the transplantable trees will be adopted or the remaining number below 50% will be purchased at $350 per transplantable tree. Purchased trees must be recycled at Advance Disposal. The following sections provide the detailed requirements of the City's approved adoption program (City of Hesperia 2020b).

7.1 Adoption Program Requirements

To qualify as an approved adoption program, the developer shall provide a letter on company letterhead describing the program and the community notification process. The program shall identify the following, at a minimum:

A. A public notice process which may include publication in local newspapers, radio advertisement, hand distributed fliers, and other noticing techniques. Noticing must occur over a period of not less than three weeks.
B. The location where the trees may be viewed by the public and a clearly identified period of at least two weeks (including weekends) when trees/plants are available for adoption.
C. The person that will be available on-site to assist those adopting trees to find the actual trees/plants for removal. An on-site or cell phone number for that person is required.
D. A note that a copy of the City Joshua Tree Transplanting Guidelines will be provided to each adopter.
E. A log showing the name, address, and phone number of each adopter and the number and type of trees/plants they received.

Note: At least 50% of the transplantable trees and plants shall be adopted or the remaining number below 50% shall be purchased at $350 per transplantable tree. Purchased trees must be recycled at Advance Disposal.

7.1.1 Adoption Program

The following sections describe the detailed requirements and recommendations for implementation of the adoption program, should it be required.

Public Noticing: Three weeks prior to initiation of the adoption program, the applicant shall provide notice of the event to the City of Hesperia and the local newspapers. The notification shall include the location, time, and date of the event. Specifically, it is recommended that the applicant take out an advertisement of the event in the local newspapers (Daily Press and Victor Valley News). Additionally, it is recommended that the applicant work with the City to provide notice of the event through the City's social media platforms (website, Facebook, Instagram, Nextdoor, and other platforms). The notification shall include adoption requirements, and the number and type of plants they can receive.

Location: The location of the event shall be held at or near the project site. The location should be easily accessible to the public. The location shall include all stockpiled/salvageable Joshua trees that cannot be reincorporated into the post-development landscape.

Timing: The adoption event should occur in the fall or winter when daytime temperatures are low. The event shall take place over a 2-week period and be open to the public Monday through Sunday.

Staffing: The applicant shall provide on-site staff to assist with the adoption of the Joshua trees. The staff person shall be knowledgeable about Joshua trees and be available on-site to assist those adopting trees to find the actual trees/plants for removal. An on-site or cell phone number for that person is required and shall be provided to the City.

Planting Guidelines: The staff member shall provide each Joshua tree adopter a copy of the City's Joshua Tree Transplanting Guidelines.

Tracking: The on-site staff member shall maintain a Joshua tree adoption log. The log shall include name, address, and phone number of each adopter, and the number and type of trees/plants they received.

8 Fees

Per HMC Section 16.24.080, where permits or reviews are required and they are not incorporated into other review or permit procedures, fees will be paid in accordance with the City's fee schedule.

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9 Desert Native Plants

In addition to Joshua trees, the project site contains other desert native plants that are protected by the HMC (City Ordinance Chapter 16.24 et seq.), the County of San Bernardino's Desert Native Plant Protection ordinance (Section 88.01.060), and the state Desert Native Plants Act (i.e., Food and Agricultural Code 80001 et seq.). Dudek staff conducted a desert native plant survey in accordance with the California Desert Native Plants Act and HMC Chapter 16.24, on November 22, 2019, within the 196-acre project site (Dudek 2019). However, this survey did not include the proposed off-site work areas (i.e., street improvements and utility alignments). Therefore, an additional desert native plant survey was conducted by Dudek staff within the proposed off-site work areas on May 12 and 13, 2021 (Dudek 2021).

Based on the 2019 desert native plant survey results, a total of 72 Wiggins' cholla (*Cylindropuntia echinocarpa*) individuals, of which 66 living individuals and 6 dead plants were documented, were observed within the project site (Dudek 2019). No Wiggins' cholla were observed within the off-site areas, and no additional desert native plants were observed during the 2021 survey (Dudek 2021).

In accordance with the California Desert Native Plants Act and HMC Chapter 16.24.040 (Protected Plant Ordinance), a native plant removal permit must be obtained from the City of Hesperia prior to the removal of Wiggins' cholla. No further mitigation is required; however, permit conditions may require salvage or that these species be incorporated into the landscape plan of the project. Any approved land use application and/or development permit will be the permit for the removal of Wiggins' cholla once the City approves it.

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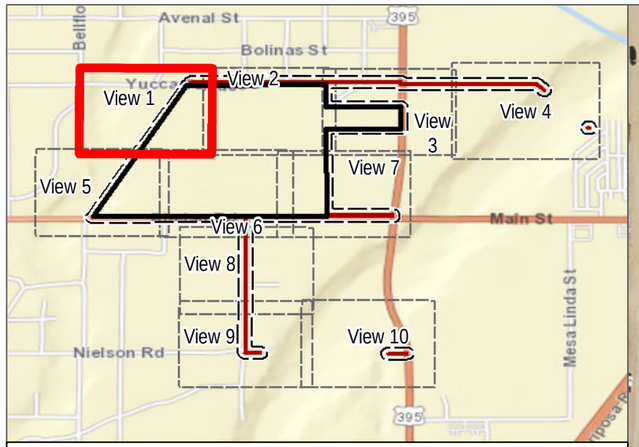
Appendix A

Joshua Tree Locations



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

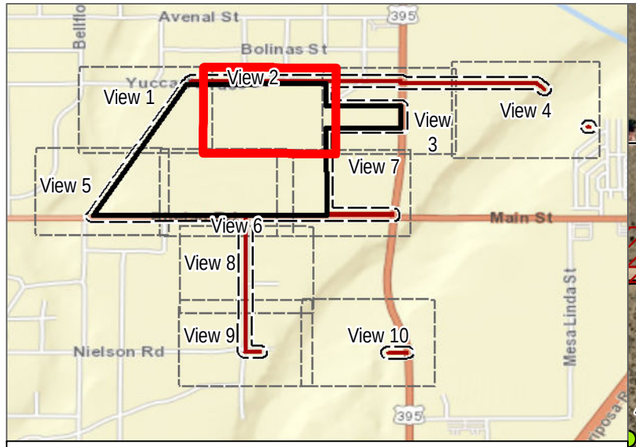
SOURCE: BING MAPPING SERVICE 2020

DUDEK 0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 1

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

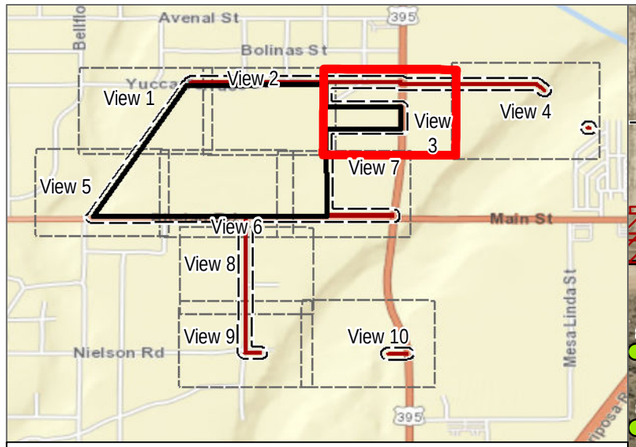
SOURCE: BING MAPPING SERVICE 2020

DUDEK 0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 2

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

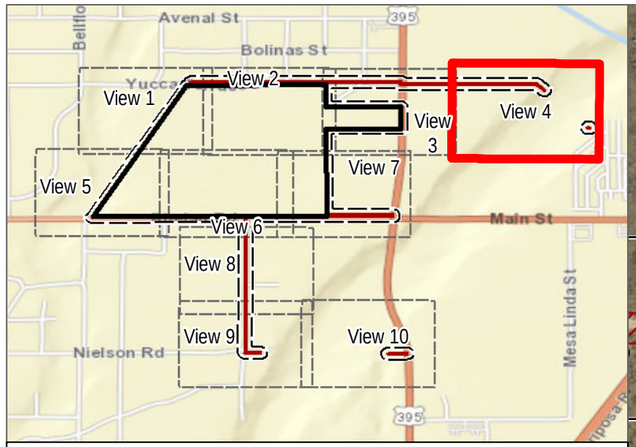
SOURCE: BING MAPPING SERVICE 2020

DUDEK 0 90 180 Feet

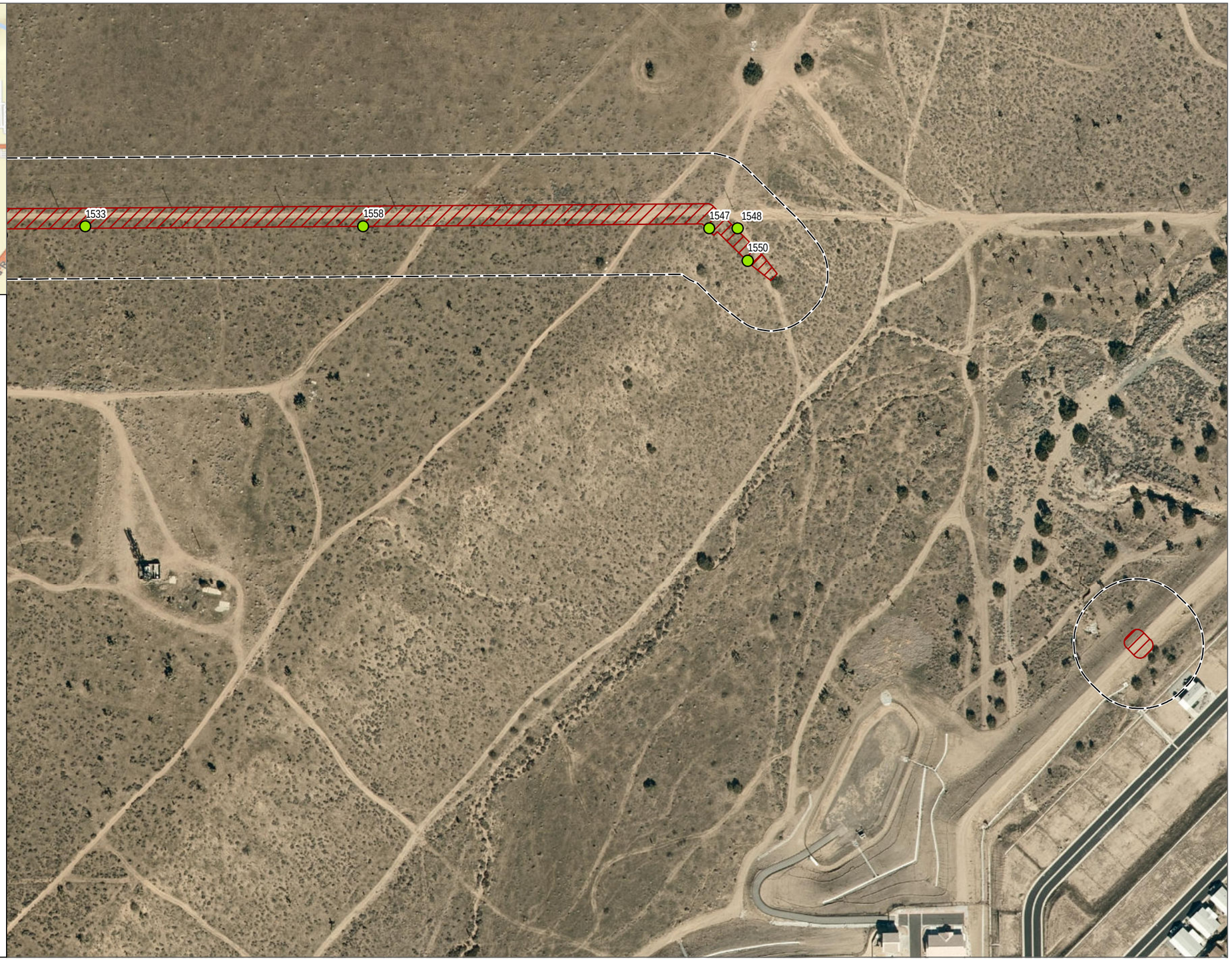
APPENDIX A

Joshua Tree Location Map - View 3

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area



SOURCE: BING MAPPING SERVICE 2020

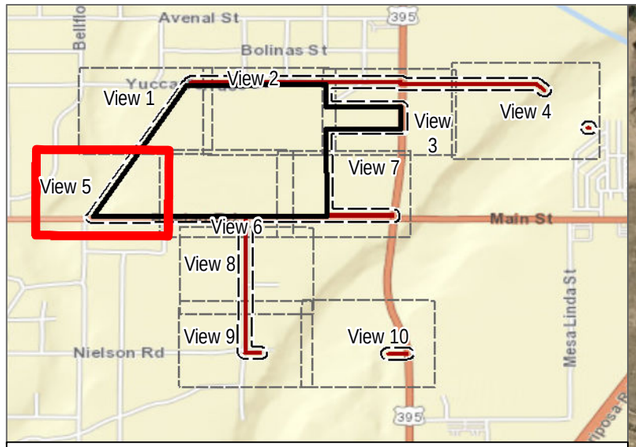
DUDEK

0 100 200 Feet

APPENDIX A

Joshua Tree Location Map - View 4

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

LOS ANGELES BUREAU OF POWER

PHELAN RD

SOURCE: BING MAPPING SERVICE 2020

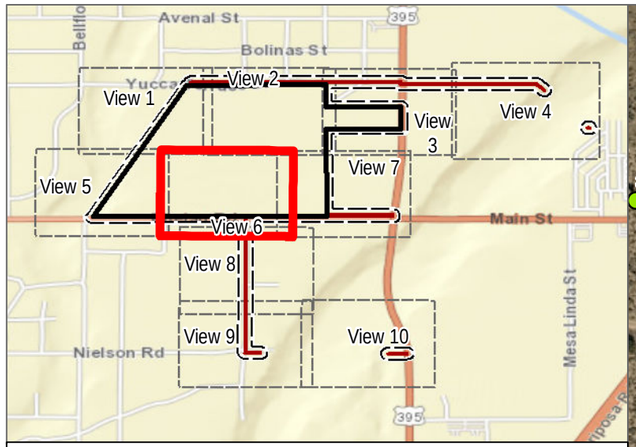
DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 5

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

PHELAN RD

SOURCE: BING MAPPING SERVICE 2020

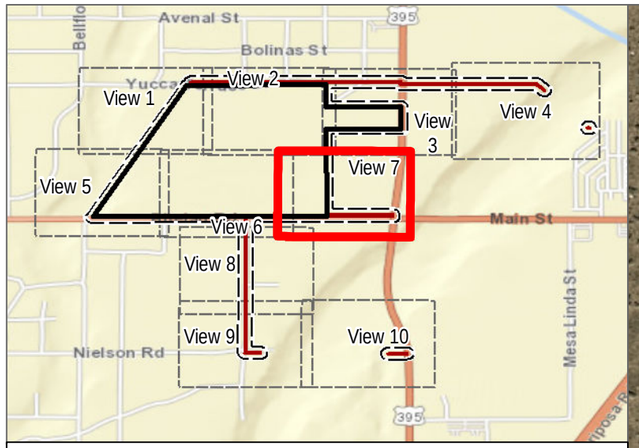
DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 6

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area



SOURCE: BING MAPPING SERVICE 2020

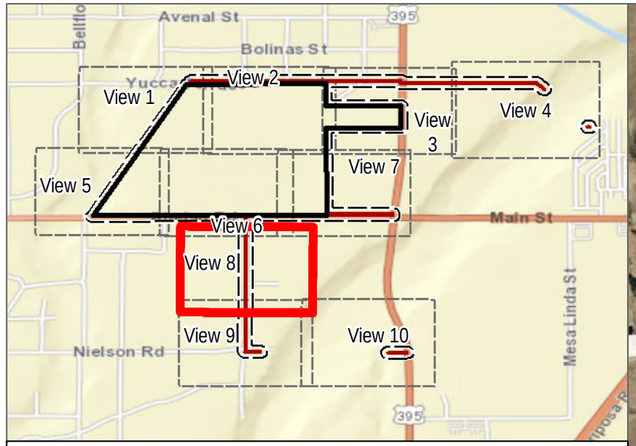
DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 7

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Tree Location
Project Site
Off-Site Roadway/Utility Alignments
Survey Area



SOURCE: BING MAPPING SERVICE 2020

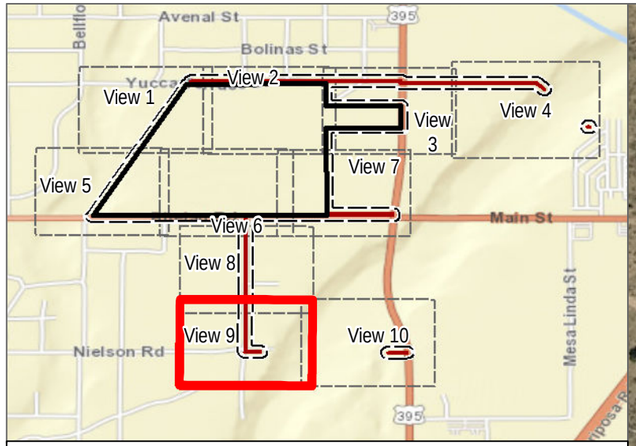
DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 8

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Tree Location
Project Site
Off-Site Roadway/Utility Alignments
Survey Area



SOURCE: BING MAPPING SERVICE 2020

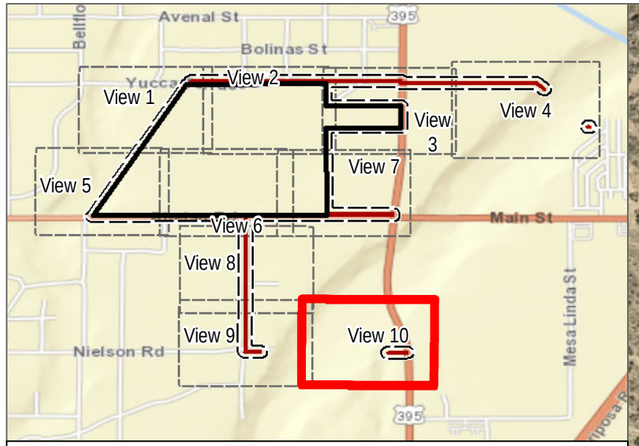
DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 9

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Tree Location
- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area



SOURCE: BING MAPPING SERVICE 2020

DUDEK

0 90 180 Feet

APPENDIX A

Joshua Tree Location Map - View 10

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project

Appendix B

Tree Information Matrix

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
2	*Yucca brevifolia*	10	10	5	Good (80)	2	Single Trunk	0	Yes		Removal
3	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
4	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
5	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
6	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
7	*Yucca brevifolia*	8	5	10	Good (80)	3	Single Trunk	0	No	Growing along ground	Removal
8	*Yucca brevifolia*	10	20	11	Good (80)	2	Clonal	1	No		Removal
9	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
10	*Yucca brevifolia*	15	25	15	Good (80)	4	Clonal	4	No		Removal
11	*Yucca brevifolia*	9	16	10	Good (80)	2	Single Trunk	0	No		Removal
12	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
13	*Yucca brevifolia*	9	20	12	Good (80)	3	Clonal	3	No		Removal
14	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
15	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
16	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	3	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
17	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
18	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
19	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
20	*Yucca brevifolia*	12	18	16	Good (80)	2	Single Trunk	0	No		Removal
21	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
22	*Yucca brevifolia*	13	26	15	Good (80)	4	Single Trunk	0	No		Removal
23	*Yucca brevifolia*	8	17	9	Good (80)	3	Clonal	2	No		Removal
24	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
25	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
26	*Yucca brevifolia*	16	27	16	Good (80)	3	Single Trunk	0	No		Removal
27	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
28	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
29	*Yucca brevifolia*	9	19	8	Good (80)	2	Single Trunk	0	No		Removal
30	*Yucca brevifolia*	6	16	6	Good (80)	3	Single Trunk	0	No		Removal
31	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
32	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
33	*Yucca brevifolia*	9	16	6	Good (80)	2	Clonal	3	No		Removal
34	*Yucca brevifolia*	6	11	3	Good (80)	2	Single Trunk	0	Yes		Removal
35	*Yucca brevifolia*	8	22	6	Good (80)	2	Clonal	1	No		Removal
36	*Yucca brevifolia*	19	30	17	Good (80)	2	Single Trunk	0	No		Removal
37	*Yucca brevifolia*	8	9	3	Fair (60)	2	Single Trunk	0	No		Removal
38	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
39	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
40	*Yucca brevifolia*	8	16	8	Good (80)	2	Single Trunk	0	No		Removal
41	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
42	*Yucca brevifolia*	12	30	15	Good (80)	3	Single Trunk	0	No		Removal
43	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
44	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
45	*Yucca brevifolia*	10	22	14	Good (80)	2	Single Trunk	0	No		Removal
46	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
47	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
48	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
49	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
50	*Yucca brevifolia*	9	30	10	Good (80)	4	Clonal	3	No		Removal
51	*Yucca brevifolia*	8	20	12	Good (80)	2	Single Trunk	0	No		Removal
52	*Yucca brevifolia*	12	22	13	Good (80)	5	Single Trunk	0	No		Removal
53	*Yucca brevifolia*	10	20	9	Good (80)	3	Clonal	1	No		Removal
54	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
55	*Yucca brevifolia*	6	17	4	Good (80)	3	Single Trunk	0	No		Removal
56	*Yucca brevifolia*	15	22	12	Good (80)	3	Clonal	2	No		Removal
57	*Yucca brevifolia*	4	8	2	Good (80)	1	Single Trunk	0	Yes		Removal
58	*Yucca brevifolia*	7	13	4	Good (80)	4	Clonal	2	No		Removal
59	*Yucca brevifolia*	8	28	13	Good (80)	2	Clonal	2	No		Removal
60	*Yucca brevifolia*	9	15	3	Good (80)	2	Single Trunk	0	Yes		Removal
61	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
62	*Yucca brevifolia*	6	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
63	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
64	*Yucca brevifolia*	3	5	3	Good (80)	2	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
65	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
66	*Yucca brevifolia*	9	16	3	Good (80)	2	Single Trunk	0	No		Removal
67	*Yucca brevifolia*	12	22	17	Good (80)	2	Clonal	1	No		Removal
68	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
69	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
70	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
71	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
72	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
73	*Yucca brevifolia*	11	22	13	Good (80)	5	Single Trunk	0	No		Removal
74	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
75	*Yucca brevifolia*	20	35	20	Good (80)	3	Single Trunk	0	No		Removal
76	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
77	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
78	*Yucca brevifolia*	12	35	16	Good (80)	3	Single Trunk	0	No		Removal
79	*Yucca brevifolia*	6	20	10	Good (80)	2	Clonal	1	No		Removal
80	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
81	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
82	*Yucca brevifolia*	22	35	22	Good (80)	2	Clonal	2	No		Removal
83	*Yucca brevifolia*	13	30	11	Good (80)	3	Single Trunk	0	No		Removal
84	*Yucca brevifolia*	15	22	12	Good (80)	4	Clonal	1	No		Removal
85	*Yucca brevifolia*	14	27	13	Good (80)	3	Clonal	1	No	Clone is dead	Removal
86	*Yucca brevifolia*	18	30	18	Good (80)	2	Single Trunk	0	No		Removal
87	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
88	*Yucca brevifolia*	12	37	12	Good (80)	3	Single Trunk	0	No		Removal
89	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
90	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
91	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
92	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
93	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
94	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
95	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
96	*Yucca brevifolia*	8	17	5	Good (80)	3	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
97	*Yucca brevifolia*	12	16	10	Good (80)	4	Single Trunk	0	No		Removal
98	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
99	*Yucca brevifolia*	6	10	2	Good (80)	2	Single Trunk	0	Yes		Removal
100	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
101	*Yucca brevifolia*	14	22	18	Critical (20)	2	Single Trunk	0	No		Removal
102	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
103	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
104	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
105	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
106	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
107	*Yucca brevifolia*	6	9	2	Good (80)	2	Clonal	1	No		Removal
108	*Yucca brevifolia*	4	6	1	Good (80)	1	Clonal	3	No		Removal
109	*Yucca brevifolia*	12	16	9	Good (80)	4	Clonal	1	No		Removal
110	*Yucca brevifolia*	17	35	20	Good (80)	2	Single Trunk	0	No		Removal
111	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
112	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
113	*Yucca brevifolia*	13	14	9	Good (80)	2	Clonal	1	No		Removal
114	*Yucca brevifolia*	14	20	15	Good (80)	4	Single Trunk	0	No		Removal
115	*Yucca brevifolia*	12	23	14	Good (80)	4	Single Trunk	0	No		Removal
116	*Yucca brevifolia*	6	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
117	*Yucca brevifolia*	15	30	15	Good (80)	1	Clonal	1	No		Removal
118	*Yucca brevifolia*	12	30	14	Good (80)	2	Single Trunk	0	No		Removal
119	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
120	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
121	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
122	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
123	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
124	*Yucca brevifolia*	2	1	1	Good (80)	1	Clonal	2	No		Removal
125	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
126	*Yucca brevifolia*	5	17	4	Good (80)	2	Single Trunk	0	No		Removal
127	*Yucca brevifolia*	2	1	1	Good (80)	1	Clonal	1	No		Removal
128	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
129	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
130	*Yucca brevifolia*	4	6	2	Good (80)	2	Single Trunk	0	Yes		Removal
131	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
132	*Yucca brevifolia*	5	9	2	Good (80)	2	Single Trunk	0	Yes		Removal
133	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
134	*Yucca brevifolia*	15	6	10	Good (80)	2	Clonal	4	No	growing along ground	Removal
135	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
136	*Yucca brevifolia*	12	20	10	Good (80)	2	Single Trunk	0	No		Removal
137	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
138	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
139	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
140	*Yucca brevifolia*	14	27	14	Good (80)	3	Single Trunk	0	No		Removal
141	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
142	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
143	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
144	*Yucca brevifolia*	17	22	16	Good (80)	5	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
145	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
146	*Yucca brevifolia*	12	25	10	Good (80)	3	Single Trunk	0	No		Removal
147	*Yucca brevifolia*	9	17	7	Good (80)	2	Single Trunk	0	No		Removal
148	*Yucca brevifolia*	9	18	6	Good (80)	3	Single Trunk	0	No		Removal
149	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
150	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
151	*Yucca brevifolia*	4	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
152	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
153	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
154	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
155	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
156	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	1	No		Removal
157	*Yucca brevifolia*	12	27	12	Good (80)	2	Clonal	3	No		Removal
158	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
159	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
160	*Yucca brevifolia*	18	30	17	Good (80)	3	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
161	*Yucca brevifolia*	13	16	12	Good (80)	2	Clonal	1	No		Removal
162	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
163	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
164	*Yucca brevifolia*	10	25	11	Good (80)	2	Single Trunk	0	No		Removal
165	*Yucca brevifolia*	2	1	1	Good (80)	1	Clonal	1	No		Removal
166	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
167	*Yucca brevifolia*	10	22	13	Good (80)	2	Clonal	1	No		Removal
168	*Yucca brevifolia*	14	30	18	Good (80)	2	Single Trunk	0	No		Removal
169	*Yucca brevifolia*	3	3	2	Fair (60)	1	Single Trunk	0	No		Removal
170	*Yucca brevifolia*	11	18	7	Good (80)	2	Single Trunk	0	No		Removal
171	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
172	*Yucca brevifolia*	14	22	16	Good (80)	2	Single Trunk	0	No		Removal
173	*Yucca brevifolia*	19	30	18	Fair (60)	3	Single Trunk	0	No		Removal
174	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
175	*Yucca brevifolia*	12	18	11	Fair (60)	2	Single Trunk	0	No		Removal
176	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
177	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
178	*Yucca brevifolia*	14	30	17	Good (80)	3	Single Trunk	0	No		Removal
179	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	3	No		Removal
180	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
181	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
182	*Yucca brevifolia*	22	35	18	Fair (60)	4	Single Trunk	0	No		Removal
183	*Yucca brevifolia*	8	12	3	Good (80)	3	Single Trunk	0	Yes		Removal
184	*Yucca brevifolia*	15	5	15	Poor (40)	3	Clonal	3	No	growing along ground	Removal
185	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
186	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
187	*Yucca brevifolia*	9	12	2	Fair (60)	1	Clonal	1	No		Removal
188	*Yucca brevifolia*	12	27	15	Good (80)	3	Clonal	1	No		Removal
189	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
190	*Yucca brevifolia*	19	40	16	Good (80)	3	Clonal	7	No		Removal
191	*Yucca brevifolia*	15	30	15	Good (80)	2	Clonal	1	No		Removal
192	*Yucca brevifolia*	2	1	1	Poor (40)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
193	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
194	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
195	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
196	*Yucca brevifolia*	9	20	8	Good (80)	3	Single Trunk	0	No		Removal
197	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
198	*Yucca brevifolia*	17	30	17	Good (80)	4	Clonal	2	No		Removal
199	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
200	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
201	*Yucca brevifolia*	12	20	11	Good (80)	3	Clonal	3	No		Removal
202	*Yucca brevifolia*	13	30	15	Good (80)	3	Single Trunk	0	No		Removal
203	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
204	*Yucca brevifolia*	13	30	12	Good (80)	4	Single Trunk	0	No		Removal
205	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
206	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
207	*Yucca brevifolia*	4	9	1	Poor (40)	1	Single Trunk	0	No		Removal
208	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
209	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
210	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
211	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
212	*Yucca brevifolia*	4	4	2	Good (80)	1	Single Trunk	0	Yes		Removal
213	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
214	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
215	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
216	*Yucca brevifolia*	6	2	2	Fair (60)	1	Single Trunk	0	No	growing along ground	Removal
217	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
218	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
219	*Yucca brevifolia*	8	16	5	Good (80)	3	Single Trunk	0	No		Removal
220	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	4	No		Removal
221	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
222	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
223	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
224	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
225	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
226	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
227	*Yucca brevifolia*	3	8	1	Good (80)	1	Clonal	2	No		Removal
228	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
229	*Yucca brevifolia*	14	30	14	Good (80)	2	Single Trunk	0	No		Removal
230	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
231	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
232	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
233	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
234	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
235	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
236	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
237	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
238	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
239	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
240	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
241	*Yucca brevifolia*	17	30	18	Good (80)	4	Single Trunk	0	No		Removal
242	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
243	*Yucca brevifolia*	9	10	2	Good (80)	2	Single Trunk	0	Yes		Removal
244	*Yucca brevifolia*	15	30	14	Good (80)	3	Clonal	5	No		Removal
245	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
246	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
247	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
248	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
249	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
250	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
251	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
252	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
253	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
254	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
255	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
256	*Yucca brevifolia*	10	16	3	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
257	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
258	*Yucca brevifolia*	8	11	3	Good (80)	2	Single Trunk	0	Yes		Removal
259	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
260	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
261	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
262	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
263	*Yucca brevifolia*	14	18	12	Good (80)	2	Single Trunk	0	No		Removal
264	*Yucca brevifolia*	14	18	13	Good (80)	4	Single Trunk	0	No		Removal
265	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
266	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
267	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
268	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
269	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
270	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
271	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
272	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
273	*Yucca brevifolia*	8	14	1	Fair (60)	1	Clonal	1	No		Removal
274	*Yucca brevifolia*	3	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
275	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	2	No		Removal
276	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
277	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
278	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
279	*Yucca brevifolia*	4	6	2	Good (80)	1	Single Trunk	0	Yes		Removal
280	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
281	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
282	*Yucca brevifolia*	3	4	1	Fair (60)	1	Single Trunk	0	No		Removal
283	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
284	*Yucca brevifolia*	8	15	3	Good (80)	3	Clonal	3	No		Removal
285	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
286	*Yucca brevifolia*	16	27	13	Good (80)	4	Single Trunk	0	No		Removal
287	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
288	*Yucca brevifolia*	12	15	6	Good (80)	4	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
289	*Yucca brevifolia*	4	6	2	Good (80)	2	Clonal	1	No		Removal
290	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
291	*Yucca brevifolia*	8	23	5	Good (80)	2	Clonal	2	No		Removal
292	*Yucca brevifolia*	11	20	8	Good (80)	3	Single Trunk	0	No		Removal
293	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
294	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
295	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
296	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
297	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
298	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	2	No		Removal
299	*Yucca brevifolia*	15	30	13	Good (80)	4	Single Trunk	0	No		Removal
300	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
301	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
302	*Yucca brevifolia*	9	13	3	Good (80)	3	Single Trunk	0	Yes		Removal
303	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
304	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
305	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
306	*Yucca brevifolia*	15	25	16	Good (80)	3	Single Trunk	0	No		Removal
307	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
308	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
309	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
310	*Yucca brevifolia*	8	14	2	Good (80)	1	Single Trunk	0	Yes		Removal
311	*Yucca brevifolia*	14	30	12	Good (80)	2	Clonal	1	No		Removal
312	*Yucca brevifolia*	15	30	13	Good (80)	3	Clonal	1	No		Removal
313	*Yucca brevifolia*	3	5	1	Good (80)	3	Single Trunk	0	Yes		Removal
314	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
315	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
316	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
317	*Yucca brevifolia*	14	22	14	Good (80)	3	Clonal	4	No		Removal
318	*Yucca brevifolia*	17	22	10	Good (80)	3	Clonal	1	No		Removal
319	*Yucca brevifolia*	10	22	9	Good (80)	3	Single Trunk	0	No		Removal
320	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
321	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
322	*Yucca brevifolia*	15	30	14	Good (80)	3	Single Trunk	0	No		Removal
323	*Yucca brevifolia*	16	23	12	Good (80)	4	Clonal	2	No		Removal
324	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
325	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
326	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	3	No		Removal
327	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
328	*Yucca brevifolia*	12	23	10	Good (80)	2	Single Trunk	0	No		Removal
329	*Yucca brevifolia*	12	30	11	Good (80)	2	Single Trunk	0	No		Removal
330	*Yucca brevifolia*	10	20	14	Good (80)	2	Clonal	1	No		Removal
331	*Yucca brevifolia*	11	30	12	Good (80)	2	Single Trunk	0	No		Removal
332	*Yucca brevifolia*	15	40	15	Good (80)	2	Clonal	1	No		Removal
333	*Yucca brevifolia*	12	30	12	Good (80)	3	Single Trunk	0	No		Removal
334	*Yucca brevifolia*	13	16	10	Good (80)	2	Clonal	1	No		Removal
335	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
336	*Yucca brevifolia*	4	5	1	Poor (40)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
337	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
338	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
339	*Yucca brevifolia*	13	20	12	Good (80)	4	Clonal	1	No		Removal
340	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	6	No		Removal
341	*Yucca brevifolia*	16	25	13	Good (80)	4	Single Trunk	0	No		Removal
342	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
343	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
344	*Yucca brevifolia*	10	20	6	Good (80)	4	Clonal	2	No		Removal
345	*Yucca brevifolia*	11	30	11	Good (80)	2	Single Trunk	0	No		Removal
346	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
347	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
348	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
349	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
350	*Yucca brevifolia*	11	14	6	Good (80)	3	Clonal	4	No		Removal
351	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
352	*Yucca brevifolia*	5	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
353	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
354	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
355	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
356	*Yucca brevifolia*	6	15	5	Good (80)	3	Single Trunk	0	Yes		Removal
357	*Yucca brevifolia*	9	20	9	Good (80)	2	Single Trunk	0	No		Removal
358	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
359	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	3	No		Removal
360	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
361	*Yucca brevifolia*	3	6	1	Fair (60)	1	Clonal	2	No		Removal
362	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
363	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
364	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
365	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
366	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
367	*Yucca brevifolia*	8	14	2	Good (80)	2	Single Trunk	0	Yes		Removal
368	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
369	*Yucca brevifolia*	2	1	1	Good (80)	1	Clonal	2	No		Removal
370	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
371	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
372	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
373	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
374	*Yucca brevifolia*	5	10	2	Good (80)	2	Single Trunk	0	Yes		Removal
375	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
376	*Yucca brevifolia*	16	30	14	Good (80)	3	Clonal	1	No		Removal
377	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
378	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
379	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
380	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
381	*Yucca brevifolia*	12	16	9	Good (80)	3	Single Trunk	0	No		Removal
382	*Yucca brevifolia*	12	22	11	Good (80)	2	Single Trunk	0	No		Removal
383	*Yucca brevifolia*	12	16	9	Good (80)	3	Single Trunk	0	No		Removal
384	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
385	*Yucca brevifolia*	12	22	9	Good (80)	2	Single Trunk	0	No		Removal
386	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	3	No		Removal
387	*Yucca brevifolia*	17	25	10	Good (80)	4	Single Trunk	0	No		Removal
388	*Yucca brevifolia*	13	3	14	Critical (20)	3	Clonal	1	No	uprooted	Removal
389	*Yucca brevifolia*	12	30	12	Good (80)	4	Single Trunk	0	No		Removal
390	*Yucca brevifolia*	9	10	3	Fair (60)	2	Single Trunk	0	No		Removal
391	*Yucca brevifolia*	16	16	15	Fair (60)	3	Single Trunk	0	No	growing along ground	Removal
392	*Yucca brevifolia*	9	14	8	Good (80)	5	Single Trunk	0	Yes		Removal
393	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
394	*Yucca brevifolia*	10	15	7	Good (80)	3	Single Trunk	0	Yes		Removal
395	*Yucca brevifolia*	13	17	9	Good (80)	2	Single Trunk	0	No		Removal
396	*Yucca brevifolia*	14	25	15	Good (80)	3	Single Trunk	0	No		Removal
397	*Yucca brevifolia*	9	25	8	Good (80)	3	Single Trunk	0	No		Removal
398	*Yucca brevifolia*	16	30	15	Good (80)	4	Single Trunk	0	No		Removal
399	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
400	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
401	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
402	*Yucca brevifolia*	9	7	14	Fair (60)	3	Single Trunk	0	No	growing along ground	Removal
403	*Yucca brevifolia*	17	30	14	Good (80)	3	Clonal	2	No		Removal
404	*Yucca brevifolia*	10	32	9	Fair (60)	2	Single Trunk	0	No		Removal
405	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
406	*Yucca brevifolia*	20	30	17	Good (80)	5	Clonal	1	No		Removal
407	*Yucca brevifolia*	15	36	16	Good (80)	2	Clonal	1	No		Removal
408	*Yucca brevifolia*	15	36	16	Good (80)	3	Clonal	2	No		Removal
409	*Yucca brevifolia*	17	30	17	Good (80)	4	Single Trunk	0	No		Removal
410	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
411	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
412	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
413	*Yucca brevifolia*	15	25	13	Fair (60)	4	Single Trunk	0	No		Removal
414	*Yucca brevifolia*	15	22	17	Good (80)	2	Single Trunk	0	No		Removal
415	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
416	*Yucca brevifolia*	13	27	13	Good (80)	3	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
417	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
418	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
419	*Yucca brevifolia*	14	27	15	Good (80)	4	Single Trunk	0	No		Removal
420	*Yucca brevifolia*	13	30	13	Good (80)	3	Single Trunk	0	No		Removal
421	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
422	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
423	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
424	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
425	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
426	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
427	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
428	*Yucca brevifolia*	4	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
429	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
430	*Yucca brevifolia*	3	3	3	Good (80)	1	Single Trunk	0	Yes		Removal
431	*Yucca brevifolia*	3	3	3	Good (80)	1	Single Trunk	0	Yes		Removal
432	*Yucca brevifolia*	3	3	3	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
433	*Yucca brevifolia*	12	25	8	Good (80)	4	Clonal	1	No		Removal
434	*Yucca brevifolia*	12	15	15	Good (80)	2	Single Trunk	0	Yes		Removal
435	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
436	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
437	*Yucca brevifolia*	18	30	16	Good (80)	4	Single Trunk	0	No		Removal
438	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
439	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
440	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
441	*Yucca brevifolia*	10	20	6	Good (80)	4	Single Trunk	0	No		Removal
442	*Yucca brevifolia*	8	18	4	Good (80)	4	Single Trunk	0	No		Removal
443	*Yucca brevifolia*	3	3	1	Poor (40)	1	Single Trunk	0	No		Removal
444	*Yucca brevifolia*	10	22	8	Good (80)	2	Single Trunk	0	No		Removal
445	*Yucca brevifolia*	9	17	5	Fair (60)	2	Single Trunk	0	No		Removal
446	*Yucca brevifolia*	14	18	7	Good (80)	2	Single Trunk	0	No		Removal
447	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
448	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
449	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
450	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
451	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
452	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
453	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
454	*Yucca brevifolia*	4	8	2	Good (80)	2	Single Trunk	0	Yes		Removal
455	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
456	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
457	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
458	*Yucca brevifolia*	14	27	14	Good (80)	3	Single Trunk	0	No		Removal
459	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
460	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
461	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
462	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
463	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
464	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
465	*Yucca brevifolia*	3	2	2	Good (80)	1	Single Trunk	0	Yes		Removal
466	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
467	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
468	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
469	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
470	*Yucca brevifolia*	4	5	1	Fair (60)	1	Single Trunk	0	No		Removal
471	*Yucca brevifolia*	12	20	9	Good (80)	4	Single Trunk	0	No		Removal
472	*Yucca brevifolia*	12	18	11	Good (80)	3	Single Trunk	0	No		Removal
473	*Yucca brevifolia*	18	24	14	Good (80)	4	Single Trunk	0	No		Removal
474	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
475	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
476	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
477	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
478	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
479	*Yucca brevifolia*	11	19	7	Good (80)	3	Single Trunk	0	No		Removal
480	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
481	*Yucca brevifolia*	13	21	9	Good (80)	2	Single Trunk	0	No		Removal
482	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
483	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
484	*Yucca brevifolia*	5	13	2	Good (80)	3	Single Trunk	0	Yes		Removal
485	*Yucca brevifolia*	16	20	9	Good (80)	3	Single Trunk	0	No		Removal
486	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
487	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
488	*Yucca brevifolia*	7	11	1	Fair (60)	1	Single Trunk	0	No		Removal
489	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
490	*Yucca brevifolia*	12	20	9	Good (80)	4	Single Trunk	0	No		Removal
491	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
492	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
493	*Yucca brevifolia*	10	18	6	Good (80)	4	Clonal	1	No		Removal
494	*Yucca brevifolia*	14	20	9	Poor (40)	4	Clonal	1	No		Removal
495	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal
496	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
497	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
498	*Yucca brevifolia*	3	2	1	Good (80)	1	Clonal	1	No		Removal
499	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
500	*Yucca brevifolia*	17	25	12	Good (80)	3	Single Trunk	0	No		Removal
501	*Yucca brevifolia*	4	10	1	Fair (60)	1	Single Trunk	0	No		Removal
502	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
503	*Yucca brevifolia*	13	22	14	Good (80)	4	Single Trunk	0	No		Removal
504	*Yucca brevifolia*	4	9	1	Good (80)	2	Single Trunk	0	Yes		Removal
505	*Yucca brevifolia*	10	20	9	Good (80)	3	Single Trunk	0	No		Removal
506	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
507	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
508	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
509	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
510	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
511	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
512	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
513	*Yucca brevifolia*	16	30	15	Good (80)	3	Single Trunk	0	No		Removal
514	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
515	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
516	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
517	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
518	*Yucca brevifolia*	13	18	9	Good (80)	4	Single Trunk	0	No		Removal
519	*Yucca brevifolia*	3	2	2	Good (80)	1	Single Trunk	0	Yes		Removal
520	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
521	*Yucca brevifolia*	9	10	3	Fair (60)	2	Single Trunk	0	No		Removal
522	*Yucca brevifolia*	16	30	14	Good (80)	4	Single Trunk	0	No		Removal
523	*Yucca brevifolia*	12	30	10	Good (80)	2	Clonal	1	No		Removal
524	*Yucca brevifolia*	8	12	3	Good (80)	2	Single Trunk	0	Yes		Removal
525	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
526	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
527	*Yucca brevifolia*	13	16	7	Good (80)	2	Single Trunk	0	No		Removal
528	*Yucca brevifolia*	16	30	16	Fair (60)	4	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
529	*Yucca brevifolia*	14	14	6	Good (80)	1	Single Trunk	0	Yes		Removal
530	*Yucca brevifolia*	9	15	6	Fair (60)	2	Clonal	2	No		Removal
531	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
532	*Yucca brevifolia*	15	23	16	Good (80)	5	Single Trunk	0	No		Removal
533	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
534	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
535	*Yucca brevifolia*	9	15	4	Good (80)	3	Single Trunk	0	Yes		Removal
536	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
537	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
538	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
539	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
540	*Yucca brevifolia*	4	7	2	Good (80)	1	Clonal	1	No		Removal
541	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
542	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
543	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
544	*Yucca brevifolia*	19	35	20	Good (80)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
545	*Yucca brevifolia*	3	1	3	Good (80)	1	Single Trunk	0	Yes		Removal
546	*Yucca brevifolia*	10	18	5	Good (80)	6	Clonal	3	No		Removal
547	*Yucca brevifolia*	9	12	3	Good (80)	2	Clonal	1	No		Removal
548	*Yucca brevifolia*	9	20	5	Good (80)	3	Single Trunk	0	No		Removal
549	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
550	*Yucca brevifolia*	10	15	3	Good (80)	3	Single Trunk	0	Yes		Removal
551	*Yucca brevifolia*	10	18	5	Good (80)	3	Single Trunk	0	No		Removal
552	*Yucca brevifolia*	4	5	1	Good (80)	1	Clonal	1	No		Removal
553	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
554	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
555	*Yucca brevifolia*	15	30	13	Good (80)	2	Single Trunk	0	No		Removal
556	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
557	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
558	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
559	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
560	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
561	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
562	*Yucca brevifolia*	13	27	14	Good (80)	4	Single Trunk	0	No		Removal
563	*Yucca brevifolia*	23	28	14	Good (80)	6	Single Trunk	0	No		Removal
564	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
565	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
566	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
567	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
568	*Yucca brevifolia*	12	30	14	Good (80)	2	Single Trunk	0	No		Removal
569	*Yucca brevifolia*	15	33	17	Good (80)	2	Single Trunk	0	No		Removal
570	*Yucca brevifolia*	12	20	12	Good (80)	3	Single Trunk	0	No		Removal
571	*Yucca brevifolia*	18	37	14	Critical (20)	2	Single Trunk	0	No		Removal
572	*Yucca brevifolia*	17	27	17	Good (80)	3	Clonal	3	No		Removal
573	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
574	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
575	*Yucca brevifolia*	13	22	12	Good (80)	2	Single Trunk	0	No		Removal
576	*Yucca brevifolia*	14	20	10	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
577	*Yucca brevifolia*	4	6	2	Good (80)	2	Single Trunk	0	Yes		Removal
578	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
579	*Yucca brevifolia*	4	0	7	Fair (60)	1	Single Trunk	0	No		Removal
580	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
581	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
582	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
583	*Yucca brevifolia*	4	6	3	Good (80)	2	Single Trunk	0	No	growing along ground	Removal
584	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
585	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
586	*Yucca brevifolia*	10	20	10	Good (80)	2	Single Trunk	0	No		Removal
587	*Yucca brevifolia*	5	6	1	Fair (60)	1	Single Trunk	0	No		Removal
588	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
589	*Yucca brevifolia*	9	20	9	Good (80)	2	Single Trunk	0	No		Removal
590	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	1	No		Removal
591	*Yucca brevifolia*	9	16	5	Good (80)	3	Single Trunk	0	No		Removal
592	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
593	*Yucca brevifolia*	3	1	2	Good (80)	1	Single Trunk	0	Yes		Removal
594	*Yucca brevifolia*	8	20	5	Good (80)	2	Single Trunk	0	No		Removal
595	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
596	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
597	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
598	*Yucca brevifolia*	13	30	17	Good (80)	3	Single Trunk	0	No		Removal
599	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
600	*Yucca brevifolia*	1	1	1	Good (80)	1	Clonal	2	No		Removal
601	*Yucca brevifolia*	12	18	11	Good (80)	3	Single Trunk	0	No		Removal
602	*Yucca brevifolia*	13	17	11	Good (80)	2	Single Trunk	0	No		Removal
603	*Yucca brevifolia*	9	11	3	Good (80)	3	Single Trunk	0	Yes		Removal
604	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
605	*Yucca brevifolia*	10	16	9	Good (80)	2	Single Trunk	0	No		Removal
606	*Yucca brevifolia*	7	13	3	Good (80)	2	Single Trunk	0	Yes		Removal
607	*Yucca brevifolia*	3	8	1	Good (80)	2	Single Trunk	0	Yes		Removal
608	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	2	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
609	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
610	*Yucca brevifolia*	11	20	9	Good (80)	4	Single Trunk	0	No		Removal
611	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
612	*Yucca brevifolia*	10	22	10	Good (80)	3	Single Trunk	0	No		Removal
613	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
614	*Yucca brevifolia*	10	20	10	Good (80)	2	Clonal	2	No		Removal
615	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
616	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
617	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
618	*Yucca brevifolia*	9	20	4	Good (80)	3	Single Trunk	0	No		Removal
619	*Yucca brevifolia*	3	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
620	*Yucca brevifolia*	13	30	10	Good (80)	5	Clonal	1	No		Removal
621	*Yucca brevifolia*	8	30	10	Good (80)	2	Single Trunk	0	No		Removal
622	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
623	*Yucca brevifolia*	9	27	10	Good (80)	2	Clonal	1	No		Removal
624	*Yucca brevifolia*	15	22	10	Good (80)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
625	*Yucca brevifolia*	7	10	3	Good (80)	2	Clonal	1	No		Removal
626	*Yucca brevifolia*	13	27	11	Good (80)	2	Single Trunk	0	No		Removal
627	*Yucca brevifolia*	21	30	16	Good (80)	4	Single Trunk	0	No		Removal
628	*Yucca brevifolia*	12	24	12	Good (80)	1	Single Trunk	0	No		Removal
629	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
630	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
631	*Yucca brevifolia*	14	20	12	Good (80)	3	Single Trunk	0	No		Removal
632	*Yucca brevifolia*	13	32	12	Good (80)	2	Single Trunk	0	No		Removal
633	*Yucca brevifolia*	12	22	9	Good (80)	2	Single Trunk	0	No		Removal
634	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
635	*Yucca brevifolia*	8	15	3	Good (80)	2	Single Trunk	0	Yes		Removal
636	*Yucca brevifolia*	8	18	8	Fair (60)	2	Single Trunk	0	No		Removal
637	*Yucca brevifolia*	7	16	6	Fair (60)	2	Single Trunk	0	No		Removal
638	*Yucca brevifolia*	12	30	13	Good (80)	3	Single Trunk	0	No		Removal
639	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
640	*Yucca brevifolia*	11	30	4	Good (80)	5	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
641	*Yucca brevifolia*	9	14	4	Good (80)	3	Single Trunk	0	Yes		Removal
642	*Yucca brevifolia*	3	3	3	Good (80)	1	Single Trunk	0	Yes		Removal
643	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
644	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
645	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
646	*Yucca brevifolia*	10	22	11	Fair (60)	3	Single Trunk	0	No		Removal
647	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
648	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
649	*Yucca brevifolia*	9	20	6	Good (80)	3	Single Trunk	0	No		Removal
650	*Yucca brevifolia*	3	9	1	Good (80)	1	Single Trunk	0	Yes		Removal
651	*Yucca brevifolia*	7	18	4	Fair (60)	4	Single Trunk	0	No		Removal
652	*Yucca brevifolia*	9	17	6	Good (80)	5	Single Trunk	0	No		Removal
653	*Yucca brevifolia*	14	32	18	Good (80)	2	Single Trunk	0	No		Removal
654	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
655	*Yucca brevifolia*	14	37	14	Good (80)	4	Single Trunk	0	No		Removal
656	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
657	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
658	*Yucca brevifolia*	8	15	5	Good (80)	2	Single Trunk	0	Yes		Removal
659	*Yucca brevifolia*	13	27	14	Good (80)	2	Single Trunk	0	No		Removal
660	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
661	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
662	*Yucca brevifolia*	18	30	15	Good (80)	3	Single Trunk	0	No		Removal
663	*Yucca brevifolia*	15	18	11	Good (80)	5	Single Trunk	0	No		Removal
664	*Yucca brevifolia*	9	20	8	Good (80)	3	Clonal	1	No		Removal
665	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
666	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
667	*Yucca brevifolia*	8	16	3	Good (80)	4	Single Trunk	0	No		Removal
668	*Yucca brevifolia*	12	16	9	Good (80)	3	Single Trunk	0	No		Removal
669	*Yucca brevifolia*	9	16	4	Good (80)	3	Single Trunk	0	No		Removal
670	*Yucca brevifolia*	10	19	8	Good (80)	3	Single Trunk	0	No		Removal
671	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
672	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
673	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
674	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
675	*Yucca brevifolia*	9	16	8	Good (80)	4	Single Trunk	0	No		Removal
676	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
677	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
678	*Yucca brevifolia*	9	15	3	Good (80)	2	Single Trunk	0	Yes		Removal
679	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
680	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
681	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
682	*Yucca brevifolia*	12	20	9	Good (80)	2	Clonal	1	No		Removal
683	*Yucca brevifolia*	9	15	6	Good (80)	2	Clonal	1	No		Removal
684	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
685	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
686	*Yucca brevifolia*	12	22	7	Good (80)	2	Single Trunk	0	No		Removal
687	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
688	*Yucca brevifolia*	12	20	14	Good (80)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
689	*Yucca brevifolia*	3	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
690	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
691	*Yucca brevifolia*	16	26	13	Good (80)	3	Single Trunk	0	No		Removal
692	*Yucca brevifolia*	10	20	5	Good (80)	3	Single Trunk	0	No		Removal
693	*Yucca brevifolia*	7	9	2	Good (80)	2	Single Trunk	0	Yes		Removal
694	*Yucca brevifolia*	9	19	5	Good (80)	2	Single Trunk	0	No		Removal
695	*Yucca brevifolia*	4	7	2	Good (80)	2	Single Trunk	0	Yes		Removal
696	*Yucca brevifolia*	3	4	2	Good (80)	1	Single Trunk	0	Yes		Removal
697	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
698	*Yucca brevifolia*	9	18	8	Good (80)	2	Single Trunk	0	No		Removal
699	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
700	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
701	*Yucca brevifolia*	4	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
702	*Yucca brevifolia*	8	9	3	Good (80)	2	Clonal	1	No		Removal
703	*Yucca brevifolia*	8	16	4	Good (80)	3	Single Trunk	0	No		Removal
704	*Yucca brevifolia*	7	16	4	Good (80)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
705	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
706	*Yucca brevifolia*	3	2	1	Good (80)	1	Clonal	1	No		Removal
707	*Yucca brevifolia*	10	22	8	Fair (60)	4	Single Trunk	0	No		Removal
708	*Yucca brevifolia*	8	17	7	Fair (60)	2	Single Trunk	0	No		Removal
709	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
710	*Yucca brevifolia*	9	17	6	Good (80)	3	Clonal	9	No		Removal
711	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
712	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
713	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
714	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
715	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
716	*Yucca brevifolia*	10	25	9	Good (80)	3	Single Trunk	0	No		Removal
717	*Yucca brevifolia*	9	12	3	Good (80)	3	Single Trunk	0	Yes		Removal
718	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
719	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
720	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
721	*Yucca brevifolia*	9	27	8	Good (80)	4	Single Trunk	0	No		Removal
722	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
723	*Yucca brevifolia*	12	20	13	Good (80)	4	Single Trunk	0	No		Removal
724	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
725	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
726	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
727	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
728	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
729	*Yucca brevifolia*	12	27	8	Good (80)	1	Single Trunk	0	No		Removal
730	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
731	*Yucca brevifolia*	3	1	1	Fair (60)	1	Single Trunk	0	No		Removal
732	*Yucca brevifolia*	3	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
733	*Yucca brevifolia*	10	15	8	Good (80)	3	Single Trunk	0	Yes		Removal
734	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
735	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
736	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
737	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
738	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
739	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal
740	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
741	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
742	*Yucca brevifolia*	8	14	2	Good (80)	3	Single Trunk	0	Yes		Removal
743	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
744	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
745	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
746	*Yucca brevifolia*	7	14	5	Good (80)	3	Clonal	1	No		Removal
747	*Yucca brevifolia*	4	8	2	Good (80)	2	Single Trunk	0	Yes		Removal
748	*Yucca brevifolia*	12	18	13	Good (80)	3	Single Trunk	0	No		Removal
749	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	1	No		Removal
750	*Yucca brevifolia*	9	18	5	Good (80)	3	Single Trunk	0	No		Removal
751	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
752	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
753	*Yucca brevifolia*	12	30	10	Good (80)	2	Clonal	2	No		Removal
754	*Yucca brevifolia*	2	1	2	Good (80)	1	Single Trunk	0	Yes		Removal
755	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
756	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
757	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
758	*Yucca brevifolia*	2	1	2	Good (80)	1	Single Trunk	0	Yes		Removal
759	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
760	*Yucca brevifolia*	3	3	2	Fair (60)	1	Single Trunk	0	No		Removal
761	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
762	*Yucca brevifolia*	12	14	10	Fair (60)	2	Clonal	1	No		Removal
763	*Yucca brevifolia*	13	15	10	Fair (60)	2	Single Trunk	0	No		Removal
764	*Yucca brevifolia*	18	18	15	Good (80)	5	Single Trunk	0	No		Removal
765	*Yucca brevifolia*	11	15	10	Good (80)	3	Single Trunk	0	Yes		Removal
766	*Yucca brevifolia*	13	14	12	Fair (60)	2	Single Trunk	0	No		Removal
767	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
768	*Yucca brevifolia*	16	18	15	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
769	*Yucca brevifolia*	10	9	4	Fair (60)	3	Clonal	1	No		Removal
770	*Yucca brevifolia*	2	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
771	*Yucca brevifolia*	15	14	18	Fair (60)	2	Clonal	1	No	1 dead clone on ground	Removal
772	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
773	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
774	*Yucca brevifolia*	2	4	2	Good (80)	1	Single Trunk	0	Yes		Removal
775	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
776	*Yucca brevifolia*	18	16	15	Fair (60)	5	Single Trunk	0	No		Removal
777	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
778	*Yucca brevifolia*	16	15	18	Fair (60)	3	Clonal	2	No		Removal
779	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
780	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
781	*Yucca brevifolia*	2	2	2	Fair (60)	1	Single Trunk	0	No		Removal
782	*Yucca brevifolia*	2	3	2	Fair (60)	1	Single Trunk	0	No		Removal
783	*Yucca brevifolia*	15	14	25	Poor (40)	3	Clonal	5	No		Removal
784	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
785	*Yucca brevifolia*	12	28	12	Fair (60)	2	Clonal	1	No		Removal
786	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal
787	*Yucca brevifolia*	12	15	15	Fair (60)	3	Clonal	1	No		Removal
788	*Yucca brevifolia*	16	12	20	Fair (60)	4	Clonal	1	No		Removal
789	*Yucca brevifolia*	16	16	14	Fair (60)	4	Single Trunk	0	No		Removal
790	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
791	*Yucca brevifolia*	3	5	2	Fair (60)	1	Clonal	1	No		Remain
792	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
793	*Yucca brevifolia*	3	3	6	Fair (60)	1	Single Trunk	0	No		Removal
794	*Yucca brevifolia*	23	15	15	Fair (60)	2	Single Trunk	0	No		Removal
795	*Yucca brevifolia*	22	12	15	Fair (60)	5	Single Trunk	0	No	1 dead clone on ground	Removal
796	*Yucca brevifolia*	3	6	3	Fair (60)	1	Clonal	1	No		Removal
797	*Yucca brevifolia*	16	16	20	Fair (60)	4	Clonal	1	No		Removal
798	*Yucca brevifolia*	13	14	10	Fair (60)	3	Single Trunk	0	No		Removal
799	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
800	*Yucca brevifolia*	2	4	3	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
801	*Yucca brevifolia*	2	6	3	Fair (60)	1	Single Trunk	0	No		Remain
802	*Yucca brevifolia*	2	3	2	Fair (60)	1	Single Trunk	0	No		Remain
803	*Yucca brevifolia*	3	7	3	Fair (60)	2	Single Trunk	0	No		Remain
804	*Yucca brevifolia*	2	3	2	Good (80)	1	Single Trunk	0	Yes		Remain
805	*Yucca brevifolia*	2	4	3	Fair (60)	1	Clonal	1	No		Remain
806	*Yucca brevifolia*	2	2	2	Fair (60)	1	Single Trunk	0	No		Remain
807	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Remain
808	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
809	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
810	*Yucca brevifolia*	3	6	5	Good (80)	2	Clonal	2	No		Removal
811	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
812	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
813	*Yucca brevifolia*	5	8	4	Poor (40)	1	Single Trunk	0	No		Removal
814	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
815	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
816	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
817	*Yucca brevifolia*	3	5	2	Fair (60)	1	Single Trunk	0	No		Removal
818	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
819	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
820	*Yucca brevifolia*	7	7	8	Poor (40)	3	Clonal	2	No		Removal
821	*Yucca brevifolia*	11	10	7	Fair (60)	4	Single Trunk	0	No	dead clone on ground	Removal
822	*Yucca brevifolia*	5	8	6	Fair (60)	2	Single Trunk	0	No		Removal
823	*Yucca brevifolia*	4	6	4	Fair (60)	1	Single Trunk	0	No		Removal
824	*Yucca brevifolia*	2	2	2	Fair (60)	1	Single Trunk	0	No		Removal
825	*Yucca brevifolia*	3	4	5	Fair (60)	1	Clonal	1	No		Remain
826	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Remain
827	*Yucca brevifolia*	3	5	3	Fair (60)	1	Single Trunk	0	No		Removal
828	*Yucca brevifolia*	4	6	3	Fair (60)	1	Single Trunk	0	No		Remain
829	*Yucca brevifolia*	2	2	2	Good (80)	1	Single Trunk	0	Yes		Removal
830	*Yucca brevifolia*	2	3	3	Fair (60)	1	Single Trunk	0	No		Removal
831	*Yucca brevifolia*	2	2	1	Fair (60)	1	Clonal	1	No		Removal
832	*Yucca brevifolia*	3	4	6	Fair (60)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
833	*Yucca brevifolia*	9	10	5	Fair (60)	3	Single Trunk	0	No		Removal
834	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
835	*Yucca brevifolia*	5	8	4	Fair (60)	5	Clonal	1	No		Removal
836	*Yucca brevifolia*	14	15	12	Fair (60)	4	Clonal	1	No		Removal
837	*Yucca brevifolia*	2	3	2	Fair (60)	1	Single Trunk	0	No		Removal
838	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
839	*Yucca brevifolia*	2	6	3	Fair (60)	1	Clonal	1	No		Removal
840	*Yucca brevifolia*	15	14	18	Fair (60)	2	Clonal	1	No		Removal
841	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
842	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
843	*Yucca brevifolia*	2	3	2	Fair (60)	1	Clonal	1	No		Removal
844	*Yucca brevifolia*	9	8	4	Fair (60)	2	Clonal	3	No		Removal
845	*Yucca brevifolia*	2	4	2	Fair (60)	1	Clonal	1	No		Removal
846	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal
847	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
848	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
849	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
850	*Yucca brevifolia*	13	14	5	Fair (60)	4	Clonal	6	No		Removal
851	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Remain
852	*Yucca brevifolia*	12	10	5	Fair (60)	3	Clonal	3	No	2 dead clone on ground	Remain
853	*Yucca brevifolia*	8	10	4	Fair (60)	3	Clonal	1	No		Remain
854	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Remain
855	*Yucca brevifolia*	9	12	7	Fair (60)	2	Clonal	2	No		Remain
856	*Yucca brevifolia*	6	7	3	Fair (60)	1	Clonal	3	No		Removal
857	*Yucca brevifolia*	10	15	7	Fair (60)	4	Clonal	1	No		Removal
858	*Yucca brevifolia*	14	15	10	Fair (60)	4	Clonal	3	No	2 dead clone on ground	Removal
859	*Yucca brevifolia*	12	10	12	Fair (60)	2	Single Trunk	0	No		Removal
860	*Yucca brevifolia*	11	9	4	Dead (0)	2	Single Trunk	0	No		Removal
861	*Yucca brevifolia*	14	12	10	Fair (60)	3	Clonal	2	No		Removal
862	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
863	*Yucca brevifolia*	1	4	1	Fair (60)	1	Single Trunk	0	No		Removal
864	*Yucca brevifolia*	13	11	10	Fair (60)	2	Clonal	2	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
865	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
866	*Yucca brevifolia*	7	8	2	Poor (40)	1	Single Trunk	0	No	3 dead clone on ground	Removal
867	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
868	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
869	*Yucca brevifolia*	2	4	1	Fair (60)	1	Clonal	1	No		Removal
870	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
871	*Yucca brevifolia*	2	6	3	Fair (60)	1	Single Trunk	0	No		Removal
872	*Yucca brevifolia*	16	12	15	Fair (60)	5	Clonal	1	No		Removal
873	*Yucca brevifolia*	16	12	10	Fair (60)	3	Single Trunk	0	No		Remain
874	*Yucca brevifolia*	12	14	12	Fair (60)	3	Clonal	1	No		Removal
875	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
876	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
877	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
878	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
879	*Yucca brevifolia*	16	14	15	Fair (60)	5	Single Trunk	0	No		Removal
880	*Yucca brevifolia*	1	4	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
881	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
882	*Yucca brevifolia*	4	12	5	Fair (60)	1	Single Trunk	0	No		Removal
883	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
884	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
885	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
886	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Removal
887	*Yucca brevifolia*	11	15	12	Poor (40)	5	Single Trunk	0	No	2 dead clone on ground	Removal
888	*Yucca brevifolia*	3	6	3	Fair (60)	1	Single Trunk	0	No		Removal
889	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Remain
890	*Yucca brevifolia*	15	15	12	Fair (60)	3	Single Trunk	0	No		Remain
891	*Yucca brevifolia*	6	10	4	Fair (60)	3	Single Trunk	0	No		Removal
892	*Yucca brevifolia*	4	4	1	Fair (60)	1	Single Trunk	0	No		Removal
893	*Yucca brevifolia*	9	7	3	Poor (40)	1	Clonal	1	No		Remain
894	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Remain
895	*Yucca brevifolia*	12	10	5	Fair (60)	3	Clonal	5	No		Removal
896	*Yucca brevifolia*	3	2	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
897	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
898	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal
899	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
900	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
901	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	1	No		Removal
902	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
903	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
904	*Yucca brevifolia*	2	3	1	Good (80)	1	Clonal	1	No		Removal
905	*Yucca brevifolia*	13	14	5	Poor (40)	3	Clonal	1	No		Removal
906	*Yucca brevifolia*	10	14	8	Fair (60)	3	Single Trunk	0	No		Removal
907	*Yucca brevifolia*	2	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
908	*Yucca brevifolia*	2	4	1	Fair (60)	1	Clonal	1	No		Removal
909	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
910	*Yucca brevifolia*	12	15	5	Fair (60)	3	Clonal	1	No		Removal
911	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
912	*Yucca brevifolia*	3	6	2	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
913	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
914	*Yucca brevifolia*	15	12	12	Fair (60)	2	Clonal	1	No	2 dead clone on ground	Removal
915	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
916	*Yucca brevifolia*	18	15	20	Fair (60)	4	Single Trunk	0	No		Removal
917	*Yucca brevifolia*	11	15	7	Fair (60)	3	Clonal	1	No		Removal
918	*Yucca brevifolia*	3	5	1	Fair (60)	1	Single Trunk	0	No		Removal
919	*Yucca brevifolia*	2	4	1	Fair (60)	1	Clonal	1	No		Removal
920	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
921	*Yucca brevifolia*	1	2	1	Fair (60)	1	Clonal	1	No		Removal
922	*Yucca brevifolia*	16	14	7	Fair (60)	3	Single Trunk	0	No		Removal
923	*Yucca brevifolia*	10	12	7	Good (80)	2	Single Trunk	0	Yes		Removal
924	*Yucca brevifolia*	14	12	10	Fair (60)	5	Single Trunk	0	No		Removal
925	*Yucca brevifolia*	16	16	12	Good (80)	6	Single Trunk	0	No		Removal
926	*Yucca brevifolia*	12	14	10	Fair (60)	3	Single Trunk	0	No		Removal
927	*Yucca brevifolia*	9	7	5	Fair (60)	1	Clonal	1	No		Removal
928	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
929	*Yucca brevifolia*	13	16	12	Fair (60)	3	Single Trunk	0	No		Removal
930	*Yucca brevifolia*	12	12	15	Fair (60)	3	Single Trunk	0	No		Removal
931	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
932	*Yucca brevifolia*	2	6	2	Fair (60)	1	Clonal	1	No		Removal
933	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Removal
934	*Yucca brevifolia*	12	16	10	Fair (60)	3	Single Trunk	0	No		Removal
935	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
936	*Yucca brevifolia*	13	15	10	Fair (60)	5	Single Trunk	0	No		Removal
937	*Yucca brevifolia*	3	6	1	Fair (60)	1	Single Trunk	0	No	2 dead clone on ground	Removal
938	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
939	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
940	*Yucca brevifolia*	10	12	10	Fair (60)	4	Single Trunk	0	No		Removal
941	*Yucca brevifolia*	11	14	8	Fair (60)	4	Single Trunk	0	No		Removal
942	*Yucca brevifolia*	15	12	12	Fair (60)	3	Single Trunk	0	No		Removal
943	*Yucca brevifolia*	10	16	10	Fair (60)	2	Single Trunk	0	No		Removal
944	*Yucca brevifolia*	15	12	1	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
945	*Yucca brevifolia*	3	6	2	Fair (60)	1	Single Trunk	0	No		Removal
946	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
947	*Yucca brevifolia*	11	12	10	Fair (60)	2	Single Trunk	0	No		Removal
948	*Yucca brevifolia*	7	10	6	Fair (60)	3	Single Trunk	0	No		Removal
949	*Yucca brevifolia*	7	6	6	Fair (60)	2	Single Trunk	0	No		Removal
950	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
951	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
952	*Yucca brevifolia*	3	5	2	Fair (60)	1	Single Trunk	0	No		Removal
953	*Yucca brevifolia*	6	10	6	Fair (60)	1	Single Trunk	0	No		Removal
954	*Yucca brevifolia*	11	15	12	Good (80)	4	Single Trunk	0	Yes		Removal
955	*Yucca brevifolia*	16	18	15	Poor (40)	3	Single Trunk	0	No		Removal
956	*Yucca brevifolia*	12	9	1	Dead (0)	1	Single Trunk	0	No		Removal
957	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
958	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
959	*Yucca brevifolia*	2	4	2	Fair (60)	1	Single Trunk	0	No		Removal
960	*Yucca brevifolia*	14	12	8	Fair (60)	4	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
961	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
962	*Yucca brevifolia*	15	18	15	Fair (60)	2	Single Trunk	0	No		Removal
963	*Yucca brevifolia*	3	7	3	Fair (60)	2	Single Trunk	0	No		Removal
964	*Yucca brevifolia*	10	15	10	Fair (60)	2	Single Trunk	0	No		Removal
965	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
966	*Yucca brevifolia*	9	10	5	Fair (60)	2	Single Trunk	0	No		Removal
967	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
968	*Yucca brevifolia*	3	6	2	Fair (60)	1	Clonal	1	No		Removal
969	*Yucca brevifolia*	5	8	4	Fair (60)	2	Single Trunk	0	No		Removal
970	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
971	*Yucca brevifolia*	7	10	4	Poor (40)	2	Clonal	1	No		Removal
972	*Yucca brevifolia*	2	2	1	Fair (60)	1	Clonal	2	No		Removal
973	*Yucca brevifolia*	19	8	10	Fair (60)	6	Single Trunk	0	No		Removal
974	*Yucca brevifolia*	13	15	15	Fair (60)	3	Single Trunk	0	No		Removal
975	*Yucca brevifolia*	10	9	5	Fair (60)	3	Single Trunk	0	No		Removal
976	*Yucca brevifolia*	3	4	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
977	*Yucca brevifolia*	6	15	10	Fair (60)	3	Single Trunk	0	No		Removal
978	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
979	*Yucca brevifolia*	6	15	10	Fair (60)	2	Single Trunk	0	No		Removal
980	*Yucca brevifolia*	7	12	10	Fair (60)	3	Single Trunk	0	No		Removal
981	*Yucca brevifolia*	3	7	2	Fair (60)	1	Single Trunk	0	No		Removal
982	*Yucca brevifolia*	2	3	1	Fair (60)	1	Clonal	1	No		Removal
983	*Yucca brevifolia*	16	15	10	Fair (60)	3	Clonal	1	No		Removal
984	*Yucca brevifolia*	14	16	10	Fair (60)	4	Single Trunk	0	No		Removal
985	*Yucca brevifolia*	15	15	12	Fair (60)	4	Single Trunk	0	No		Removal
986	*Yucca brevifolia*	8	12	4	Fair (60)	3	Single Trunk	0	No		Removal
987	*Yucca brevifolia*	14	14	10	Poor (40)	3	Single Trunk	0	No		Removal
988	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
989	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
990	*Yucca brevifolia*	13	16	10	Fair (60)	4	Single Trunk	0	No		Removal
991	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal
992	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
993	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
994	*Yucca brevifolia*	14	10	5	Fair (60)	4	Clonal	1	No		Removal
995	*Yucca brevifolia*	11	16	10	Fair (60)	3	Single Trunk	0	No		Removal
996	*Yucca brevifolia*	2	5	2	Fair (60)	1	Clonal	1	No		Removal
997	*Yucca brevifolia*	13	14	8	Fair (60)	3	Single Trunk	0	No		Removal
998	*Yucca brevifolia*	16	14	12	Fair (60)	2	Clonal	1	No		Removal
999	*Yucca brevifolia*	2	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1000	*Yucca brevifolia*	12	15	8	Fair (60)	2	Single Trunk	0	No		Removal
1001	*Yucca brevifolia*	13	16	10	Good (80)	3	Single Trunk	0	No		Removal
1002	*Yucca brevifolia*	15	8	8	Fair (60)	3	Single Trunk	0	No		Removal
1003	*Yucca brevifolia*	1	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1004	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Removal
1005	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1006	*Yucca brevifolia*	11	13	8	Fair (60)	2	Single Trunk	0	No		Removal
1007	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1008	*Yucca brevifolia*	2	7	2	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1009	*Yucca brevifolia*	12	12	8	Fair (60)	4	Single Trunk	0	No		Removal
1010	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1011	*Yucca brevifolia*	6	10	5	Fair (60)	2	Single Trunk	0	No		Removal
1012	*Yucca brevifolia*	3	8	3	Fair (60)	3	Single Trunk	0	No		Removal
1013	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1014	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1015	*Yucca brevifolia*	16	13	10	Fair (60)	3	Clonal	3	No		Removal
1016	*Yucca brevifolia*	11	10	6	Fair (60)	2	Single Trunk	0	No		Removal
1017	*Yucca brevifolia*	9	16	10	Fair (60)	3	Single Trunk	0	No		Removal
1018	*Yucca brevifolia*	16	16	10	Fair (60)	3	Single Trunk	0	No		Removal
1019	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1020	*Yucca brevifolia*	7	8	4	Fair (60)	3	Clonal	2	No		Removal
1021	*Yucca brevifolia*	13	15	5	Fair (60)	2	Clonal	7	No		Removal
1022	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1023	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1024	*Yucca brevifolia*	5	7	3	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1025	*Yucca brevifolia*	4	9	5	Fair (60)	4	Single Trunk	0	No		Removal
1026	*Yucca brevifolia*	9	14	8	Fair (60)	4	Single Trunk	0	No		Removal
1027	*Yucca brevifolia*	13	15	10	Fair (60)	3	Single Trunk	0	No		Removal
1028	*Yucca brevifolia*	2	5	1	Fair (60)	1	Single Trunk	0	No		Removal
1029	*Yucca brevifolia*	9	15	10	Fair (60)	3	Single Trunk	0	No		Removal
1030	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1031	*Yucca brevifolia*	5	5	1	Fair (60)	1	Single Trunk	0	No		Removal
1032	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1033	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1034	*Yucca brevifolia*	3	5	2	Fair (60)	1	Single Trunk	0	No		Removal
1035	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1036	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1037	*Yucca brevifolia*	13	10	10	Fair (60)	3	Single Trunk	0	No		Removal
1038	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1039	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1040	*Yucca brevifolia*	11	12	10	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1041	*Yucca brevifolia*	9	13	8	Fair (60)	3	Single Trunk	0	No		Removal
1042	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1043	*Yucca brevifolia*	15	15	8	Fair (60)	5	Single Trunk	0	No		Removal
1044	*Yucca brevifolia*	2	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1045	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1046	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1047	*Yucca brevifolia*	4	7	3	Fair (60)	2	Single Trunk	0	No		Removal
1048	*Yucca brevifolia*	9	16	8	Fair (60)	3	Single Trunk	0	No		Removal
1049	*Yucca brevifolia*	9	3	3	Critical (20)	2	Single Trunk	0	No		Removal
1050	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1051	*Yucca brevifolia*	4	7	3	Fair (60)	1	Single Trunk	0	No		Removal
1052	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1053	*Yucca brevifolia*	3	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1054	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1055	*Yucca brevifolia*	3	7	3	Fair (60)	3	Single Trunk	0	No		Removal
1056	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1057	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1058	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1059	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1060	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1061	*Yucca brevifolia*	18	12	15	Poor (40)	9	Single Trunk	0	No		Removal
1062	*Yucca brevifolia*	11	16	8	Poor (40)	3	Clonal	1	No		Removal
1063	*Yucca brevifolia*	10	14	8	Fair (60)	3	Clonal	3	No		Removal
1064	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1065	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
1066	*Yucca brevifolia*	14	16	8	Poor (40)	3	Clonal	3	No		Removal
1067	*Yucca brevifolia*	2	6	2	Fair (60)	1	Single Trunk	0	No		Removal
1068	*Yucca brevifolia*	2	5	2	Fair (60)	1	Single Trunk	0	No		Removal
1069	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1070	*Yucca brevifolia*	2	3	1	Fair (60)	1	Clonal	1	No		Removal
1071	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1072	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1073	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1074	*Yucca brevifolia*	16	14	8	Good (80)	2	Single Trunk	0	Yes		Remain
1075	*Yucca brevifolia*	20	14	12	Fair (60)	3	Single Trunk	0	No		Remain
1076	*Yucca brevifolia*	16	14	10	Fair (60)	4	Clonal	2	No		Remain
1077	*Yucca brevifolia*	11	11	6	Fair (60)	2	Clonal	1	No		Remain
1078	*Yucca brevifolia*	3	6	2	Fair (60)	1	Clonal	1	No		Remain
1079	*Yucca brevifolia*	3	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1080	*Yucca brevifolia*	8	12	8	Fair (60)	2	Clonal	2	No		Removal
1081	*Yucca brevifolia*	3	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1082	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1083	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1084	*Yucca brevifolia*	12	16	10	Fair (60)	3	Single Trunk	0	No		Removal
1085	*Yucca brevifolia*	8	13	4	Good (80)	3	Single Trunk	0	Yes		Removal
1086	*Yucca brevifolia*	5	9	2	Good (80)	1	Single Trunk	0	Yes		Removal
1087	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1088	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1089	*Yucca brevifolia*	11	3	5	Critical (20)	3	Single Trunk	0	No	uprooted	Removal
1090	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1091	*Yucca brevifolia*	4	5	1	Good (80)	1	Clonal	2	No		Removal
1092	*Yucca brevifolia*	6	10	1	Good (80)	1	Single Trunk	0	Yes		Removal
1093	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1094	*Yucca brevifolia*	17	22	14	Good (80)	3	Single Trunk	0	No		Removal
1095	*Yucca brevifolia*	14	15	5	Good (80)	4	Clonal	2	No		Removal
1096	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1097	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1098	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1099	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1100	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1101	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1102	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1103	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1104	*Yucca brevifolia*	15	23	14	Good (80)	3	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1105	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1106	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal
1107	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1108	*Yucca brevifolia*	16	22	11	Good (80)	4	Single Trunk	0	No		Removal
1109	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
1110	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1111	*Yucca brevifolia*	4	8	2	Good (80)	2	Clonal	2	No		Removal
1112	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1113	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1114	*Yucca brevifolia*	5	5	4	Poor (40)	2	Single Trunk	0	No		Removal
1115	*Yucca brevifolia*	12	20	10	Poor (40)	2	Single Trunk	0	No	has cable system	Removal
1116	*Yucca brevifolia*	7	10	3	Good (80)	2	Single Trunk	0	Yes		Removal
1117	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1118	*Yucca brevifolia*	3	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
1119	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1120	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1121	*Yucca brevifolia*	3	4	2	Good (80)	1	Clonal	2	No		Removal
1122	*Yucca brevifolia*	21	26	16	Good (80)	2	Clonal	4	No		Removal
1123	*Yucca brevifolia*	15	12	8	Fair (60)	2	Clonal	1	No		Removal
1124	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1125	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1126	*Yucca brevifolia*	3	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1127	*Yucca brevifolia*	3	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1128	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1129	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1130	*Yucca brevifolia*	1	1	1	Good (80)	1	Clonal	2	No		Removal
1131	*Yucca brevifolia*	2	1	1	Fair (60)	1	Clonal	3	No		Removal
1132	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1133	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1134	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1135	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1136	*Yucca brevifolia*	4	9	1	Good (80)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1137	*Yucca brevifolia*	5	6	2	Good (80)	3	Single Trunk	0	Yes		Removal
1138	*Yucca brevifolia*	24	27	16	Good (80)	1	Clonal	4	No		Removal
1139	*Yucca brevifolia*	5	5	2	Good (80)	2	Single Trunk	0	Yes		Removal
1140	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1141	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1142	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
1143	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1144	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1145	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1146	*Yucca brevifolia*	4	5	2	Good (80)	1	Single Trunk	0	Yes		Removal
1147	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1148	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1149	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1150	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1151	*Yucca brevifolia*	4	5	1	Good (80)	1	Clonal	2	No		Removal
1152	*Yucca brevifolia*	4	5	1	Good (80)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1153	*Yucca brevifolia*	3	5	2	Good (80)	1	Single Trunk	0	Yes		Removal
1154	*Yucca brevifolia*	15	17	5	Good (80)	4	Clonal	4	No		Removal
1155	*Yucca brevifolia*	4	6	2	Good (80)	1	Clonal	1	No		Removal
1156	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1157	*Yucca brevifolia*	2	1	1	Good (80)	1	Clonal	2	No		Removal
1158	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1159	*Yucca brevifolia*	4	4	3	Good (80)	1	Clonal	1	No		Removal
1160	*Yucca brevifolia*	4	13	3	Good (80)	2	Clonal	2	No		Removal
1161	*Yucca brevifolia*	4	7	3	Good (80)	2	Single Trunk	0	Yes		Removal
1162	*Yucca brevifolia*	7	18	2	Good (80)	4	Clonal	1	No		Removal
1163	*Yucca brevifolia*	8	17	3	Good (80)	2	Single Trunk	0	No		Removal
1164	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1165	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1166	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	4	No		Removal
1167	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1168	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1169	*Yucca brevifolia*	5	5	1	Fair (60)	1	Single Trunk	0	No		Removal
1170	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
1171	*Yucca brevifolia*	17	22	14	Good (80)	2	Clonal	4	No		Removal
1172	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1173	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1174	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1175	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1176	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1177	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
1178	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1179	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1180	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1181	*Yucca brevifolia*	8	22	4	Good (80)	2	Single Trunk	0	No		Removal
1182	*Yucca brevifolia*	4	5	1	Good (80)	1	Clonal	3	No		Removal
1183	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1184	*Yucca brevifolia*	7	10	3	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1185	*Yucca brevifolia*	20	18	13	Good (80)	5	Single Trunk	0	No		Removal
1186	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1187	*Yucca brevifolia*	3	3	2	Good (80)	1	Single Trunk	0	Yes		Removal
1188	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1189	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1190	*Yucca brevifolia*	3	6	1	Fair (60)	1	Single Trunk	0	No		Removal
1191	*Yucca brevifolia*	5	7	2	Good (80)	2	Single Trunk	0	Yes		Removal
1192	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1193	*Yucca brevifolia*	13	20	10	Fair (60)	2	Single Trunk	0	No		Removal
1194	*Yucca brevifolia*	4	8	2	Fair (60)	2	Single Trunk	0	No		Removal
1195	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1196	*Yucca brevifolia*	13	19	7	Fair (60)	3	Clonal	1	No		Removal
1197	*Yucca brevifolia*	9	20	3	Good (80)	1	Single Trunk	0	No		Removal
1198	*Yucca brevifolia*	2	2	2	Poor (40)	1	Single Trunk	0	No		Removal
1199	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1200	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1201	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1202	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1203	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1204	*Yucca brevifolia*	8	17	4	Good (80)	3	Single Trunk	0	No		Removal
1205	*Yucca brevifolia*	4	4	2	Good (80)	1	Single Trunk	0	Yes		Removal
1206	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1207	*Yucca brevifolia*	3	6	1	Good (80)	1	Clonal	2	No		Removal
1208	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1209	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1210	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1211	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1212	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1213	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1214	*Yucca brevifolia*	17	18	14	Good (80)	3	Single Trunk	0	No		Removal
1215	*Yucca brevifolia*	4	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1216	*Yucca brevifolia*	4	6	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1217	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1218	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1219	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1220	*Yucca brevifolia*	17	27	14	Good (80)	2	Clonal	1	No		Removal
1221	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1222	*Yucca brevifolia*	22	25	17	Fair (60)	3	Single Trunk	0	No		Removal
1223	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1224	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1225	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1226	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1227	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1228	*Yucca brevifolia*	15	20	9	Good (80)	3	Single Trunk	0	No		Removal
1229	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
1230	*Yucca brevifolia*	4	6	1	Good (80)	1	Clonal	1	No		Removal
1231	*Yucca brevifolia*	16	28	16	Good (80)	3	Clonal	1	No		Removal
1232	*Yucca brevifolia*	4	6	1	Good (80)	1	Clonal	1	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1233	*Yucca brevifolia*	8	15	4	Good (80)	2	Single Trunk	0	Yes		Removal
1234	*Yucca brevifolia*	9	22	7	Good (80)	4	Single Trunk	0	No		Removal
1235	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1236	*Yucca brevifolia*	2	1	1	Poor (40)	1	Single Trunk	0	No		Removal
1237	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1238	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1239	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
1240	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
1241	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1242	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1243	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1244	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1245	*Yucca brevifolia*	4	9	1	Good (80)	1	Single Trunk	0	Yes		Removal
1246	*Yucca brevifolia*	10	16	4	Good (80)	4	Single Trunk	0	No		Removal
1247	*Yucca brevifolia*	3	7	1	Good (80)	1	Clonal	1	No		Removal
1248	*Yucca brevifolia*	11	19	9	Good (80)	3	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1249	*Yucca brevifolia*	12	17	8	Good (80)	4	Single Trunk	0	No		Removal
1250	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1251	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1252	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1253	*Yucca brevifolia*	2	3	1	Fair (60)	1	Single Trunk	0	No		Removal
1254	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1255	*Yucca brevifolia*	3	5	1	Good (80)	1	Single Trunk	0	Yes		Removal
1256	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal
1257	*Yucca brevifolia*	11	14	5	Good (80)	1	Single Trunk	0	Yes		Removal
1258	*Yucca brevifolia*	5	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1259	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1260	*Yucca brevifolia*	3	10	1	Good (80)	1	Single Trunk	0	Yes		Removal
1261	*Yucca brevifolia*	3	7	1	Good (80)	1	Single Trunk	0	Yes		Removal
1262	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1263	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1264	*Yucca brevifolia*	14	18	13	Good (80)	4	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1265	*Yucca brevifolia*	6	6	2	Good (80)	3	Clonal	1	No		Removal
1266	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	2	No		Removal
1267	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1268	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1269	*Yucca brevifolia*	11	18	9	Good (80)	4	Single Trunk	0	No		Removal
1270	*Yucca brevifolia*	14	16	15	Good (80)	3	Single Trunk	0	No		Removal
1271	*Yucca brevifolia*	9	16	5	Good (80)	4	Single Trunk	0	No		Removal
1272	*Yucca brevifolia*	12	18	5	Good (80)	1	Single Trunk	0	No		Removal
1273	*Yucca brevifolia*	12	23	12	Good (80)	4	Single Trunk	0	No		Removal
1274	*Yucca brevifolia*	4	6	2	Good (80)	2	Single Trunk	0	Yes		Removal
1275	*Yucca brevifolia*	13	18	9	Good (80)	3	Single Trunk	0	No		Removal
1276	*Yucca brevifolia*	8	10	3	Good (80)	2	Single Trunk	0	Yes		Removal
1277	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1278	*Yucca brevifolia*	8	8	3	Fair (60)	2	Single Trunk	0	No		Removal
1279	*Yucca brevifolia*	10	17	7	Good (80)	2	Single Trunk	0	No		Removal
1280	*Yucca brevifolia*	7	9	3	Good (80)	3	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1281	*Yucca brevifolia*	5	9	2	Good (80)	2	Single Trunk	0	Yes		Removal
1282	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	2	No		Removal
1283	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1284	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1285	*Yucca brevifolia*	10	28	6	Good (80)	2	Single Trunk	0	No		Removal
1286	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1287	*Yucca brevifolia*	3	4	1	Good (80)	2	Single Trunk	0	Yes		Removal
1288	*Yucca brevifolia*	16	19	9	Good (80)	3	Single Trunk	0	No		Removal
1289	*Yucca brevifolia*	7	20	7	Good (80)	3	Single Trunk	0	No		Removal
1290	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1291	*Yucca brevifolia*	2	1	1	Critical (20)	1	Single Trunk	0	No		Removal
1292	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1293	*Yucca brevifolia*	8	15	5	Good (80)	7	Single Trunk	0	Yes		Removal
1294	*Yucca brevifolia*	7	15	5	Good (80)	2	Single Trunk	0	Yes		Removal
1295	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1296	*Yucca brevifolia*	18	35	16	Poor (40)	3	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1297	*Yucca brevifolia*	15	20	13	Good (80)	3	Single Trunk	0	No		Removal
1298	*Yucca brevifolia*	11	18	10	Good (80)	3	Single Trunk	0	No		Removal
1299	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1300	*Yucca brevifolia*	12	20	10	Good (80)	2	Single Trunk	0	No		Removal
1301	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1302	*Yucca brevifolia*	13	25	10	Good (80)	3	Single Trunk	0	No		Removal
1303	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1304	*Yucca brevifolia*	10	15	8	Good (80)	5	Single Trunk	0	Yes		Removal
1305	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1306	*Yucca brevifolia*	17	25	11	Good (80)	3	Single Trunk	0	No		Removal
1307	*Yucca brevifolia*	10	19	14	Fair (60)	2	Clonal	1	No		Removal
1308	*Yucca brevifolia*	9	12	4	Good (80)	2	Single Trunk	0	Yes		Removal
1309	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1310	*Yucca brevifolia*	3	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1311	*Yucca brevifolia*	17	20	12	Good (80)	4	Single Trunk	0	No		Removal
1312	*Yucca brevifolia*	8	23	7	Good (80)	4	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1313	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1314	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1315	*Yucca brevifolia*	13	35	16	Good (80)	2	Single Trunk	0	No		Removal
1316	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1317	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
1318	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1319	*Yucca brevifolia*	12	18	10	Good (80)	2	Clonal	1	No		Removal
1320	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1321	*Yucca brevifolia*	12	24	10	Fair (60)	2	Single Trunk	0	No		Removal
1322	*Yucca brevifolia*	18	20	12	Good (80)	3	Clonal	1	No		Removal
1323	*Yucca brevifolia*	5	7	2	Good (80)	1	Single Trunk	0	Yes		Removal
1324	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	3	No		Removal
1325	*Yucca brevifolia*	14	18	15	Good (80)	2	Single Trunk	0	No		Removal
1326	*Yucca brevifolia*	18	20	17	Good (80)	3	Single Trunk	0	No		Removal
1327	*Yucca brevifolia*	2	2	1	Good (80)	1	Clonal	1	No		Removal
1328	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1329	*Yucca brevifolia*	1	1	1	Poor (40)	1	Single Trunk	0	No		Removal
1330	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1331	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1332	*Yucca brevifolia*	11	20	13	Good (80)	2	Clonal	1	No		Removal
1333	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1334	*Yucca brevifolia*	13	18	12	Good (80)	2	Single Trunk	0	No		Removal
1335	*Yucca brevifolia*	4	8	1	Good (80)	1	Clonal	1	No		Removal
1336	*Yucca brevifolia*	17	22	16	Good (80)	3	Single Trunk	0	No		Removal
1337	*Yucca brevifolia*	3	4	2	Good (80)	1	Single Trunk	0	Yes		Removal
1338	*Yucca brevifolia*	8	18	4	Poor (40)	2	Single Trunk	0	No		Removal
1339	*Yucca brevifolia*	2	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1340	*Yucca brevifolia*	14	33	15	Good (80)	2	Single Trunk	0	No		Removal
1341	*Yucca brevifolia*	8	13	3	Good (80)	2	Clonal	1	No		Removal
1342	*Yucca brevifolia*	3	3	1	Fair (60)	1	Clonal	1	No		Removal
1343	*Yucca brevifolia*	9	16	6	Good (80)	2	Single Trunk	0	No		Removal
1344	*Yucca brevifolia*	9	16	7	Good (80)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1345	*Yucca brevifolia*	9	18	5	Good (80)	4	Single Trunk	0	No		Removal
1346	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1347	*Yucca brevifolia*	3	5	1	Good (80)	1	Clonal	1	No		Removal
1348	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1349	*Yucca brevifolia*	14	17	12	Good (80)	3	Single Trunk	0	No		Removal
1350	*Yucca brevifolia*	4	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1351	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1352	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1353	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1354	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1355	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
1356	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1357	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1358	*Yucca brevifolia*	12	17	13	Good (80)	3	Single Trunk	0	No		Removal
1359	*Yucca brevifolia*	18	22	16	Good (80)	2	Single Trunk	0	No		Removal
1360	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1361	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1362	*Yucca brevifolia*	16	26	14	Good (80)	4	Single Trunk	0	No		Removal
1363	*Yucca brevifolia*	2	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1364	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1365	*Yucca brevifolia*	3	2	1	Fair (60)	1	Single Trunk	0	No	growing along ground	Removal
1366	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1367	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1368	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1369	*Yucca brevifolia*	8	15	3	Good (80)	3	Clonal	1	No		Removal
1370	*Yucca brevifolia*	10	15	6	Good (80)	2	Single Trunk	0	Yes		Removal
1371	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1372	*Yucca brevifolia*	11	27	10	Good (80)	3	Single Trunk	0	No		Removal
1373	*Yucca brevifolia*	8	15	6	Good (80)	2	Clonal	1	No		Removal
1374	*Yucca brevifolia*	16	16	11	Good (80)	4	Single Trunk	0	No		Removal
1375	*Yucca brevifolia*	10	18	10	Good (80)	2	Single Trunk	0	No		Removal
1376	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1377	*Yucca brevifolia*	2	1	1	Poor (40)	1	Single Trunk	0	No		Removal
1378	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal
1379	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1380	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1381	*Yucca brevifolia*	2	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1382	*Yucca brevifolia*	2	2	1	Fair (60)	1	Clonal	1	No		Removal
1383	*Yucca brevifolia*	13	9	5	Fair (60)	3	Single Trunk	0	No		Removal
1384	*Yucca brevifolia*	3	5	2	Fair (60)	1	Single Trunk	0	No		Removal
1384	*Yucca brevifolia*	5	7	4	Fair (60)	1	Clonal	1	No		Removal
1408	*Yucca brevifolia*	22	20	15	Fair (60)	6	Clonal	2	No		Removal
1441	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1442	*Yucca brevifolia*	22	20	15	Poor (40)	5	Clonal	1	No		Removal
1517	*Yucca brevifolia*	3	5	2	Fair (60)	1	Single Trunk	0	No		Removal
1523	*Yucca brevifolia*	7	7	4	Good (80)	2	Clonal	1	No		Removal
1529	*Yucca brevifolia*	2	2	1	Fair (60)	1	Clonal	1	No		Removal
1530	*Yucca brevifolia*	7	7	3	Fair (60)	2	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1533	*Yucca brevifolia*	3	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1547	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1548	*Yucca brevifolia*	4	6	2	Fair (60)	2	Clonal	3	No		Removal
1550	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1558	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1559	*Yucca brevifolia*	6	10	3	Fair (60)	3	Single Trunk	0	No		Removal
1576	*Yucca brevifolia*	3	4	1	Fair (60)	1	Clonal	1	No		Removal
1578	*Yucca brevifolia*	2	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1582	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1583	*Yucca brevifolia*	2	4	1	Fair (60)	1	Single Trunk	0	No		Removal
1584	*Yucca brevifolia*	5	7	1	Fair (60)	1	Single Trunk	0	No		Removal
1585	*Yucca brevifolia*	18	4	10	Nearly Dead (20)	4	Single Trunk	0	No	tree dead on ground	Removal
1597	*Yucca brevifolia*	1	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1609	*Yucca brevifolia*	18	16	15	Fair (60)	3	Single Trunk	0	No		Removal
1612	*Yucca brevifolia*	3	3	1	Fair (60)	1	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1613	*Yucca brevifolia*	17	16	15	Fair (60)	3	Clonal	1	No		Removal
1616	*Yucca brevifolia*	6	15	7	Fair (60)	3	Single Trunk	0	No		Removal
1617	*Yucca brevifolia*	1	1	1	Fair (60)	1	Single Trunk	0	No		Removal
1618	*Yucca brevifolia*	5	12	5	Fair (60)	2	Single Trunk	0	No		Removal
1631	*Yucca brevifolia*	7	18	6	Fair (60)	5	Single Trunk	0	No		Removal
1632	*Yucca brevifolia*	10	18	12	Fair (60)	4	Single Trunk	0	No		Removal
1633	*Yucca brevifolia*	7	12	10	Fair (60)	2	Single Trunk	0	No	Behind fence	Removal
1634	*Yucca brevifolia*	12	14	10	Fair (60)	3	Single Trunk	0	No	Behind fence	Removal
1665	*Yucca brevifolia*	15	30	20	Fair (60)	1	Single Trunk	0	No	Private property no tag	Removal
1666	*Yucca brevifolia*	12	25	15	Good (80)	1	Single Trunk	0	No	1 clone, Private property no tag	Removal
1667	*Yucca brevifolia*	16	25	18	Fair (60)	4	Single Trunk	0	No		Removal
1680	*Yucca brevifolia*	12	35	17	Good (80)	2	Single Trunk	0	No		Removal
1681	*Yucca brevifolia*	3	3	1	Good (80)	1	Clonal	1	No		Removal
1685	*Yucca brevifolia*	13	17	10	Good (80)	5	Single Trunk	0	No		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1696	*Yucca brevifolia*	6	9	2	Fair (60)	3	Single Trunk	0	No		Removal
1697	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1698	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1699	*Yucca brevifolia*	4	9	1	Good (80)	1	Clonal	2	No		Removal
1700	*Yucca brevifolia*	1	1	1	Good (80)	1	Single Trunk	0	Yes		Removal
1701	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1702	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1703	*Yucca brevifolia*	4	8	1	Good (80)	1	Clonal	2	No		Removal
1704	*Yucca brevifolia*	6	6	1	Good (80)	1	Single Trunk	0	Yes		Removal
1705	*Yucca brevifolia*	3	4	1	Fair (60)	1	Clonal	1	No		Removal
1707	*Yucca brevifolia*	3	2	1	Fair (60)	1	Single Trunk	0	No		Removal
1708	*Yucca brevifolia*	5	9	1	Good (80)	1	Single Trunk	0	Yes		Removal
1709	*Yucca brevifolia*	2	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1710	*Yucca brevifolia*	3	4	1	Good (80)	1	Clonal	1	No		Removal
1711	*Yucca brevifolia*	3	3	1	Good (80)	1	Single Trunk	0	Yes		Removal
1712	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal

Joshua Tree Matrix

Tree No.	Species	DBH (in.)	Height (ft.)	Crown Spread (ft.)	Health	No. of Branches	Clonal Status	No. of Clones	Relocation	Notes	Final Disposition
1713	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1714	*Yucca brevifolia*	10	18	10	Good (80)	4	Single Trunk	0	No		Removal
1715	*Yucca brevifolia*	4	8	1	Good (80)	1	Single Trunk	0	Yes		Removal
1716	*Yucca brevifolia*	4	9	2	Good (80)	2	Single Trunk	0	Yes		Removal
1717	*Yucca brevifolia*	13	25	15	Good (80)	3	Clonal	1	No		Removal
1718	*Yucca brevifolia*	3	2	1	Good (80)	1	Clonal	3	No		Removal
1719	*Yucca brevifolia*	3	4	1	Good (80)	1	Single Trunk	0	Yes		Removal
1720	*Yucca brevifolia*	4	4	1	Good (80)	1	Clonal	1	No		Removal
1721	*Yucca brevifolia*	3	2	1	Good (80)	1	Single Trunk	0	Yes		Removal
1722	*Yucca brevifolia*	5	8	2	Good (80)	1	Single Trunk	0	Yes		Removal
1723	*Yucca brevifolia*	2	2	1	Poor (40)	1	Single Trunk	0	No		Removal

Appendix C

Site Photographs

Appendix C:
Hesperia Commerce Center II
Photograph Log



Photograph 1. Overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing southwest.



Photograph 2. Overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing west.



Photograph 3. Overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing northwest.



Photograph 4. Overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing north.



Photograph 5. Overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing southeast.



Photograph 6. Overview photograph of the Joshua trees located near the center of the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing north.



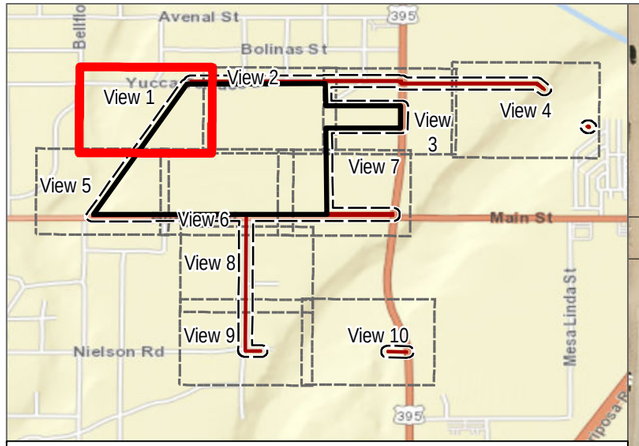
Photograph 7. Another overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing southwest.



Photograph 8. Another overview photograph of the Joshua trees located in the HCCII area, north of Phelan Road and west of Highway 395. Photograph taken facing west.

Appendix D

Tree Impacts



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite

SOURCE: BING MAPPING SERVICE 2019

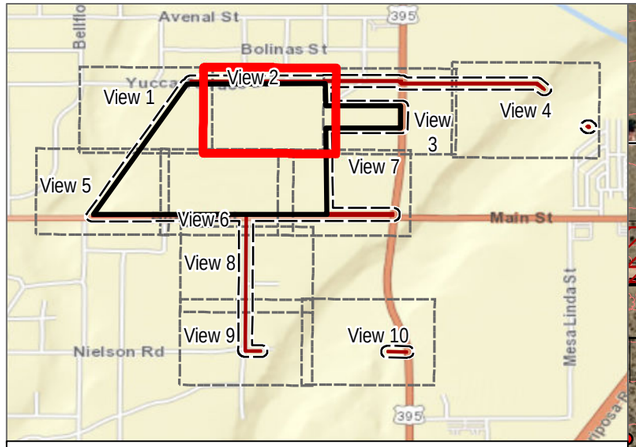
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 1

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite

SOURCE: BING MAPPING SERVICE 2019

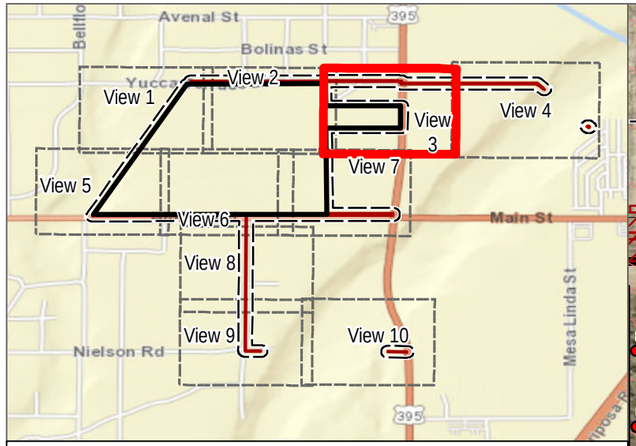
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 2

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite

SOURCE: BING MAPPING SERVICE 2019

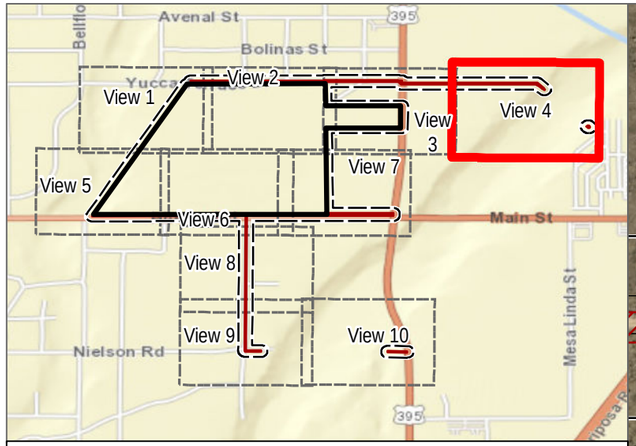
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 3

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite



SOURCE: BING MAPPING SERVICE 2019

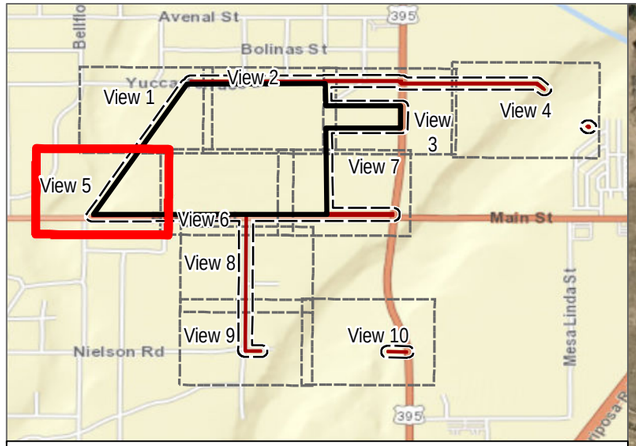
DUDEK

0 100 200 Feet

APPENDIX D

Joshua Tree Impacts Map - View 4

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site
Off-Site Roadway/Utility Alignments
Survey Area

Disposition

Removal - Onsite
Removal - Offsite
Preserved - Offsite

LOS ANGELES BUREAU OF POWER

PHELAN RD

SOURCE: BING MAPPING SERVICE 2019

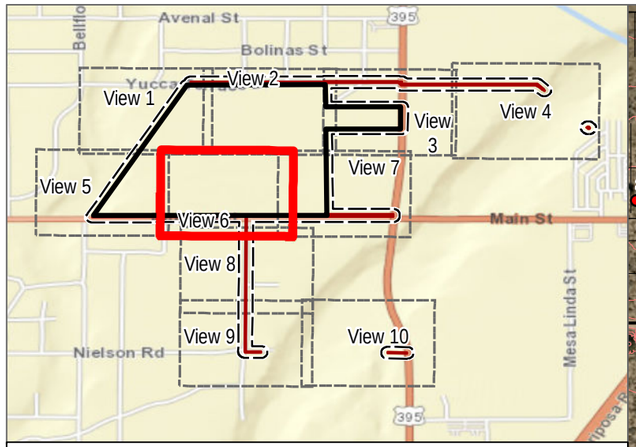
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 5

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite

PHELAN RD

Hesperia

SOURCE: BING MAPPING SERVICE 2019

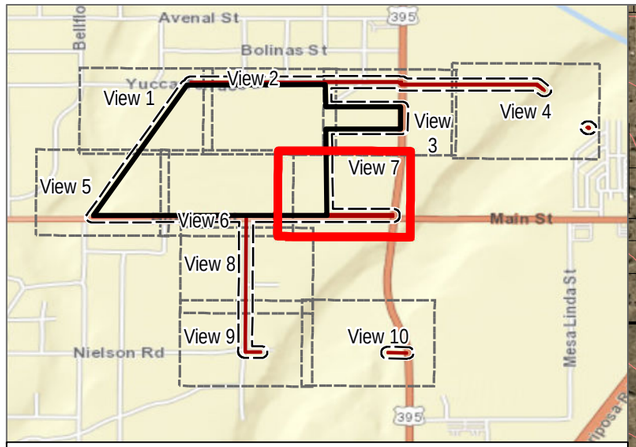
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 6

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



- Project Site
- Off-Site Roadway/Utility Alignments
- Survey Area

Disposition

- Removal - Onsite
- Removal - Offsite
- Preserved - Offsite

PHELAN RD

HWY 395

SOURCE: BING MAPPING SERVICE 2019

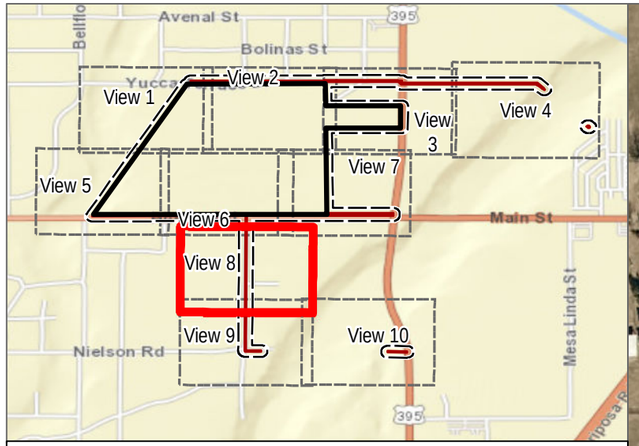
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 7

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

Removal - Onsite

Removal - Offsite

Preserved - Offsite



SOURCE: BING MAPPING SERVICE 2019

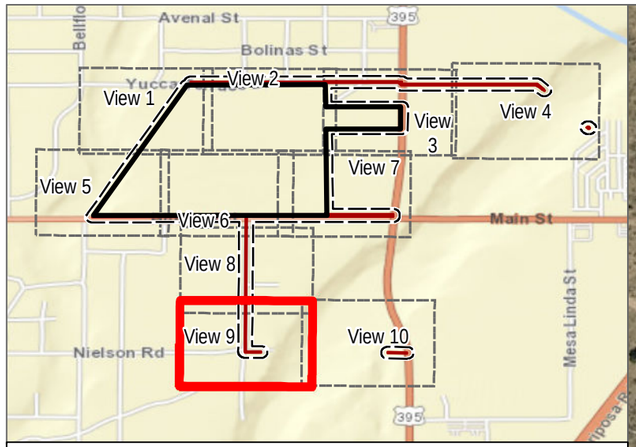
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 8

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

Removal - Onsite

Removal - Offsite

Preserved - Offsite



SOURCE: BING MAPPING SERVICE 2019

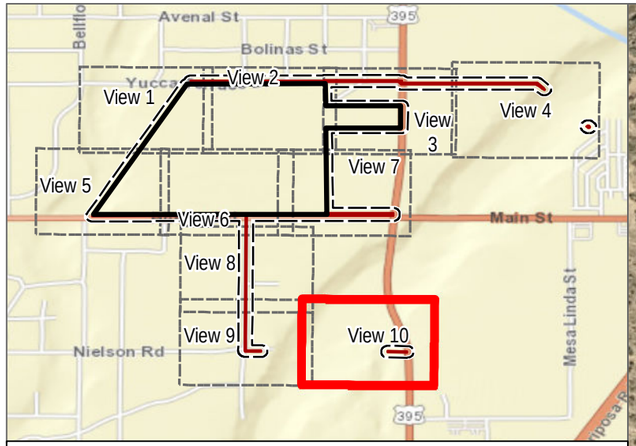
DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 9

Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project



Project Site

Off-Site Roadway/Utility Alignments

Survey Area

Disposition

Removal - Onsite

Removal - Offsite

Preserved - Offsite



SOURCE: BING MAPPING SERVICE 2019

DUDEK

0 90 180 Feet

APPENDIX D

Joshua Tree Impacts Map - View 10

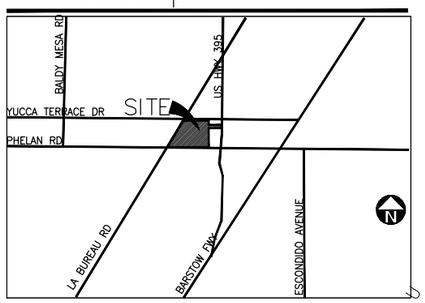
Joshua Tree Preservation, Protection, and Relocation Plan for the Hesperia Commerce Center II Project

Appendix E

Conceptual Site Plan for Hesperia Commerce Center

CAUTION: IF THIS SHEET IS NOT 30"X42", IT IS A REDUCED PRINT

Aerial Map



Legend

- POTENTIAL OFFICE
- WAREHOUSE
- ▼ DRIVE THRU DOOR
- ○ RELOCATED YUCCA BREVIFOLIA 450 TOTAL

Tabulation

	BLDG.1	BLDG.2	BLDG.2A	BLDG.3	TOTAL
SITE AREA					
In s.f.	3,451,270	2,698,547	1,749,535	586,340	8,485,692 s.f.
In acres	79.23	61.95	40.16	13.46	194.80
BUILDING AREA					
Office	20,000	10,000	10,000		40,000 s.f.
Office 2nd level				9,000	
Warehouse	1,557,317	1,285,595	770,392	103,125	3,716,429 s.f.
TOTAL	1,577,317	1,295,595	781,100	112,125	3,766,137 s.f.
COVERAGE	45.7%	48.0%	44.6%	19.1%	44.4%
AUTO PARKING REQUIRED					
Office: 1/200 s.f.	100	50	50	0	200 stalls
Whse: 1st 10K 20stalls	20	20	20	20	80 stalls
above 10K @ 1/2500 s.f.	619	510	304	37	1,471 stalls
TOTAL	739	580	374	57	1751 stalls
AUTO PARKING PROVIDED					
Standard (9' x 18)	743	409	338	93	1583 stalls
ADA parking	18	11	10	6	45 stalls
TOTAL	761	420	348	99	1628 stalls
TRAILER PARKING PROVIDED					
Trailer (10' x 53')	727	680	356	0	1763 stalls
BICYCLE PARKING PROVIDED					
Short term bike parking	14	14	14	14	56 stalls
Long term bike parking	14	14	14	7	49 stalls
TOTAL	28	28	28	21	105 stalls
ZONING ORDINANCE FOR CITY					
Zoning Designation -					
MAXIMUM BUILDING HEIGHT ALLOWED					
Height - 50'					
MAXIMUM FLOOR AREA RATIO					
FAR - 1.0					
LANDSCAPE REQUIREMENT					
Percentage - 7%					
SETBACKS					
Building	Landscape				
Front - 25'	15				
Side/Rear - 0'					

Note: Future auto parking spaces will be counted based on future tenants' employee count. If the employee count needs more parking than what this site have been provided, will provide alternatives – turning trailer parking for auto parking.

Note: This is a conceptual plan. It is based on preliminary information which is not fully verified and may be incomplete. It is meant as a comparative aid in examining alternate development strategies and any quantities indicated are subject to revision as more reliable information becomes available.

north

1" = 150'

0 150 300 450

Conceptual Site Plan

Hesperia Commerce Center II

Hesperia, CA

18831 Bardeen Ave. - Ste. #100
Irvine, CA 92612
(949) 863-1770
www.hparchs.com

10/14/2019 / Job #19305

Appendix D-4

Desert Tortoise Protocol Survey Results

27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

August 14, 2020 12122

Brandon Gallup, Project Manager
Covington Group, Inc.
14180 Dallas Parkway, Suite 730
Dallas, Texas 75254

Subject: Protocol Desert Tortoise Survey Results for the Hesperia Commerce Center II Project Located in the City of Hesperia, San Bernardino County, California

Dear Mr. Gallup:

This letter documents the results of a protocol presence/absence survey for the Mojave desert tortoise (*Gopherus agassizii*) conducted by Dudek in spring 2020. The Mojave desert tortoise is listed as threatened by both the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). The survey was conducted primarily within the entire approximately 195-acre project site, as the site supports moderately suitable habitat to support this species. The project site is located near the southern extent of the desert tortoise's range in the southwestern Mojave Desert, in the City of Hesperia, San Bernardino County, California.

No desert tortoise or sign of active/previous occupation was observed within the survey area for the project which includes the project site boundary and three additional 10-meter (~30-feet) belt transects at 200-meter (~655-feet) intervals encircling the project site (200-meter, 400-meter, and 600-meter from the perimeter of the project site).

1. Survey Area

The proposed project site is located in the western part of the City of Hesperia, which is found within the Victor Valley region of San Bernardino County. The project site is bounded to the south by Phelan Road, to the north by Yucca Terrace Drive, to the west by the Los Angeles Bureau of Power and Light Road, and to the east by State Route 395. The survey was conducted within the entirety of the 195-acre project site. The southwestern corner of the survey area is at coordinates 34.253657, -117.250306 (North American datum [NAD} 83 Zone 11S Universal Transverse Mercator (UTM) 476,953 easting by 3,790,309 northing), and the northeastern corner of the survey area is at coordinates 34.260227, -117.241340 (NAD 83 Zone 11S UTM 477,780 easting by 3,791,036 northing). The survey area is located within Section 16, Township 4 North, Range 5 West, as depicted on the United States Geological Survey (USGS) Baldy Mesa, California 7.5-minute topographic quadrangle map.

The topography within the survey area is flat, with a small, lone hill located on the southwestern corner of the survey area. The survey area elevation ranges from approximately 3,500-feet to 3,600-feet above mean sea level. The survey area is primarily undeveloped, with several dirt roads crossing the survey area, and is vegetated by Joshua tree (*Yucca brevifolia*) woodland vegetation. Other dominant vegetation found within the survey area include California juniper (*Juniperus californica*), and non-native grasses and ruderal (weedy) forbs.

2. Methods

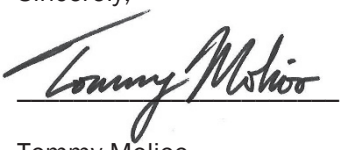
Dudek conducted the focused desert tortoise surveys on April 24 and May 5, 2020, in accordance with current USFWS 2010 protocol[1]. The surveys were conducted by Dudek biologists Tommy Molioo, Tracy Park, Eilleen Salas, Michael Cady, and Rachel Swick. The survey area, or USFWS 2010 "Action Area," was walked using 10 meter (30-foot) wide belt transects in all areas of potentially suitable habitat. The entire project site was deemed to have potentially suitable habitat during a previous habitat assessment conducted by LSA in 2019[2], as the entire project site is vegetated with Joshua tree woodland. USFWS 2010 data forms were completed for each day of survey and are provided in Appendix B. In addition, notes were taken on vegetation communities and plant and animal species observed.

3. Results

No live desert tortoises, desert tortoise sign, or suitable burrows were observed within the survey area. The survey area is at the edge of desert tortoise known range, and the vegetation present on site is relatively low quality, with a heavy presence of non-native species. The vegetation throughout the site has been impacted by illegal trash dumping and unauthorized off-road vehicle use. In addition, no desert washes or dominance of creosote bush (*Larrea tridentata*) scrub are present within the survey area, which are requirements for the presence of desert tortoise.

If you have any questions regarding this report, please feel free to contact me at tmolioo@dudek.com or by phone at 949.212.9404.

Sincerely,



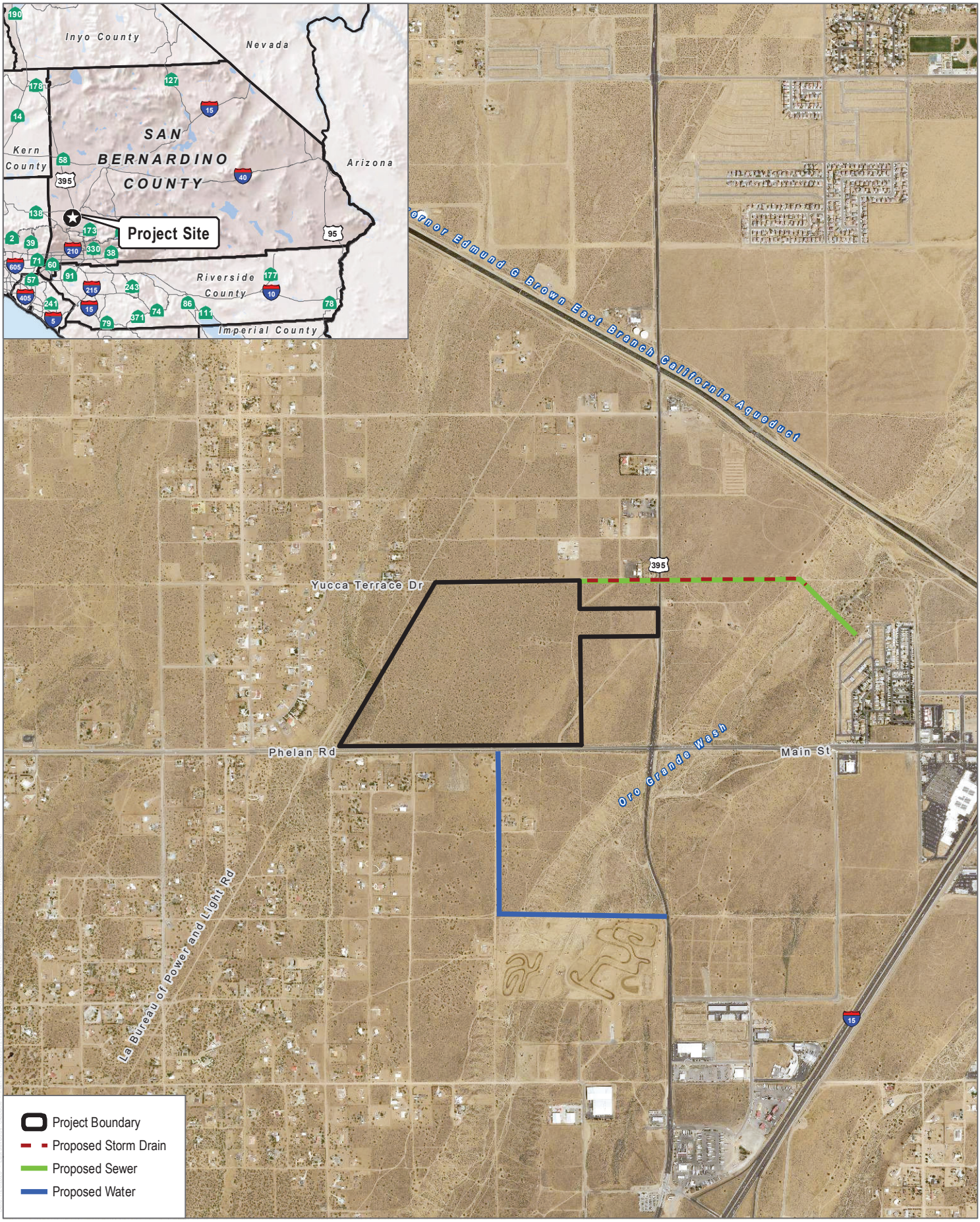
Tommy Molioo
Sr. Biologist

Att.: *Attachment A – Figures*
Attachment B – Site Photographs
Attachment C – Data Sheets
cc: *Collin Ramsey, Dudek*

[1] USFWS 2010. Preparing for any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii).
[2] LSA 2019. Biological Resources Assessment. Hesperia Commerce Center II Project. City of Hesperia, San Bernardino County, California.

Attachment A

Figures



SOURCE: USDA 2016

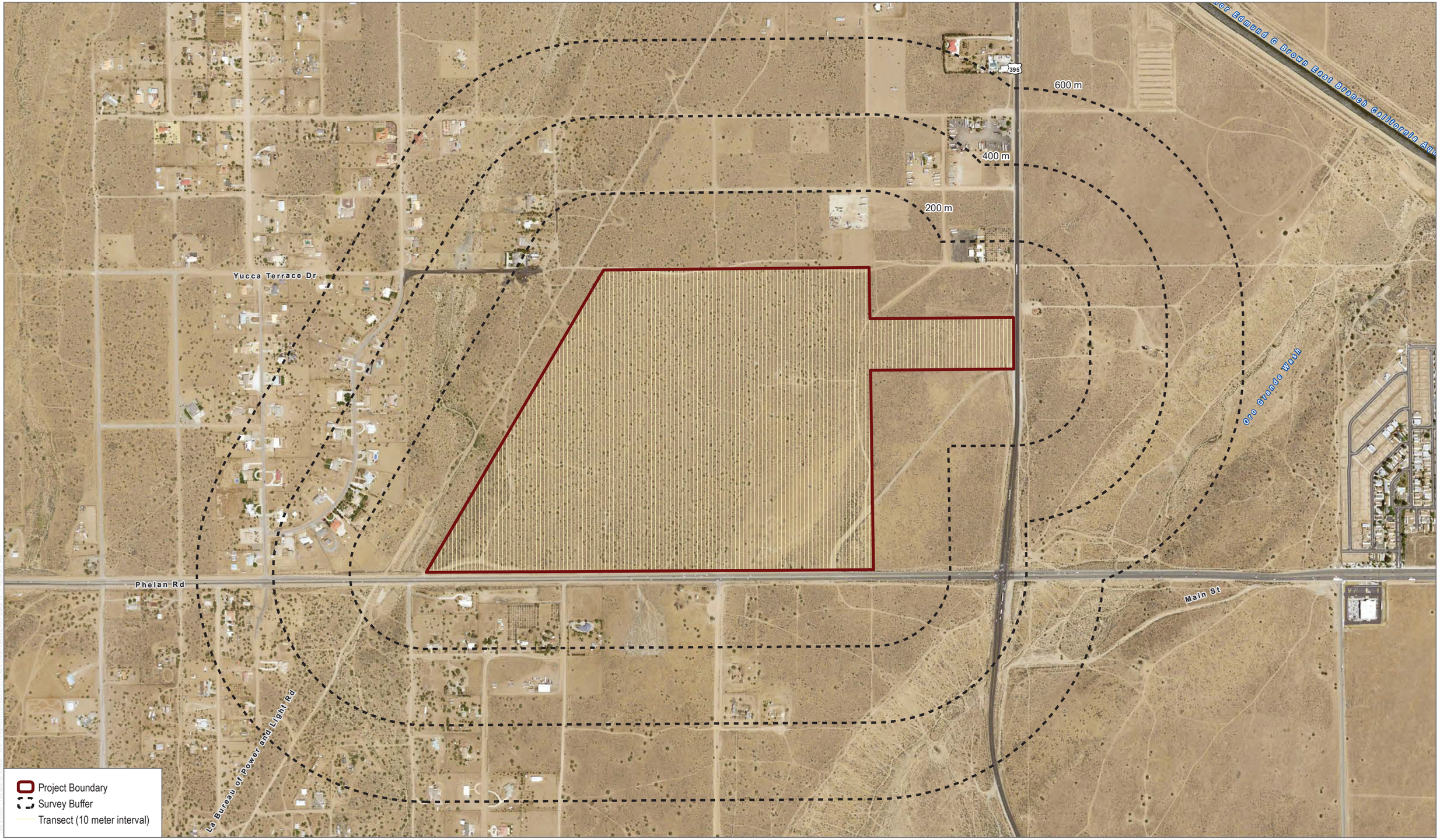
DUDEK

0 1,000 2,000 Feet

Figure 1

Project Location

Hesperia Commerce Center II



SOURCE: NAIP 2016

DUDEK

0 110 220 Meters
0 385 770 Feet

Figure 2
Desert Tortoise Survey Map
Hesperia Commerce Center II

Attachment B

Site Photographs



Photo 1: From southern Caliente Road, facing north, showing typical Joshua tree woodland vegetation found within the survey area.



Photo 2: From southern Caliente Road, facing west, showing typical Joshua tree woodland vegetation found within the survey area.



Photo 3: From southern Caliente Road, facing southwest, showing typical Joshua tree woodland found within the survey area.



Photo 4: From Yucca Terrace Drive, facing south, showing California juniper found within portions of the survey area.

Attachment C

Data Sheets

USFWS DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Date of survey: April 24, 2020 Survey biologist(s): Tommy Molioo, Tracy Park, Eilleen Salas, & Michael Cady
(month, day, year)

Site description: Hesperia Commerce Center II Project, 195 acres; corner of Phelan Road and U.S. Route 395
(project name and size; general location)

County: San Bernardino Quad: Baldy Mesa Location: lat/long 34.253657, -117.250306, UTMs NAD 83, 11S 476953, 3790309
(UTM coordinates, lat-long, and/or TRS; map datum)

Transect #: ____ Transect length: _0.5 mi. Type ofsurvey: _195 acres; 100% coverage
(acres to be surveyed; 100% coverage/probabilistic sampling)

GPS Start-point: _ 34.426848°_-117.404963°_1,090 m Start time: _7:00 am___am/pm
(easting, northing, elevation in meters)

GPS End-point: __34.426740°, -117.409714__1,0906 m End time: __1:00 pm___am/pm
(easting, northing, elevation in meters)

Start Temp: __29_____ºC Weather: ___0-1 mph, clear skies End Temp: ___35____ºC

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						none
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows[1], scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				none
2				
3				
4				
5				
6				
7				
8				

[1] **See section 4.1.2 for information on burrow condition class and photographing burrows**

USFWS DESERT TORTOISE PRE-PROJECT SURVEY DATA SHEET

Date of survey: May 5, 2020 (month, day, year) Survey biologist(s): Tommy Molioo, Eilleen Salas, Michael Cady, & Rachel Swick

Site description: Hesperia Commerce Center II Project, 195 acres; corner of Phelan Road and U.S. Route 395
(project name and size; general location)

County: San Bernardino Quad: Baldy Mesa Location: lat/long 34.253657, -117.250306, UTMs NAD 83, 11S 476953, 3790309
(UTM coordinates, lat-long, and/or TRS; map datum)

Transect #: ____ Transect length: _____ Type of survey: _____
(acres to be surveyed; 100% coverage/probabilistic sampling)

GPS Start-point: 34.426848 -117.404963 1,0906 m Start time: 7:00 am/pm
(easting, northing, elevation in meters)

GPS End-point: 34.433856 -117.399854 1,070 m End time: 1:00 am/pm
(easting, northing, elevation in meters)

Start Temp: _____ºC Weather: _____ End Temp: _____ºC

Live Tortoises

Detection number	GPS location Easting	GPS location Northing	Time	Tortoise location (*in burrow*: all of tortoise beneath plane of burrow opening, or *not in burrow*)	Approx MCL >160-mm? (*Yes, No or Unknown*)	Existing tag # and color, if present
1						None
2						
3						
4						
5						
6						
7						
8						

Tortoise Sign (burrows[1], scats, carcasses, etc)

Detection number	GPS location Easting	GPS location Northing	Type of sign (*burrows, scats, carcass, etc*)	Description and comments
1				None
2				
3				
4				
5				
6				
7				
8				

[1] **See section 4.1.2 for information on burrow condition class and photographing burrows**

Appendix D-5

Mojave Ground Squirrel Protocol Survey Results

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esassoc.com

July 15, 2020

Mr. Collin Ramsey
27372 Calle Arroyo
San Juan Capistrano, CA
92677

Subject: Results of Mohave Ground Squirrel Protocol Surveys for the Hesperia Commerce Center II Project, City of Hesperia, San Bernardino County, California

Dear Mr. Ramsey:

The purpose of this letter is to report the results of a California Department of Fish and Wildlife (CDFW) protocol survey for the Mohave ground squirrel (*Xerospermophilus mohavensis*; MGS), conducted by Environmental Science Associates (ESA) for the Hesperia Commerce Center II Project (project). Presented in this report is a description of the project and project location, the biological setting of the project site, MGS natural history, methodology and results of trapping efforts for MGS, and conclusions.

Project Description and Location

Covington Group, Inc. proposes to develop two speculative industrial distribution warehouses on an irregular shaped parcel that comprises 197.26 acres of vacant land. One of the warehouse buildings is proposed to be 1,527,000 square feet and the other is proposed to be 1,985,000 square feet. Both warehouse buildings will have designated office space. Additionally, the project proposes to develop 2,627 parking stalls to accommodate passenger vehicles and commercial trucks/trailers.

The project site is located in the City of Hesperia in San Bernardino County, at the northwest corner of Phelan Road and U.S. Route 395. The site is bordered by US-395 on the east and Phelan Road on the south; to the west is LA Bureau of Power and Light Road, and to the north is Yucca Terrace Drive. Both LA Bureau of Power and Light Road and Yucca Terrace Drive are dirt roads that serve as utility right-of-ways (ROW) (**Figures 1 and 2**). With the exception of a few low-density single family residences (to the west and south, and a commercial truck staging yard to the north, the project site is surrounded by undeveloped desert land. The project site can be found on U.S. Geological Survey (USGS) 7.5-minute Baldy Mesa topographic quadrangle map within Section 16, Township 4 North, Range 5 West, as shown in Figure 2, Vicinity Map (USGS 1967, Earth Survey 2017).

Biological Setting

The project site is primarily comprised of Joshua Tree Woodland. Dominant plants include Joshua tree (*Yucca brevifolia*) and California juniper (*Juniperus californica*), followed by Cooper's goldenbush (*Ericameria cooperi*), Cooper's boxthorn (*Lycium cooperi*), Anderson's thornbush (*Lycium andersonii*), bladder sage (*Salazaria mexicana*), cheesebush (*Ambrosia salsola*), green ephedra (*Ephedra viridis*), cotton-thorn (*Tetradymia axillaris*), spiny hopsage (*Grayia spinosa*), and winterfat (*Krascheninnikovia lanata*). The herbaceous layer is primary dominated by fiddleneck (*Amsinckia tessellata*) and non-native annuals and grasses such as red-stemmed filaree (*Erodium cicutarium*) red-brome (*Bromus madritensis*) and cheat grass (*Bromus tectorum*).

Many areas of the project site are moderately–to-highly disturbed due to off-highway vehicle (OHV) activity and illegal debris dumping. During MGS surveys, biologists regularly encountered persons disposing of waste in the project site or scavenging items from debris piles. The area is also inhabited by transients and encampments. Decomposing domestic animals were also encountered onsite.

Mohave Ground Squirrel Natural History

Mohave ground squirrels (*Xerospermophilus mohavensis*) are medium-sized (210-230mm, 85-130g), diurnal squirrels. Their dorsal pelage is light gray to cinnamon-brown, while their ventral side is creamy. Unlike the round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancha in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare, occurrences have been documented on the California Natural Diversity Database (CNDDB) as recently as 2011 (**Figure 3**). Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs. In the northern portion of their range, MGS have been found to feed on spiny hopsage (*Grayia spinosa*), winterfat (K*rascheninnikovia lanata*) and saltbush (*Atriplex* sp.) especially in early spring when forbs are unavailable, during summer when forbs have dried out, and during drought conditions (Leitner and Leitner 1998). Recent studies have also indicated that MGS feed on the following forbs and shrubs: freckled milkvetch (*Astragalus lentiginosus*), Mojave lupine (*Lupinus odoratus*), buckwheat (*Eriogonum* sp.), white mallow (*Eremalche exilis*), fiddleneck (*Amsinckia tessellata*),Russian thistle (*Salsola tragus),* desert pincushion (*Chaenactis* sp.), Cryptantha (*Cryptantha pterocarya*), Coreopsis (*Leptosyne bigelovii*), Valley lessingia (*Lessingia glandulifera*), desert dandelion (*Malacothrix glabrata*), Phacelia (*Phacelia* sp.), wire lettuce (*Stephanomeria* sp.) Anderson's desert thorn (*Lycium andersonii*), (*Tetradimya spinosa*), and Joshua tree (*Yucca brevifolia*) (Leitner and Leitner 2017).

MGS have adapted to live in hot desert environments by limiting their activity aboveground through estivation and hibernation. The timing of emergence from hibernation varies by location: in the northern portion of their range male MGS emerge mid-March (Leitner and Leitner 1998); however, in the southern portion of their range, MGS may emerge as early as mid-January (Recht 1977). Throughout their active period, MGS store fat in preparation for estivation, which typically occurs between July and September, but may occur as early as April or May during drought conditions (Leitner et al. 1995). MGS reproduction is dependent on fall and winter rains and individuals may forgo breeding entirely if low rainfall (<80mm) results in reduced herbaceous plants (Leitner and Leitner 2017).

Throughout the range of MGS, they may co-occur with antelope ground squirrels, round-tailed ground squirrels, and California ground squirrels. MGS may be misidentified with round-tailed ground squirrels, but this is unlikely to occur with antelope grounds squirrels, because the latter species has white dorsal stripes that makes them resemble a chipmunk more than an MGS. California ground squirrels are also notably larger and are not typically confused with MGS.

MGS are classified as threatened, and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance and habitat loss from by converting suitable habitat to urban, suburban, agricultural and military land uses (Gustafson 1993, Leitner and Leitner 2017).

Methods

Prior to conducting a habitat assessment at the project site, ESA developed a strategy to survey the irregularly shaped parcel (project site) in coordination with the California Department of Fish and Wildlife (CDFW). The proposed survey strategy included two 4x25 100-trap grids at the the north and south ends of the project site, with the intervening areas being surveyed using five camera trap stations. CDFW approved this modified protocol on March 13, 2020.

Visual Survey

The MGS trapping surveys were led by ESA's Karla Flores (Scientific Collection permit #10572). An initial visual assessment of the project site was conducted by Karla Flores and ESA biologist Karl Fairchild on March 29, 2020. The visual survey consisted of driving and walking throughout the project site to identify suitable habitat for MGS. This included identifying plants known to provide forage material for MGS such as spiny hopsage, winterfat, Cooper's boxthorn, Anderson's desert thorn, and Joshua tree. Areas supporting suitable habitat for MGS where these plants are concentrated were recorded using ArcGIS Collector GPS software. Suitable soil types for burrowing and burrow densities were also noted.

Live Trapping

Two 100-trap sampling grids were set-up in a 4x25 configuration on the north and south portions of the project site. Each grid consisted of 100 XLK Sherman traps (3x3.75x12") spaced 35-meters apart. Each trap station setup

consisted of a pin flag, a cardboard A-frame cover to provide shade, and bait. Bait consisted of 4-way livestock feed, mixed with an oat and peanut butter powder. Coordinates of the corners of each grid are provided in **Table 1**.

Each grid was trapped for five consecutive days. Traps were opened one hour after sunrise and checked every 4 hours prior to closing one hour after sunset. In accordance with CDFW MGS Survey Guidelines (January 2003, revised July 2010), trapping only occurred while temperatures remained above 50°F and below 90°F. Per CDFW guidelines, three 5-day survey periods took place within three different survey windows: March 15 to April 15, May 1-31 and June 15 to July 15. Specific trapping dates during each survey period are listed in **Table 2.** CDFW MGS Survey and Trapping Forms were completed for each grid and are attached in **Attachment A**. Associated weather data was recorded daily and is attached in **Attachment B**.

General information collected from each animal captured included: species, age, sex and reproductive condition. Abnormalities such as injuries and high parasite loads were also recorded. All animals captured were released at their capture location.

Camera Trapping

Five camera stations were set-up in suitable habitat areas not surveyed by north and south grids (**Figure 2**). The coordinates of each camera station are provided in **Table 3**. Each camera station consisted of a Reconyx® HF2X Hyperfire 2 Covert Infrared camera, secured to a Joshua tree and facing a bait station. The bait station consisted of a bait block enclosed in a wire mesh cage to prevent predation by ravens, with entrances on all sides, approximately five feet away from the camera (**Photo 4: Attachment D**). All cameras operated for two 5-day periods from April 2-7, 2020 and May 9-14, 2020, and were programmed with the settings recommended in Delaney et al. (2017).

TABLE 1
COORDINATES OF NORTH AND SOUTH TRAPPING GRIDS

Grid	Corner	Corner name	Zone	Easting	Northing
North	SW	D1	11	462051	3810100
	NW	A1	11	462047	3810202
	SE	D25	11	462891	3810093
	NE	A25	11	462886	3810202
South	SW	D1	11	461816	3809683
	NW	A1	11	461819	3809788
	SE	D25	11	462659	3809681
	NE	A25	11	462667	3809793

**Easting and northing coordinates taken at four corners of each grid (WGS 84).*

TABLE 2
SURVEY DATES AND TRAP HOURS FOR MOHAVE GROUND SQUIRREL

Session	Dates	Trap Hours (North Grid /South Grid)	Surveyors
1	March 30-April 3, 2020	55/55	Karla Flores; Karl Fairchild
2	May 11-16, 2020	55/55	Karla Flores; Karl Fairchild
3	June 22-26, 2020	21/18	Karla Flores; Karl Fairchild

TABLE 3
CAMERA TRAP STATION LOCATIONS

Camera	Zone*	Easting	Northing
1	11	462748	3809725
2	11	462100	3809905
3	11	462324	3809932
4	11	462516	3809921
5	11	463056	3810165

**Datum WGS 84*

Results

Visual Survey

The visual survey concluded that the project site provides marginally suitable habitat for MGS. Specifically, foraging plants for MGS such as spiny hopsage, winterfat, Cooper's boxthorn, Anderson's thornbush, and Joshua tree were observed throughout the project site along with suitable substrate that includes friable soils for burrowing. However, surrounding roadways and various forms of human presence, including OHV impacts, have marginalized the habitat quality.

Live-Trapping

Live-trap captures consisted entirely of non-target species, including white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), California ground squirrel (*Otospermophilus beecheyi*), Panamint kangaroo rat (*Dipodomys panamintinus*), Great Basin whiptail (*Aspidoscelis tigris tigris*), desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), cactus wren (*Campylorhynchus brunneicapillus*) and California thrasher (*Toxostoma redivivum*) (**Table 4; Figure 4**). No MGS were trapped during the surveys.

Camera trapping

The five camera trap stations detected white-tailed antelope ground squirrel, California ground squirrel, Panamint kangaroo rat, desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), domestic dog

(*Canis lupus familiaris*), common raven (*Corvus corax*), California scrub jay (*Aphelocoma californica*), California quail (*Callipepla californica*), as well as people (**Table 5**). No MGS were observed at any of the camera stations.

A complete list of non-target species detected incidentally within the project site, visually and aurally, is included in **Attachment C.**

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TABLE 4
RESULTS OF MOHAVE GROUND SQUIRREL PROTOCOL LIVE TRAPPING SURVEYS ON NORTH AND SOUTH GRID

Common name	Scientific name	North Grid			South Grid			Total
		Session 1	Session 2	Session 3	Session 1	Session 2	Session 3	
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*	25	13	23	9	12	40	122
California ground squirrel	*Otospermophilus beecheyi*	12	22	21	11	32	45	143
Panamint kangaroo rat	*Dipodomys panamintinus*	0	0	0	0	1	0	1
Great Basin whiptail	*Aspidoscelis tigris tigris*	0	2	0	0	5	0	7
Desert spiny lizard	*Sceloporus magister*	0	0	0	3	0	0	3
Side-blotched lizard	*Uta stansburiana*	0	0	0	1	0	0	1
California thrasher	*Toxostoma redivivum*	0	0	1	0	0	0	1
Cactus wren	*Campylorhynchus brunneicapillus*	0	0	0	0	0	1	1
	Total							279

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TABLE 5
RESULTS OF CAMERA TRAPPING

Common name	Scientific name
Antelope ground squirrel	*Ammospermophilus leucurus*
California ground squirrel	*Otospermophilus beecheyi*
Panamint kangaroo rat	*Dipodomys panamintinus*
Black-tailed jackrabbit	*Lepus californicus*
Desert cottontail	*Sylvilagus audubonii*
Domestic dog	*Canis lupus familiaris*
Common raven	*Corvus corax*
California quail	*Callipepla californica*
California scrub-jay	*Aphelocoma californica*
Human	*Homo sapiens*

Conclusions

Although there is marginally suitable MGS habitat present on the project site, no MGS were detected at the camera stations or captured during the trapping surveys. As such, the survey results indicate that MGS do not inhabit the project site at this time. Additionally, the high density of California juniper on site is indicative that the area is within the Mohave-transmontane transition zone, an area with low likelihood of use by MGS. Furthermore, the disturbances from human presence and fragmentation from surrounding roadways, including OHV use and illegal waste dumping within the project site has had a negative effect on habitat quality for MGS. Records from the California Natural Diversity Database (CNDDB) reveal two occurrences of MGS near the project site that were detected in 2005 and 2011 (**Figure 3**). However, both these records are from sites located across the California Aqueduct making dispersal to the project site highly unlikely, because the aqueduct creates considerable barrier to dispersal.

Although suitable MGS habitat is present onsite, no MGS were captured during the live-trapping surveys or detected at camera stations. As a result, CDFW survey guidelines indicate that the department will stipulate that no MGS occur on the project site. This stipulation will expire one year from the last day of trapping, June 20, 2020.

I hereby certify that the information in this report is true and it conforms to accepted biological standards. Please feel free to contact Karla Flores or Greg Ainsworth by phone at (805) 914-1500 or by email at kflores@esassoc.com or gainsworth@esassoc.com with any questions regarding this report.

Sincerely,

Karla L. Flores
Senior Biologist

Greg Ainsworth
Director

Attachments

Figure 1-Project Location
Figure 2-Survey Area
Figure 3-Historical MGS Occurrences
Figure 4-Results

Attachment A-CDFW Mohave Ground Squirrel Survey and Trapping Forms
Attachment B-Weather Details
Attachment C-Species Compendium
Attachment D-Representative Photographs

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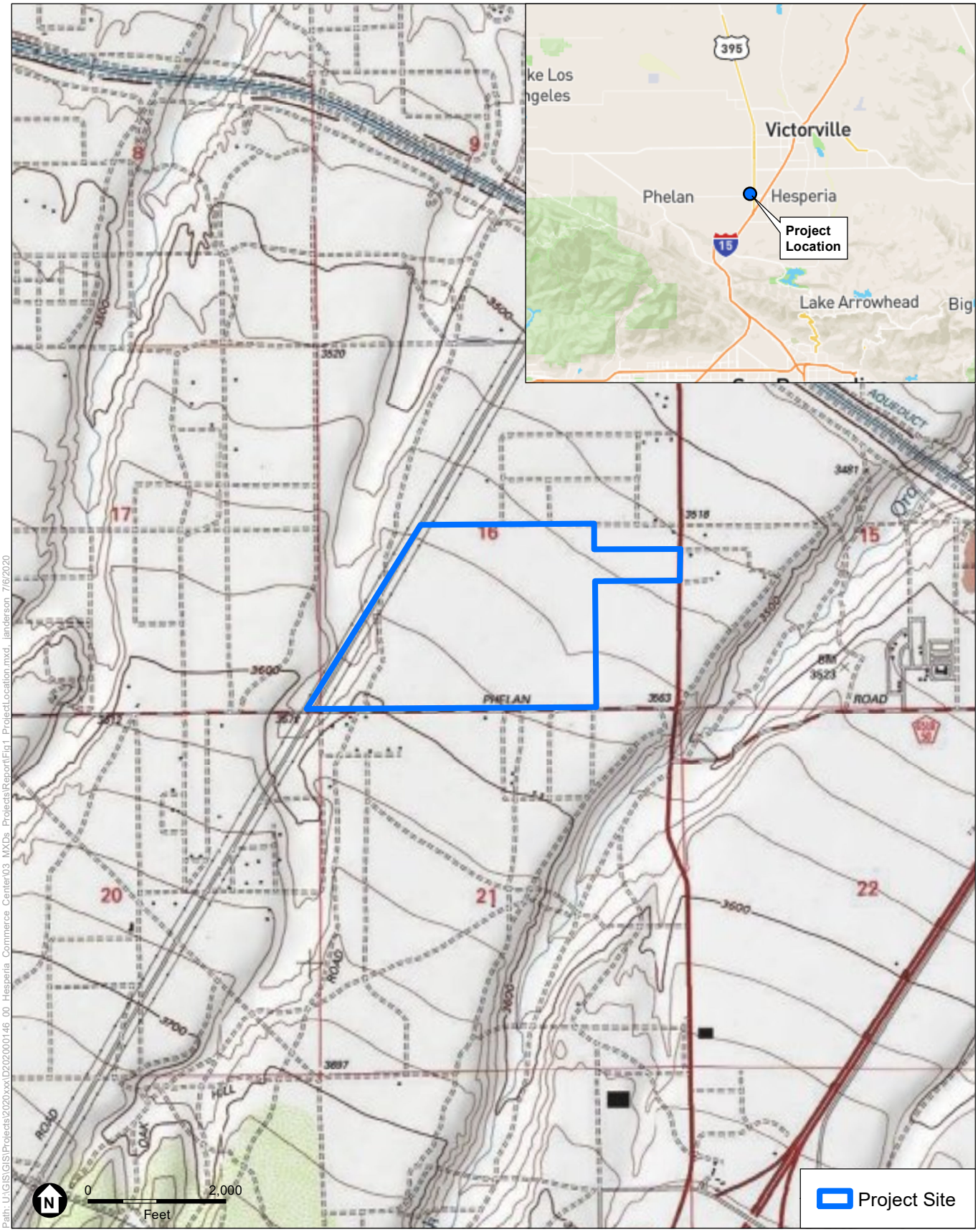
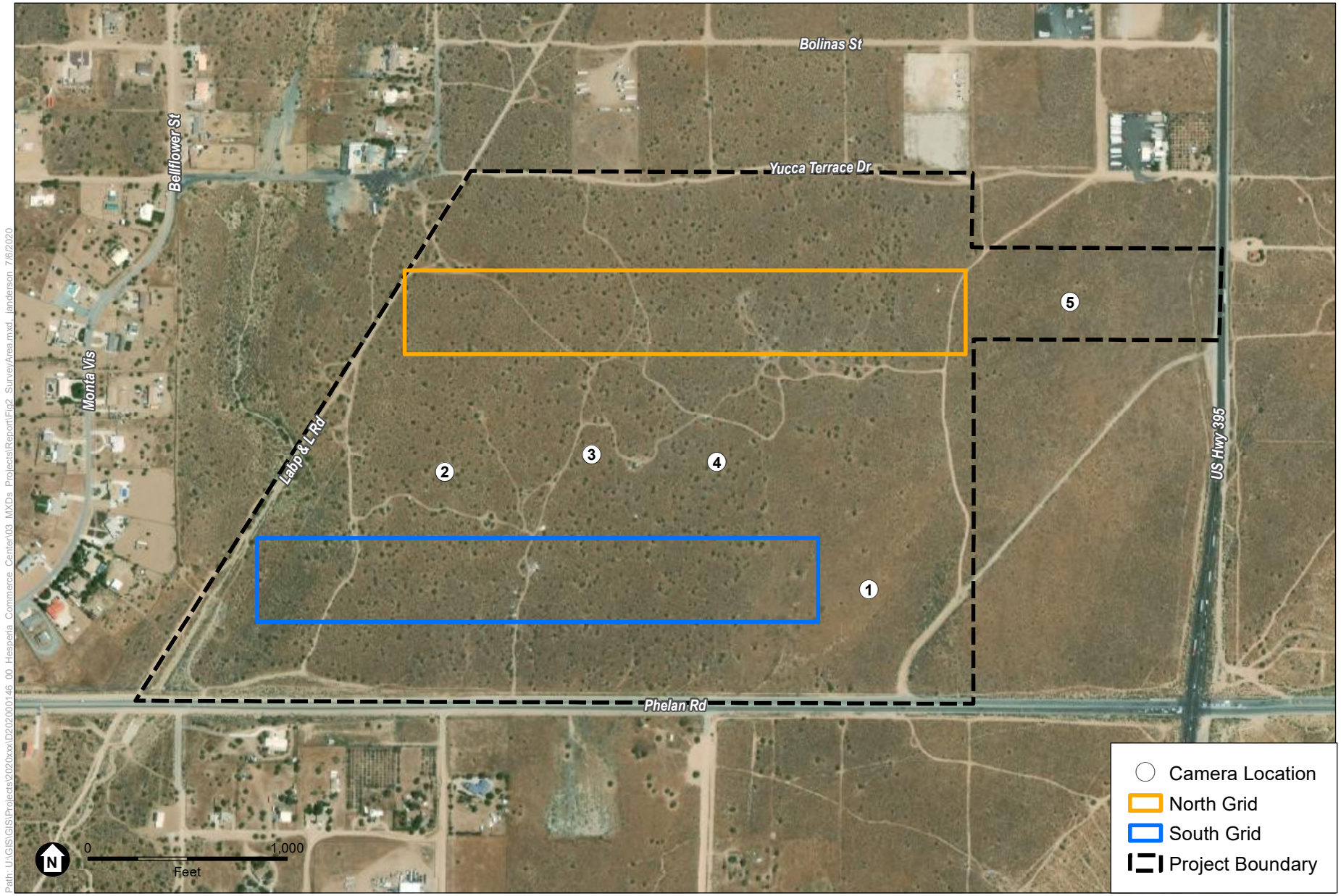


SOURCE: USGS Topographic Series (Baldy Mesa, CA); ESA, 2020.

Hesperia Commerce Center

Figure 1
Project Location

ESA

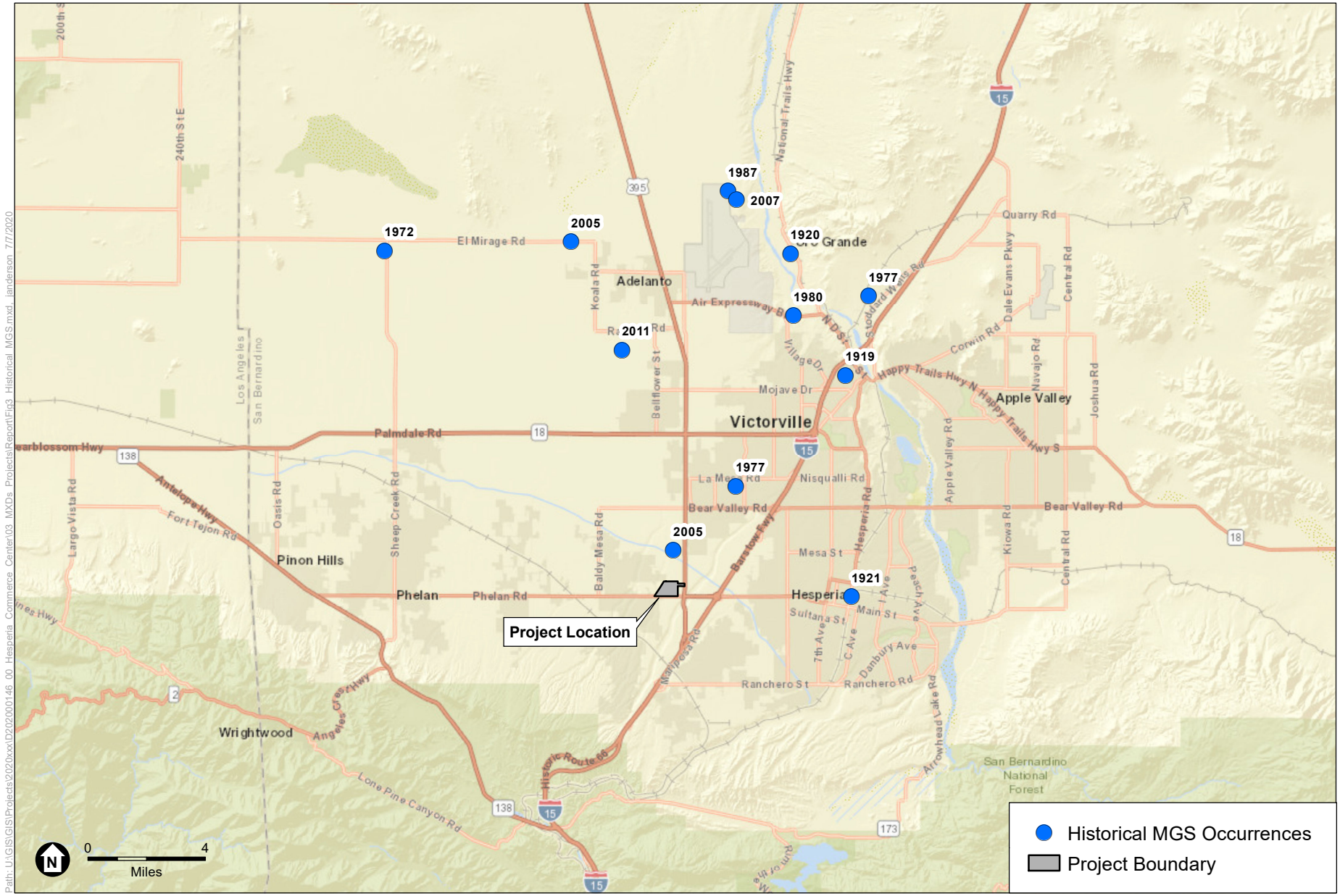


SOURCE: ESRI

Hesperia Commerce Center

Figure 2
Survey Area

ESA

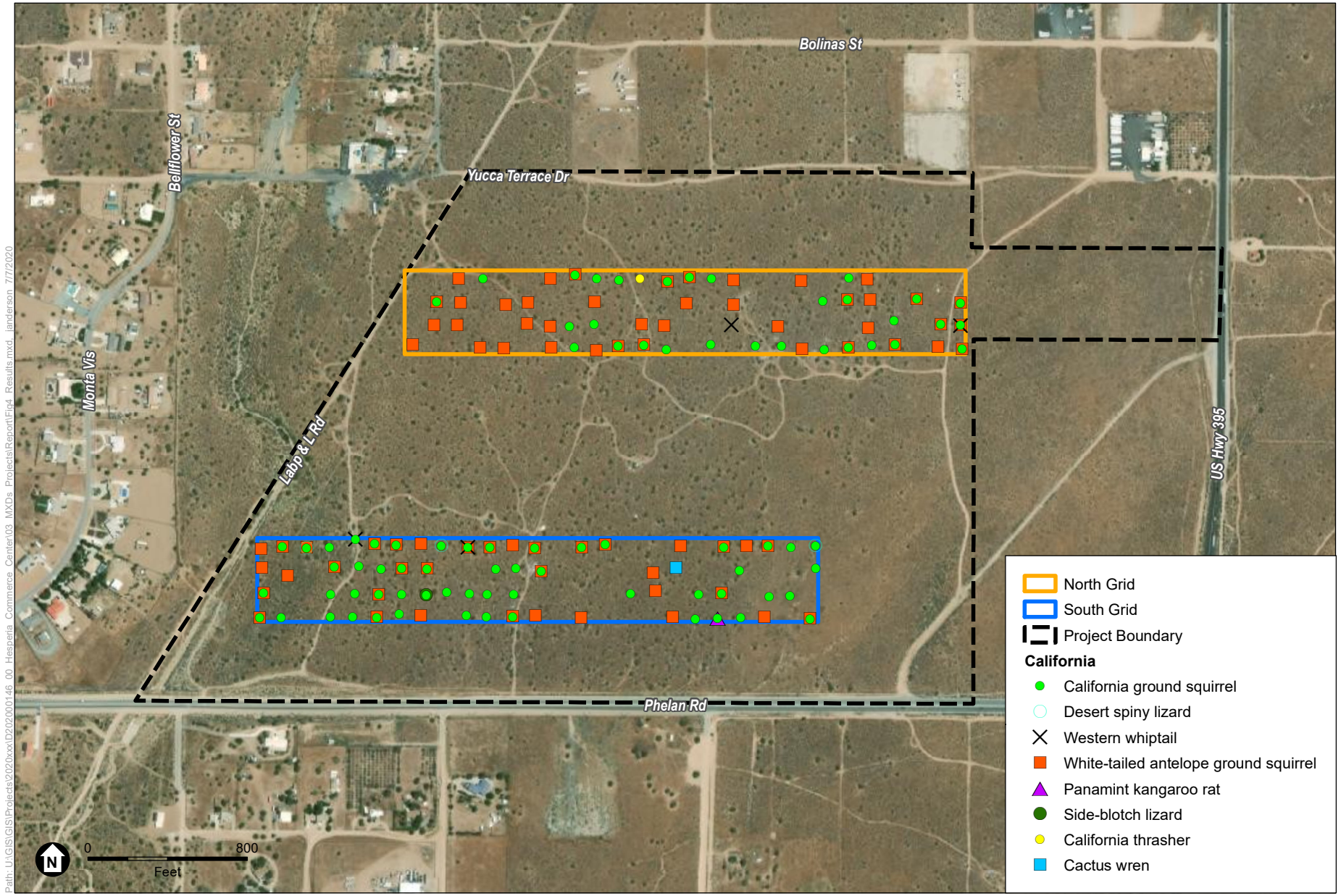


SOURCE: ESRI

Hesperia Commerce Center

Figure 3
Historical MGS Occurrences

ESA



SOURCE: ESRI

Hesperia Commerce Center

Figure 4
Results

ESA

Attachment A

CDFW MGS Survey and Trapping Forms

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: Hesperia Commerce Center (North Grid) Property owner: Covington Group, Inc.

Location: Township 4 North; Range 5 West; Section 16 ; ¼ Section _____

Quad map/series: Baldy Mesa UTM coordinates: A1: 11 462047 3810202
GPS coordinates of trapping-grid corners

Acreage of Project Site: 197.26 Acreage of potential MGS habitat on site: 197.26

Total acreage visually surveyed on project site: 197.26 Date(s): March 29, 2020
visual surveys

Visual surveys conducted by: Karla Flores, Karl Fairchild
names of all persons by date (use back of form, if needed)

Total acres trapped: 197.26 Number of sampling grids: 2

Trapping conducted by: Karla Flores, Karl Fairchild
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST March 30-April 03, 2020 SECOND May 11-May 16, 2020 THIRD June 22-June 26, 2020
if required if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)
Vegetation: dominant perennials: Joshua tree, California juniper, bladder sage
other perennials: Cooper's box thorn, hop sage, winterfat, Anderson desert thorn, cotton thorn, Cooper's goldenbush
dominant annuals: red-stemmed filaree, fiddleneck (Amsinckia tesselata), red brome
other annuals: Goldfields, cheat grass

Land forms (mesa, bajada, wash): Mesa

Soils description: Cajon sand, 0-2 percent slope

Elevation: 3581ft Slope: 0-2 percent

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: Hesperia Commerce Center (South Grid) Property owner: Covington Group, Inc.

Location: Township 4 North ; Range 5 West ; Section 16 ; ¼ Section _____

Quad map/series: Baldy Mesa UTM coordinates: A1 : 11 461819 3809788
GPS coordinates of trapping-grid corners

Acreage of Project Site: 197.26 Acreage of potential MGS habitat on site: _____

Total acreage visually surveyed on project site: 197.26 Date(s): March 29, 2020
visual surveys

Visual surveys conducted by: Karla Flores, Karl Fairchild
names of all persons by date (use back of form, if needed)

Total acres trapped: 197.26 Number of sampling grids: 2

Trapping conducted by: Karla Flores, Karl Fairchild
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST March 30-April 3, 2020 SECOND May 11-May 16, 2020 THIRD June 22-June 26, 2020
if required if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)

Vegetation: dominant perennials: California juniper, Joshua tree, Cooper's box thorn
other perennials: Bladder sage, cotton thorn, hop sage, winterfat, Cooper's goldenbush
dominant annuals: Fiddleneck (Amisinckia tesselata), red-stemmed filaree, red brome
other annuals: Goldfields, cheat grass

Land forms (mesa, bajada, wash): Primarily mesa, wash at west end of grid

Soils description: Cajon sand, 0-2 percent slopes, excluding wash slopes (9-15 percent slope)

Elevation: 3567ft Slope: 0-2; 9-15

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

Attachment B

Weather Details

Appendix B.1 Weather details for Mohave ground squirrel (*Xerospermophilus mohavensis*) California Department of Fish and Wildlife (CDFW) protocol trapping on North grid. Details include grid name (north or south), session (1-3), date, air temperature (min-max ºF), soil temperature (min-max, ºF), wind speed (mph), and cloud cover (%).

Grid	Session		Air Temperature (ºF)		Soil Temperature (ºF)		Wind Speed (mph)		Cloud cover (%)	
			Min	Max	Min	Max	Start	End	Start	End
North	1	3/30/2020	56	73.4	46.2	65	2	4	0	0
North	1	3/31/2020	55.5	76.4	45	64.6	1.8	4.4	40	70
North	1	4/1/2020	54.6	71.5	52	57.6	1.9	9	5	1
North	1	4/2/2020	51.7	66.4	52.3	55.6	4.3	6.7	50	1
North	1	4/3/2020	52.8	65.4	46.9	65.1	3.4	5.9	35	5
North	2	5/11/2020	51.5	75.2	64.4	92.1	2.3	7.6	0	5
North	2	5/12/2020	53.7	72.7	67.1	80.8	11	9.1	5	3
North	2	5/13/2020	52.6	74.6	65.3	95.9	7	12.5	5	1
North	2	5/14/2020	56.8	79.3	64.2	90.7	5.8	6.7	3	5
North	2	5/15/2020	62.4	83.7	67.6	93.9	7.3	4.1	0	3
North	3	6/22/2020	74.7	89	74.6	78.2	3.6	4.9	0	0
North	3	6/23/2020	74.6	89.6	75	77.1	7.5	5.2	0	5
North	3	6/24/2020	78.6	89.2	79.1	81.7	3	9	30	60
North	3	6/25/2020	71.1	89.6	78.6	81.7	7.2	13.8	80	35
North	3	6/26/2020	72.2	90	78	79.5	3	4.7	5	2

Appendix B.2 Weather details for Mohave ground squirrels (*Xerospermophilus mohavensis*) California Department of Fish and Wildlife (CDFW) protocol trapping on South grid. Details include grid name (north or south), session (1-3), date, air temperature (min-max, ºF), soil temperature (min-max, ºF) wind speed (mph), and cloud cover (%).

Grid	Session		Air Temperature (ºF)		Soil Temperature (ºF)		Wind Speed (mph)		Cloud cover (%)	
			Min	Max	Min	Max	Start	End	Start	End
South	1	3/30/2020	63	67.2	52.2	70.1	2.2	6.7	0	0
South	1	3/31/2020	62.8	69.9	51.4	69.1	1.6	7	40	70
South	1	4/1/2020	64.1	66.9	52.3	70.9	4.6	9.4	5	1
South	1	4/2/2020	51	64.3	52.5	60.4	4.8	5.7	40	1
South	1	4/3/2020	50.9	70.5	52.3	67.3	3.2	5.8	0	1
South	2	5/11/2020	52.5	77.7	65.1	89.2	4.2	8.8	5	0
South	2	5/12/2020	58.6	63.4	64.9	86.2	8.2	12.3	5	8
South	2	5/13/2020	57.1	67.2	65	85.8	5.7	6.5	3	1
South	2	5/14/2020	66.6	73.6	63.7	91.6	7	11.7	5	1
South	2	5/15/2020	65	84.4	64	98.2	8.5	2.2	0	0
South	3	6/22/2020	76	88.8	71	75	1.5	3.4	0	0
South	3	6/23/2020	76	90.4	75.2	74.9	7.5	4.5	0	0
South	3	6/24/2020	79.6	89.6	76.5	81.9	2.4	5.1	40	35
South	3	6/25/2020	73.9	90	77.6	81.1	9.9	12.7	80	40
South	3	6/26/2020	76.9	90	78.3	80.8	1.3	3.8	15	5

Attachment C

Species Compendium

	Common name	Scientific name
Plants		
	Amsinckia	*Amsinckia tessellata*
	Anderson's thornbush	*Lycium andersonii*
	Bladdersage	*Salazaria mexicana*
	California juniper	*Juniperus californica*
	Cheat grass	*Bromus tectorum*
	Cheesebush	*Ambrosia salsola*
	Cooper's box thorn	*Lycium cooperi*
	Cooper's goldenbush	*Ericameria cooperi*
	Cotton-thorn	*Tetradymia axillaris*
	Creosote bush	*Larrea tridentata*
	Desert parsley	*Lomantium mohavense*
	Desert sage	*Salvia dorii*
	Goldfields	*Lasthenia californica*
	Green ephedra	*Ephedra viridis*
	Hairy-leaved comb bur	*Pectocarya penivcillata*
	Joshua tree	*Yucca brevifolia*
	Lupine	*Lupinus sp.*
	Mariposa lily	*Calochortus kennedyi*
	Mohave yucca	*Yucca schidigera*
	Parry's linanthus	*Linanthus parryae*
	Red brome	*Bromus madritensis*
	Silver cholla	*Cylindropuntia echinocarpa*
	Spineflower	*Chorizanthe sp.*
	Spiny hopsage	*Grayia spinosa*
	Tidy tips	*Layia platyglossa*
	Winterfat	*Krascheninnikovia lanata*
Reptiles		
	Desert spiny lizard	*Sceloporus magister*
	Gopher snake	*Pituophis catenifer*
	Night lizard	*Xantusiidae vigilis*
	Red racer	*Masticophis flagellum piceus*
	Side-blotch lizard	*Uta stansburiana*
	Great Basin whiptail	*Aspidoscelis tigris tigris*
Birds		
	American kestrel	*Falco sparverius*
	American robin	*Turdus migratorius*
	Anna's hummingbird	*Calypte anna*
	Ash-throated flycatcher	*Myiarchus cinerascens*
	Barn swallow	*Hirundo rustica*
	Bell's sparrow	*Artemisiospiza belli*
	Bewick's wren	*Thryomanes bewickii*
	Black-chinned hummingbird	*Archilochus alexandri*

	Blue-grey gnatcatcher	*Polioptila caerulea*
	Brewer's sparrow	*Spizella breweri*
	Bushtit	*Psaltriparus minimus*
	Cactus wren	*Campylorhynchus brunneicapillus*
	California quail	*Callipepla californica*
	California scrub Jay	*Aphelocoma californica*
	California thrasher	*Toxostoma redivivum*
	California towhee	*Melozone crissalis*
	Common raven	*Corvus corax*
	Cooper's hawk	*Accipiter cooperii*
	Dark-eyed junco	*Junco hyemalis*
	Downy woodpecker	*Dryobates pubescens*
	Eurasian collard dove	*Streptopelia decaocto*
	Horned lark	*Eremophila alpestris*
	House finch	*Haemorhous mexicanus*
	House sparrow	*Passer domesticus*
	Ladder-backed woodpecker	*Dryobates scalaris*
	Lark sparrow	*Chondestes grammacus*
	Lawrence's goldfinch	*Spinus lawrencei*
	Mourning dove	*Zenaida macroura*
	Northern mockingbird	*Mimus polyglottos*
	Oak titmouse	*Baeolophus inornatus*
	Red-tailed hawk	*Buteo jamaicensis*
	Rock pigeon	*Columba livia*
	Say's phoebe	*Sayornis saya*
	Turkey vulture	*Cathartes aura*
	Verdin	*Auriparus flaviceps*
	Western kingbird	*Tyrannus verticalis*
	Western meadowlark	*Sturnella neglecta*
	White-crowned sparrow	*Zonotrichia leucophrys*
	Yellow-rumped warbler	*Setophaga coronata*
Mammals		
	Black-tailed jack rabbit	*Lepus californicus*
	California ground squirrel	*Otospermophilus beecheyi*
	Desert cottontail	*Sylvilagus audubonii*
	Desert kit fox	*Vulpes macrotis*
	Panamint kangaroo rat	*Dipodomys panamintinus*
	White-tailed antelope ground squirrel	*Ammospermophilus leucurus*

Attachment D

Representative Photographs



Photograph 1: Representative view of north grid.



Photograph 2: Representative view of south grid.



Photograph 3: Representative view of lower (eastern) portion of south grid.



Photograph 4: Representative camera station set-up.



Photograph 5: (a) Male white-tailed antelope ground squirrel captured in a Sherman live-trap. (b) Juvenile California ground squirrel captured in a Sherman live-trap.



Photograph 6: Panamint kangaroo rat (*Dipodomys panamintinus*) trapped in Sherman live –trap.



Photograph 7: Great Basin whiptail and desert spiny lizard captured incidentally in traps.

Appendix D-6

Biological Resources Technical Report for the Off-Site Utilities Alignments

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September 2, 2020 12122

Brandon Gallup, Project Manager
Covington Group, Inc.
14180 Dallas Parkway, Suite 730
Dallas, Texas 75254

Subject: Biological Resources Technical Report for the Hesperia Commerce Center II Off-Site Utilities Alignments Located in the City of Hesperia, San Bernardino County, California

Dear Mr. Gallup,

This biological resources technical report documents the existing biological conditions for the Off-Site Utilities Alignments associated with the Hesperia Commerce Center II Project (Project). The Off-Site Utilities Alignments consists of the construction of the Off-Site Storm Drain Alignment, the Off-Site Sewer Alignment, and the Off-Site Water Alignment which collectively will be constructed within a total of 30,609 linear feet of dirt access roads and right-of-way (ROW) for Yucca Terrace Drive, Los Banos Avenue, Sultana Street, and Phelan Road. Collectively, the Off-Site Storm Drain Alignment, the Off-Site Sewer Alignment, and the Off-Site Water Alignment will herein be referred to as the Off-Site Utilities Alignments. This report also includes a discussion of the special-status biological resources observed and with a potential to occur along the route, an analysis of potential impacts to biological resources because of Project implementation, and recommendations to avoid or minimize impacts below a level of significance.

1 Project Location and Present Use

The proposed Off-Site Utilities Alignments are located in the eastern part of the City of Hesperia (City), in the Victor Valley/High Desert region of western San Bernardino County. The Off-Site Utilities Alignments are within public land survey system (PLSS) Sections 15 and 16 of Township 4 North, Range 5 West, within *Baldy Mesa*, CA 7.5-minute USGS Quadrangle (Attachment A: Figure 1, Project Location; Figure 2, Local Topographic Map).

The Off-Site Storm Drain Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, and terminating at a west-facing bank of the Oro Grande Wash to the east.

The Off-Site Sewer Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, crossing under US Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45-degree angle to the southeast and extending roughly 1,100 feet across Oro Grande Wash. Within the Oro Grande Wash, the sewer line will be located under the existing grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

The Off-Site Water Alignment extends west from U.S. Highway 395, crosses the Oro Grande Wash and continues along Sultana Street, then travels north at Los Banos Avenue, terminating at Phelan Road.

Regional access to the Off-Site Utilities Alignments is provided by U.S. Highway 395 and Interstate (I) 15 (Attachment A: Figure 1, Project Location).

The Off-Site Utilities Alignments are situated along existing dirt access roads surrounded by vacant, undeveloped land, with a few residences along the Off-Site Water Alignment, and has been disturbed as a result of illegal dumping, trespassing, and unpermitted off-road vehicle use. These previously unpermitted activities have led to areas of exposed bare soils (where trails have formed) and several refuse piles sporadically along both the Off-Site Utilities Alignments. Ground surface cover consists of moderate native brush and shrub growth, with occasional Juniper and Joshua trees located throughout the site. The site's surface elevation ranges between approximately 3,522 and 3,602 feet above mean sea level (msl) and the local topographic gradient is approximately two percent towards the northeast with the southwestern corner of the site sloping moderately downward to the west. Land uses generally surrounding the Off-Site Utilities Alignments primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. The study area for the Off-Site Utilities Alignments includes the entire proposed Off-Site Utilities Alignments and a 500-foot buffer around the entire route.

2 Project Description

The Project consists of the development of a three industrial/warehouse buildings totaling approximately of 3,745,429 square feet. The Off-Site Utilities Alignments would be constructed to support the Project.

Off-Site Storm Drain Alignment

A new engineered stormwater drainage system would be constructed as part of the three-building industrial/warehouse development to collect and treat on-site stormwater. The Project and its new stormwater drainage system would be required to capture and treat all on-site stormwater generated by design storm events, as defined by both the City of Hesperia and County of San Bernardino. Stormwater from actual storm events that exceed these design storm events would be permitted to flow into the Oro Grande Wash by means of the Off-Site Storm Drain Alignment, which would be 96-inch-diameter storm drain pipe. This new storm drain alignment would exit the Project site in an easterly direction, traversing along Yucca Terrace Drive to the east, crossing under U.S. Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45° angle to the southeast and extending roughly 175 feet before outletting into the bank of the wash. The Oro Grande Wash is a regional storm drain facility that is part of the City of Hesperia's Master Plan of Drainage, is located in the Project's off-site improvement area. The wash has an earthen bottom and is routinely maintained by the San Bernardino County Flood Control District. This flood control channel flows for approximately 9 miles to the north and northeast of the Project site, recharging the underlying groundwater basin (Upper Mojave River Valley Basin) before eventually draining into the Mojave River.

Off-Site Sewer Alignment

Sanitary sewer service would be provided to the Project via a new connection with a new 12-inch-diameter sewer line located within an easement held by the City of Hesperia to master-planned sewer facilities in the City of Hesperia. Similar to new storm drain line, the new sewer alignment would exit the Project site in an easterly direction, traversing along Yucca Terrace Drive to the east, crossing under U.S. Highway 395 and continuing

approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45° angle to the southeast and extending roughly 1,100 feet across the wash. Within the Oro Grande Wash, the sewer line will be located under the existing grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

Off-Site Water Alignment

Domestic, irrigation, and fire protection water services would be made via new connections to existing Hesperia Water District Company facilities located on the north side of the Project site. Existing 6-inch-diameter, 8-inch-diameter, and 12-inch-diameter water lines are located within U.S. Highway 395, Phelan Road, and the portions of Yucca Terrace Road immediately northwest of the Project site. Certain segments of these existing water lines will need to be upsized as a result of the Project. In addition, a new 12-inch-diameter water line will installed within the remaining part of Yucca Terrace Road that is not currently served by water, as well as along the western Project boundary.

A new 16-inch-diameter transmission water pipeline will also be installed to provide adequate water service for the Project. This new 16-inch-diameter transmission water pipeline will begin at the intersection of U.S. Highway 395 and Sultana Street and traverse west along Sultana Street crossing the Oro Grande Wash to Los Banos Avenue. From there it will traverse north and connect to a new 12-inch–diameter water main along Phelan Road.

Because the new 16-inch-diameter transmission water pipeline will travel across the Oro Grande Wash and traditional trenching pipe installations will not be feasible, this new water pipeline be installed using the jack and bore method as not to disturb the wash. This will be similar to the installation method of the proposed 12-inch diameter sewer main that will also be installed across the Oro Grande Wash, as discussed above. A pit will be constructed at each end of the wash and the pipe will be bored through from one pit to the other without disturbing the ground surface.

3 Methods

3.1 Literature Review

To evaluate the natural resources found or potentially occurring within the study area, literature searches and database reviews were conducted by Dudek biologists. The database review included the most recent versions of the California Natural Diversity Database (CNDDB) and special status species lists (CDFW 2020a-2020e), and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2020). These databases were reviewed to identify sensitive biological resources present or potentially present for the U.S. Geological Survey (USGS) 7.5-minute quadrangle on which the study area is located (Baldy Mesa) and the eight surrounding quadrangles (Shadow Mountains SE, Adelanto, Victorville, Phelan, Hesperia, Telegraph Peak, Cajon, and Silverwood Lake). Potential and/or historic drainages and aquatic features were investigated based on a review of USGS topographic maps (1:24,000 scale), aerial photographs, the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) database (USFWS 2020), and the Natural Resource Conservation Service's (NRCS) Web Soil Survey (USDA 2019a).

3.2 Soil Survey Review

According to the NRCS Web Soil Survey (USDA 2019a), the study area occurs within the San Bernardino County, Mojave River Area (CA671). The study area is comprised of four types of soil: Cajon sand (0 to 2 percent slopes), Cajon sand (2 to 9 percent slopes), Cajon sand (9 to 15 percent slopes), and Hesperia loamy fine sand (2 to 5 percent slopes). The soil series are described in more detail below. Portions of the surface soils observed in the study area have been significantly compacted due to the construction of dirt roads within the study area (Attachment A: Figure 3, Soils).

- **Cajon Series** consists of mixed, thermic Typic Torripsamments that formed in sandy alluvium from dominantly granitic rocks. Cajon soils are found on alluvial fans, fan aprons, fan skirts, inset fans, and river terraces at elevations of 200 to 4,300 feet above sea level. These soils drain somewhat excessively with negligible to low runoff and rapid permeability. Cajon soils are extensively distributed throughout southeastern California, southern Nevada, and Arizona. Desert shrubs make up most of the vegetation found within this series.
- **Hesperia Series** consists of coarse-loamy, mixed, superactive, nonacid, thermic Xeric Torriorthents that formed in alluvium derived primarily from granite and related rocks. Hesperia soils are found on long, smooth, alluvial fans, and valley fill at elevations of 200 to 4,800 feet above sea level. These soils are well drained with negligible to low runoff and moderately rapid permeability. Hesperia soils have a limited distribution, and are found mainly within the lower San Joaquin Valley, and the high dessert of Southern California. Typical vegetation within this series varies from agricultural crops, to sparse annuals in the valley.

3.3 National Wetlands Inventory Review

A review of the National Wetlands Inventory (NWI) dataset revealed a single wetland type is mapped within the study area (USFWS 2019b). A riverine feature, Oro Grande Wash, is mapped within the study area, and classified as R4SBC by NWI, which stands for Riverine Intermittent Streambed Seasonally Flooded.

3.4 Biological Reconnaissance

General biological reconnaissance of the Off-Site Utilities Alignments were conducted during two separate site visits. Dudek biologist Tommy Molioo conducted a general biological reconnaissance of the proposed Off-Site Storm Drain Alignment and the Off-Site Sewer Alignment, along Yucca Terrace Drive, on May 21, 2020. The survey was conducted from 10:30 am to 1:00 pm; weather conditions were favorable with 0% cloud cover, wind speeds of 2 to 4 miles per hour, and a temperature of 72° Fahrenheit (°F). Dudek biologists Tommy Molioo, and Rachel Swick conducted a general biological reconnaissance of the proposed Off-Site Water Alignment, along Los Banos Avenue, on July 14, 2020. The survey was conducted from 11:00 am to 2:00 pm; weather conditions were favorable with 5% cloud cover, wind speeds of 10 to 15 miles per hour, and a temperature of 81°F.

All native and naturalized plant species encountered Off-Site Utilities Alignments were identified and recorded. The potential for special-status plant and wildlife species to occur within the study areas was evaluated based on the vegetation communities and soils present. Dudek used CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2009) and *List of Vegetation Alliances*

and Associations (CDFW 2010), also referred to as the Natural Communities List, to map the entire study area. Vegetation communities and land covers were delineated to the vegetation alliance level, and where appropriate the association level. Some modifications, such as the *Preliminary Descriptions of the Terrestrial natural Communities of California* (Holland 1986, and Oberbauer update 200), were incorporated to accommodate the lack of conformity of the observed communities to those included in these references.

Latin and common names for plant species with a California Rare Plant Rank (CRPR) follow the CNPS *Inventory of Rare and Endangered Plants* (CNPS 2020). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2020) and common names follow the United States Department of Agriculture's Natural Resources Conservation Service Plants Database (USDA 2020b). Latin and common names of animals follow Crother (2008) for reptiles and amphibians, American Ornithologists' Union for birds (AOU 2016), Wilson and Reeder (2005) for mammals, North American Butterfly Association (NABA 2016) or San Diego Natural History Museum for butterflies (SDNHM 2002), and Moyle (2002) for fish.

Dudek also conducted an assessment for the presence of waters or wetlands potentially subject to regulatory agency jurisdiction, including searching for the presence of drainage features and topographic features and soils that could support standing water. A formal wetland delineation was conducted concurrently with the biological reconnaissance and the methodology is included below.

3.5 Jurisdictional Delineation

A review of the NWI dataset revealed that a single wetland type is mapped within the eastern extent of the Off-Site Sewer Alignment and Off-Site Water Alignment (USFWS 2020b). A riverine feature is mapped within the study area, Oro Grande Wash, which is classified by Cowardin as R4SBC (Riverine Intermittent Streambed Seasonally Flooded).

The study area was surveyed on foot where potential jurisdictional features were observed and was surveyed for the following types of features:

- Waters of the United States, including wetlands, under the jurisdiction of the ACOE, pursuant to Section 404 of the federal Clean Water Act
- Waters of the state under the jurisdiction of the RWQCB, pursuant to Section 401 of the federal Clean Water Act and the Porter-Cologne Water Quality Control Act as wetlands or drainages
- Streambeds under the jurisdiction of the CDFW, pursuant to Section 1602 of the California Fish and Game Code

Non-wetland waters of the United States were delineated based on the presence of an OHWM as determined using the methodology in A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (ACOE 2008b). Wetland waters of the United States were delineated based on methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (ACOE 1987) and the ACOE Regional Supplement (ACOE 2008a). Pursuant to the federal Clean Water Act, ACOE and RWQCB jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but can also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Water Quality

Control Act. Isolated features are delineated at the OHWM, at the outer limits of hydrophytic vegetation, or at the outer rim of depressional features if relevant.

Streambeds are typically delineated from top of bank to top of bank or the extent of the overhanging canopy of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement.

To aid in the delineation, data was collected at two data stations. Hydrology, vegetation, and soils were assessed, and data were collected on an approved ACOE Arid West Wetland Determination Data form. The site was evaluated for wetland vegetation, wetland hydrology, and hydric soils. Photos of the jurisdictional features were taken in accordance with ACOE guidelines and are provided in Attachment B, Site Photos.

4 Results

4.1 Study Area Description

The proposed Off-Site Storm Drain Alignment and the Off-Site Sewer Alignment show evidence of previous minor disturbances, mainly the construction of Yucca Terrace Drive, a dirt road. Five Rivers Fleet Services, a truck depot, occurs adjacent to the northern edge of the study area, on the west side of US Route 395. The southeast edge of the Off-Site Storm Drain Alignment and the Off-Site Sewer Alignment includes a small portion of the Desert Willow RV Resort. The proposed Off-Site Water Alignment also shows evidence of previous disturbance, mainly the construction of Los Banos Avenue, a dirt road. A group of residential buildings are adjacent to the east side of Los Banos Avenue. The area to the south of the proposed Off-Site Water Alignment shows evidence of previous ground disturbing activities. The entire Off-Site Utilities Alignment is surrounded by Joshua tree (*Yucca brevifolia*) woodland vegetation, and several developed areas such as Phelan Road. Dominant species observed in this community include scattered shrubs and small trees such as Joshua tree, California buckwheat (*Eriogonum fasciculatum*), and California juniper (*Juniperus californica*). Non-native grasses were observed within the study area including red brome (*Bromus madritensis* ssp. *rubens*), and wild oat (*Avena fatua*), along with other non-native forbs such as short-podded mustard (*Hirschfeldia incana*). The study area is relatively flat with no significant topographic features, and occurs at an elevation of approximately 3,500 feet above mean sea level (AMSL). Representative photographs of the study area are included in Attachment B.

4.2 Vegetation Communities and Land Covers

The study area consists of predominantly Joshua tree woodland vegetation, with scattered native shrubs and forbs. While native shrubs dominate the vegetation cover, non-native grasses and forbs are present within the study area. The Off-Site Storm Drain Alignment and the Off-Site Sewer Alignment also contains a small section of developed land. There are no sensitive vegetation communities within the study area (Attachment A: Figure 4, Vegetation).

4.2.1 Natural Land Covers

***Yucca brevifolia* Woodland Alliance –** The *Yucca brevifolia* woodland alliance, or Joshua Tree Woodland, mapping unit refers to areas where Joshua trees are evenly distributed at 1 percent or greater cover, and *Juniperus* and/or *Pinus* spp.

account for less than 1 percent of the absolute cover in the tree canopy. Other typical vegetation for this alliance include white bursage (*Ambrosia dumosa*), big sagebrush (*Artemisia tridentata*), buckhorn cholla (*Cylindropuntia acanthocarpa*), California buckwheat (*Eriogonum fasciculatum*), Anderson's boxthorn (*Lycium andersonii*), and banana yucca (*Yucca baccata*). In the study areas, this mapping unit also includes a large covering of non-native grasses, and forbs.

4.2.2 Non-Natural and Unvegetated Land Covers

Developed Land. The developed mapping unit is not recognized by the Natural Communities List (CDFW 2020e) but is described by Oberbauer et al. (2008). Developed land typically includes areas that have been constructed upon and do not contain any naturally occurring vegetation. These areas are generally characterized as graded land with asphalt and concrete placed upon it. Developed areas mapped for the study area include a small northwestern portion of the Desert Willow RV Resort. No vegetation was observed within developed areas on the study area.

Table 1 provides a summary of each land cover's extent within the study area.

Table 1 Vegetation Communities and Land Covers within the Study Area

Vegetation Community/Land Cover	Acreage
Joshua Tree Woodland	80.0 acres
Developed land	0.17 acres
Total	**80.17 acres**

4.3 Wildlife

The study areas consist predominantly of non-native grasses such as wild oat, and red brome, scattered shrubs and small trees such as California buckwheat, and California juniper, and Joshua trees. The vegetation found within the study area can support a variety of native wildlife. The study areas show evidence of minor previous disturbances, mainly debris dumping and construction of dirt roads, and there is intact, or minorly disturbed Joshua tree woodland vegetation surrounding the study areas.

Wildlife species diversity was limited during the May 21, 2020 biological reconnaissance survey. Bird species observed or detected included the house finch (*Haemorhous mexicanus*), ferruginous hawk (*Buteo regalisi*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), and cactus wren (*Campylorhynchus brunneicapillus*). No active bird nests were observed during the field visit; however, the study area could support nesting migratory and resident birds, particularly within the Joshua trees, and scattered shrubs in the study area. Mammal species observed included the black-tailed jackrabbit (*Lepus californicus*), and California ground squirrel (*Spermophilus beecheyi*). One reptile species was observed, western fence lizard (*Sceloporus occidentalis*). No amphibian, or invertebrate species were observed within the study area.

Wildlife species diversity was again limited during the July 14, 2020 biological reconnaissance survey. Bird species observed or detected included the common raven (*Covus corax*), northern mockingbird (*Mimus polyglottos*), California quail (*Callipepla californica*), turkey vulture (*Cathartes aura*), greater roadrunner (*Geococcyx californianus*), and cactus wren. No active bird nests were observed during the field visit; however, the study area could support nesting migratory and resident birds, particularly within the Joshua trees, and scattered shrubs in the

study area. Mammal species observed included the black-tailed jackrabbit (*Lepus californicus*), and white-tailed antelope squirrel (*Ammospermophilus leucurus*). One reptile species was observed, tiger whiptail (*Aspidoscelis tigris*). No amphibian, or invertebrate species were observed within the study area.

The complete list of wildlife species observed within the study areas are included in Attachment C. Details regarding the potential for special-status species to occur within the study areas are discussed further below.

4.4 Special-Status Plant Species

Special-status plants include those listed, or candidates for listing as threatened or endangered by USFWS or CDFW, or species identified as rare by CNPS (particularly California Rare Plant Rank (CRPR) 1A – Presumed extinct in California; CRPR 1B – Rare, threatened, or endangered throughout its range; and CRPR 2 – Rare or Endangered in California, more common elsewhere). A total of 55 special-status plant species were reported in the CNDDB, USFWS, and CNPS databases as occurring in the vicinity of the study area. Attachment D, includes the species lists provided from these database searches that were evaluated as part of this assessment. For each species evaluated, a determination was made regarding the potential for the species to occur on site based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, and past and present land use.

Of the 55 special-status plant species listed in the CNDDB, CNPS, and USFWS databases as occurring in the vicinity of the study area, 49 species were determined to have no potential to occur within the study areas based on an evaluation of species ranges/elevation and known habitat preferences. Four special-status species were determined to have a low potential to occur due to limited suitable habitat within the study area; however, none of these four species were observed and are not expected to occur within the study area. Therefore, no further discussion regarding these four species will be provided. Two special status species, Mojave paintbrush (*Castilleja plagiotoma*), and crowned muilla (*Muilla coronate*), were determined to have a moderate potential to occur due to suitable habitat, and nearby occurrences; however, both of these species have a CNPS ranking of 4.0 or greater. Therefore, no further discussion regarding these two species will be provided. The complete list of species evaluated with a determination of their potential to occur in the study areas is provided in Attachment E.

4.5 Special-Status Wildlife Species

Special-status wildlife include those listed, or candidates for listing, as threatened or endangered by USFWS or CDFW, or designated as a Species of Special Concern by CDFW. A total of 49 special-status wildlife species were reported in the CNDDB and USFWS databases as occurring in the vicinity of the study area. Attachment D summarizes the special-status wildlife species that were included in these databases and evaluated as part of this assessment. For each species evaluated, a determination was made regarding the potential use of the site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of their relative distributions in the area.

Of the 49 special-status wildlife species listed in the CNDDB and USFWS databases as occurring in the vicinity of the study area, 44 species were determined to have no potential to occur within the study area based on an evaluation of species ranges/elevation and known habitat preferences. Two special-status species were determined to have a low potential to occur due to limited suitable habitat within the study area; however, due to

the distance from other occurrences, and the low quality of the habitat with the study area, the study area lacks suitable habitat to support these species and these species were not observed during the biological reconnaissance. Species with no or low potential to occur are omitted from further discussion in this report. Mohave ground squirrel (*Spermophilus (Xerospermophilus) mohavensis*), and Mojave desert tortoise (*Gopherus agassizii*) were determined to have a moderate potential to occur due to suitable habitat. Burrowing owl (*Athene cunicularia*) was determined to have a high potential to occur due to suitable burrowing sites within the study area, and nearby recorded occurrences. These three species will be discussed further in the following sub-sections. The complete list of species evaluated with a determination of their potential to occur on the study area is provided in Attachment E.

4.5.1 Mohave Ground Squirrel

Mohave ground squirrels (*Xerospermophilus mohavensis*; MGS) are state classified as threatened, and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance and habitat loss from by converting suitable habitat to urban, suburban, agricultural and military land uses (Gustafson 1993, Leitner and Leitner 2017). They are medium-sized (210-230mm, 85-130g), diurnal squirrels with a dorsal pelage that is light gray to cinnamon-brown, while their ventral side is creamy. Unlike the round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancha in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare, occurrences have been documented on the California Natural Diversity Database (CNDDB) as recently as 2011. Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs.

Although there is marginally suitable MGS habitat present on the Project site, no MGS were detected at the camera stations or captured during the trapping surveys conducted by ESA in 2020 (ESA 2020). As such, the survey results indicate that MGS do not inhabit the Project site at this time. Additionally, the high density of California juniper on site is indicative that the area is within the Mohave-transmontane transition zone, an area with low likelihood of use by MGS. Furthermore, the disturbances from human presence and fragmentation from surrounding roadways, including OHV use and illegal waste dumping within the Project site has had a negative effect on habitat quality for MGS. Records from the California Natural Diversity Database (CNDDB) reveal two occurrences of MGS near the Project site that were detected in 2005 and 2011. However, both these records are from sites located across the California Aqueduct making dispersal to the Project site highly unlikely, because the aqueduct creates a considerable barrier to dispersal.

Although suitable MGS habitat is present on site, no MGS were captured during the live-trapping surveys or detected at camera stations. As a result, CDFW survey guidelines indicate that the Department will stipulate that no MGS occur on the Project site and none will be impacted by the Project. This stipulation will expire one year from the last day of trapping, June 20, 2020.

4.5.2 Mojave Desert Tortoise

The Mojave desert tortoise is a state and federally-listed as threatened species that is a large, herbivorous reptile. Mojave desert tortoises are typically active during the day and when annual plants are most abundant during spring and early summer. However, they can also be active following rain events and unseasonably warm periods during fall and winter. If rain events occur at night, tortoises may emerge from their burrows to drink. Female desert tortoises construct nests during the late afternoon and evening, and any desert tortoise may emerge from its burrows at night during extreme heat (see section 7.3). Desert tortoises usually spend the remainder of the year in shelter sites, escaping the extreme weather conditions of the Mojave Desert. Location and type of shelter sites vary greatly in different geographic locations.

Most habitat for the Mojave population of the desert tortoise is below 4,500 feet (1372 meters) elevation in the creosote bush-bursage series of the Mojave desert scrub biome; dominant plants are creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Desert tortoise habitat may also include various cacti species (*Opuntia* spp.), saltbush (*Atriplex* spp.) scrub, and Joshua tree (*Yucca brevifolia*) woodlands at elevations up to approximately 5,000 feet (1524 meters).

Focused surveys for desert tortoise were conducted by Dudek in April and May 2020 within the entire study area and the surrounding three concentric 200 meter rings to determine the presence/absence of desert tortoise following USFWS 2010 protocol (Dudek 2020). The surrounding buffer encompassed the majority of the Off-Site Utility Alignments and included similar habitat as what was observed on the entire Project site. The focused surveys determined No live desert tortoises, desert tortoise sign, or suitable burrows were observed within the survey area. The survey area is at the edge of desert tortoise known range, and the vegetation present on site is relatively low quality, with a heavy presence of non-native species. The vegetation throughout the site has been impacted by illegal trash dumping and unauthorized off-road vehicle use. In addition, no desert washes or dominance of creosote bush (*Larrea tridentata*) scrub are present within the survey area, which are requirements for the presence of desert tortoise. Therefore, no desert tortoises will be impacted by the Project.

4.5.3 Burrowing Owl

Burrowing owl is a California SSC species. It occurs throughout North and Central America west of the eastern edge of the Great Plains south to Panama. The winter range is much the same as the nesting range, except that most burrowing owls apparently vacate the northern areas of the Great Plains and the Great Basin in winter (County of Riverside 2008). The majority of burrowing owls that breed in Canada and the northern United States are believed to migrate south during September and October and north during March and April and into the first week of May. These individuals winter within the nesting habitat of more southern populations. Thus, winter observations may include migratory individuals and the resident population (County of Riverside 2008). The burrowing owls in Northern California are believed to migrate (Coulombe 1971).

In California, burrowing owls are year-round residents of flat, open, dry grassland and desert habitats at lower elevations. They can inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation. They may be found in areas that include trees and shrubs if the cover is less than 30%; however, they prefer treeless grasslands (Bates 2006). Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road

allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside 2008). They typically require burrows made by fossorial mammals, such as California ground squirrels. This species also prefers sandy soils with higher bulk density and less silt, clay, and gravel (Lenihan 2007).

Burrowing owl has the potential to occur within the understory of the Joshua Tree woodland habitat that occurs on the Off-Site Utilities Alignments. Several small mammal burrows potentially suitable to support nesting burrowing owls were observed on site during general and focused surveys conducted by Dudek in 2020. However, no individual burrowing owls, sign of presence (i.e., whitewash, pellets), or active/inactive burrowing owl burrows were observed on the utility. Due to the delay in Project construction from the time surveys were conducted, and the continued presence of suitable habitat, the potential future presence of burrowing owl cannot be entirely ruled out. Therefore, there is a potential for this species to occupy the Off-Site Utilities Alignments prior to the start of construction, and if found, may be impacted by construction of the Project.

4.6 Jurisdictional Waters and Wetlands

The delineation of potential jurisdictional waters on the study area determined there is one drainage within and immediately adjacent to the study area that could be subject to regulatory agency jurisdiction (Attachment A: Figure 5, Watershed Map; Figure 5, Aquatic Resources Delineation). An ephemeral riverine feature, Oro Grande Wash, occurs within the eastern portion of the study area and the Off-Site Utilities Alignments encroach into jurisdictional limits of the wash. Oro Grande Wash historically drains flows from Baldy Mesa north (downstream) towards the Mojave River located approximately 10 miles to the northeast. Development to the south of the Project site has obstructed flows from the south to the Project site, thereby limiting upstream connectivity. Oro Grande Wash locally drains runoff from the Project site and adjacent roads during rain events, and does not regularly convey water flows. As such there is no observable Ordinary High Water Mark (OHWM). Although the wash demonstrates downstream hydrological connectivity with a Relatively Permanent Water (RPW) the lack of an OHWM within an ephemeral wash eliminates the potential for this feature to be subject to U.S. Army Corps of Engineers (ACOE) jurisdiction as a Water of the U.S. regulated by Section 404 of the Clean Water Act (CWA). On January 23, 2020, the Environmental Protection Agency and ACOE published a final rule (33 CFR, Part 328) defining the scope of waters protected under the CWA in an effort to undo the broad interpretation of federal jurisdiction established in the 2015 "Clean Water Rule" (80 Federal Regulation 37053). The new rule, referred to as the "Navigable Waters Protection Rule," issued new regulations to redefine the types of waterbodies covered by the federal CWA, which removed protections for non-wetland ephemeral waters. Therefore, the portion of Oro Grande Wash within the study area for the Off-Site Utilities Alignments is not protected by the ACOE. Additionally, there are no areas capable of supporting wetlands on the study area, no riparian habitats were observed, and no soils mapped on the study area are considered hydric. Soil pits dug within and in upland areas immediately adjacent to the wash determined that soils have a sandy texture with a color of 10YR ¾ and show no signs of redoximorphic features.

However, the Oro Grande Wash is still considered a protected non-wetland water of the State regulated by the Regional Water Quality Control Board under Section 401 of the CWA, as well as a CDFW-regulated unvegetated streambed under Section 1600 et seq. of California Fish and Game Code. As currently designed the proposed Off-Site Utilities Alignments will bore beneath the Oro Grande Wash, thereby reducing potential impacts to a state regulated water. However, if the final Project design results in an above ground encroachment into Oro Grande Wash, the Project Applicant will be required to first obtain the appropriate permits from the regulatory agencies.

4.7 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, providing access to adjacent habitat areas for foraging and mating, and providing routes for recolonization of habitat after local extirpation or ecological catastrophes (e.g., fires).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. Habitat linkages provide a potential route for gene flow and long-term dispersal of plants and animals and may serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be continuous habitat or discrete habitat islands that function as steppingstones for dispersal.

No portions of the study area function as a wildlife corridor or linkage that connect to larger habitat areas in the region, such as the San Bernardino National Forest to the south. Interstate-15 is approximately 1 mile to the east of the study area, the California Aqueduct is approximately 0.4 miles north of the study area, and the study area crosses over US Route 395. All three of these road and waterways impose significant hindrances to wildlife corridors and habitat linkages in the area. However, there is a potential for local wildlife movement across the Project site and towards features such as Oro Grande Wash. Species that could use the Project site for local movement would be displaced during the construction phase of the Project. However, the surrounding habitat provides numerous opportunities for local wildlife to continue using adjacent off-site areas for movement throughout the local area. Due to the relatively limited scope of the Project and existing development in the area, construction of the Project would not result in an impact to any regional wildlife corridors or habitat linkages.

4.8 Regional Resource Planning Context

The study area does not occur within any proposed or existing Habitat Conservation Plans (HCP) or Natural Community Conservation Plans (NCCP) for local or regional protection of species. Therefore, construction of the Project will not result in an impact to any HCPs or NCCPs. Section 16.24 of the City of Hesperia Municipal Code requires a permit before any Joshua tree (mature, or immature) may be harvested or removed.

5 Recommendations

This section addresses the anticipated impacts (direct and indirect) to biological resources that would result from implementation of the Project. The following recommendations will reduce any proposed or potential impacts to the thresholds provided in the California Environmental Quality Act Guidelines Section 15064(b) and Appendix G Environmental Checklist to a less than significant level. Recommendations are included for the previous evaluation of the Project's impacts on potentially affected resources including: special-status species, riparian and sensitive vegetation communities, jurisdictional wetlands and waters, wildlife movement, local policies and ordinances, and regional conservation planning.

5.1 Nesting Birds

Avoid construction activities during the bird nesting season (generally February 1 through August 30) to ensure compliance with the federal Migratory Bird Treaty Act and California Fish and Game Code Section 3500 et seq. If avoidance of the nesting season is not feasible, then a pre-construction nesting bird survey should be conducted by a qualified biologist to ensure that birds are not engaged in active nesting within 100 feet of the Project's construction limits. If nesting birds are discovered during pre-construction surveys, then the qualified biologist should identify an appropriate buffer where no ground-breaking activities are allowed to occur until after the birds have fledged from the nest. Construction activities may take place in other areas on the Project site, outside of the nest avoidance buffer, unless authorized by an on-site monitoring biologist.

5.2 Burrowing Owl

One pre-construction burrowing owl clearance survey would be required to be completed no more than 14 days before initiation of grading, and a second survey be completed within 24 hours prior to grading. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction survey, the Project site shall be resurveyed. Surveys for burrowing owl shall be conducted in accordance with protocols established in the Staff Report on Burrowing Owl Mitigation (Department of Fish and Game, March 2012) or current version.

If burrowing owls are detected, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers will be established around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation (Department of Fish and Game, March 2012) or current version. No Project activities will be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed.

Outside of the nesting season, passive owl relocation techniques approved by CDFW shall be implemented. Owls shall be excluded from burrows in the immediate Project area and within a buffer zone by installing one-way doors in burrow entrances. These doors will be placed at least 48 hours prior to ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat will be provided following the guidance in the Staff Report on Burrowing Owl Mitigation (Department of Fish and Game, March 2012) or current version. The Project area shall be monitored daily for one week to confirm owl departure from burrows prior to any ground-disturbing activities.

Where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

5.3 Mohave Ground Squirrel

Although protocol surveys and trapping on the Project site in 2020 concluded that Mohave ground squirrel (MGS) is absent from the Project site, the Off-Site Utilities Alignments – or portions thereof -- may provide suitable habitat for the species. Prior to any construction work being conducted for the off-site utilities (domestic water, stormwater drain, sanitary sewer), focused surveys for MGS shall be required to determine its presence or absence and any

potential Project effects to this species. Focused surveys need only to occur along segments of the Off-Site Utilities Alignments that contain suitable or potentially suitable habitat for MGS, as determine by a qualify biologist. The focused MGS surveys shall be conducted either in accordance with the January 1991 CDFW guidelines, as modified in January 2003, or in accordance with any modified survey methodology as approved in writing by CDFW.

In the event that the surveys determine that MGS is present within the areas to be either temporarily or permanently disturbed as a result of construction of the off-site utilities, the Project Applicant shall be required to obtain an Incidental Take Permit (ITP) from CDFW under Section 2081 of CFG Code. The ITP process shall be coordinated with the regional CDFW office. The ITP shall include an analysis of whether Project impacts would jeopardize the continued existence of the species, provide suitable avoidance and minimization measures to reduce potential impacts, and adequate mitigation through conservation or mitigation banking.

5.4 Jurisdictional Waters

If the final Project design results in an above ground encroachment to the Oro Grande Wash, the Project Applicant will be required to first obtain the following regulatory permits prior to Project-related impacts to the wash. A Waste Discharge Requirement (WDR) or waiver from the RWQCB and a Streambed Alteration Agreement (SAA) from CDFW will be required to permit Project impacts. Appropriate compensatory habitat-based mitigation will also be required as part of the permits, with the type and amount of mitigation determined through consultation with the regulatory agencies. Mitigation will either be implemented on site through restoration and conservation of a portion of the wash, or through the purchase of mitigation credits from an agency approved mitigation bank.

If you have any comments or questions regarding the contents of this report, please feel free to call me at 949.373.8321 or email at tmolioo@dudek.com.

Sincerely,



Tommy Molioo
Sr. Biologist

Att.: A – Figures
1. Project Location Map
2. Topographic Map
3. Soils
4. Vegetation
5. Watershed Map
6. Aquatic Resources Delineation
B – Site Photographs
C – Species Compendium
D – Special-Status Species Lists
E. – Species Potential for Occurrence Tables

References

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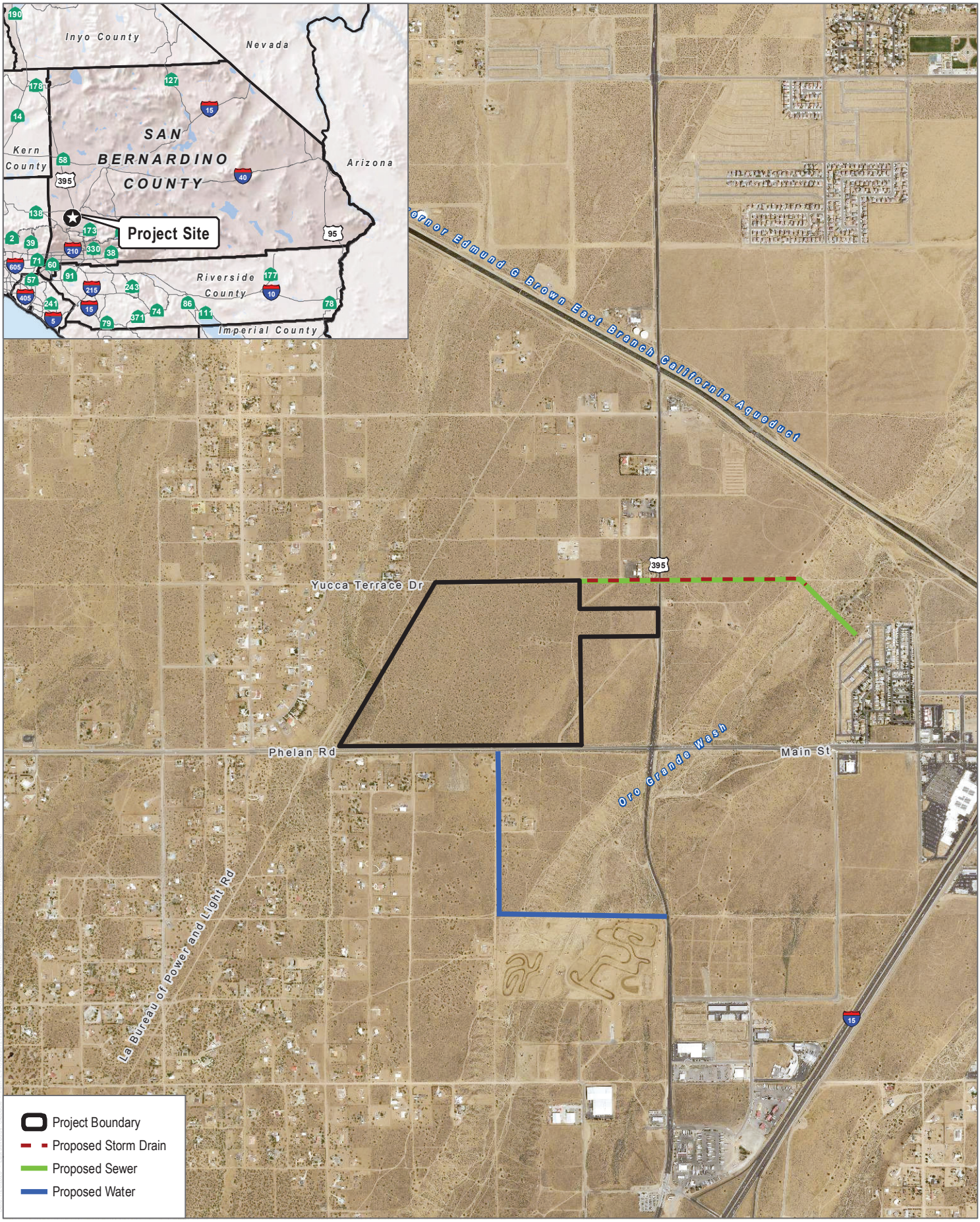
Attachment A

Figures 1-6



SOURCE: USDA 2016

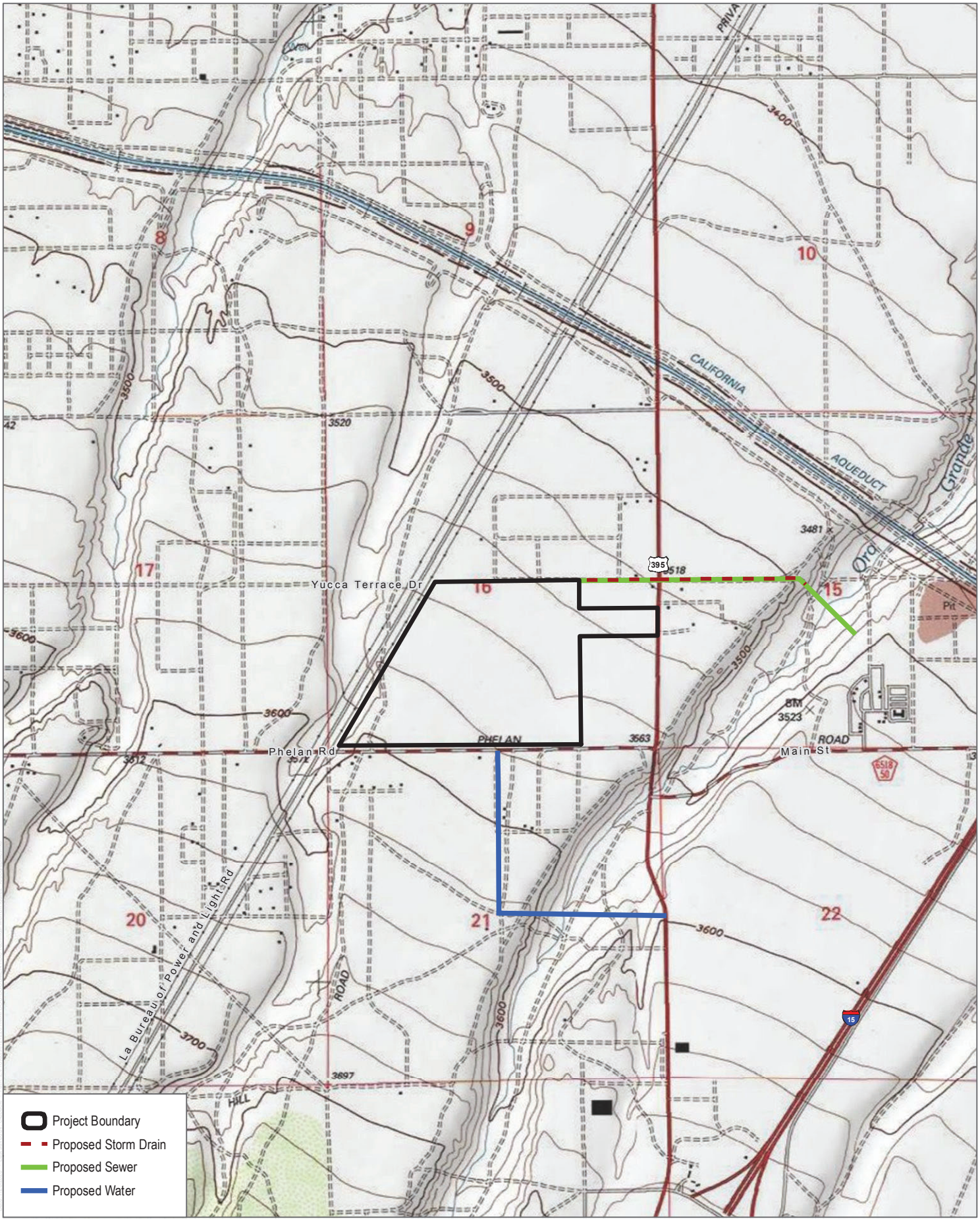
DUDEK

0 1,000 2,000 Feet

Figure 1

Project Location

Hesperia Commerce Center II



SOURCE: USGS 7.5-Minute Baldy Mesa Quadrangle

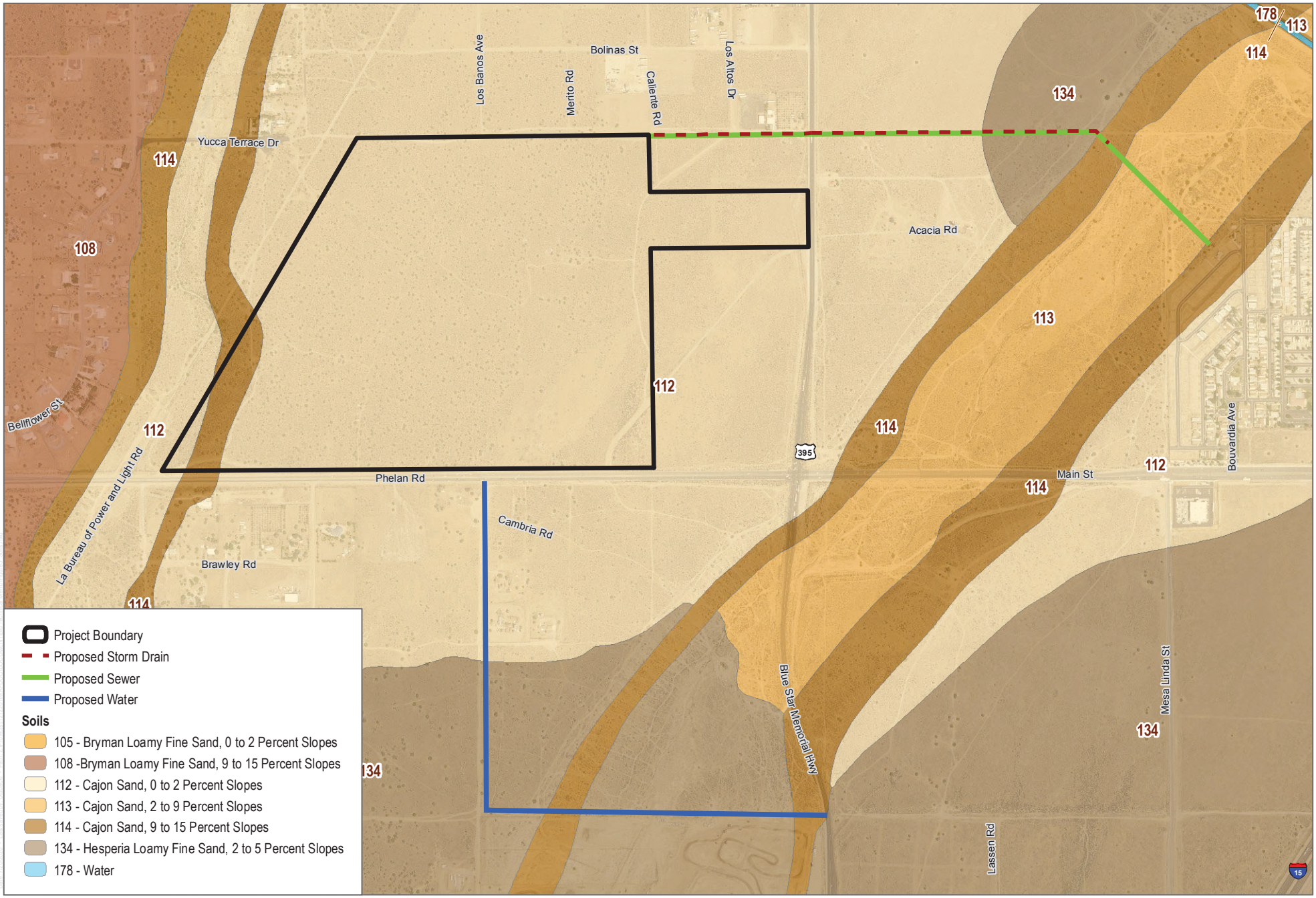
DUDEK

0 1,000 2,000 Feet

Figure 2

Local Topographic Map

Hesperia Commerce Center II



SOURCE: USDA 2016, 2020

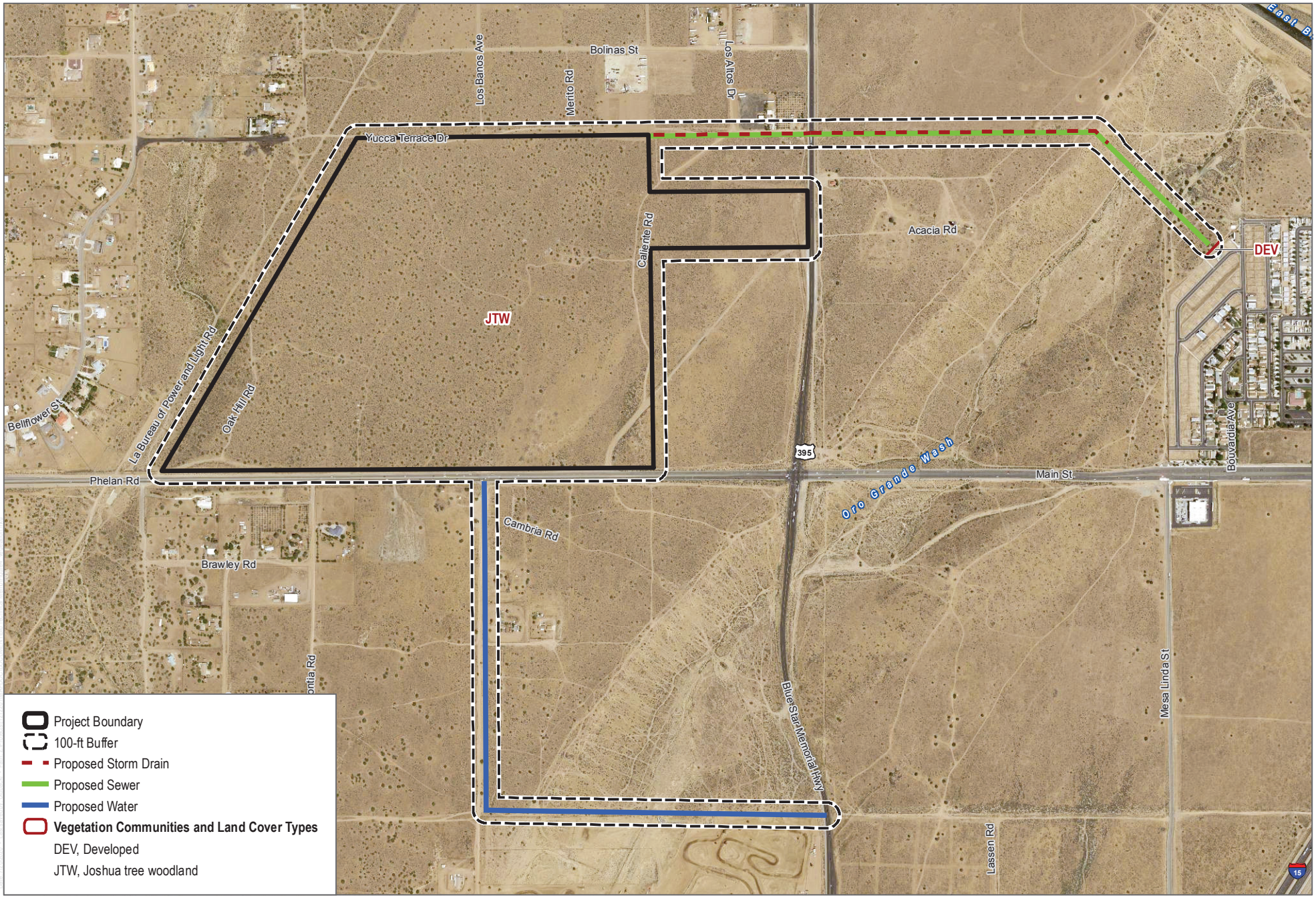
DUDEK

0 500 1,000 Feet

FIGURE 3

Soils

Hesperia Commerce Center II



SOURCE: USDA 2016

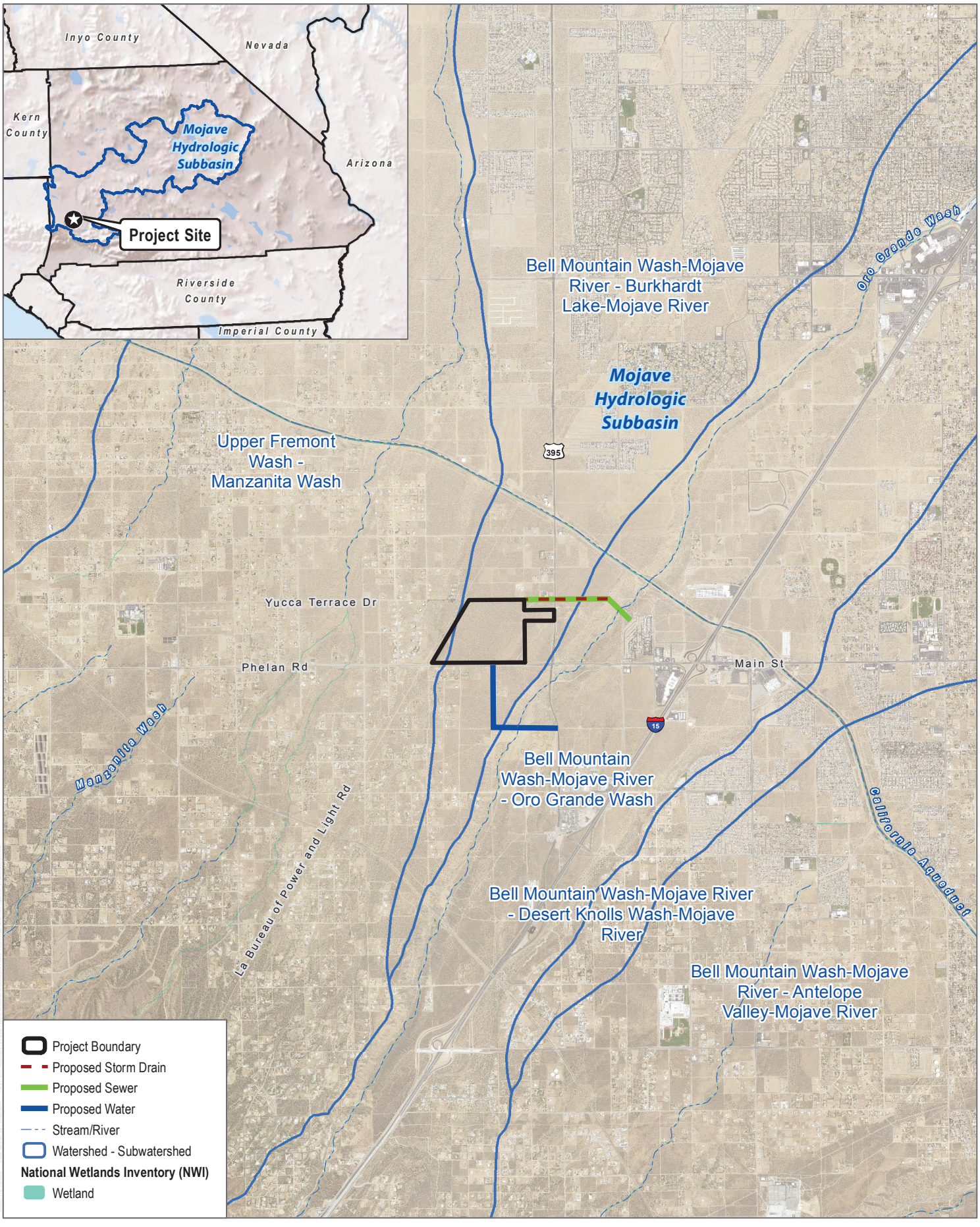
DUDEK

0 500 1,000 Feet

FIGURE 4

Vegetation

Hesperia Commerce Center II



SOURCE: USDA 2016; USFWS 2020; USGS 2020; California Dept. of Water Resrouces 2019

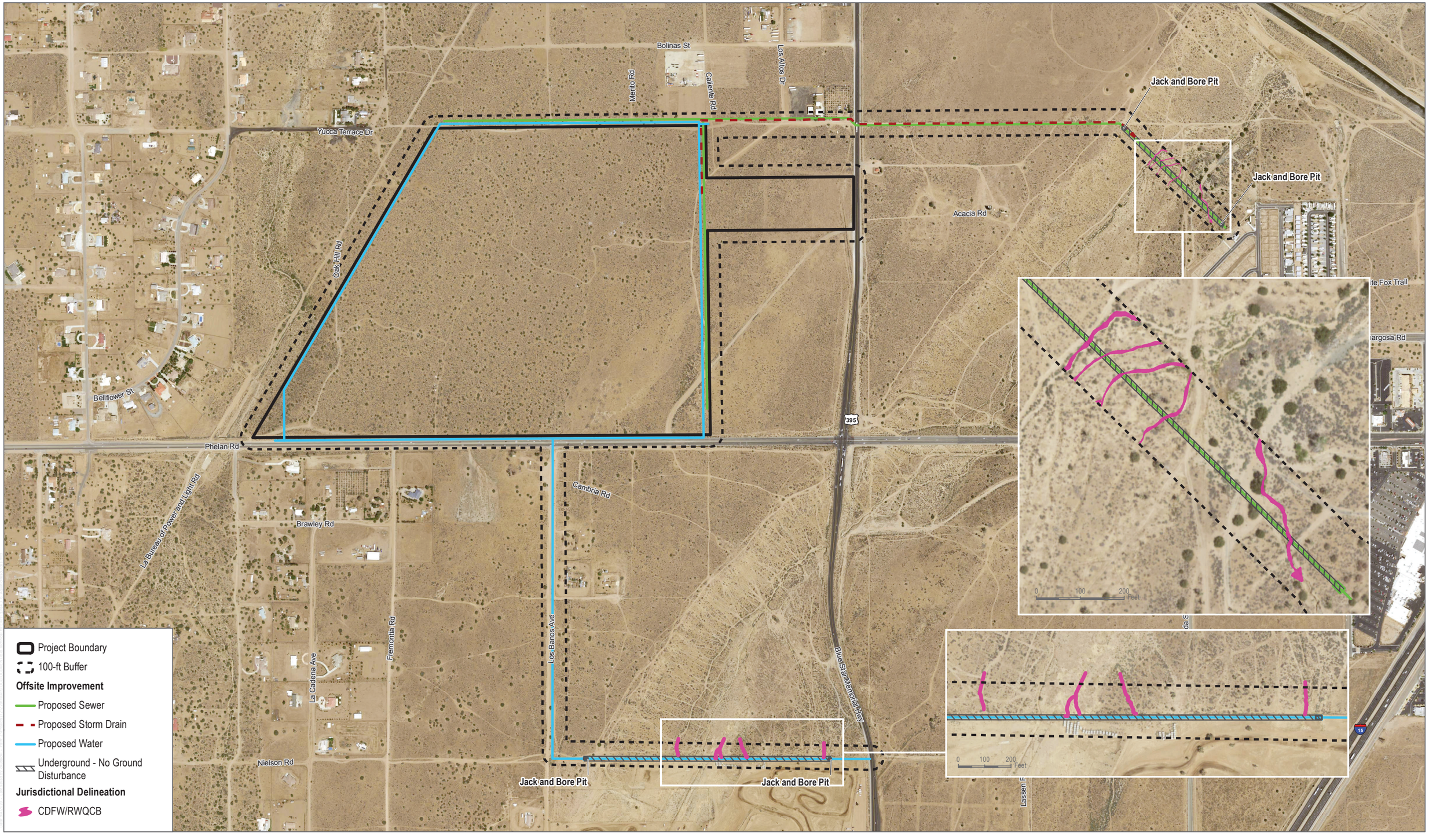
DUDEK

0 0.5 1 Miles

Figure 5

Watershed Map

Hesperia Commerce Center II



SOURCE: USDA 2016; Westland 2020

DUDEK

FIGURE 6

Aquatic Resources Delineation

Hesperia Commerce Center II

Attachment B

Site Photographs



Representative Site Photo 1: Facing west from the southern project boundary.



Representative Site Photo 2: Facing north from the southern project boundary.



Representative Site Photo 3: Facing west from the northern project boundary.



Representative Site Photo 4: Facing west from the western portion of the project site.



Representative Site Photo 5: Taken from the center of the project site facing north.



Representative Site Photo 6: Taken from the northwest corner of the project site, facing west.



Representative Site Photo 7: Facing west from the north-western portion of the project site.



Representative Site Photo 8: Facing south from the northern project site boundary.

Attachment C

Species Compendium

Plants Species

Eudicots

Vascular species

ASTERACEAE – SUNFLOWER FAMILY

Ericameria bloomer - rabbitbush

BORAGINACEAE – BORAGE FAMILY

Amsinckia tessellate – bristly fiddleneck

BRASSICACEAE – MUSTARD FAMILY

* *Brassica tournefortii* – Tournefort's mustard
* *Hirschfeldia incana* – shortpod mustard

GERANIACEAE – GERANIUM FAMILY

* *Erodium cicutarium* – redstem stork's bill

NYCTAGINACEAE – FOUR O'CLOCK FAMILY

Mirabilis laevis – desert wishbone-bush

POLYGONACEAE – BUCKWHEAT FAMILY

Eriogonum fasciculatum – California buckwheat

Gymnosperms and Gnetophytes

Vascular species

CUPRESSACEAE – CYPRESS FAMILY

Juniperus californica – California juniper

Monocots

Vascular species

AGAVACEAE – AGAVE FAMILY

Yucca brevifolia – Joshua tree

POACEAE—GRASS FAMILY

* *Avena fatua* – wild oat
* *Bromus rubens* – red brome
* *Hordeum vulgare* – common barley

* signifies introduced (non-native) species

Wildlife Species

Birds

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus – house finch

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Buteo regalis – ferruginous hawk

Jays, magpies, and crows

CORVIDAE – CROWS AND JAYS

Corvus brachyrhynchos – American crow

Mockingbirds and thrashers

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Mimus polyglottos – northern mockingbird

Wrens

TROGLODYTIDAE - WRENS

Campylorhynchus brunneicapillus – cactus wren

Mammals

Hares and rabbits

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit

Squirrels

SCIURIDAE - SQUIRRELS

Spermophilus (Otospermophius) beecheyi – California ground squirrel

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

Sceloporus occidentalis – western fence lizard

* signifies introduced (non-native) species

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Attachment D

Special-Status Species Lists

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Shadow Mountains SE (3411755) OR Adelanto (3411754) OR Victorville (3411753) OR Phelan (3411745) OR Baldy Mesa (3411744) OR Hesperia (3411743) OR Telegraph Peak (3411735) OR Cajon (3411734) OR Silverwood Lake (3411733))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Anaxyrus californicus arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Artemisiospiza belli belli Bell's sage sparrow	ABPBX97021	None	None	G5T2T3	S3	WL
Asclepias nyctaginifolia Mojave milkweed	PDASC02190	None	None	G4?	S2	2B.1
Asio otus long-eared owl	ABNSB13010	None	None	G5	S3?	SSC
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Astragalus lentiginosus var. antonius San Antonio milk-vetch	PDFAB0FB92	None	None	G5T2	S2	1B.3
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Batrachoseps gabrieli San Gabriel slender salamander	AAAAD02110	None	None	G2G3	S2S3	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Botrychium ascendens upswept moonwort	PPOPH010S0	None	None	G3G4	S2	2B.3
Botrychium crenulatum scalloped moonwort	PPOPH010L0	None	None	G4	S3	2B.2
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calochortus palmeri var. palmeri Palmer's mariposa-lily	PMLIL0D122	None	None	G3T2	S2	1B.2
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Canbya candida white pygmy-poppy	PDPAP05020	None	None	G3G4	S3S4	4.2
Castilleja lasiorhyncha San Bernardino Mountains owl's-clover	PDSCR0D410	None	None	G2?	S2?	1B.2
Chaetodipus fallax pallidus pallid San Diego pocket mouse	AMAFD05032	None	None	G5T34	S3S4	SSC
Chorizanthe xanti var. leucotheca white-bracted spineflower	PDPGN040Z1	None	None	G4T3	S3	1B.2
Claytonia peirsonii ssp. peirsonii Peirson's spring beauty	PDPOR03121	None	None	G2G3T2	S2	1B.2
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Deinandra mohavensis Mojave tarplant	PDAST4R0K0	None	Endangered	G2	S2	1B.3
Diadophis punctatus modestus San Bernardino ringneck snake	ARADB10015	None	None	G5T2T3	S2?	
Diplacus mohavensis Mojave monkeyflower	PDSCR1B1V0	None	None	G2	S2	1B.2
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremothera boothii ssp. boothii Booth's evening-primrose	PDONA03052	None	None	G5T4	S3	2B.3
Euchloe hyantis andrewsi Andrew's marble butterfly	IILEPA5032	None	None	G3G4T1	S1	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphydryas editha quino quino checkerspot butterfly	IILEPK405L	Endangered	None	G5T1T2	S1S2	
Glaucomys oregonensis californicus San Bernardino flying squirrel	AMAFB09021	None	None	G5T1T2	S1S2	SSC
Gopherus agassizii desert tortoise	ARAAF01012	Threatened	Threatened	G3	S2S3	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Helianthus nuttallii ssp. parishii Los Angeles sunflower	PDAST4N102	None	None	G5TH	SH	1A
Helminthoglypta mohaveana Victorville shoulderband	IMGASC2340	None	None	G1	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Helminthoglypta taylori westfork shoulderband	IMGASC2640	None	None	G1	S1	
Heuchera parishii Parish's alumroot	PDSAX0E0S0	None	None	G3	S3	1B.3
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Juniperella mirabilis juniper metallic wood-boring beetle	IICOLX9010	None	None	G1	S1	
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lilium parryi lemon lily	PMLIL1A0J0	None	None	G3	S3	1B.2
Linanthus concinnus San Gabriel linanthus	PDPLM090D0	None	None	G2	S2	1B.2
Loeflingia squarrosa var. artemisiarum sagebrush loeflingia	PDCAR0E011	None	None	G5T3	S2	2B.2
Lycium parishii Parish's desert-thorn	PDSOL0G0D0	None	None	G4	S1	2B.3
Microtus californicus mohavensis Mohave river vole	AMAFF11031	None	None	G5T1	S1	SSC
Monardella australis ssp. jokerstii Jokerst's monardella	PDLAM18112	None	None	G4T1?	S1?	1B.1
Muhlenbergia californica California muhly	PMPOA480A0	None	None	G4	S4	4.3
Neotamias speciosus speciosus lodgepole chipmunk	AMAFB02172	None	None	G4T2T3	S2S3	
Opuntia basilaris var. brachyclada short-joint beavertail	PDCAC0D053	None	None	G5T3	S3	1B.2
Oreonana vestita woolly mountain-parsley	PDAPI1G030	None	None	G3	S3	1B.3
Orobanche valida ssp. valida Rock Creek broomrape	PDORO040G2	None	None	G4T2	S2	1B.2
Ovis canadensis nelsoni desert bighorn sheep	AMALE04013	None	None	G4T4	S3	FP
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pediomelum castoreum Beaver Dam breadroot	PDFAB5L050	None	None	G3	S2	1B.2
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Piranga rubra summer tanager	ABPBX45030	None	None	G5	S1	SSC
Plebejus saepiolus aureolus San Gabriel Mountains blue butterfly	IILEPG6011	None	None	G5T1	S1	
Plebulina emigdionis San Emigdio blue butterfly	IILEPG7010	None	None	G1G2	S1S2	
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rana muscosa southern mountain yellow-legged frog	AAABH01330	Endangered	Endangered	G1	S1	WL
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	AFCJB3705K	None	None	G5T1	S1	SSC
Schoenus nigricans black bog-rush	PMCYP0P010	None	None	G4	S2	2B.2
Scutellaria bolanderi ssp. austromontana southern mountains skullcap	PDLAM1U0A1	None	None	G4T3	S3	1B.2
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Siphateles bicolor mohavensis Mohave tui chub	AFCJB1303H	Endangered	Endangered	G4T1	S1	FP
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	
Symphyotrichum defoliatum San Bernardino aster	PDASTE80C0	None	None	G2	S2	1B.2
Symphyotrichum greatae Greata's aster	PDASTE80U0	None	None	G2	S2	1B.3
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
Toxostoma lecontei Le Conte's thrasher	ABPBK06100	None	None	G4	S3	SSC
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Vireo vicinior gray vireo	ABPBW01140	None	None	G4	S2	SSC
Xerospermophilus mohavensis Mohave ground squirrel	AMAFB05150	None	Threatened	G2G3	S2S3	

Record Count: 79

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

54 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads **3411755, 3411754, 3411753, 3411745, 3411744, 3411743, 3411735 3411734** and **3411733**;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthoscyphus parishii var. parishii	Parish's oxytheca	Polygonaceae	annual herb	Jun-Sep	4.2	S3S4	G4? T3T4
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5? T3T4
Asclepias nyctaginifolia	Mojave milkweed	Apocynaceae	perennial herb	May-Jun	2B.1	S2	G4?
Astragalus bicristatus	crested milk-vetch	Fabaceae	perennial herb	May-Aug	4.3	S3	G3
Astragalus lentiginosus var. antonius	San Antonio milk-vetch	Fabaceae	perennial herb	Apr-Jul	1B.3	S2	G5T2
Astragalus leucolobus	Big Bear Valley woollypod	Fabaceae	perennial herb	May-Jul	1B.2	S2	G2
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual / perennial herb	Aug	4.2	S4	G5
Botrychium ascendens	upswept moonwort	Ophioglossaceae	perennial rhizomatous herb	(Jun)Jul-Aug	2B.3	S2	G3G4
Botrychium crenulatum	scalloped moonwort	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	2B.2	S3	G4
Calochortus palmeri var.	Palmer's mariposa lily	Liliaceae	perennial bulbiferous	Apr-Jul	1B.2	S2	G3T2

palmeri			herb				
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	May-Jul	4.2	S4	G4
Canbya candida	white pygmy-poppy	Papaveraceae	annual herb	Mar-Jun	4.2	S3S4	G3G4
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	May-Aug	1B.2	S2?	G2?
Castilleja plagiotoma	Mojave paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	4.3	S4	G4
Chorizanthe spinosa	Mojave spineflower	Polygonaceae	annual herb	Mar-Jul	4.2	S4	G4
Chorizanthe xanti var. leucotheca	white-bracted spineflower	Polygonaceae	annual herb	Apr-Jun	1B.2	S3	G4T3
Claytonia lanceolata var. peirsonii	Peirson's spring beauty	Montiaceae	perennial herb	(Mar)May-Jun	3.1	S1	G5T1Q
Diplacus johnstonii	Johnston's monkeyflower	Phrymaceae	annual herb	(Apr)May-Aug	4.3	S4	G4
Diplacus mohavensis	Mojave monkeyflower	Phrymaceae	annual herb	Apr-Jun	1B.2	S2	G2
Dodecahema leptoceras	slender-horned spineflower	Polygonaceae	annual herb	Apr-Jun	1B.1	S1	G1
Eremothera boothii ssp. boothii	Booth's evening-primrose	Onagraceae	annual herb	Apr-Sep	2B.3	S3	G5T4
Eriogonum umbellatum var. minus	alpine sulfur-flowered buckwheat	Polygonaceae	perennial herb	Jun-Sep	4.3	S4	G5T4
Eriophyllum lanatum var. obovatum	southern Sierra woolly sunflower	Asteraceae	perennial herb	Jun-Jul	4.3	S4	G5T4
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw	Rubiaceae	perennial herb	Apr-Aug	4.3	S3	G5T3
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	Aug-Oct	1A	SH	G5TH
Heuchera caespitosa	urn-flowered alumroot	Saxifragaceae	perennial rhizomatous herb	May-Aug	4.3	S3	G3
Heuchera parishii	Parish's alumroot	Saxifragaceae	perennial rhizomatous herb	Jun-Aug	1B.3	S3	G3
Johnstonella costata	ribbed cryptantha	Boraginaceae	annual herb	Feb-May	4.3	S4	G4G5

Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	Mar-Aug	4.2	S4	G4
Juncus duranii	Duran's rush	Juncaceae	perennial rhizomatous herb	Jul-Aug	4.3	S3	G3
Lepechinia fragrans	fragrant pitcher sage	Lamiaceae	perennial shrub	Mar-Oct	4.2	S3	G3
Lilium humboldtii ssp. ocellatum	ocellated Humboldt lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	4.2	S4?	G4T4?
Lilium parryi	lemon lily	Liliaceae	perennial bulbiferous herb	Jul-Aug	1B.2	S3	G3
Linanthus concinnus	San Gabriel linanthus	Polemoniaceae	annual herb	Apr-Jul	1B.2	S2	G2
Loeflingia squarrosa var. artemisiarum	sagebrush loeflingia	Caryophyllaceae	annual herb	Apr-May	2B.2	S2	G5T3
Lycium torreyi	Torrey's box-thorn	Solanaceae	perennial shrub	(Jan-Feb)Mar-Jun(Sep-Nov)	4.2	S3	G4G5
Monardella australis ssp. jokerstii	Jokerst's monardella	Lamiaceae	perennial rhizomatous herb	Jul-Sep	1B.1	S1	G4T1
Muhlenbergia californica	California muhly	Poaceae	perennial rhizomatous herb	Jun-Sep	4.3	S4	G4
Muilla coronata	crowned muilla	Themidaceae	perennial bulbiferous herb	Mar-Apr(May)	4.2	S3	G3
Opuntia basilaris var. brachyclada	short-joint beavertail	Cactaceae	perennial stem succulent	Apr-Jun(Aug)	1B.2	S3	G5T3
Oreonana vestita	woolly mountain-parsley	Apiaceae	perennial herb	Mar-Sep	1B.3	S3	G3
Orobanche valida ssp. valida	Rock Creek broomrape	Orobanchaceae	perennial herb (parasitic)	May-Sep	1B.2	S2	G4T2
Pediomelum castoreum	Beaver Dam breadroot	Fabaceae	perennial herb	Apr-May	1B.2	S2	G3
Phacelia mohavensis	Mojave phacelia	Hydrophyllaceae	annual herb	Apr-Aug	4.3	S4	G4Q
Quercus turbinella	shrub live oak	Fagaceae	perennial evergreen shrub	Apr-Jun	4.3	S4	G5
	black bog-rush	Cyperaceae	perennial herb	Aug-Sep	2B.2	S2	G4

Schoenus nigricans							
Sclerocactus polyancistrus	Mojave fish-hook cactus	Cactaceae	perennial stem succulent	Apr-Jul	4.2	S3	G3
Scutellaria bolanderi ssp. austromontana	southern mountains skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Aug	1B.2	S3	G4T3
Sidotheca caryophylloides	chickweed oxytheca	Polygonaceae	annual herb	Jul-Sep(Oct)	4.3	S4	G4
Streptanthus bernardinus	Laguna Mountains jewelflower	Brassicaceae	perennial herb	May-Aug	4.3	S3S4	G3G4
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	Jul-Nov(Dec)	1B.2	S2	G2
Symphyotrichum greatae	Greata's aster	Asteraceae	perennial rhizomatous herb	Jun-Oct	1B.3	S2	G2
Syntrichopappus lemmonii	Lemmon's syntrichopappus	Asteraceae	annual herb	Apr-May(Jun)	4.3	S4	G4
Viola purpurea ssp. aurea	golden violet	Violaceae	perennial herb	Apr-Jun	2B.2	S2	G5T2

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Attachment E

Species Occurrence Tables

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Acanthoscyphus parishii var. *parishii*	Parish's oxytheca	None/None/4.2	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/June–Sep/4,000–8,530	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Androsace elongata ssp. *acuta*	California androsace	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Meadows and seeps, Pinyon and juniper woodland, Valley and foothill grassland/annual herb/Mar–June/490–4,280	Not expected to occur. No suitable vegetation present.
Asclepias nyctaginifolia	Mojave milkweed	None/None/2B.1	Mojavean desert scrub, Pinyon and juniper woodland/perennial herb/May–June/2,870–5,575	Not expected to occur. The site does not contain suitable habitat for this species.
Astragalus bicristatus	crested milk-vetch	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; sandy or rocky, mostly carbonate/perennial herb/May–Aug/5,575–9,005	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Astragalus lentiginosus var. *antonius*	San Antonio milk-vetch	None/None/1B.3	Lower montane coniferous forest, Upper montane coniferous forest/perennial herb/Apr–July/4,920–8,530	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Astragalus leucolobus	Big Bear Valley woollypod	None/None/1B.2	Lower montane coniferous forest, Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest; rocky/perennial herb/May–July/3,605–9,465	Not expected to occur. No suitable vegetation present.
Azolla microphylla	Mexican mosquito fern	None/None/4.2	Marshes and swamps (ponds, slow water)/annual / perennial herb/Aug/95–330	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Botrychium ascendens	upswept moonwort	None/None/2B.3	Lower montane coniferous forest, Meadows and seeps; mesic/perennial rhizomatous herb/(June)July–Aug/3,655–9,990	Not expected to occur. No suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Botrychium crenulatum	scalloped moonwort	None/None/2B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps (freshwater), Upper montane coniferous forest/perennial rhizomatous herb/June–Sep/4,160–10,760	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None/None/1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps; mesic/perennial bulbiferous herb/Apr–July/2,325–7,840	Not expected to occur. No suitable vegetation present.
Calochortus plummerae	Plummer's mariposa lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland; granitic, rocky/perennial bulbiferous herb/May–July/325–5,575	Not expected to occur. No suitable vegetation present.
Canbya candida	white pygmy-poppy	None/None/4.2	Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland; gravelly, sandy, granitic/annual herb/Mar–June/1,965–4,790	Low potential to occur. The site contains suitable substrate, and vegetation; however, the nearest occurrence is located 5.8 miles to the SE of the site, and last reported on in 1980 (CDFW 2020).
Castilleja lasiorhyncha	San Bernardino Mountains owl's-clover	None/None/1B.2	Chaparral, Meadows and seeps, Pebble (Pavement) plain, Riparian woodland, Upper montane coniferous forest; mesic/annual herb (hemiparasitic)/May–Aug/4,265–7,840	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Castilleja plagiotoma	Mojave paintbrush	None/None/4.3	Great Basin scrub (alluvial), Joshua tree woodland, Lower montane coniferous forest, Pinyon and juniper woodland/perennial herb (hemiparasitic)/Apr–June/980–8,200	Low potential to occur. The site contains suitable Joshua tree woodland vegetation. There are several outdated CCH observations mapped within 5 miles of the site; however, the most recent of these observations was mapped in 1960 (Calflora 2020).
Chorizanthe spinosa	Mojave spineflower	None/None/4.2	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, Playas; Sometimes alkaline/annual herb/Mar–July/15–4,265	Low potential to occur. The site contains suitable Joshua tree woodland vegetation. There are no CCH, CNPS, or CNDDB observations mapped within 5 miles of the site.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Claytonia peirsonii ssp. *peirsonii*	Peirson's spring beauty	None/None/1B.2	subalpine coniferous forest, upper montane coniferous forest; granitic, metamorphic, scree, talus/perennial herb/(Mar) May–June/4,950–9,005	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Deinandra mohavensis	Mojave tarplant	None/SE/1B.3	Chaparral, Coastal scrub, Riparian scrub; mesic/annual herb/(May)June–Oct(Jan)/2,095–5,245	Not expected to occur. No suitable vegetation present.
Diplacus johnstonii	Johnston's monkeyflower	None/None/4.3	Lower montane coniferous forest (scree, disturbed areas, rocky or gravelly, roadside)/annual herb/(Apr)May–Aug/3,195–9,580	Not expected to occur. No suitable vegetation present.
Diplacus mohavensis	Mojave monkeyflower	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; sandy or gravelly, often in washes/annual herb/Apr–June/1,965–3,935	Low potential to occur. The site contains suitable habitat for this species; however, there are no recorded nearby occurrences.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr–June/655–2,490	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Eremothera boothii ssp. boothii	Booth's evening-primrose	None/None/2B.3	Joshua tree woodland, Pinyon and juniper woodland/annual herb/Apr–Sep/2,670–7,870	Not expected to occur. The site does not contain suitable habitat for this species. The nearest recorded occurrence is 9.9 miles NE of the site (CDFW 2020).
Eriogonum umbellatum var. *minus*	alpine sulfur-flowered buckwheat	None/None/4.3	Subalpine coniferous forest, Upper montane coniferous forest; gravelly/perennial herb/June–Sep/5,905–10,065	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Eriophyllum lanatum var. *obovatum*	southern Sierra woolly sunflower	None/None/4.3	Lower montane coniferous forest, Upper montane coniferous forest; sandy loam/perennial herb/June–July/3,650–8,200	Not expected to occur. No suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Galium angustifolium ssp. *gabrielense*	San Antonio Canyon bedstraw	None/None/4.3	Chaparral, Lower montane coniferous forest; granitic, sandy or rocky/perennial herb/Apr–Aug/3,935–8,690	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/30–5,000	Not expected to occur. No suitable vegetation present.
Heuchera caespitosa	urn-flowered alumroot	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Riparian forest (montane), Upper montane coniferous forest; rocky/perennial rhizomatous herb/May–Aug/3,785–8,690	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Heuchera parishii	Parish's alumroot	None/None/1B.3	Alpine boulder and rock field, Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest; rocky, sometimes carbonate/perennial rhizomatous herb/June–Aug/4,920–12,465	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Johnstonella costata	ribbed cryptantha	None/None/4.3	Desert dunes, Mojavean desert scrub, Sonoran desert scrub; sandy/annual herb/Feb–May/-,200–1,640	Not expected to occur. The site is outside of the species' known elevation range.
Juglans californica	Southern California black walnut	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; alluvial/perennial deciduous tree/Mar–Aug/160–2,950	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Juncus duranii	Duran's rush	None/None/4.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest; mesic/perennial rhizomatous herb/July–Aug/5,800–9,195	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Lepechinia fragrans	fragrant pitcher sage	None/None/4.2	Chaparral/perennial shrub/Mar–Oct/65–4,295	Not expected to occur. No suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	None/None/4.2	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; openings/perennial bulbiferous herb/Mar–July(Aug)/95–5,905	Not expected to occur. No suitable vegetation present.
Lilium parryi	lemon lily	None/None/1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4,000–9,005	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Linanthus concinnus	San Gabriel linanthus	None/None/1B.2	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; rocky, openings/annual herb/Apr–July/4,985–9,185	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Loeflingia squarrosa var. *artemisiarum*	sagebrush loeflingia	None/None/2B.2	Desert dunes, Great Basin scrub, Sonoran desert scrub; sandy/annual herb/Apr–May/2,295–5,295	Not expected to occur. No suitable vegetation present.
Lycium parishii	Parish's desert-thorn	None/None/2B.3	Coastal scrub, Sonoran desert scrub/perennial shrub/Mar–Apr/440–3,280	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Lycium torreyi	Torrey's box-thorn	None/None/4.2	Mojavean desert scrub, Sonoran desert scrub; Sandy, rocky, washes, streambanks, desert valleys/perennial shrub/(Jan–Feb)Mar–June(Sep–Nov)/-,165–4,000	Not expected to occur. The site does not contain suitable habitat for this species.
Monardella australis ssp. *jokerstii*	Jokerst?s monardella	None/None/1B.1	Chaparral, Lower montane coniferous forest; Steep scree or talus slopes between breccia, secondary alluvial benches along drainages and washes./perennial rhizomatous herb/July–Sep/4,425–5,740	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Muhlenbergia californica	California muhly	None/None/4.3	Chaparral, Coastal scrub, Lower montane coniferous forest, Meadows and seeps; mesic, seeps and streambanks/perennial rhizomatous herb/June–Sep/325–6,560	Not expected to occur. No suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Muilla coronata	crowned muilla	None/None/4.2	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/perennial bulbiferous herb/Mar–Apr(May)/2,195–6,430	Low potential to occur. There site contains suitable Joshua tree woodland vegetation. There are two outdated CCH observations mapped within 5 miles of the site; however, the most recent observation was mapped in 1996 (Calflora 2020).
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/perennial stem succulent/Apr–June(Aug)/1,390–5,905	Low potential to occur. The site contains suitable habitat; however, during a Native Desert Plants Survey Dudek conducted in November 2019 at a project site adjacent to this project site, no short-joint beavertail were identified (Dudek 2019). There are 3 recorded occurrences within 3.3 miles of the site (CDFW 2020).
Oreonana vestita	woolly mountain-parsley	None/None/1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest; gravel or talus/perennial herb/Mar–Sep/5,295–11,480	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Orobanche valida ssp. *valida*	Rock Creek broomrape	None/None/1B.2	Chaparral, Pinyon and juniper woodland; granitic/perennial herb (parasitic)/May–Sep/3,375–6,560	Not expected to occur. No suitable vegetation present.
Pediomelum castoreum	Beaver Dam breadroot	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; Sandy, washes and roadcuts/perennial herb/Apr–May/2,000–5,000	Not expected to occur. While the site contains suitable vegetation, there is not desert wash on site. The nearest occurrence is 9.8 miles NE of the site (CDFW 2020).
Phacelia mohavensis	Mojave phacelia	None/None/4.3	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Pinyon and juniper woodland; sandy or gravelly/annual herb/Apr–Aug/4,590–8,200	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Quercus turbinella	shrub live oak	None/None/4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Pinyon and juniper woodland/perennial evergreen shrub/Apr–June/3,935–6,560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present.
Schoenus nigricans	black bog-rush	None/None/2B.2	Marshes and swamps (often alkaline)/perennial herb/Aug–Sep/490–6,560	Not expected to occur. No suitable vegetation present.
Sclerocactus polyancistrus	Mojave fish-hook cactus	None/None/4.2	Great Basin scrub, Joshua tree woodland, Mojavean desert scrub; usually carbonate/perennial stem succulent/Apr–July/2,095–7,610	Not expected to occur. The site does not contain suitable habitat for this species.
Scutellaria bolanderi ssp. *austromontana*	southern mountains skullcap	None/None/1B.2	Chaparral, Cismontane woodland, Lower montane coniferous forest; mesic/perennial rhizomatous herb/June–Aug/1,390–6,560	Not expected to occur. No suitable vegetation present.
Sidotheca caryophylloides	chickweed oxytheca	None/None/4.3	Lower montane coniferous forest (sandy)/annual herb/July–Sep(Oct)/3,650–8,530	Not expected to occur. No suitable vegetation present.
Streptanthus bernardinus	Laguna Mountains jewelflower	None/None/4.3	Chaparral, Lower montane coniferous forest/perennial herb/May–Aug/2,195–8,200	Not expected to occur. No suitable vegetation present.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/5–6,690	Not expected to occur. No suitable vegetation present.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; mesic/perennial rhizomatous herb/June–Oct/980–6,590	Not expected to occur. No suitable vegetation present.

Special-Status Plant Species

Scientific Name	Common Name	Status Federal/State/ CRPR	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (feet amsl)	Potential to Occur
Syntrichopappus lemmonii	Lemmon's syntrichopappus	None/None/4.3	Chaparral, Joshua tree woodland, Pinyon and juniper woodland; sandy or gravelly/annual herb/Apr–May(June)/1,640–6,000	Not expected to occur. The site does not contain suitable habitat for this species.
Viola purpurea ssp. *aurea*	golden violet	None/None/2B.2	Great Basin scrub, Pinyon and juniper woodland; sandy/perennial herb/Apr–June/3,280–8,200	Not expected to occur. No suitable vegetation present.

Notes: CDFW = California Fish and Wildlife Service,

* Region refers to the USGS 7.5-minute quadrangle in which the project site is located (Baldy Mesa) and the six surrounding quadrangles (Shadow Mountains SE, Adelanto, Victorville, Phelan, Hesperia, Telegraph Peak, Cajon, Silverwood Lake).

Status Legend

Federal

FE: Federally listed as endangered
FT: Federally listed as threatened
FC: Federal candidate for listing as threatened or endangered

State

SE: State listed as endangered
ST: State listed as threatened
SR: State listed as rare

CRPR (California Rare Plant Rank)

CRPR 1A: Plants presumed extinct in California and either rare or extinct elsewhere
CRPR List 1B: Plants rare, threatened, or endangered in California and elsewhere
CRPR List 2A: Plants rare, threatened, or endangered in California but common elsewhere
CRPR List 2B: Plants rare, threatened, or endangered in California but more common elsewhere

Threat Rank

.1 Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 Fairly endangered in California (20% to 80% of occurrences threatened/moderate degree and immediacy of threat)
.3 Not very endangered in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

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Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. No suitable vegetation present.
Batrachoseps gabrieli	San Gabriel slender salamander	None/None	Talus slopes in forested areas, often near streams	Not expected to occur. No suitable vegetation present.
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. No suitable vegetation present.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. The site does not contain suitable habitat for this species.
Reptiles				
Actinemys marmorata	northwestern pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. No suitable vegetation present.
Aspidoscelis tigris stejnegeri	San Diegan tiger whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Not expected to occur. No suitable vegetation present.
Diadophis punctatus modestus	San Bernardino ring-necked snake	None/None	Moist habitats including wet meadows, rocky hillsides, gardens, farmland grassland, chaparral, mixed-conifer forest, and woodland	Not expected to occur. No suitable vegetation present.
Gopherus agassizii	Mojave desert tortoise	FT/ST	Arid and semi-arid habitats in Mojave and Sonoran Deserts, including sandy or gravelly locations along riverbanks, washes, sandy dunes, canyon bottoms, desert oases, rocky hillsides, creosote flats, and hillsides	Moderate potential to occur. The site does contain limited suitable habitat, including a desert wash; however, the site does not contain any creosote bush. There is a recorded occurrence 2.3 miles south of the site (CDFW 2020).

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Not expected to occur. No suitable vegetation present.
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. No suitable vegetation present.
Birds				
Accipiter cooperii (nesting)	Cooper's hawk	None/WL	Nests and forages in dense stands of live oak, riparian woodlands, or other woodland habitats often near water	Not expected to occur. No suitable vegetation present.
Agelaius tricolor (nesting colony)	tricolored blackbird	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	Not expected to occur. No suitable vegetation present.
Aquila chrysaetos (nesting and wintering)	golden eagle	BCC/FP, WL	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	Not expected to occur. No suitable vegetation present.
Artemisiospiza belli belli	Bell's sage sparrow	BCC/WL	Nests and forages in coastal scrub and dry chaparral; typically in large, unfragmented patches dominated by chamise; nests in more dense patches but uses more open habitat in winter	Not expected to occur. No suitable vegetation present.
Asio otus (nesting)	long-eared owl	None/SSC	Nests in riparian habitat, live oak thickets, other dense stands of trees, edges of coniferous forest; forages in nearby open habitats	Not expected to occur. No suitable vegetation present.

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Athene cunicularia (burrow sites and some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Moderate potential to occur. The site contains suitable sandy soil, and abundant ground squirrel burrows for nesting. The nearest recorded occurrence is 1.5 miles south of the site (CDFW 2020).
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur. No suitable vegetation present.
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE	Nests in dense, wide riparian woodlands and forest with well-developed understories	Not expected to occur. No suitable vegetation present.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. No suitable vegetation present.
Haliaeetus leucocephalus (nesting & wintering)	bald eagle	FDL, BCC/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	Not expected to occur. No suitable vegetation present.
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. No suitable vegetation present.
Lanius ludovicianus (nesting)	loggerhead shrike	BCC/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches	Low potential to occur. The site contains appropriate vegetation for nesting, and perching habitat for hunting/foraging. In 2007, a nest was recorded in a Joshua tree, 1.7 miles north of the site (CDFW 2020).
Pandion haliaetus (nesting)	osprey	None/WL	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	Not expected to occur. No suitable vegetation present.

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Piranga rubra (nesting)	summer tanager	None/SSC	Nests and forages in mature desert riparian habitats dominated by cottonwoods and willows	Not expected to occur. No suitable vegetation present.
Setophaga petechia (nesting)	yellow warbler	BCC/SSC	Nests and forages in riparian and oak woodlands, montane chaparral, open ponderosa pine, and mixed-conifer habitats	Not expected to occur. No suitable vegetation present.
Toxostoma lecontei	LeConte's thrasher	BCC/SSC	Nests and forages in desert wash, desert scrub, alkali desert scrub, desert succulent, and Joshua tree habitats; nests in spiny shrubs or cactus	Low potential to occur. The site contains some suitable habitat; however, this species prefers less vegetated areas. The nearest occurrence was recorded 5.4 miles east of the site (CDFW 2020).
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. No suitable vegetation present.
Vireo vicinior (nesting)	gray vireo	BCC/SSC	Nests and forages in pinyon–juniper woodland, oak, and chamise and redshank chaparral	Not expected to occur. No suitable vegetation present.
Fishes				
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. No suitable vegetation, or water resources present.
Siphateles bicolor mohavensis	Mohave tui chub	FE/FP, SE	Lacustrine ponds or pools; 4 feet min water depth; freshwater flow; mineralized and alkaline environment; habitat for aquatic invertebrate prey and egg attachment substrate; Ruppia maritima preferred for egg attachment and thermal refuge in summer months	Not expected to occur. No suitable vegetation, or water resources present.
Mammals				
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	Not expected to occur. The site does not contain suitable habitat for this species to forage or roost.

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None/SSC	Desert wash, desert scrub, desert succulent scrub, and pinyon–juniper woodland	Not expected to occur. There is limited suitable vegetation on site; however, the site is outside of the species' known range.
Corynorhinus townsendii	Townsend's big-eared bat	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	Not expected to occur. The site does not contain suitable habitat for this species to forage or roost.
Eumops perotis californicus	western mastiff bat	None/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels	Not expected to occur. The site does not contain suitable habitat for this species to forage or roost.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None/SSC	Coniferous and deciduous forests, including riparian forests	Not expected to occur. No suitable vegetation present.
Lasiurus cinereus	hoary bat	None/None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; roosts in tree foliage and sometimes cavities, such as woodpecker holes	Not expected to occur. The site does not contain suitable habitat for this species to forage or roost.
Microtus californicus mohavensis	Mojave river vole	None/SSC	Wet, weedy, herbaceous areas along the Mojave River	Not expected to occur. No suitable vegetation present.
Neotamias speciosus speciosus	lodgepole chipmunk	None/None	Lodgepole pine forests	Not expected to occur. No suitable vegetation present.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. The site does not contain suitable habitat for this species.

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Spermophilus (Xerospermophilus) mohavensis	Mohave ground squirrel	None/ST	Desert scrub habitats including those dominated by creosote bush and burrobush, desert sink scrub, and desert saltbush scrub	Moderate potential to occur. The site contains suitable vegetation for foraging for this species, and soft sand for digging burrows. The site is also within the known historic range for this species. There is a recorded occurrence 1.3 miles north of the site (CDFW 2020).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. The site does not contain suitable habitat for this species.
Invertebrates				
Bombus crotchii	Crotch bumble bee	None/PSE	Open grassland and scrub communities supporting suitable floral resources.	Not expected to occur. No suitable vegetation present.
Euchloe hyantis andrewsi	Andrew's marble butterfly	None/None	Yellow pine forest; host plants are Laguna Mountains jewel-flower (*Streptanthus bernardinus*) and Holboell's rockcress (*Boechera pinetorum* (*Arabis holboellii* var. *pinetorum*))	Not expected to occur. No suitable vegetation present.
Euphydryas editha quino	quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include Plantago erecta, Antirrhinum coulterianum, and Plantago patagonica (Silverado Occurrence Complex)	Not expected to occur. No suitable vegetation present.
Helminthoglypta mohaveana	Victorville shoulderband	None/None	Known only from along the Mojave River in San Bernardino County	Not expected to occur. This site does not contain suitable habitat for this species.
Helminthoglypta taylori	westfork shoulderband	None/None	Vicinity of the Mojave River	Not expected to occur. This site does not contain suitable habitat for this species.
Juniperella mirabilis	juniper metallic wood-boring beetle	None/None	Larvae develop in juniper in Santa Rosa Mountains in Southern California	Not expected to occur. No suitable vegetation present.

Special-Status Wildlife Species

Scientific Name	Common Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
Plebejus saepiolus aureolus	San Gabriel Mountains blue butterfly	None/None	Wet meadow seep in yellow pine forest	Not expected to occur. No suitable vegetation present.
Plebulina emigdionis	San Emigdio blue butterfly	None/None	Near streambeds, washes, or alkaline areas; associated with fourwing saltbush and big saltbush (*Atriplex canescens* and *A. lentiformis*)	Not expected to occur. No suitable vegetation present.

Notes: CDFW = California Department of Fish and Wildlife

* Region refers to the USGS 7.5-minute quadrangle in which the project site is located (Baldy Mesa) and the six surrounding quadrangles (Shadow Mountains SE, Adelanto, Victorville, Phelan, Hesperia, Telegraph Peak, Cajon, Silverwood Lake).

Status Legend

Federal
BCC: Bird of Conservation Concern
FC: Candidate for federal listing as threatened or endangered
FDL: Federally delisted; monitored for 5 years
FE: Federally listed endangered
FT: Federally listed as threatened

State
PSE: Proposed state listing as endangered
SDL: State delisted
SSC: Species of Special Concern
FP: California Department of Fish and Wildlife Protected and Fully Protected Species
SE: State listed as endangered
ST: State listed as threatened

References

CDFW. 2020. RareFind 5, Version 5.2.14. California Natural Diversity Database. Sacramento, California: CDFW, Biogeographic Data Branch. Accessed July 2020. https://map.dfg.ca.gov/rarefind/view/RareFind.aspx.

Appendix D-7

Desert Tortoise Protocol Survey Results for Off-Site Utilities Alignments

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June 30, 2021 12122

Brandon Gallup, Project Manager
Covington Group, Inc.
14180 Dallas Parkway, Suite 730
Dallas, Texas 75254

Subject: Protocol Desert Tortoise Survey Results for the Hesperia Commerce Center II Off-Site Utilities Alignments Located in the City of Hesperia, San Bernardino County, California

Dear Mr. Gallup:

This letter documents the results of a protocol presence/absence survey for the Mojave desert tortoise (*Gopherus agassizii*) conducted by Dudek in spring 2021 for the Hesperia Commerce Center II Off-Site Utilities Alignments. The Mojave desert tortoise is listed as threatened by both the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). The survey was conducted within the entire Off-Site Utilities Alignments, which supports moderately suitable habitat to support this species, and supplements an August 2020 Mojave desert tortoise survey report that was prepared for the approximately 195-acre Hesperia Commerce Center II Project (Project). The Project site and Off-Site Utilities Alignments is located near the southern extent of the desert tortoise's range in the southwestern Mojave Desert, in the City of Hesperia, San Bernardino County, California.

No desert tortoise or sign of active/previous occupation was observed within the survey area which includes the Off-Site Utilities Alignments potential disturbance boundary.

1. Survey Area

The proposed Off-Site Utilities Alignments are located in the eastern part of the City of Hesperia (City), in the Victor Valley/High Desert region of western San Bernardino County. The Off-Site Utilities Alignments are within public land survey system (PLSS) Sections 15 and 16 of Township 4 North, Range 5 West, within Baldy Mesa, CA 7.5-minute USGS Quadrangle (Attachment A: Figure 1, Project Location; Figure 2, Site Plan).

The Off-Site Storm Drain Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, and terminating at a west-facing bank of the Oro Grande Wash to the east.

The Off-Site Sewer Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, crossing under US Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45-degree angle to the southeast and extending roughly 1,100 feet across Oro Grande Wash. Within the Oro Grande Wash, the sewer line will be located under the existing grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

The Off-Site Water Alignment extends west from U.S. Highway 395, crosses the Oro Grande Wash and continues along Sultana Street, then travels north at Los Banos Avenue, terminating at Phelan Road. Within the Oro Grande Wash, the water line will be located under the existing grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

The Off-Site Utilities Alignments would also include street improvements along the frontage of the Hesperia Commerce Center II Project on Yucca Terrace Drive, along Phelan Road and a portion of U.S. Highway 395.

Regional access to the Off-Site Utilities Alignments is provided by U.S. Highway 395 and Interstate (I) 15 (Attachment A: Figure 1, Project Location).

The Off-Site Utilities Alignments are situated along existing dirt access roads surrounded by vacant, undeveloped land, with a few residences along the Off-Site Water Alignment, and has been disturbed as a result of illegal dumping, trespassing, and unpermitted off-road vehicle use. These previously unpermitted activities have led to areas of exposed bare soils (where trails have formed) and several refuse piles sporadically along both the Off-Site Utilities Alignments. Ground surface cover consists of moderate native brush and shrub growth, with occasional Juniper and Joshua trees located throughout the site. The site's surface elevation ranges between approximately 3,522 and 3,602 feet above mean sea level (msl) and the local topographic gradient is approximately two percent towards the northeast with the southwestern corner of the site sloping moderately downward to the west. Land uses generally surrounding the Off-Site Utilities Alignments primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. The study area for the Off-Site Utilities Alignments includes the entire proposed Off-Site Utilities Alignments and a 500-foot buffer around the entire route (Figure 3, Desert Tortoise Survey Map).

2. Methods

Dudek conducted the focused desert tortoise surveys on April 7, 2021, in accordance with current USFWS 2010 protocol[1]. The survey was conducted by Dudek biologist Tommy Molioo. The survey was conducted between the hours of 9:00 and 11:00 a.m. with weather conditions consisting of a temperature range of 77 degrees Fahrenheit to 80 degrees Fahrenheit with winds of 4 to 6 miles per hour and clear skies. The survey area, or USFWS 2010 "Action Area," was walked using 10 meter (30-foot) wide belt transects in all areas of potentially suitable habitat that were either controlled by the project applicant or within the public right-of-way. Areas within private property were surveyed opportunistically. A USFWS 2010 data form was completed for the one survey day and is provided in Appendix B. In addition, notes were taken on vegetation communities and plant and animal species observed.

3. Results

No live desert tortoises, desert tortoise sign, or suitable burrows were observed within the survey area. The survey area is at the edge of desert tortoise known range, and the vegetation present on-site is relatively low quality, with a heavy presence of non-native plant species. The vegetation throughout the site has been impacted by illegal trash

[1] USFWS 2010. Preparing for any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii).

dumping and unauthorized off-road vehicle use. In addition, no dominance of creosote bush (*Larrea tridentata*) scrub is present within the survey area, which are requirements for the presence of desert tortoise.

If you have any questions regarding this report, please feel free to contact me at tmolioo@dudek.com or by phone at 949.212.9404.

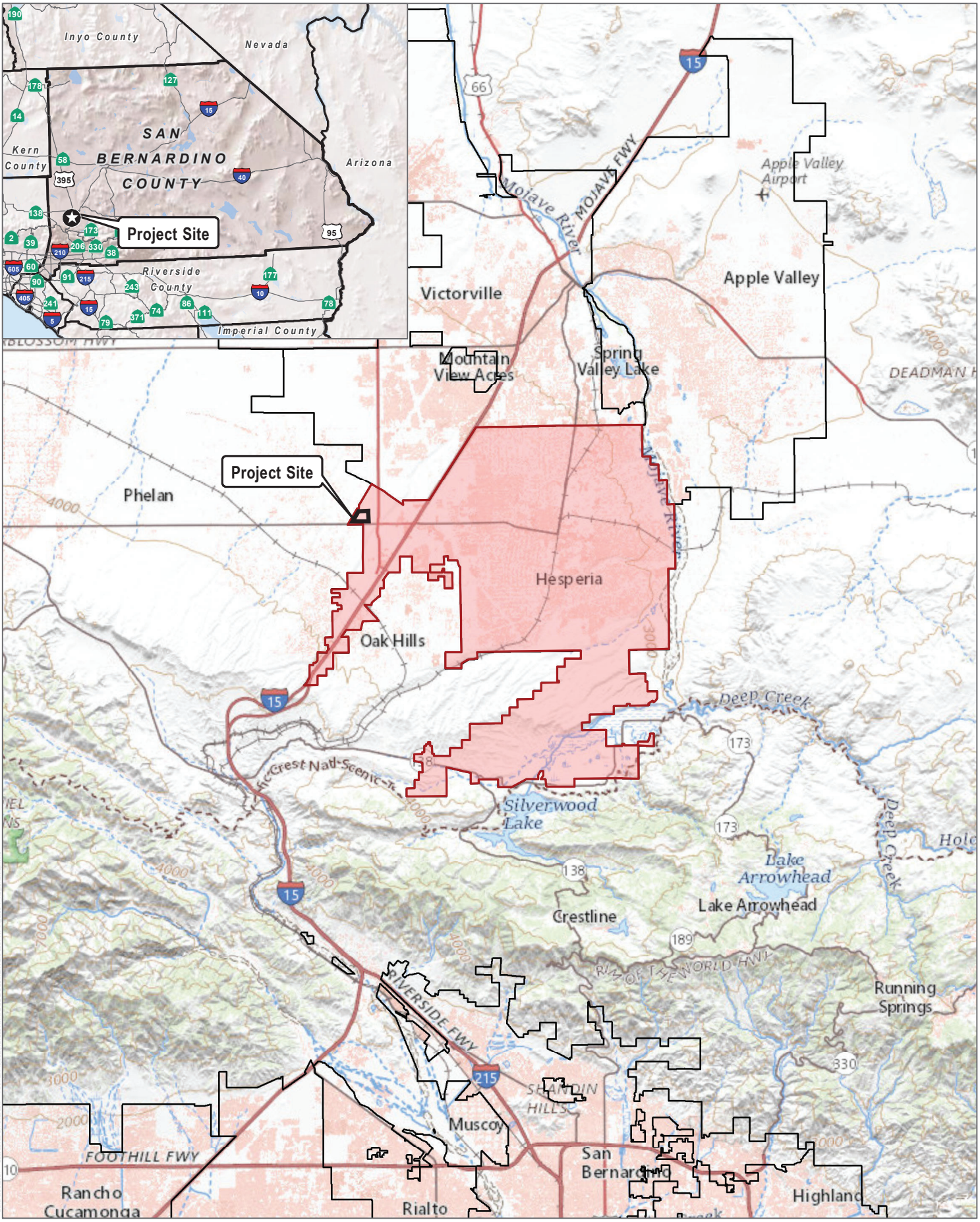
Sincerely,

Tommy Molioo
Sr. Biologist

Att.: *Attachment A – Figures*
Attachment B – Site Photographs
Attachment C – Data Sheets
cc: *Carey Fernandes, Dudek*

Attachment A

Figures



SOURCE: USGS US Topo 2018

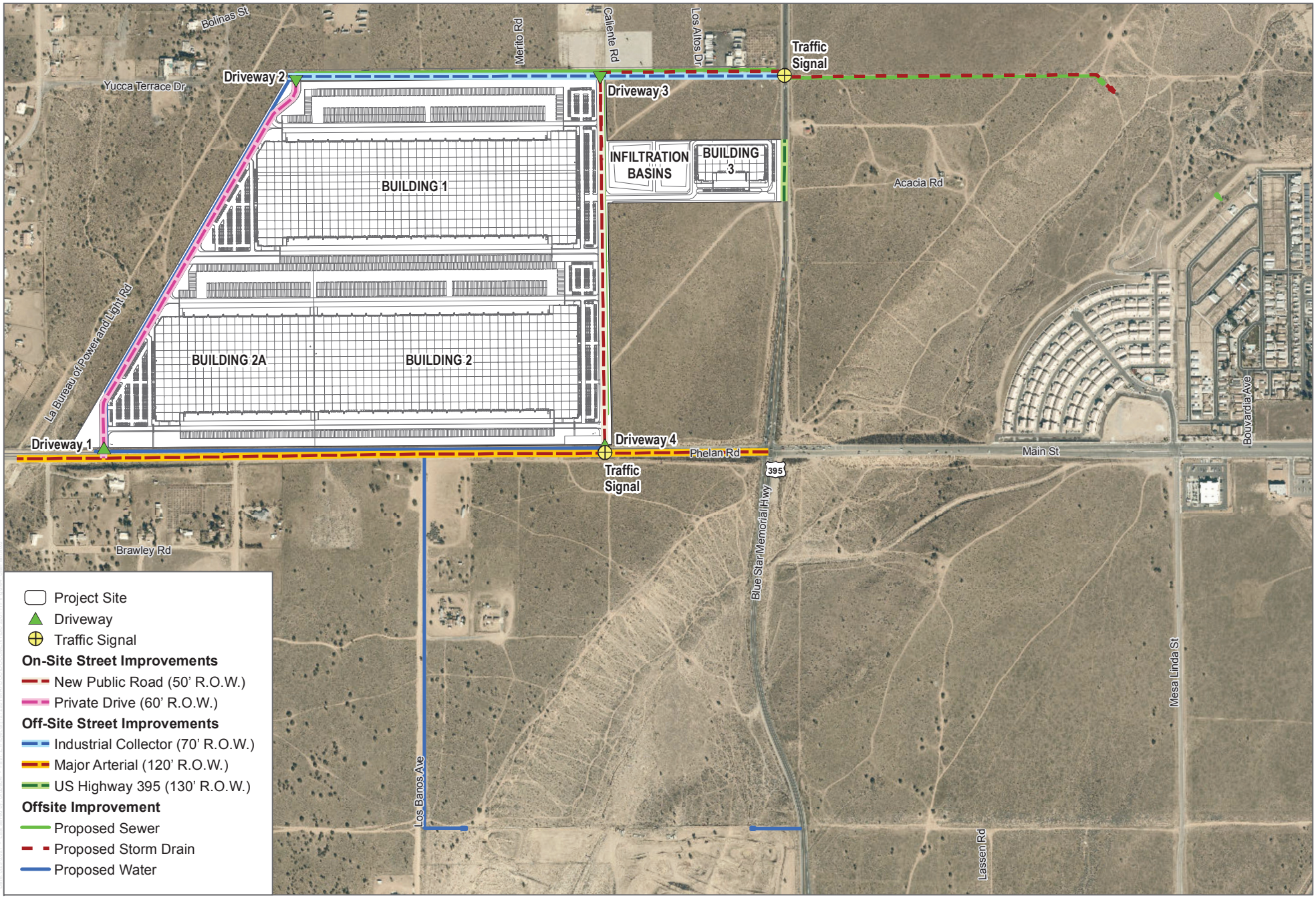
DUDEK

0 1.75 3.5 Miles

Figure 1

Regional Map

Desert Tortoise Survey Report for Off-Site Utility Alignments, Hesperia Commerce Center II



SOURCE: Esri Wolrd Imagery 2020; HPA Architects 2020

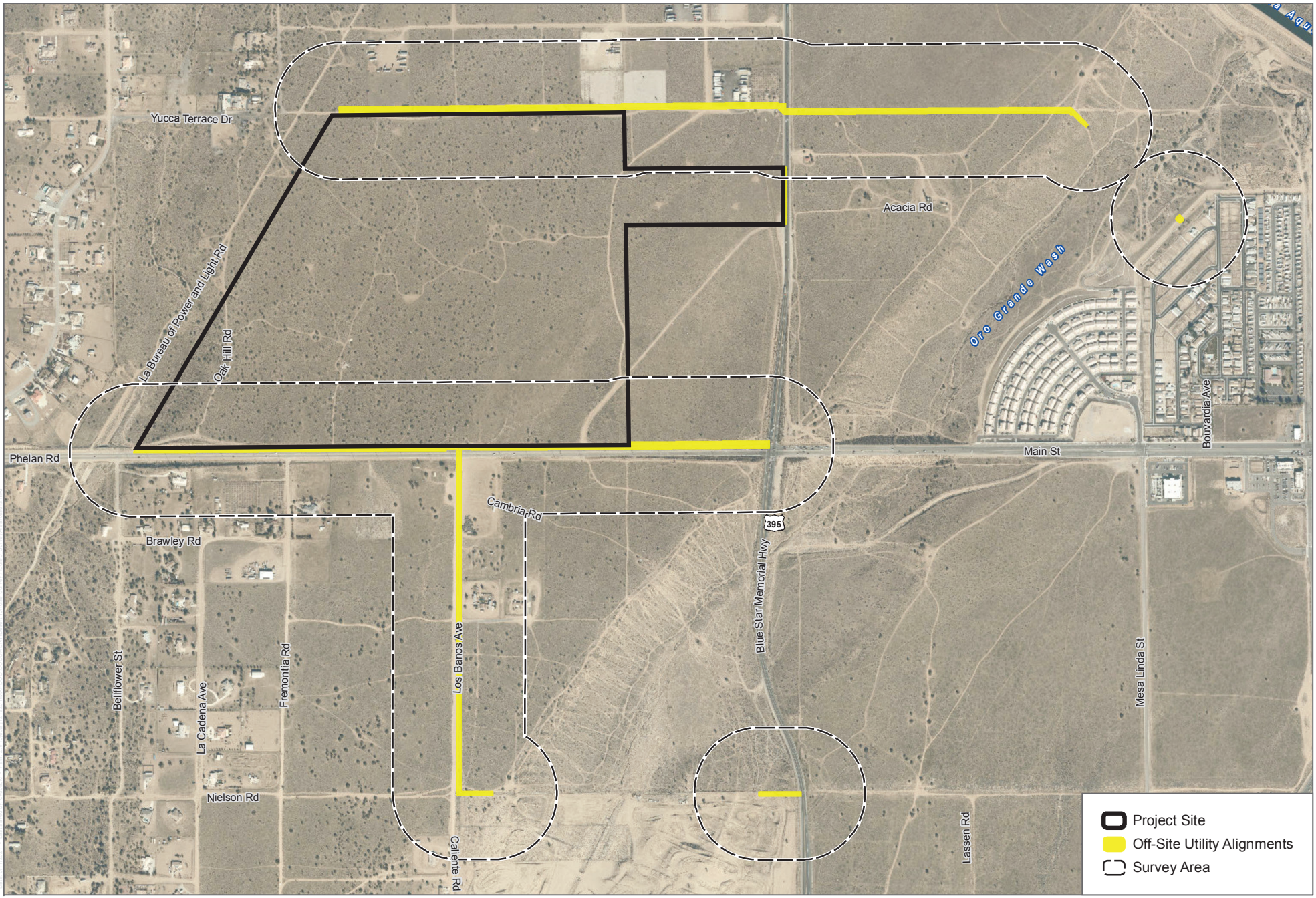
DUDEK

0 460 920 Feet

FIGURE 2

Site Plan

Desert Tortoise Survey Report for Off-Site Utility Alignments, Hesperia Commerce Center II



SOURCE: Esri World Imagery 2020; Open Street Map 2019

DUDEK

0 500 1,000 Feet

FIGURE 3

Survey Area and Results

Desert Tortoise Survey Report for Off-Site Utility Alignments,Hesperia Commerce Center II

Appendix D-8

Mohave Ground Squirrel Protocol Survey Results for Off-Site Utilities Alignments

DIPODOMYS
ECOLOGICAL CONSULTING, LLC

August 2, 2021

Megan Enright
27372 Calle Arroyo
San Juan Capistrano, CA
92675

Subject: Results of Mojave Ground Squirrel Protocol Surveys for the Hesperia Commerce Center II Alignment Project, City of Hesperia, San Bernardino County, California

Dear Ms. Enright:

This report documents the results of a California Department of Fish and Wildlife (CDFW) protocol survey for Mohave ground Squirrel (*Xerospermophilus mohavensis*; MGS) conducted by Dipodomys Ecological Consulting LLC (DEC), for the Hesperia Commerce Center II Alignment (project). Presented in this report are a description of the project, project location, the biological setting of the site, MGS natural history, survey methodology, survey results of trapping efforts for MGS, and conclusions.

Project Description and Location

Covington Group, Inc. proposes to develop two speculative industrial distribution warehouses on a 197.26-acre parcel and install utility tie-ins for sewer/storm drain and potable water. MGS protocol surveys for the 197.26-acre parcel were conducted in 2020 and yielded negative results. This report focuses specifically on the utility alignments for sewer/storm drain and potable water. The sewer/storm drain and water alignments encompass a 46.97-acre area and extend north and south of the 197.26-acre parcel, respectively.

The project sites are located within the City of Hesperia in San Bernardino County. The sewer/storm drain alignment is located along Yucca Terrace Drive, and extends east from Caliente Road to 0.25 miles west of Cataba Road. The potable water alignment extends south along Los Banos Road, between Phelan Road and Sultana Street (**Figures 1 and 2**). The sewer/storm drain alignment is surrounded primarily by undeveloped land, with residential developments to the southeast. The potable water alignment is surrounded by undeveloped land, with the exception of several widely-spaced residential homes. The project sites can be found on U.S. Geological Survey (USGS) 7.5-minute Baldy Mesa topographic quadrangle map within Section 15, Township 4 North and Range 5 West, as shown in **Figure 1**, Project Location.

Biological Setting

Sewer/Storm drain Alignment

The sewer/storm drain alignment is comprised of three vegetation communities: disturbed Nevada joint fir-Anderson's boxthorn-spiny hopsage scrub (33.185.00) in the western portion, disturbed Joshua Tree

Woodland (33.170.00) in the central portion, and disturbed California juniper woodland (89.100.00) in the eastern portion. Dominant plants include Anderson's thornbush (*Lycium andersonii*), Nevada joint fir (*Ephedra nevadensis*), California juniper (Juniperus californica), Joshua tree (*Yucca brevifolia*), big sagebrush (*Artemisia tridentata*), Cooper's boxthorn (*Lycium cooperi*), rubber rabbitbrush (*Ericameria nauseosa*), spiny hopsage (Grayia *spinosa*), winterfat (*Krascheninnikovia lanata*), bladderpod (*Peritoma arborea*) and California buckwheat (*Eriogonum fasciculatum*). Soils consist of Cajon sand and Hesperia loamy fine sand.

Potable water alignment

The potable water alignment consists of California juniper woodland (89.100.00) and rubber rabbitbrush scrub (35.310.00). Dominant plants include California juniper (*Juniperus californica*), rubber rabbitbrush (*Ericameria nauseosa*), big sagebrush (*Artemisia tridentata*), California buckwheat (*Eriogonum fasciculatum*), Mexican bladdersage (*Scutellaria mexicana*) and chaparral yucca (*Hesperoyucca whipplei)*. Soils consist of Hesperia loamy fine sand.

Mohave Ground Squirrel Natural History

Mohave ground squirrels (*Xerospermophilus mohavensis*) are medium-sized (210-230mm, 85-130g), diurnal squirrels. Their dorsal pelage is light gray to cinnamon-brown, while their ventral side is creamy. Unlike round-tailed ground squirrels, which occur sympatrically in the southeast portion of their range, MGS have a short, flat tail that is light-colored on its underside, and have brown cheeks instead of white.

MGS inhabit a small geographic area in the western Mojave Desert. This species ranges from Palmdale in the southwest, the Lucerne Valley in the southeast, Olancha in the northwest, and the Avawatz Mountains in the northeast (Gustafson 1993). Although occurrences in the southern portion of their range are rare, occurrences have been documented on the California Natural Diversity Database (CNDDB) as recently as 2011 (Figure 3). Vegetation communities (as classified by the California Native Plant Society) typically associated with MGS include Mojave Creosote Scrub, Shadscale Scrub, Desert Saltbush Scrub, Desert Sink Scrub, and Joshua Tree Woodland. MGS feed primarily on the leaves and seeds of forbs and shrubs. In the northern portion of their range, MGS have been found to feed on spiny hopsage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*) and saltbush (*Atriplex* sp.), especially in early spring when forbs are unavailable, during summer when forbs have dried out, and during drought conditions (Leitner and Leitner 1998). Recent studies have also indicated that MGS feed on the following forbs and shrubs: freckled milkvetch (*Astragalus lentiginosus*), Mojave lupine (*Lupinus odoratus*), buckwheat (*Eriogonum* sp.), white mallow (*Eremalche exilis*), fiddleneck (*Amsinckia tessellata*), Russian thistle (*Salsola tragus*), desert pincushion (*Chaenactis* sp.), Cryptantha (*Cryptantha pterocarya*), Coreopsis (Leptosyne bigelovii), Valley lessingia (*Lessingia glandulifera*), desert dandelion (*Malacothrix glabrata*), Phacelia (*Phacelia* sp.), wire lettuce (*Stephanomeria* sp.) Anderson's desert thorn (*Lycium andersonii*), spiny horsebrush (*Tetradimya spinosa*), and Joshua tree *(Yucca brevifolia*) (Leitner and Leitner 2017).

MGS have adapted to live in hot desert environments by limiting their activity aboveground through estivation and hibernation. The timing of emergence from hibernation varies by location: in the northern portion of their range male MGS emerge mid-March (Leitner and Leitner 1998); however, in the southern portion of their range, MGS may emerge as early as mid-January (Recht 1977). Throughout their active period, MGS store fat in preparation for estivation, which typically occurs between July and September,

but may occur as early as April or May during drought conditions (Leitner et al. 1995). MGS reproduction is dependent on fall and winter rains and individuals may forgo breeding entirely if low rainfall (<80mm) results in reduced herbaceous plants (Leitner and Leitner 2017).

Throughout the range of MGS, they may co-occur with antelope ground squirrels, round-tailed ground squirrels, and California ground squirrels. MGS may be misidentified with round-tailed ground squirrels, but this is unlikely to occur with antelope grounds squirrels, because the latter species has white dorsal stripes that makes them resemble a chipmunk more than an MGS. California ground squirrels are also notably larger and are not typically confused with MGS.

MGS are classified as threatened and are protected under the California Endangered Species Act. Primary threats to MGS include limited distribution, low abundance and habitat loss from by converting suitable habitat to urban, suburban, agricultural and military land uses (Gustafson 1993, Leitner and Leitner 2017).

Methods

Protocol surveys for MGS utilized a modified version of the existing 2010 CDFW MGS Survey Guidelines to adequately survey the two alignments while focusing on areas with the most suitable habitat. The modified survey approach was developed in consultation and coordination with the Region 6 office of the California Department of Fish and Wildlife (CDFW) and was approved on April 16, 2021. The approved survey strategy employed the use of live -trapping and camera trapping techniques, and is described in detail below. The approved methodology proposal is also included in **Attachment E**.

Visual Survey

An initial review of the California Natural Diversity Database (CNDDB) was conducted prior to the visual assessment to determine the historical recorded occurrences of MGS near the project site (**Figure 3**). The visual survey was conducted by Principal Investigator Karla Flores (MOU and Scientific Collection Permit SC-10572) and Independent Researcher Karl Fairchild (SCPS-182820007-18333-001) on April 15, 2021. The visual survey consisted of driving and walking throughout the project site to identify suitable habitat for MGS. This included identifying plants known to provide forage material for MGS such as spiny hopsage, winterfat, Cooper's boxthorn, Anderson's desert thorn, and Joshua tree. Areas supporting suitable habitat for MGS where these plants are concentrated were recorded on an aerial map. Suitable soil types for burrowing and burrow densities were also noted.

Live Trapping

Live-trapping surveys consisted of setting up one 100-trap 4x25 survey grid (105x840) along the sewer/storm drain alignment with the grid encompassing as much of the Oro Grande Wash Channel as possible which coincided with the most suitable MGS habitat. Coordinate locations for the grid are listed in **Table 1**. Traps in each grid were spaced 35 meters apart and utilized XLK Sherman live-traps

(3x3.75x12") with accompanying A-frame cardboard shade covers staked to the ground with metal tent stakes. All traps were baited with 4-way livestock feed and peanut butter powder and were opened within one hour of sunrise and were checked no more than every four hours. All trapswere closed within hour of sunset. All animals captured were released at their capture location and information recorded for each animal included species, weight, age, sex, reproductive condition. Live-trapping surveys were conducted for a period of five days in each of the three survey windows established by the MGS survey guidelines (1st: March 15-April 3; 2nd May 1-31;3rd June 15-July 15). Details for each survey period are presented in **Table 2.** MGS Survey and Trapping Forms, including weather details, are presented in **Attachment A** and **Attachment B**.

TABLE 1
UTM COORDINATES FOR CORNERS OF EAST AND WEST LIVE TRAPPING GRIDS

Grid Corner	Trap Station	Zone	Easting	Northing
NW	D1	11	463575	3810415
SW	A1	11	463575	3810310
NE	D25	11	464229	3810415
SE	A25	11	464182	3810310

*Datum: WGS 1984

TABLE 2
MOHAVE GROUND SQUIRREL SURVEY DATE AND TYPE

Session	Date	Survey Type	Surveyor
1	April 19-23, 2021	LT/CT	Karl Fairchild
2	May 27-31, 2021	LT/CT	Karl Fairchild
3	July 11-15, 2021	LT/CT	Karl Fairchild

LT: Live Trapping CT: Camera Trapping

Camera Trapping

Camera trapping surveys were used to supplement live-trapping efforts and consisted of setting up five camera trapping stations throughout the project site (**Figure 2**). Each camera trap station consisted of a Bushnell Core Low Glow Trail Camera (Model 1199932CB) secured to a 36-inch U-post facing a bait station. The bait station consisted of a feeding tube filled with 4-way livestock feed staked to the ground with a 12-inch railroad spike. Cameras operated 24 hours a day, concurrent with live-trapping surveys, and followed the set-up specifications described in Delaney et al. 2017. Coordinate locations for each camera trap station are listed below in **Table 3**.

Photos from the camera trap stations were downloaded and reviewed by the Principal Investigator after every five-day trapping session. A list of species detected at the camera trap stations is included in **Table 5**.

TABLE 3
COORDINATE LOCATIONS FOR CAMERA TRAP STATIONS

Camera	Zone	Easting	Northing
1	11	464051	3810210
2	11	463459	3810328
3	11	462993	3810321
4	11	462530	3808988
5	11	462873	3808744

*Datum: WGS 1984

Results

Visual Survey

Based on the habitat data collected during the visual survey, the sewer/storm drain alignment supports some Mohave ground squirrel habitat. Both primary Mohave ground squirrel food plants, winterfat and spiny hopsage, are present in the southeast portion alignment and occur near the Oro Grande Wash channel. Although there is some sign of off-highway vehicle (OHV) use, the channel is generally moderately undisturbed. The potable water alignment supports little to no MGS habitat. None of the MGS primary food plants were found in this alignment. However, soils are suitable for burrowing.

Live Trapping

No Mohave ground squirrels were captured during the three live-trapping survey periods. Live-trapping captures consisted entirely of non-target species including white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), California ground squirrel (*Otospermophilus beecheyi*), cactus wren (*Campylorhynchus brunneicapillus*) and yellow-backed spiny lizard (*Sceloporus uniformis*) (**Table 4; Figure 4**).

TABLE 4
RESULTS OF MOHAVE GROUND SQUIRREL PROTOCOL SURVEYS

Common name	Scientific name	Session 1	Session 2	Session 3	Species total
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*	35	34	9	78
California ground squirrel	*Otospermophilus beecheyi*	14	11	2	27
Cactus wren	*Campylorhynchus brunneicapillus*	0	1	0	1
Yellow-backed spiny lizard	*Sceloporus uniformis*	0	0	2	2
	Total	49	46	13	108

Camera Trapping

No Mohave ground squirrels were detected in the images collected during the camera trapping surveys. Species observed utilizing the camera trap stations included: California ground squirrel, white-tailed antelope ground squirrel, black-tailed jackrabbit, cactus wren, northern mockingbird, California quail and common raven.

TABLE 5
RESULTS OF MOHAVE GROUND SQUIRREL CAMERA TRAPPING

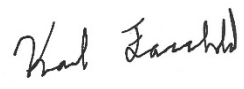
Common name	Scientific name
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*
California ground squirrel	*Otospermophilus beecheyi*
Black-tailed jackrabbit	*Lepus californicus*
Cactus wren	*Campylorhynchus brunneicapillus*
Northern mockingbird	*Mimus polyglottos*
California quail	*Callipepla californica*
Common raven	*Corvus corax*

Conclusions

The Hesperia Commerce Center II Alignment Project is located in undeveloped land, surrounded by dispersed residential development. The vegetation onsite consists primarily of non-native herbaceous plants with sparse stands of native trees and shrubs. Furthermore, the high density of California juniper on the site, combined with the presence of plants such as big sagebrush and chaparral yucca, is indicative that the area is within the Mohave-transmontane transition zone, an area with low likelihood of use by MGS. While the soil at the project site is suitable for burrowing, and burrowing rodents were found, the main MGS food plants are not present in sufficient quantity to support a population of MGS. In addition, no MGS were captured/observed during the three live-trapping and camera trapping surveys. A historical review of MGS occurrences in the vicinity showed that all documented MGS occurrences near the project site have been recorded north of the California Aqueduct, approximately one mile away from the project site. Given that the California Aqueduct is a significant barrier to dispersal, it is unlikely that MGS dispersal may occur from the northern sites. Based on this, the CDFW survey guidelines indicate that the department will stipulate that no MGS occur on the project site. This stipulation will expire one year from the last day of trapping, July 15, 2021.

I hereby certify that the information in this report is true, and that it conforms to accepted biological standards. Please feel free to contact Karl Fairchild by phone at (541) 609-1038 or by email at kfairchild@dipodomysecological.com, or Karla Flores by phone at (619) 972-4319 or by email at kflores@dipodomysecological.com with any questions regarding this report.

Sincerely,





Karl Fairchild
Independent Researcher

Karla L. Flores
Principal Investigator

Figures and Attachments

Figure 1-Project Location
Figure 2-Survey Area
Figure 3- Historical MGS Occurrences
Figure 4- Results

Attachment A-CDFW Mohave Ground Squirrel Survey and Trapping Form
Attachment B-Weather Details
Attachment C-Species Compendium
Attachment D-Representative Photographs.
Attachment E-Approved CDFW Survey Methodology

References

California Department of Fish and Game. Mohave Ground Squirrel Survey Guidelines. July 2010.

California Department of Fish and Wildlife. California Natural Diversity Database Rarefind. April 15, 2021.

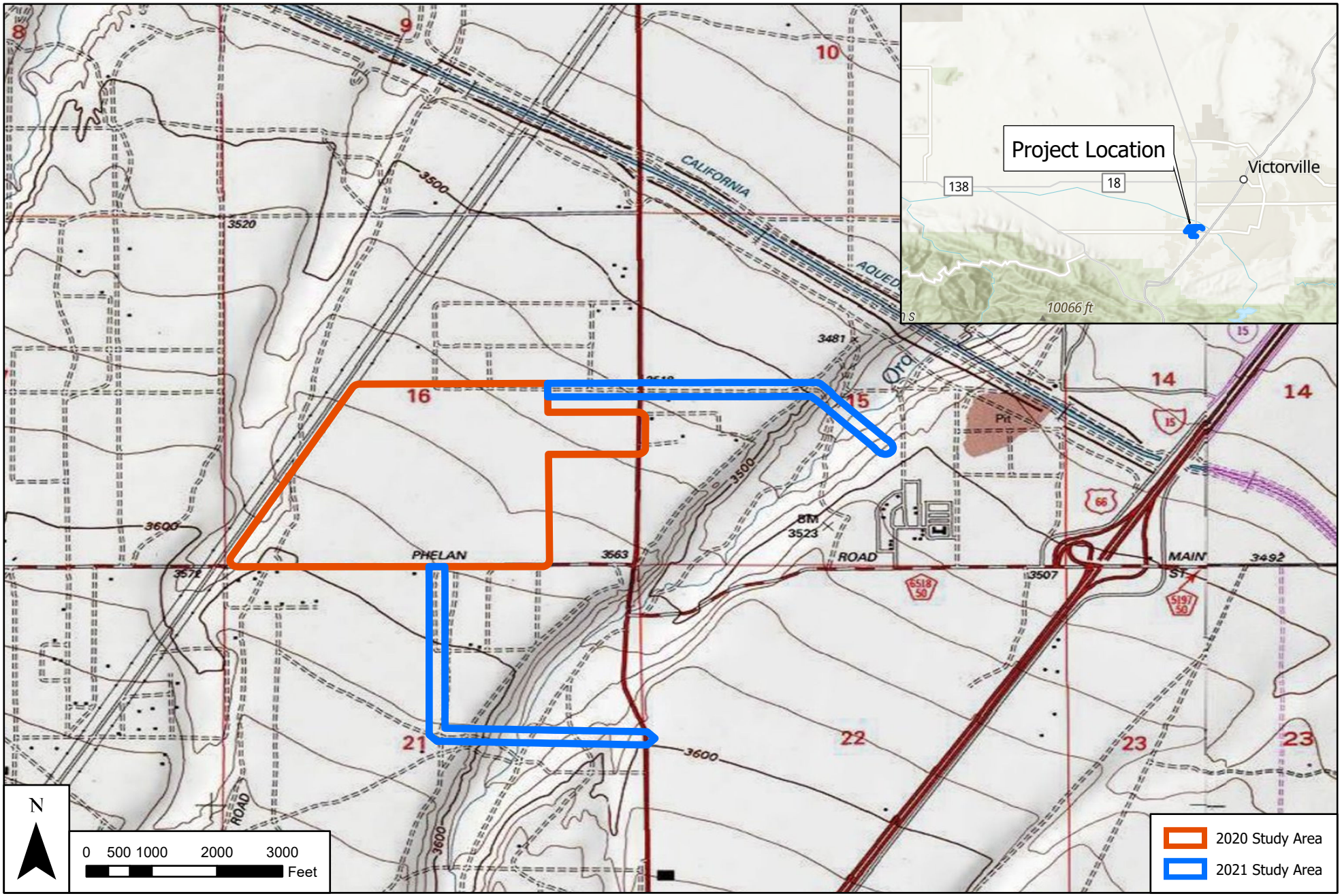
Delaney D.K., Leitner, P. and D. Hacker. 2017. Use of Cameras in Moihave ground Squirrel Studies.

Gustafson, J.R. 1993. A Status Review of the Mohave Ground Squirrel (*Spermophilus mohavensis*). Department of Fish and Game. Nongame Bird and Mammal Report 93-9.

Leitner, P. and B.M. Leitner. 1998. Coso grazing exclosure monitoring study, Mohave ground squirrel study Coso Known Geothermal Resource Area, Major Findings 1988-1996. Final Report.

Leitner, P. and B.M. Leitner. 2017. Diet of the Mohave ground squirrel (*Xerospermophilus mohavensis*) in relation to season and rainfall. *Western North American Naturalist*, 77(1), 1-13.

Recht, M.A. 1977. The biology of the Mohave ground squirrel, *Spermophilus mohavensis*. Ph.D. Dissertation, University of California, Los Angeles. 117 pp.



SOURCE: ESRI

Hesperia Commerce Center II

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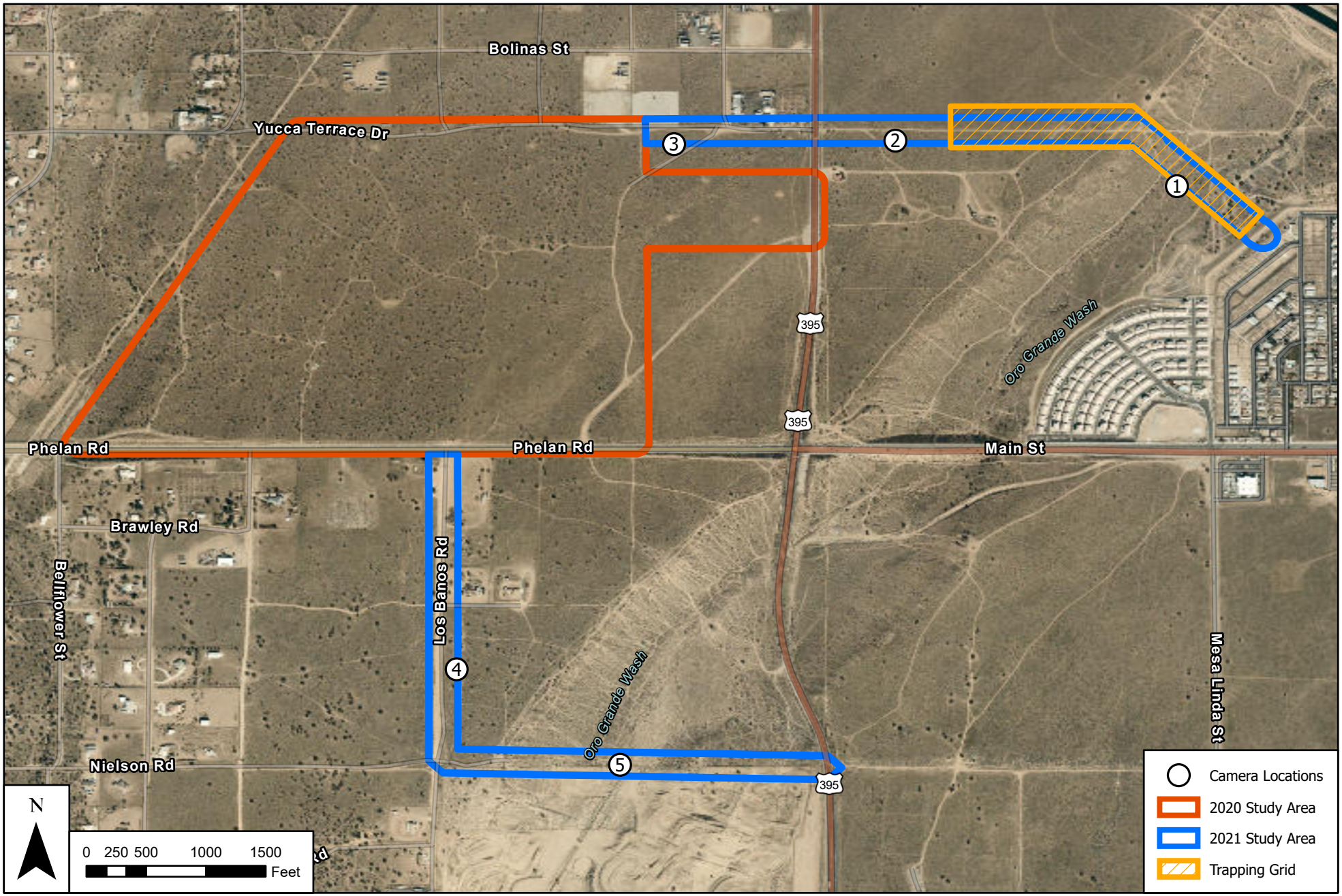
Figure 1

Project Location



SOURCE: ESRI

Hesperia Commerce Center II

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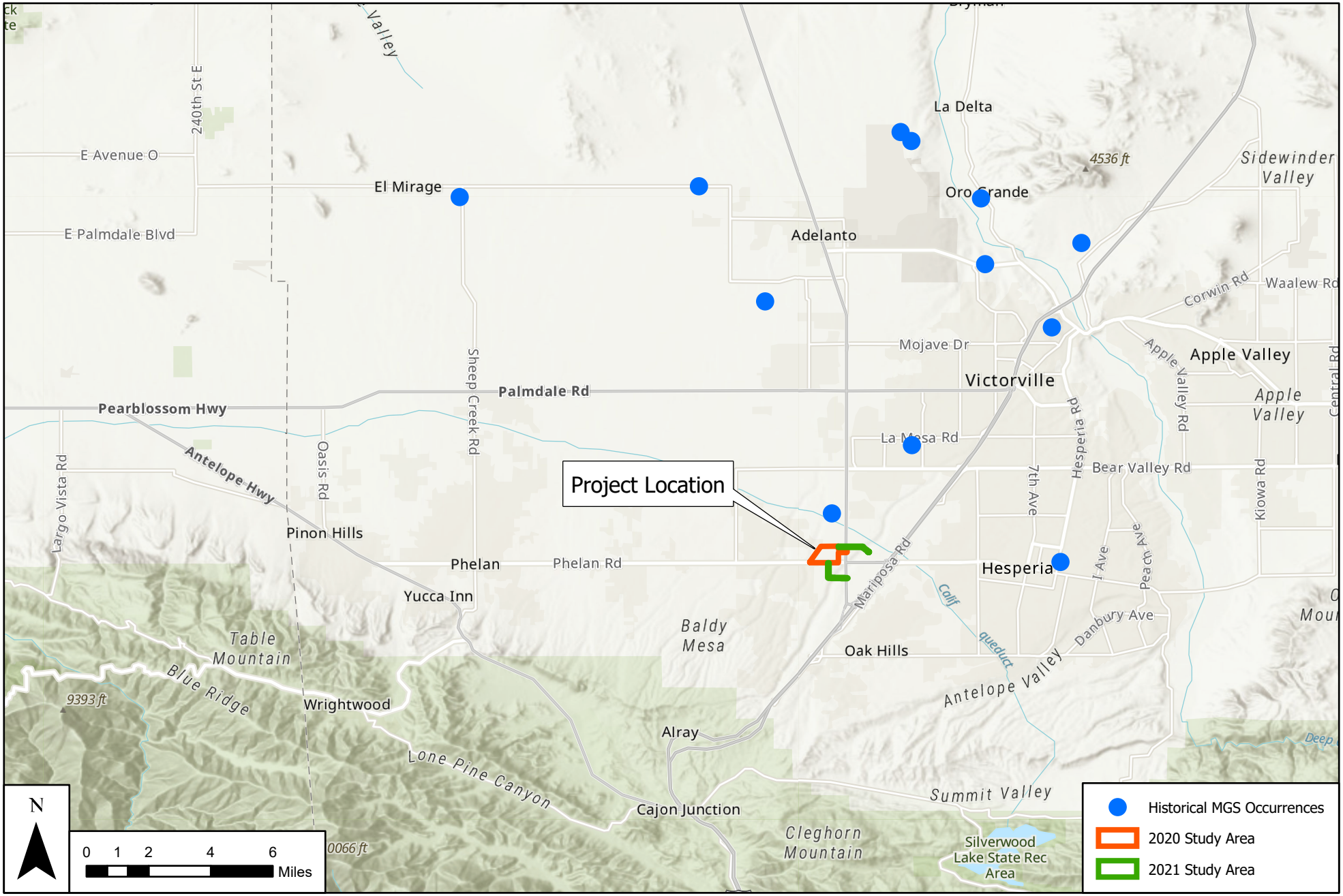
Figure 2

Survey Area



SOURCE: ESRI

Hesperia Commerce Center II

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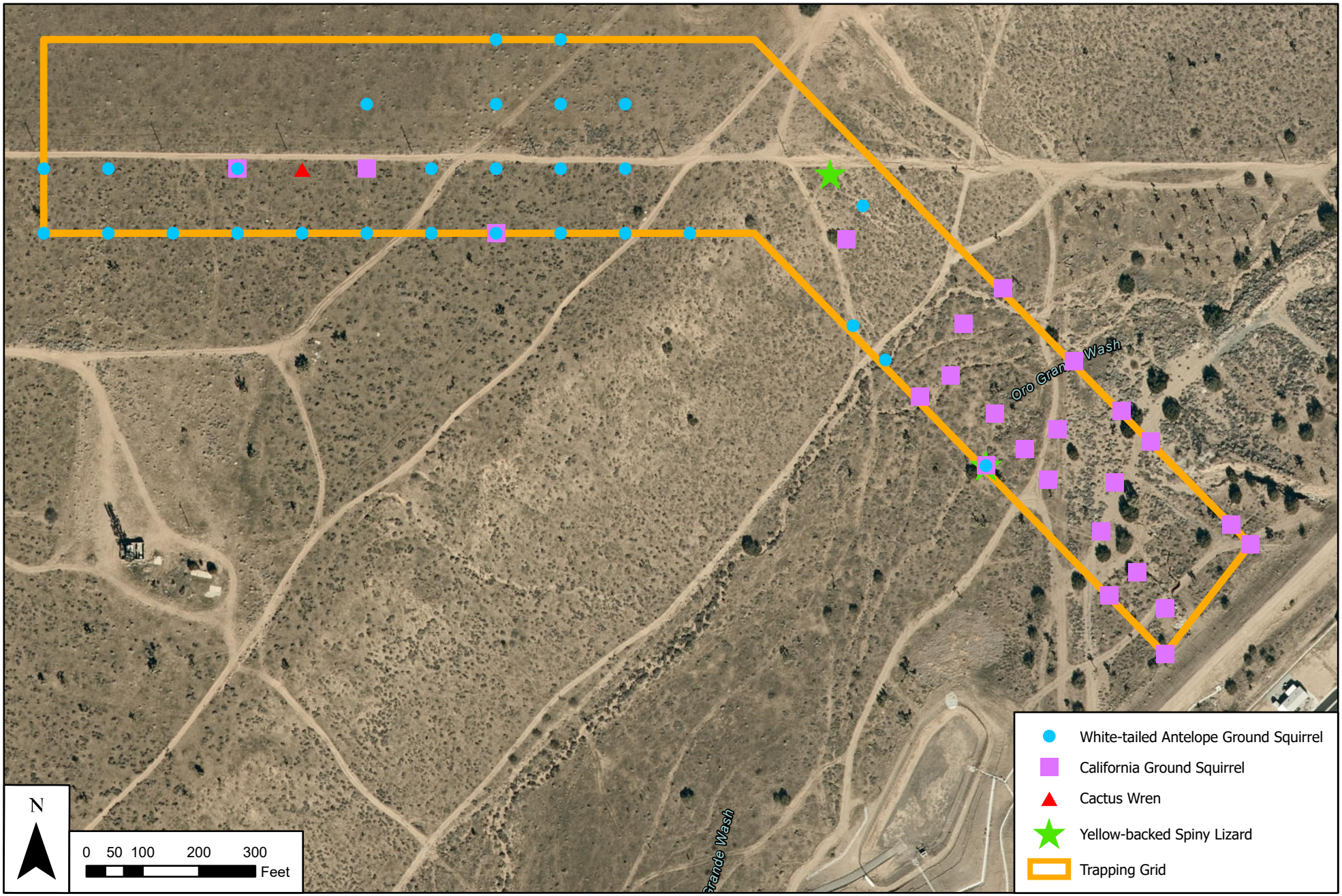
Figure 3

Historical MGS Occurrences



SOURCE: ESRI

Hesperia Commerce Center II

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Figure 4

Trapping Results

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Attachment A

Mohave Ground Squirrel (MGS) Survey and Trapping Form (photocopy as needed)

PART I - PROJECT INFORMATION (use a separate form for each sampling grid)

Project name: Hesperia Commerce Center II Alignment Property owner: Covington Group, Inc.

Location: Township 4 North; Range 5 West; Section 15 ; ¼ Section _____

Quad map/series: Baldy Mesa UTM coordinates: SW: 11 464170 3808370 WGS 1984
GPS coordinates of trapping-grid corners

Acreage of Project Site: 46.97 Acreage of potential MGS habitat on site: 24.0

Total acreage visually surveyed on project site: 46.97 acres Date(s): April 15, 2021
visual surveys

Visual surveys conducted by: Karla Flores and Karl Fairchild
names of all persons by date (use back of form, if needed)

Total acres trapped: 46.97 acres Number of sampling grids: 1

Trapping conducted by: Karla Flores and Karl Fairchild
names of all persons by sampling term and sampling grid (use back of form, if needed)

Dates of sampling term(s): FIRST April 19-23, 2021 SECOND May 27-31, 2021 THIRD July 11-15, 2021
if required if required

PART II - GENERAL HABITAT DESCRIPTION (use back of form, if needed)
Vegetation: dominant perennials: California juniper, Joshua tree, creosote bush, Cooper's box thorn
other perennials: Anderson thornbush, big sagebrush, winterfat, spiny hopsage, rubber rabbitbrush, Nevada ephedra, Mexican bladdersage,California buckwheat
dominant annuals: Red-stemmed filaree, rattlesnake weed, fidddleneck, short-podded mustard, London rocket

other annuals: Ripgut brome, cheatgrass

Land forms (mesa, bajada, wash): Wash and adjacent mesa

Soils description: Cajon sand

Elevation: 3295 feet Slope: 9-15%

PART III - WEATHER (report measurements in the following categories for each day of visual survey and each day of trapping; using 24-hour clock, indicate time of day that each measurement was made; use a separate blank sheet for each day)

Temperature: AIR minimum and maximum; SOIL minimum and maximum; Cloud Cover: % in AM and % in PM; Wind Speed: in AM and in PM

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Attachment B

Attachment B: Weather details for California Department of Fish and Wildlife (CDFW) Mohave ground squirrel (*Xerospermophilus mohavensis*) protocol surveys. Details include date, survey (1-3), air temperature (min-max ° Fahrenheit), soil temperature (min-max ° Fahrenheit), wind speed (mph) and percent cloud cover (%).

Date	Survey	Air Temperature (°F)		Soil temperature (°F)		Wind (mph)		Cloud Cover (%)	
		Min	Max	Min	Max	Start	End	Start	End
4/19/2021	1	74.2	82.4	61.4	65.8	1.5	5.4	0	0
4/20/2021	1	62.1	67.8	62.4	74.1	4.8	9.3	0	5
4/21/2021	1	60.2	56.3	57.6	64	17.5	14.7	5	5
4/22/2021	1	57.2	60.8	56.3	64	9.9	11.8	1	5
4/23/2021	1	56.2	60.4	51.3	72.1	9.7	19.6	3	1
5/27/2021	2	69.7	90	61.5	67.6	4	4.8	0	0
5/28/2021	2	59.5	89.6	66.9	69.7	1.6	6.8	0	5
5/29/2021	2	64.9	78.1	67.5	71.6	10	5.2	35	5
5/30/2021	2	72.1	87.4	64.4	67.9	3	4.3	0	0
5/31/2021	2	65.5	88.9	69.6	68.8	1.1	5.6	2	5
7/11/2021	3	76.2	90	79.5	88	7.5	5.8	10	45
7/12/2021	3	81	90	86.4	84.2	4.2	13.6	50	50
7/13/2021	3	75.8	90	80.6	84.7	11.9	11.6	45	60
7/14/2021	3	73	90	77.6	85.5	10.2	15.9	50	5
7/15/2021	3	71.6	88.3	76.5	82.7	5.8	11.6	1	0

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Attachment C

Common name	Scientific name	SSC*
Birds		
Anna's hummingbird	*Calypte anna*	
Ash-throated flycatcher	*Myiarchus cinerascens*	
Bell's sparrow	*Artemisiospiza belli*	
Brewer's sparrow	*Spizella breweri*	
Cactus wren	*Campylorhynchus brunneicapillus*	
California quail	*Callipepla californica*	
California thrasher	*Toxostoma redivivum*	
California towhee	*Melozone crissalis*	
Common raven	*Corvus corax*	
Costa's hummingbird	*Calypte costae*	
European starling	*Sturnus vulgaris*	
Great-horned owl	*Bubo virginianus*	
Horned lark	*Eremophila alpestris*	
House finch	*Haemorhous mexicanus*	
House sparrow	*Passer domesticus*	
Ladder-backed woodpecker	*Dryobates scalaris*	
Lesser nighthawk	*Chordeiles acutipennis*	
Loggerhead shrike *	*Lanius ludovicianus*	Yes
Mourning dove	*Zenaida macroura*	
Northern mockingbird	*Mimus polyglottos*	
Red-tailed hawk	*Buteo jamaicensis*	
Say's phoebe	*Zonotrichia leucophrys*	
Verdin	*Auriparus flaviceps*	
Western kingbird	*Tyrannus verticalis*	
White-crowned sparrow	*Zonotrichia leucophrys*	
Mammals		
Black-tailed jackrabbit	*Lepus californicus*	
California ground squirrel	*Otospermophilus beecheyi*	
White-tailed antelope ground squirrel	*Ammospermophilus leucurus*	
Reptiles		
Long-nosed leopard lizard	*Gambelia wislizenii*	
Side-blotched lizard	*Uta stansburiana*	
Western whiptail	*Cnemidophorus tigris*	
Yellow-backed spiny lizard	*Sceloporus uniformis*	

*SSC: Species of Special Concern

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Attachment D



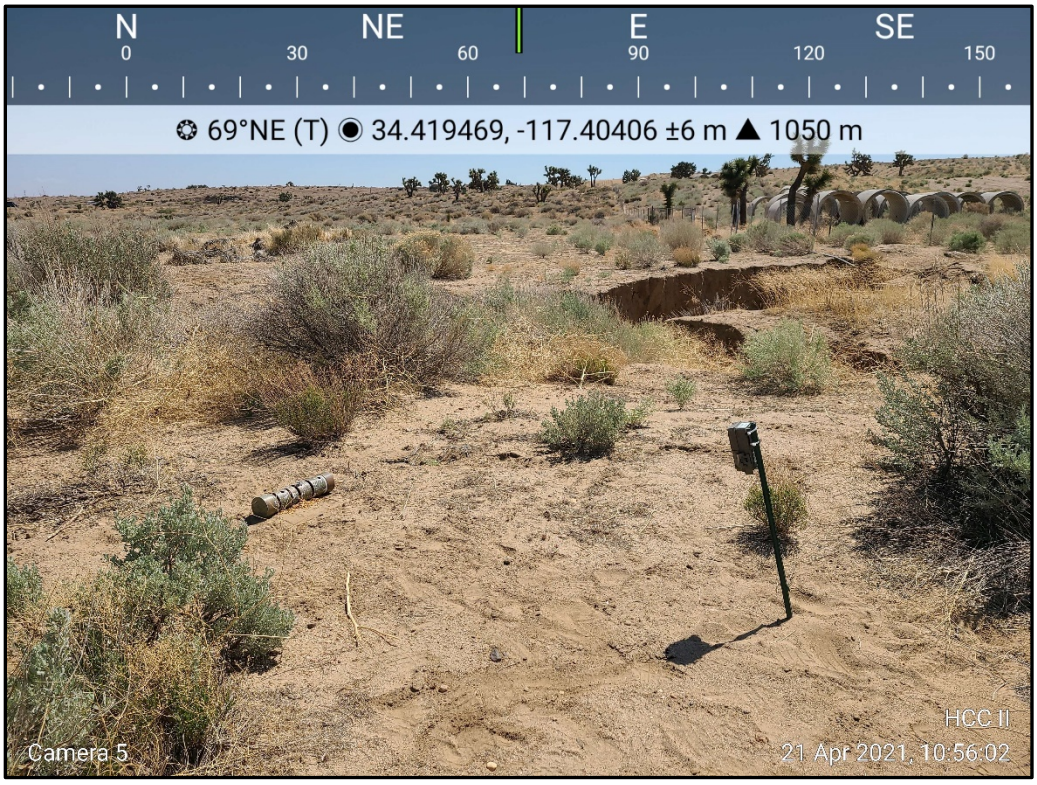
Photograph 1: Representative vegetation on east side of grid.



Photograph 2: Representative vegetation on west side of grid.



Photograph 3: Camera trap station one, located at east end of grid.



Photograph 4: Camera trap station five, located east of Los Banos Avenue and Sultana Street.




Photograph 5(a-b):Live trapping captures: (a)white-tailed antelope ground squirrels and (b) cactus wren.




Photograph 6 (a-b): (a)Yellow-backed spiny lizard captured in trap. (b) Great horned owl roosting in Joshua tree within the grid.

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Attachment E

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Memorandum

To: Ashley Rosales, California Department of Fish and Wildlife (CDFW)

From: Karla Flores, Dipodomys Ecological Consulting (DEC)

CC: Karl Fairchild (DEC), Tommy Molioo (Dudek), Megan Enright (Dudek)

Subject: Proposal to conduct California Department of Fish and Wildlife (CDFW) Mohave Ground Squirrel Protocol Surveys for the Hesperia Commerce Center II Alignment Project, in the City of Hesperia, San Bernardino County, California.

Dipodomys Ecological Consulting (DEC) proposes to conduct California Department of Fish and Wildlife (CDFW) Mohave Ground Squirrel (MGS) protocol surveys on the approximately 46.97-acre parcel for the Hesperia Commerce Center II Alignment (Project). The Project site consists of a northern and a southern portion consisting of a sewer/storm drain alignment in the north and water utility alignment in the south. The northern sewer/storm drain utility tie-in extends east along Yucca Terrace Drive from Caliente Road to 0.25 miles west of Cataba Road. The southern portion of the utility tie in consists of a potable water line, extending south along Los Banos Avenue from Phelan Road towards Sultana Street, then east along Sultana Street towards Highway 395. Both alignments are located within the City of Hesperia, San Bernardino County, California.

DEC proposes to survey the approximately 46.97-acre parcel using a combination of live trapping and camera trapping techniques. Because the northern utility tie-ins were surveyed in 2020 by the Principal Investigator, suitable vegetation for MGS is known to be present in the eastern portion of the sewer and storm drain alignment. Therefore, live-trapping efforts will focus on that section of the alignment. In addition, three camera trapping stations will be distributed along the northern portion of the alignment and two cameras will be distributed along the southern portion of the alignment. The live-trapping will consist of one 4x25 (105 x 840 meter) grid. Sites chosen for live-trapping and camera-trapping efforts met the following criteria: (a) representative of the site, (b) provide maximum coverage of the project, and (c) provide suitable habitat for MGS (e.g., substrate and vegetation). Final sampling locations may change based on field conditions.

MGS Live-trapping and Camera Trapping

Live Trapping

DEC's permitted biologists Karla Flores (SC-10572; MOU Principal Investigator) and Karl Fairchild (SC-11720; Field Investigator) will set up one 100-trap grid using the 4x25 (105 x 840 meter) configuration recommended in the CDFW MGS Survey Guidelines (2010) for linear projects. The grid will consist of 100

XLK Sherman traps (3 x 3.75 x 12") spaced 35 meters apart along four transects of 25 traps each. Traps will be baited with a mixture of 4-way livestock feed sprinkled with peanut butter and oats powder. Artificial shade will be provided using A-frame cardboard shade covers. Shade covers will be secured with tent stakes if windy conditions occur.

DEC will first conduct a visual survey to finalize trapping locations. Each sampling location will be surveyed three times during designated survey windows (1st: March 15-April 31; 2nd: May 1-31 and 3rd: June 15-July 15). If an MGS is captured, trapping will cease and CDFW will be notified.

All animals captured during the trapping efforts will be identified to species and released at the capture location. Biometric information such as weight, age class, sex, and reproductive condition will be recorded prior to release.

Camera Trapping

DEC biologists will supplement live-trapping efforts with five camera trapping stations. Each camera station will consist of a Bushnell Core Low Glow Trail Camera (Model 119932CB) facing a bait station consisting of a feeding tube or a bait cage to prevent attracting ravens. Camera setup and specifications will follow the guidelines of Delaney et al. (2017), listed below for quick reference. Cameras will operate 24 hours per day for five days during the three survey windows established by the CDFW MGS Survey Guidelines.

Photos from the camera traps will be downloaded after every five-day camera trapping session and will be reviewed individually by the Principal Investigator. A list of all species photographed will be included in the report, along with representative photographs.

Camera Specifications (from Delaney et al, 2017)

a.) At least 1 photo per second when triggered
b.) Trigger speed of <0.5 seconds
c.) Recovery speed of $\leq$ 1 second
d.) Minimum 60Mb/sec download speed on SD card

Camera Trap Set Up

a.) 24-hour camera operation
b.) Face camera north
c.) Keep shrubs and other potential wind triggers out of the field of view
d.) Test camera trigger at bait location before leaving
e.) Bait is present every day

If you have any questions, please feel free to contact Karla Flores at 619-972-4319 or kflores@dipodomysecological.com.

Sincerely,



Karla Flores
Principal Investigator

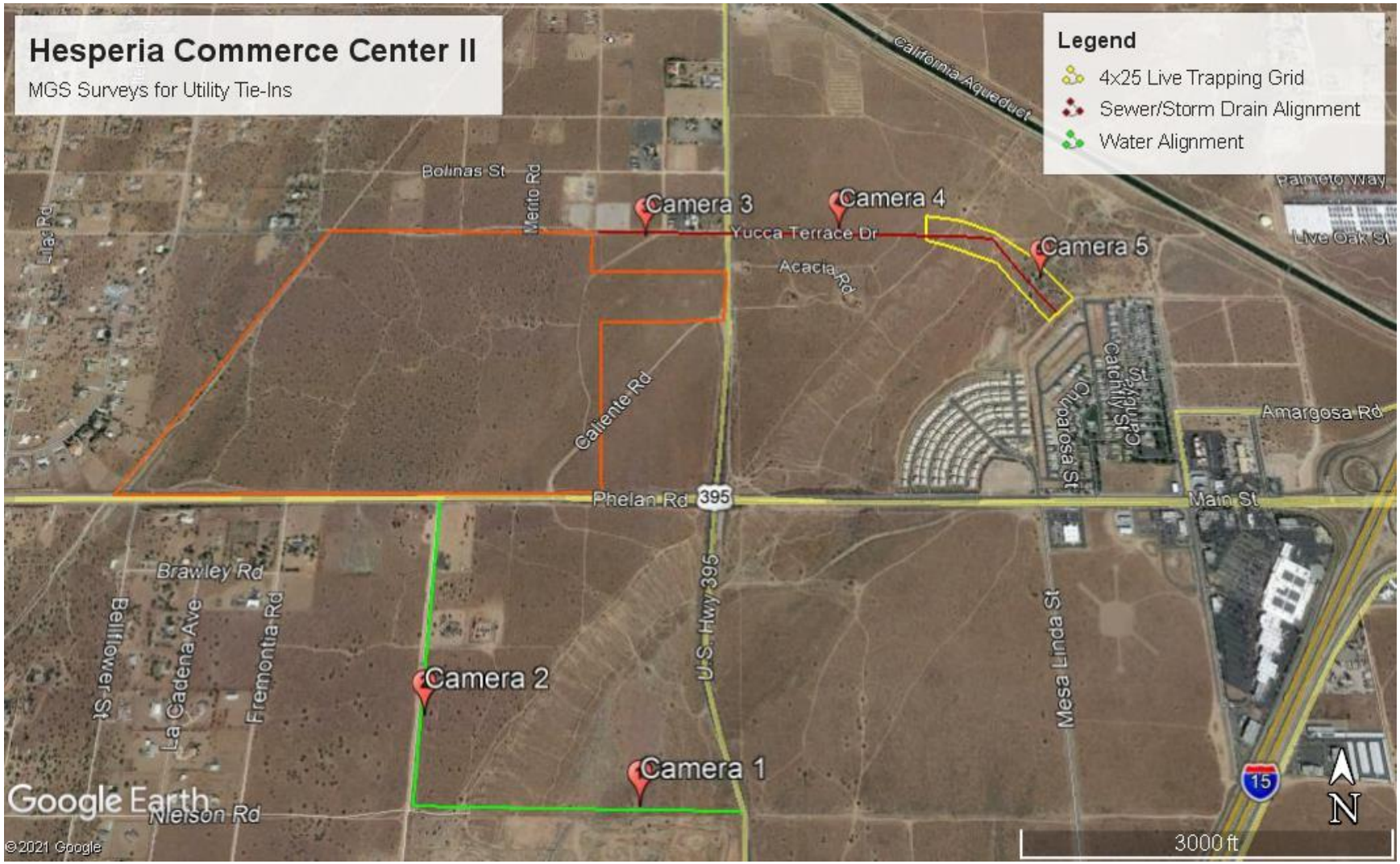

Figure 1. Proposed live trapping and camera trapping locations for the Hesperia Commerce Center II Alignment Project located in the City of Hesperia, San Bernardino County, California.

Appendix D-9

Results of Special-Status Plant Survey of the Project Site and Off-Site Utilities and Desert Native Plant Protection Act Survey for Off-Site Utilities Alignments

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

June 30, 2021 12122

Brandon Gallup
Covington Group
14180 Dallas Parkway, Suite 713
Dallas, Texas 75254

Subject: *Results of Special-Status Plant Survey of the Project Site and Off-Site Utilities Alignment and Desert Native Plant Protection Act Survey for Off-Site Utilities Alignments, Hesperia Commerce Center II Project, City of Hesperia, California*

Dear Mr. Gallup:

The purpose of the letter report is to describe the methods and results of the surveys conducted for special-status plant species for the Hesperia Commerce Center II Project (Project) in response to the Center for Biological Diversity's comment letter dated November 15, 2020, regarding additional special-status species surveys, specifically comments IB and IC. The special-status plant surveys covered the entirety of the Project site as well as the Off-Site Utilities Alignments. In addition, a desert native plant survey was conducted concurrently with the special-status plant species survey within the Off-Site Utilities Alignments in accordance with the California Desert Native Plants Act and the Hesperia Municipal Code, Chapter 16.24.

Project Location

The Project site is located in the eastern part of the City of Hesperia (City), which is located in the Victor Valley/High Desert region in western San Bernardino County (Figure 1, Project Location, in Attachment A). The City is bordered by the City of Victorville to the north, City of Apple Valley to the east, unincorporated San Bernardino County land to the south, and the unincorporated community of Oak Hills to the west. Locally, the Project site is located at the northwest quadrant of U.S. Highway 395 and Phelan Road/Main Street. The Project site is bound by Yucca Terrace Drive to the north, U.S. Highway 395 to the east, Phelan Road to the south, and LA Bureau of Power and Light Road to the west. Regional access to the Project site is provided by U.S. Highway 395, immediately adjacent to the east, and Interstate 15, located approximately 1 mile east of the Project site.

Project Description and Setting

The Project would include construction of three industrial/warehouse buildings with associated office spaces, surface parking, and loading areas to help stimulate economic development within the High Desert region and provide residents with local employment opportunities (Figure 2, Site Plan). The three proposed buildings would total 3,745,429 square feet, with office space within each building totaling up to 20,000 square feet. The Project would also include off-site improvements that include street improvements along the frontage of the Project on Yucca Terrace Drive, along Phelan Road and a portion of U.S. Highway 395. In addition, the Project would include the construction of several off-site underground utility lines within Yucca Terrace Drive, Los Banos Avenue, and

Phelan Road. Some of these utility lines would involve crossing Oro Grande Wash. In order to avoid the jurisdictional limits of the wash, which is an ephemeral watercourse, these lines would be installed via jack-and-bore techniques.

The Project site consists of vacant, undeveloped land, although the site has and continues to be disturbed as a result of illegal dumping, trespassing, and unpermitted off-road vehicle use. These unpermitted activities have led to areas of exposed bare soils (where trails have formed) and several debris piles. Land uses surrounding the Project site primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. Topography on site is generally flat and ranges between approximately 3,522 and 3,602 feet above mean sea level. Vegetation on site primarily consists of Joshua tree woodland with dominant plants consisting of western Joshua tree (*Yucca brevifolia*), California juniper (*Juniperus californica*), Cooper's goldenbush (*Ericameria cooperi*), peach thorn (*Lycium cooperi*), Anderson's boxthorn (*Lycium andersonii*), Mexican bladdersage (*Scutellaria mexicana*), cheesebush (*Ambrosia salsola*), Mormon tea (*Ephedra viridis*), longspine horsebrush (*Tetradymia axillaris*), spiny hop sage (*Grayia spinosa*), and winterfatland (*Krascheninnikovia lanata*).

Methods

Special-Status Plant Species Survey Methods

According to the Biological Resources Assessment for the Hesperia Commerce Center II Project prepared by LSA Associates dated June 2019, a general reconnaissance-level field survey was conducted on November 28, 2018, by an LSA biologist. Suitability of habitat for various special-status plant species with a California Rare Plant Rank of 1 or 2 that have a moderate potential to occur with the Project site and Off-Site Utilities Alignments were noted. Results of this field reconnaissance are provided in Table 1. Since the reconnaissance was conducted, western Joshua tree became a candidate for state listing under California Endangered Species Act and thus was not included in the initial list of special-status plant species with potential to occur. Western Joshua tree is discussed further in this section. The Project site and Off-Site Utilities Alignments support suitable habitat for the following non-listed California Rare Plant Rank 1 or 2 special-status plant species (hereafter referred to as 'target species'): white-bracted spineflower (*Chorizanthe xanti* var. *leucotheca*), Booth's evening primrose (*Eremothera boothii* ssp. *boothii*), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*), and beaver dam breadroot (*Pediomelum castoreum*). However, while Booth's evening primrose was considered to have a moderate potential to occur, based on locational records (Jepson Flora Project 2021) and Consortium of California Herbaria (CCH 2021) the species is restricted to wash habitat, such as the Mojave River, which is absent from the Project Site and Off-Site Utility Alignments.

Table 1. Special-Status Plant Target Species List

Scientific Name	Common Name	Status (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (Feet amsl)	Potential to Occur
Chorizanthe xanti var. *leucotheca*	white-bracted spineflower	None/None/1B.2	Coastal scrub (alluvial fans), Mojavean desert scrub, pinyon and juniper woodland; sandy or gravelly/ annual herb/April–June/980–3,935	Moderate. Moderately suitable habitat (juniper woodland) is present within the Project site and Off-Site Utilities Alignments.
Eremothera boothii ssp. *boothii*	Booth's evening primrose	None/None/2B.3	Joshua tree woodland, Pinyon and juniper woodland/annual herb/April–September/ 2,670–7,870	Moderate. Moderately suitable habitat (Joshua tree woodland) is present within the Project site and Off-Site Utilities Alignments.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland/perennial stem succulent/April–June (August)/1,390–5,905	Moderately suitable habitat (sandy soil and Joshua tree woodland) is present within the Project site and Off-Site Utilities Alignments.
Pediomelum castoreum	beaver dam breadroot	None/None/1B.2	Joshua tree woodland, Mojavean desert scrub; sandy washes and roadcuts/perennial herb/April–May/2,000–5,000	Moderate. Moderately suitable habitat (sandy soil and Joshua tree woodland) is present within the Project site and Off-Site Utilities Alignments.

Note: amsl = above mean sea level.
Status Legend
CRPR: California Rare Plant Rank
1B: Plants rare, threatened, or endangered in California and elsewhere
2B: Plants rare, threatened, or endangered in California but more common elsewhere
Threat Rank
0.2: Moderately threatened in California (20%–80% occurrences threatened/moderate degree and immediacy of threat)
0.3: Not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

The survey date, biologist, and weather conditions are included in Table 2. Field survey methods and mapping of special-status plants conformed to California Native Plant Society Botanical Survey Guidelines (CNPS 2001), Protocols for Surveying and Evaluating Impacts to Special Status Native Populations and Natural Communities

(CDFW 2018), and General Rare Plant Survey Guidelines (Cypher 2002). The focused special-status plant survey consisted of one survey pass in May, conducted over 2 days, that provided 100% coverage of the Project site and Off-Site Utilities Alignments, including a 100-foot buffer where legally accessible (survey area) as presented in Figure 3, Survey Area and Results.

Table 2. Survey Conditions

Biologist	Date	Times	Weather Conditions
Britney Strittmater, Katie Dayton, Erin Bergman	2021-05-12	8:02 a.m.–4:45 p.m.	70°F–85°F; 0% cc; 0–14 mph wind
Britney Strittmater, Katie Dayton, Erin Bergman	2021-05-13	6:05 a.m.–10:00 a.m.	60°F–80°F; 0% cc; 0–2 mph wind

Notes: °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour.

Before conducting the surveys, Dudek botanists conducted reference population checks to ensure the focal species were in bloom and identifiable. Reference checks were conducted for the following species: white-bracted spineflower, Booth's evening primrose, and beaver dam breadroot. It should be noted that although short-joint beavertail was a focus species during the 2021 survey effort, this species is a conspicuous stem succulent species that can be identified outside the blooming period, and therefore was not included in the 2021 reference check.

- The first reference check was conducted by Dudek on April 1, 2021, which determined that the phenology for white-bracted spineflower was 100% vegetative and therefore not possible to adequately identify. Booth's evening primrose and beaver dam breadroot were not observed. The second reference check was conducted by Dudek botanist Erin Bergman on May 12, 2021, prior to the start of the survey. During the second reference check, more than 100 white-bracted spineflower individuals were observed in full bloom along the Lytle Creek upper terrace near Keenbrook Road west of Interstate 15, and a few beaver dam breadroot individuals were observed in a vegetative state (i.e., not in bloom but identifiable due to conspicuous leaves) in the Lucerne Valley west of the SR-247. Booth's evening primrose was not observed during the May 13 reference check at record location LA106515 provided by the participants of the Consortium of California Herbaria within Apple Valley, south of Highway 18 along western edge of the City of Victorville. As noted previously, Booth's evening primrose was considered to have a moderate potential to occur. Based on locational records (Jepson eFlora 2021) and Consortium of California Herbaria (CCH 2021), the species is restricted to wash habitat (such as the Mojave River), which is absent from the Project Site and Off-Site Utility Alignments.

Western Joshua Tree

As described previously, a special-status plant survey was conducted May 12 and 13, 2021. Additionally, in November 2020 and April 2021, Dudek's International Society of Arboriculture-certified arborists performed a western Joshua tree survey to inventory and evaluate the health and relocation potential for each western Joshua tree located on the Project site and Off-Site Utilities Alignments (Dudek 2021).

During the inventory, the GPS position of each western Joshua tree found during the survey was recorded. In addition, the following attributes of each tree were collected:

- Species
- Diameter at standard height (4.5 feet above ground level)
- Height (feet)
- Spread (feet)
- Health (excellent, good, fair, poor, critical, and dead)
- Number of branches
- Clonal status (clone or single trunk)

All inventoried and assessed protected trees were tagged with an aluminum tag bearing a unique identification number, which was placed on the main trunk on the north side of each western Joshua tree. Tagging on the north side allows for proper orientation during relocation (each relocated western Joshua tree needs to be oriented in the same direction as it was in its original location).

Desert Native Plants Methods

On November 22, 2019, a desert native plant survey was conducted on the Project site, including the 100-foot buffer where legally accessible, in accordance with the California Desert Native Plants Act and Chapter 16.24 of the Hesperia Municipal Code. All of the desert native plant target species are conspicuous shrubs that would have been identifiable during the survey (Dudek 2019). For the Off-Site Utilities Alignments, including the 100-foot buffer where legally accessible, Dudek biologists conducted a desert native plant survey in accordance with the California Desert Native Plants Act and Chapter 16.24 of the Hesperia Municipal Code on May 12 and 13, 2021. Similar to the surveys on the Project site, all of the desert native plant target species are conspicuous shrubs that would have been identifiable during the survey in the Off-Site Utilities Alignments.

In accordance with the City of Hesperia's Municipal Code, Chapter 16.24, the following desert native plants were considered target species:

1. The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
   a. Dalea, Spinosa (smoketree);
   b. All species of the family Agavaceae (century plants, nolina, yuccas);
   c. All species of the genus Prosopis (mesquites).
2. Creosote rings, ten feet or greater in diameter.
3. All Joshua trees (mature and immature).

In accordance with the California Desert Native Plants Act, Chapter 3, the following desert native plants were considered target species:

(a) All species of the family Agavaceae (century plants, nolinas, yuccas).

(b) All species of the family Cactaceae (cacti), except for the plants listed in subdivisions (b) and (c) of Section 80072 which may be harvested under a permit obtained pursuant to that section.

(c) All species of the family Fouquieriaceae (ocotillo, candlewood).

(d) All species of the genus Prosopis (mesquites).

(e) All species of the genus Cercidium (palos verdes).

(f) Acacia greggii (catclaw).

(g) Atriplex hymenelytra (desert-holly).

(h) Dalea spinosa (smoke tree).

(i) Olneya tesota (desert ironwood), including both dead and live desert ironwood.

Results

Special-Status Plant Species

A total of 49 species of native or naturalized plants, 40 native (82%) and 9 non-native (18%), were recorded on the site (see Attachment B). Only one special-status species was observed during the 2021 surveys: western Joshua tree, a state candidate species under the California Endangered Species Act. A total of 1,422 western Joshua trees were previously detected in the survey area (the Project site, Off-Site Utilities Alignments and a 20-foot buffer) by Dudek arborists. Since this species was mapped during the Joshua tree inventory for inclusion in the Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plan Relocation Plan (Dudek 2019a) that has been prepared for the Project, the 2021 special-status plant species surveys did not include the mapping of western Joshua tree and these locations are not included on Figure 3.

Desert Native Plants

A total of 72 Wiggins' cholla (*Cylindropuntia echinocarpa*) individuals, of which 66 living individuals and 6 dead plants were documented, were observed within the Project site during the 2019 desert native plant survey (Dudek 2019). No Wiggins' cholla were observed within the off-site areas during the 2021 survey and no additional desert native plants were observed during the 2021 survey. Therefore, western Joshua tree and Wiggins' cholla are not included on Figure 3.

Please contact me at 760.420.7833 or via email at menright@dudek.com if you have any questions.

Sincerely,

Megan S. Enright
Biologist

Att.: A, Figures
B, Plant Compendium

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CCH (Consortium of California Herbaria). CCH Main Page. Accessed June 29, 2021. https://ucjeps.berkeley.edu/consortium/.

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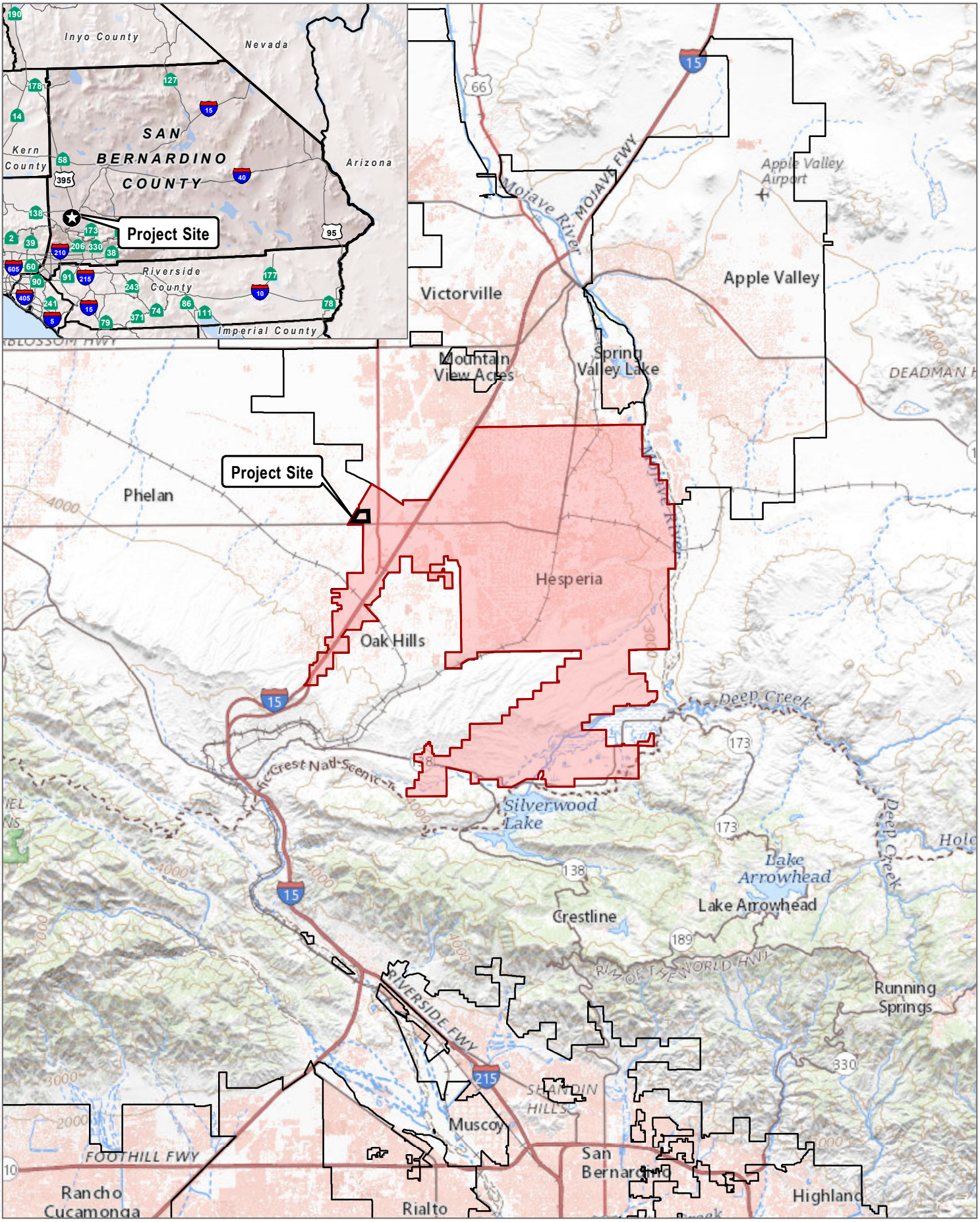
Attachment A

Figures



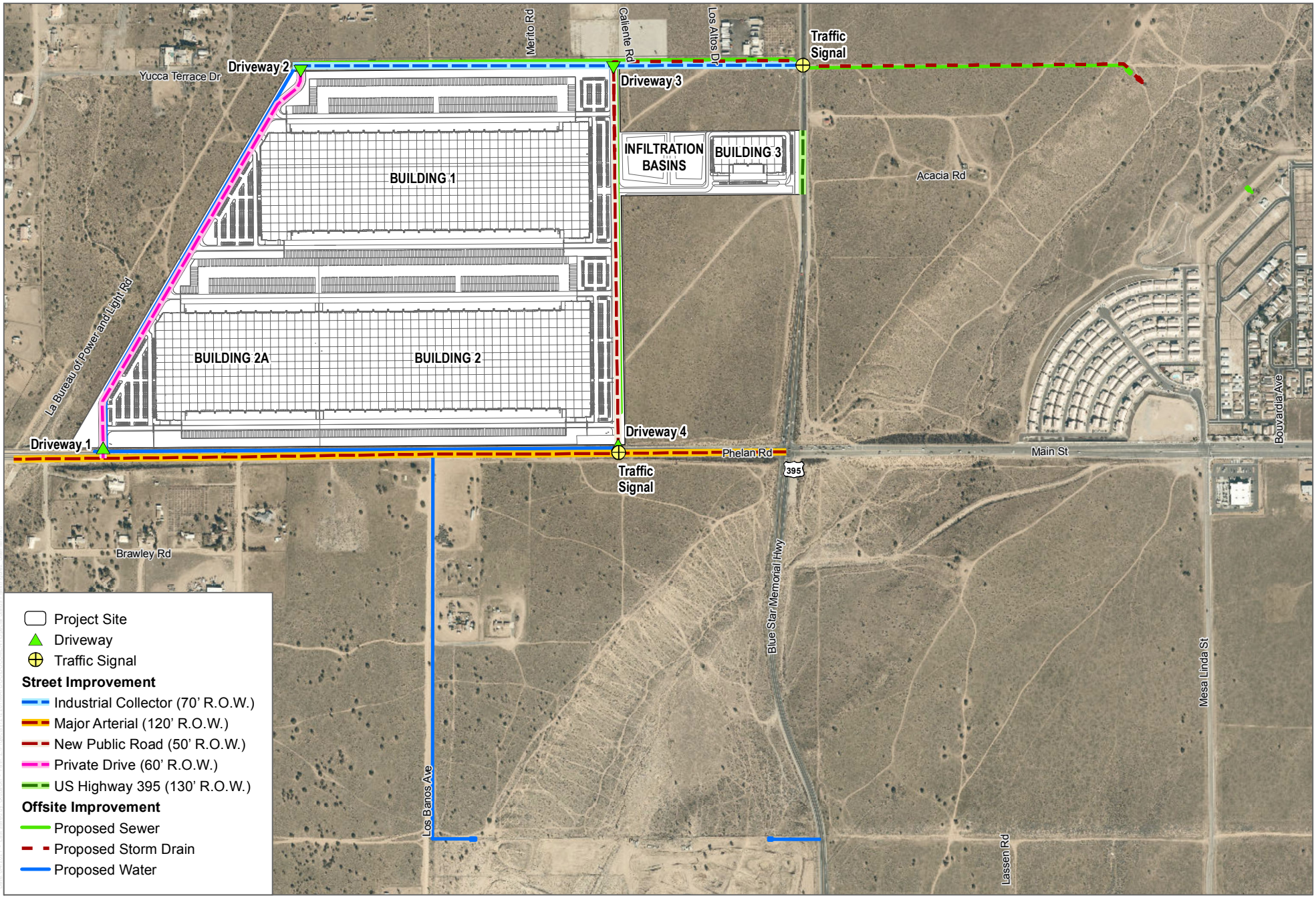
SOURCE: USGS National Map 2018

Figure 1

Regional Map

DUDEK

0 2 4 Miles



SOURCE: Esri World Imagery 2020; HPA Architects 2020

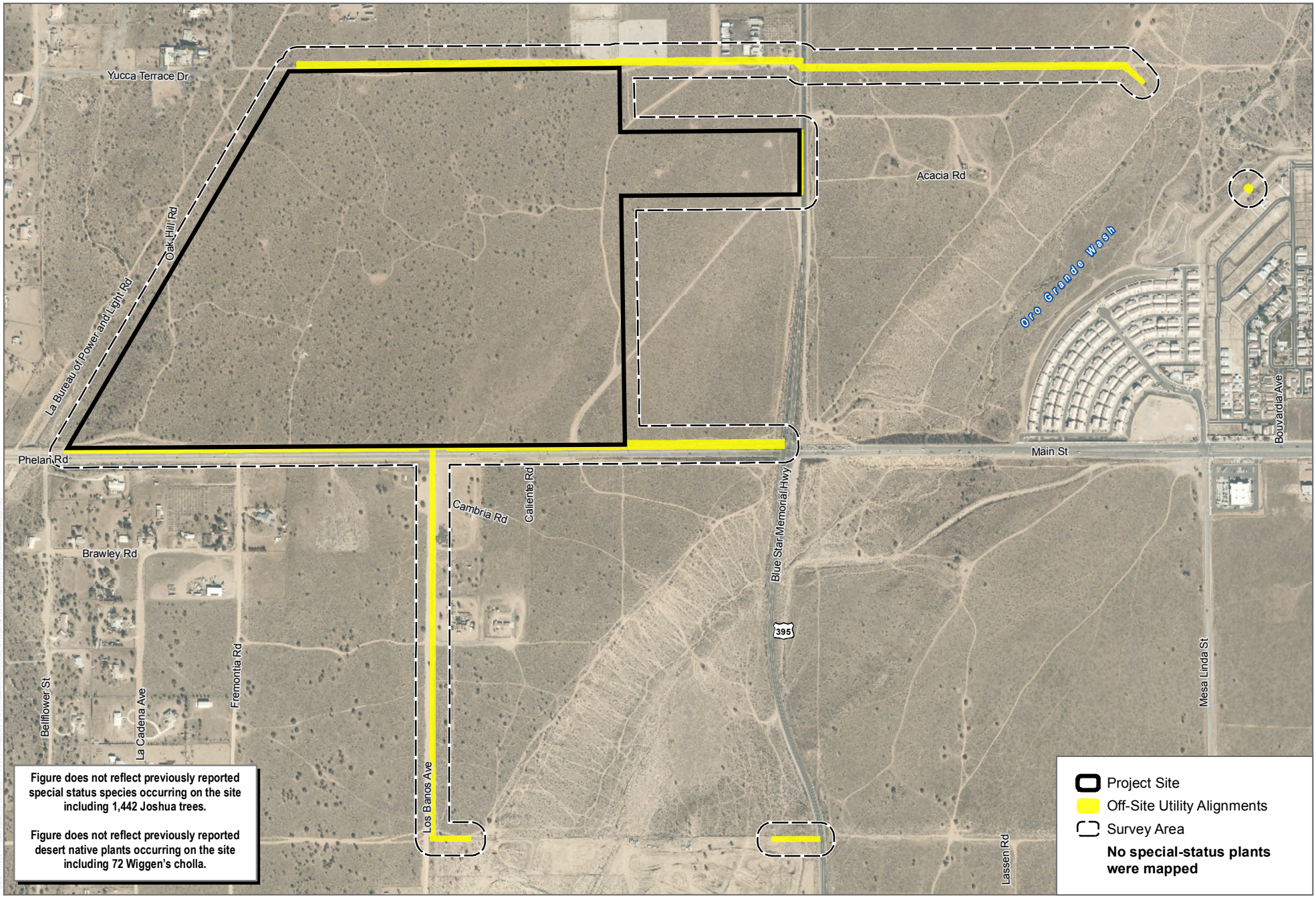
DUDEK

0 450 900 Feet

FIGURE 2

Site Plan

Special-Status Plant Survey Results and Desert Native Plant Protection Act Survey Reports for Off-Site Utility Alignments, Hesperia Commerce Center II Project



SOURCE: Esri World Imagery 2020; Open Street Map 2019

DUDEK

0 445 890 Feet

FIGURE 3

Survey Area and Results

Special-Status Plant Survey Results and Desert Native Plant Protection Act Survey Reports for Off-Site Utility Alignments, Hesperia Commerce Center II Project

Attachment B

Plant Compendium

Vascular Plant Species

Eudicots

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia acanthicarpa—flatspine bur ragweed
Ambrosia dumosa—white bursage
Ambrosia salsola—cheesebush
Encelia virginensis—Virgin River brittle brush
Ericameria cooperi var. *cooperi*—Cooper's goldenbush
Ericameria nauseosa—rubber rabbitbrush
Erigeron breweri var. *covillei*—Coville's erigeron
Lessingia glandulifera var. *glandulifera*—valley lessingia
Stephanomeria pauciflora—brownplume wirelettuce
Tetradymia comosa—hairy horsebrush
Tetradymia stenolepis—Mojave cottonthorn

BORAGINACEAE—BORAGE FAMILY

Amsinckia intermedia—common fiddleneck
Amsinckia menziesii—Menzies' fiddleneck
Cryptantha micrantha—redroot cryptantha
Pectocarya penicillata—sleeping combseed

BRASSICACEAE—MUSTARD FAMILY

* Hirschfeldia incana—shortpod mustard
* Sisymbrium altissimum—tall tumblemustard

CACTACEAE—CACTUS FAMILY

Cylindropuntia echinocarpa—Wiggins' cholla

CHENOPODIACEAE—GOOSEFOOT FAMILY

Chenopodium californicum—California goosefoot
Grayia spinosa—spiny hop sage
Krascheninnikovia lanata—winterfatland
* *Salsola tragus*—prickly Russian thistle

CLEOMACEAE—CLEOME FAMILY

Peritoma arborea var. *globosa*—bladderpod spiderflower

FABACEAE—LEGUME FAMILY

Lupinus concinnus—bajada lupine

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

LAMIACEAE—MINT FAMILY

Salvia columbariae—chia

Salvia dorrii var. *pilosa*—purple sage

Scutellaria mexicana—Mexican bladdersage

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

Mirabilis laevis var. *crassifolia*—California four o'clock

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia campestris ssp. *campestris*—Mojave suncup

POLEMONIACEAE—PHLOX FAMILY

Eriastrum sapphirinum ssp. *sapphirinum*—sapphire woollystar

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe brevicornu—brittle spineflower

Eriogonum fasciculatum var. *foliolosum*—California buckwheat

Eriogonum fasciculatum var. *polifolium*—California buckwheat

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple

Lycium andersonii—Anderson's boxthorn

Lycium cooperi—peach thorn

ZYGOPHYLLACEAE—CALTROP FAMILY

Larrea tridentata—creosote bush

Gymnosperms and Gnetophytes

CUPRESSACEAE—CYPRESS FAMILY

Juniperus californica—California juniper

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra nevadensis—Nevada joint fir

Monocots

AGAVACEAE—AGAVE FAMILY

Yucca brevifolia—Joshua tree

POACEAE—GRASS FAMILY

* Bromus diandrus—ripgut brome
* Bromus madritensis—compact brome
* Bromus tectorum—cheatgrass
  Elymus elymoides—squirreltail
* Hordeum murinum—mouse barley
  Melica imperfecta—smallflower melicgrass
  Schismus arabicus—Arabian schismus
* *Stipa speciosa*—desert needlegrass

* signifies introduced (non-native) species

Appendix D-10

Burrowing Owl Relocation Plan

HESPERIA COMMERCE CENTER II
BURROWING OWL RELOCATION PLAN

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JULY 2021

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
BORP	Burrowing Owl Relocation Plan
BUOW	Burrowing Owl
CDFW	California Department of Fish and Wildlife
DEIR	Draft Environmental Impact Report
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
Project	Hesperia Commerce Center II
2012 Staff Report	May 2012 California Department of Fish and Wildlife Staff Report

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1 Purpose and Objectives

The following Burrowing Owl Relocation Plan (BORP) describes the burrowing owl (BUOW; *Athene cunicularia*) monitoring and reporting requirements during construction of the Hesperia Commerce Center II (Project) as suggested in comments received on the Draft Environmental Impact Report (DEIR; 2020) prepared for the Project by the City of Hesperia Planning Department and Dudek. This plan was prepared in accordance with Mitigation Measure BIO-10 included in the DEIR. The full text of MM-BIO-10 is provided in Section 1.1 for ease of reference.

This BORP is intended to identify when passive displacement of BUOW will be used, the methods that will be implemented to perform passive displacement, and the monitoring and reporting that will be required if passive displacement is performed. More specifically this plan includes descriptions of the following requirements for passive displacement procedures: (1) methods to confirm a burrow is active, (2) scoping methods that would be used to avoid impacts, (3) methods to be used to determine vacancy and excavation timing, (4) methods for burrow excavation, (5) removal of other potential owl burrow surrogates or refugia, (6) reporting methods of the excavation and closer of burrows, (7) monitoring to evaluate success and (8) reporting methods of long-term burrowing owl deterrence of the impacted site.

1.1 Mitigation Measure BIO-10

MM-BIO-10 **Pre-Construction Surveys for Burrowing Owl and Avoidance.** One pre-construction burrowing owl clearance survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the Project site shall be resurveyed. Surveys for burrowing owl shall be conducted in accordance with protocols established in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version.

If burrowing owls are detected, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers will be established around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version. No Project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed.

Outside of the nesting season, passive owl relocation techniques approved by the California Department of Fish and Wildlife (CDFW) shall be implemented. Owls shall be excluded from burrows in the immediate Project area and within a buffer zone by installing one-way doors in burrow entrances. These doors will be placed at least 48 hours prior to ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat will be provided following the guidance in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version. The Project area shall be monitored daily for one week to confirm owl departure from burrows prior to any ground-disturbing activities.

Where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow.

See Burrowing Owl Relocation Plan for more details on avoidance buffers and relocation methods.

1.2 Tiered Protection Approach

The following protection measures may be implemented to avoid and minimize impacts to BUOW on the Project:

1. **Avoidance** – During the BUOW breeding season (i.e., nesting season; February 1 – August 31)[1], active burrows will be avoided by establishing setback distances around active burrows. A monitoring program will be implemented (see Section 3.2) to determine the effectiveness of the buffer distances and help inform any adaptive management strategies.
2. **Shelter in Place** – If the established buffer is not effective, the buffer will be increased where possible to a point where project activities cease to cause disturbance. Sheltering with sound and visual barriers made of hay bales or other materials may be used as appropriate to provide necessary protection from disturbance when an established avoidance buffer is determined not to be effective or a buffer distance must be reduced because avoiding construction in the area is not feasible. If a qualified biologist determines that the use of barriers will not cause disturbance to the bird(s) and the setup of the barriers is far enough away so the setup or the presence of the barrier does not cause disruption to the bird(s), this will be the primary protective measure that will be used, as it is the ideal strategy to minimize disturbance and keep existing burrows intact.
3. **Passive Displacement** – The exclusion of BUOWs from occupied burrows within the areas of disturbance using one-way doors will be used during non-breeding season (September 1 –January 31) when shelter in place is not feasible. Passive Displacement will only be implemented where the owls or their burrows are in physical danger by construction.

Further details on the implementation of the first two approaches are provided in Section 3 of this plan. Details on the passive displacement approach are provided in Section 4 of this plan. Although the focus of this BORP is on the Passive Displacement approach, the intent of this tiered approach is to create an adaptive management process for protecting BUOW by allowing the flexibility to make improvements based on site conditions at the time of construction. The adaptive management strategy will allow for adjustments to mitigation and monitoring techniques provided the results are beneficial to the species. In addition, this BORP should be adjusted to include any improved techniques or methods that may become available during its implementation.

[1] The Staff Report on Burrowing Owl Mitigation (CDFG 2012) defines breeding (nesting) season to include pairing, egg-laying and incubation, and nestling and fledgling stages from February 1 through August 31. However, breeding activities may vary with latitude and climatic conditions.

2 Introduction

2.1 Project Overview

The Project would involve construction and operation of three industrial/warehouse buildings. Building 1 (the northwesternmost building) would be 1,567,317 square feet, Building 2 (the southernmost building) would be 2,065,987 square feet, which would potentially be divided between two spaces within the same building, and Building 3 would be 112,125 square feet. In total, the Project would provide 3,745,429 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and landscaping. The Project would also include several off-site utility and public street improvements, including improvements to Phelan Road and Yucca Terrace Road, as well as installation of or upsizing of water, sewer, and stormwater lines in the immediate vicinity of the Project site.

The Project site consists of vacant land generally located on the northwestern corner of Phelan Road and U.S. Highway 395. The Project site is bordered by Los Angeles Bureau of Power and Light Road to the west and Yucca Terrace Road to the north. The Project site has been subject to previous disturbances from off-highway vehicle use, unlawful dumping, abandoned encampments, and construction of neighboring roads and other ground-disturbing activities.

The Project site is located on the western edge of the City of Hesperia. Although development intensities around the Project site are low, it is located within the existing urban fabric of the City of Hesperia and is surrounded by varying levels of development and disturbance.

2.2 Burrowing Owl Surveys and Mitigation

Biological resource surveys of the Project site and surrounding area were conducted in 2020. During these surveys, BUOW was not observed on the Project site or Off-Site Utilities Alignments; however, suitable habitat exists on site, and the species could eventually occupy the Project site or Off-Site Utilities Alignments prior to construction. Pursuant to the California Fish and Game Code and the MBTA, a pre-construction survey in compliance with Staff Report on Burrowing Owl Mitigation, State of California Natural Resource Agency, Department of Fish and Game, May 7, 2012 (CDFW 2012) would be necessary to reevaluate the locations of potential burrowing owl burrows located within the Project limits so take of owls or active owl nests can be avoided. Consistent with **MM-BIO-10**, a pre-construction survey for burrowing owl shall be conducted in areas supporting potentially suitable habitat and within 14 days prior to the start of construction activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities.

The Project would result in the loss of 192.5 acres of suitable habitat for burrowing owl. As required by **MM-BIO-1,** mitigation for direct impacts to western Joshua trees will be fulfilled through payment to CDFW into the Western Joshua Tree Mitigation Fund or other conservation mechanism approved by the City of Hesperia and CDFW. Conservation efforts for western Joshua tree associated with the Western Joshua Tree Mitigation Fund will focus on the conservation of large, interconnected Joshua tree woodlands on lands where edge effects are limited, versus lands in urban settings that are subject to habitat fragmentation and edge effects, such as the Project site. Thus, mitigation for impacts to western Joshua tree will also mitigate for impacts to loss of suitable habitat for burrowing owl.

If passive displacement of BUOW is implemented, at least two artificial or natural surrogate burrows will be built, enhanced, or identified for every entrance to the burrow that will be collapsed (see Section 4). If artificial burrows need to be installed, they will be established according to the recommendations in the 2012 Staff Report prior to excluding BUOW.

2.3 Qualified Biologist

In accordance with the May 2012 California Department of Fish and Wildlife Staff Report (2012 Staff Report), a Qualified Biologist meets the following minimum qualifications:

1. *Familiarity with the species and its local ecology;*
2. *Experience conducting habitat assessments and non-breeding and breeding season surveys, or experience with these surveys conducted under the direction of an experienced surveyor;*
3. *Familiarity with the appropriate state and federal statuses related to burrowing owls, scientific research, and conservation;*
4. *Experience with analyzing impacts of development on burrowing owls and their habitat.*

In accordance with the 2012 Staff Report, a Qualified Biologist will perform the BUOW surveys as outlined in **MM-BIO-10**. Occupied burrows shall not be disturbed during the nesting season. Occupied burrows shall not be disturbed during the non-nesting season until a Qualified Biologist verifies that either: (1) nesting has not begun; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival.

3 Avoidance and Minimization Measures

3.1 Pre-Construction Burrowing Owl Surveys

In accordance with **MM-BIO-10,** a Qualified Biologist (see Section 2.3) will conduct the surveys of both permanent and temporary impact areas as well as within a 150-meter buffer no more than fourteen days prior to the start of the construction activities and again within 24 hours of the start of site preparation or grading. The surveys will identify active wintering or breeding BUOWs within these areas.

The survey methods are detailed in the 2012 Staff Report and will consist of walking parallel transects 7-20 meters apart over the entire survey area and noting all BUOWs present and any potential burrows with BUOW sign. The results of the surveys will be submitted to CDFW.

If BUOWs are detected during pre-construction surveys, the Qualified Biologist or monitoring biologist will coordinate with the contractor to avoid and minimize impacts to BUOW by implementing the measures described below.

3.2 Setback Distances

Based on the results of the pre-construction surveys, levels of construction disturbance, stage of nesting/breeding season, and applicable mitigation measures outlined in the 2012 Staff Report, setback distances will be determined and implemented surrounding the occupied BUOW burrows. Ground disturbing activities will be restricted within these distances to avoid and minimize potential impacts to BUOW.

In order to determine an appropriate and effective setback distance, the site-specific determination methods described in the 2012 Staff Report will be used to decide if the suggested buffer distances are appropriate. The setback distances will also be determined based on any shelter in place actions taken (see Section 3.3). The Qualified Biologist will use the following information to determine the appropriate buffer distances:

- Time of year, activity of the burrow, and the level of disturbance that will occur (summarized in the 2012 Staff Report and Table 1 below)

Table 1: Burrowing Owl Burrow Buffers (California Department of Fish and Wildlife Staff Report 2012)

		Level of Disturbance		
Resource	***Time of Year***	*Low*	*Medium*	*High*
Nesting sites	*April 1 - Aug 15*	*656 ft*	*1640 ft*	*1640 ft*
Nesting sites	*Aug 16 - Oct 15*	*656 ft*	*656 ft*	*1640 ft*
Any occupied burrow	*Oct 16 - Mar 31*	*164 ft*	*328 ft*	*1640 ft*

- Topography
- The individual BUOW's sensitivities and ability to habituate to stimuli
- Shelter in place and barrier activities occurring (see Section 3.3)
- Existing vegetation
- Near-by land use and tolerance level of the BUOW to surrounding activities
- The level of disturbance associated with specific work activities
- Biological monitor presence

A monitoring program will be implemented when any setback distance is applied to active burrows to ensure that the distance is an effective buffer. Effective buffers minimize direct impacts by providing space between the bird and the construction activity. In addition, effective buffers minimize indirect impacts by decreasing sound and visual disturbance of the animal. A monitoring biologist will be present during all initial activities adjacent to BUOW buffers to monitor the birds' behavior. In any case where a BUOW shows signs of stress or disturbance due to construction activities, all activities in the immediate vicinity will be halted and the buffer distance and construction activities will be reevaluated. In accordance with MM-BIO-10, no Project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that any nesting activity has ended and/or occupied burrows have been vacated.

3.3 Shelter in Place

A shelter in place strategy may be implemented to minimize potential impacts to BUOW where appropriate and feasible. This strategy involves screening burrows by installing hay bales, plywood, and/or other fencing material to create a visual and auditory barrier between construction activities and the burrow. Biological monitors will need to determine if a specific site, especially the site's topography, is appropriate for the use of these techniques and whether or not these techniques will be effective at reducing disturbance. Where appropriate, setback buffers can be reduced by screening burrows as a way to reduce indirect impacts.

During the breeding season, hay bales can be stacked three bales high and 50 feet wide. During the non-breeding season, hay bales can be stacked two bales high and 50 feet wide. All hay bales used on the Project site will be certified as weed-free. Perches near the burrow should remain within the sheltered area of the bales and the bales should not be closer than two or three feet from the occupied burrow and should be placed as far from the active burrow as possible, outside the nearest work area. During and following installation of the shelter, biological monitors will be present for all ground disturbing activities within the area between the 2012 Staff Report guideline buffer (Table 1) and the edge of the reduced buffer.

Biological monitors will be present to evaluate and make adjustments to the buffer and/or shelter to make sure impacts to BUOW are minimized and the birds are not showing signs of stress or disturbance. When determining an appropriate setback distance, the Qualified Biologist will take into consideration any data collected on the individual sensitivities of the BUOW present at the Project site. This data will be used as a baseline to compare the behavior of BUOW within no-disturbance buffers that are smaller than the 2012 Staff Report guideline distances. Biological monitors will have the authority to stop construction or sheltering activities that are disturbing sensitive species and make changes to the shelters and buffers in accordance with these guidelines to increase protection of BUOW if necessary.

Documentation of the installation of a shelter will include where and when the shelter was installed and how long it will be required, anticipated level of construction activity, pictures of the shelter, pictures of installation, a description of the installation, and a description of site conditions. The site conditions that should be included are surrounding vegetation, topography of the area, animals present at the burrow, and line-of-sight conditions between the burrow and construction activities. This information and a status of the shelters in place will be described in the monthly reports (Section 5.2).

3.4 Excavation of Inactive Burrows

Excavation of inactive burrows, confirmed inactive based on wildlife camera monitoring, will help deter BUOW from occupying the construction areas. Pre-construction surveys (described above) will be conducted within the Project site to determine if burrows are actively being used. If burrows are suitably sized, game cameras will be installed at the entrance for three days to confirm lack of presence. Inactive burrows will be excavated and refilled by a Qualified Biologist. To prevent injury to wildlife that might be inside the burrow, all excavation of inactive burrows will be performed using hand tools, escape routes will be installed (flexible plastic pipe), and a mirror or camera will be used to scope during the excavation of any burrow which was previously classified as active or potentially active. The excavation of inactive burrows will occur prior to clearing or grading activities.

4 Passive Displacement

If an active burrow is identified in an area where there is potential for it or the tunnel structure to be destroyed or irreversibly affected by construction and the owl would be in danger and shelter in place, setback distances, and avoidance will not be effective or possible; passive displacement will be implemented. Passive displacement will only occur outside of the breeding season (September 1 through January 31) after a Qualified Biologist verifies that juveniles from the burrow are foraging independently and capable of independent survival or the owls have not begun nesting. If exclusion will occur immediately (within one week) after the end of the breeding season (August 31), daily monitoring will be conducted for one week to confirm that young have fledged prior to exclusion. Similar to the excavation of inactive burrows, a mirror or camera will be used to scope all previously active burrows to ensure burrows are not occupied by eggs or young.

BUOWs will be excluded from currently occupied burrows by installation of a one-way door in the original burrow, and all legally accessible surrounding potentially active burrows within 160 feet, that will remain in place at least 48 hours before excavation. The one-way doors will be monitored for exiting or trapped animals. Once a Qualified Biologist can determine by site surveillance that the old burrow is vacant, with no sign of fresh use by wildlife including tracks, scat, or recent excavation, the burrow will be excavated according to the guidelines in the previous section. Each burrow will be refilled with dirt and/or rocks to prevent reoccupation of the burrows.

Prior to burrow collapse, the Qualified Biologist will be required to obtain confirmation that the burrows are empty of wildlife, document the installation of one-way doors 48 hours in advance of burrow excavation, the location of artificial or natural relocation burrows, and the removal of other potential burrow surrogates or refugia on the Project site. Prior to passive displacement being implemented, at least two artificial or natural surrogate burrows will be built, enhanced, or identified for every entrance that will be collapsed. Ideally, exclusion and burrow closure would be employed only where there are adjacent natural burrows and non-impacted, sufficient habitat for burrowing owls to occupy with permanent protection mechanisms in place. However, if artificial burrows need to be installed, they will be established according to the recommendations in the 2012 Staff Report and can be either above or below ground. Additional details on each type of artificial burrow are provided below.

4.1 Below Ground Artificial Burrows

A backhoe or similar equipment will be used to excavate a trench for the entrance and exit openings, access-way, and nesting chamber. The bottom of the nest box will be four feet below the ground surface. Hardware cloth or cement board will be installed below the nest box to prevent digging predators access. An access tunnel will extend for a minimum of twelve feet from the nest and will be made of 4-inch flexible perforated irrigation hose to prevent flooding. The first six feet of hose near the nest box will be level with the box and the last six feet will angle up at least 30 degrees to the ground level. A rigid 6-inch pipe will be used as a protective sleeve over the irrigation hose to prevent predation. Each opening will also have an apron of dirt spread by hand to mimic the original burrow. White-painted stakes will be placed around the burrow openings to mark its location and attract BUOWs. These stakes should be visible from within the opening and not be placed behind the opening as predators may perch on these.

4.2 Above Ground Artificial Burrows

The artificial nest box and entrance tubes will be placed flat on the ground surface when constructing an above ground burrow. Soil will be applied, first by hand to stabilize the structure followed by larger equipment, to build a 5-foot mound on top of the nest. Perches consisting of wooden 'T' stakes can be placed near the burrow entrance for both above and below ground burrows to potentially reduce the flushing distance of a disturbed owl. Both types of artificial burrows will also include rock armoring or concrete block armoring to protect tunnels and nest chambers from predators and will not impact existing burrows.

5 Monitoring and Reporting

5.1 Relocation Monitoring

In accordance with the 2012 Staff Report, monitoring will occur before, during, and after exclusion of burrowing owls to ensure take is avoided. In accordance with **MM-BIO-10**, if exclusion occurs, a Qualified Biologist will conduct daily monitoring for one week to confirm owls have vacated the burrows. Biologists will examine the collapsed burrow and survey for owl-related impacts and new burrows in the surrounding area. If the artificial burrows are found to be unusable during any monitoring visit, repairs and maintenance to restore function to the burrow or the installation of a new burrow at the same location will be required. The results of these monitoring efforts and an evaluation of the success of the relocation efforts will be included in the monthly compliance reports along with any needed remedial measures to avoid take.

5.2 Reporting Requirements

Preconstruction Clearance Survey Reports:
A report will be submitted to CDFW documenting the results of the preconstruction surveys. The report will describe the methods and results of the clearance surveys and will serve as notification as to whether owl relocation is necessary.

Monthly Reports:
If avoidance or passive relocation is implemented, monthly reports will be prepared for submittal to CDFW. The reports will summarize the construction activities that occurred with the potential to impact BUOW, any injuries or fatalities of BUOW, the effectiveness and practicality of the avoidance and minimization measures implemented, and recommendations for modifying the protection measures. If passive relocation of burrowing owls is performed the monthly reports will also include the total number and locations of burrows collapsed, a map of those locations, the total number and locations of artificial or natural surrogate burrows installed or enhanced, including a map, photographs of the excavation and closure of the burrows, photographs of artificial or natural surrogate burrows, the number and activity of the owls observed leaving the burrows to be excavated, the methods used to continually make the site inhospitable to burrowing owls and fossorial mammals, and the monitoring results of passive relocation and mitigation areas.

Final Compliance Report:
A final compliance report will be submitted to CDFW summarizing the effectiveness of the mitigation measures and the level of BUOW take associated with the Project.

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Dudek. 2020. Draft Environmental Impact Report for the Hesperia Commerce Center II Project. September.

Appendix E-1

Cultural Resources Assessment

CULTURAL RESOURCES ASSESSMENT

HESPERIA COMMERCE CENTER II PROJECT

CITY OF HESPERIA

SAN BERNARDINO COUNTY, CALIFORNIA

LSA

August 2019

CULTURAL RESOURCES ASSESSMENT

HESPERIA COMMERCE CENTER II PROJECT

CITY OF HESPERIA

SAN BERNARDINO COUNTY, CALIFORNIA

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LSA Project No. CGI1801

National Archaeological Database Information:

Type of Study: Records Search, Intensive Pedestrian Survey, Archaeological Assessment
Sites Recorded: 36-004272, 36-007755, 36-12149-36-12150, 36-12151, 36-20555, 36-20557 (Updates); 36-033084, 36-033085, 36-033086, 36-033087, 36-033088, 36-033089, 36-033090, 36-033091, 36-033092
USGS Quadrangle: *Baldy Mesa, California*
Acreage: 196
Keywords: Phase I, positive results, monitoring not recommended

LSA

August 2019

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MANAGEMENT SUMMARY

LSA was retained by Covington Group, Inc. to conduct a cultural resources assessment for the proposed Hesperia Commerce Center II Project in the City of Hesperia, San Bernardino County, California. The City required this study as part of the environmental review process to comply with the California Environmental Quality Act (CEQA).

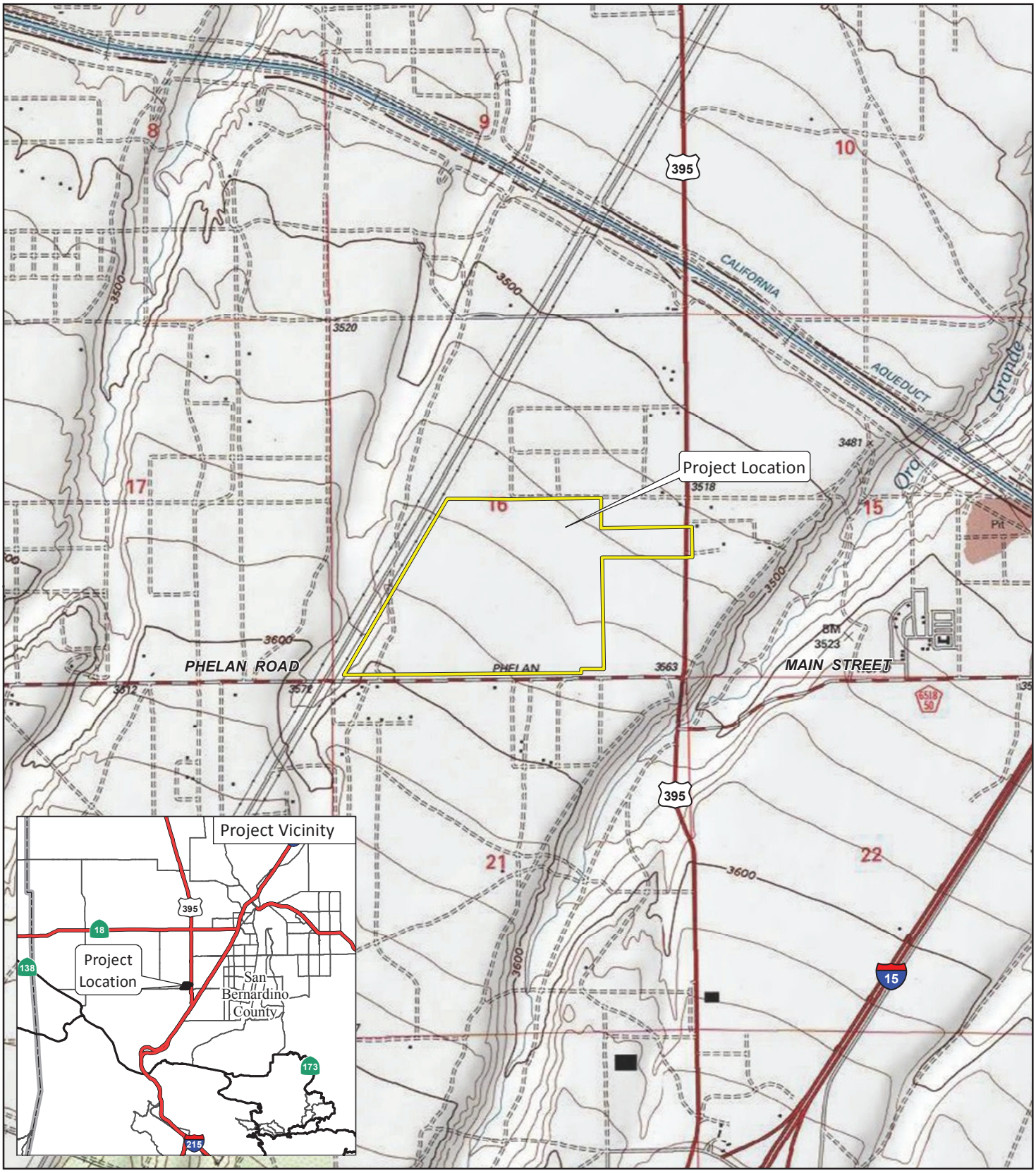
A cultural resources records search, additional research, and a field survey were conducted for the project area. Historic period cultural resources previously documented within the project area were identified, along with a number of undocumented resources of the same era. However, none is a "historical resource" as defined by CEQA. Despite the presence of several minor prehistoric resources within a mile, the entirety of the project area has been surveyed twice over the course of more than a decade with no trace of any prehistoric resources identified. As a result of these findings, the potential of the proposed project to affect previously undocumented significant resources appears to be low. Therefore, no further cultural resources investigations or monitoring are recommended.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

INTRODUCTION

LSA was retained by Covington Group, Inc. to conduct a cultural resources assessment for the proposed Hesperia Commerce Center II in the City of Hesperia, San Bernardino County, California. This assessment was completed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code Chapter 2.6, Section 21083.2, and California Code of Regulations Title 14, Chapter 3, Article 5, Section 15064.5. The research and field survey were conducted to determine whether the proposed project could adversely affect any resources considered historical resources per CEQA.

The project is bounded by predominantly open land on all sides with minimal rural residential development to the northwest and south. The project is depicted on the United States Geological Survey (USGS) *Baldy Mesa, California* topographic quadrangle map in Section 16, Township 4 North, Range 5 West, San Bernardino Baseline and Meridian (USGS 1988; Figure 1). The project area is approximately 196 acres (Assessor's Parcel Numbers 6034-351-03, 3064-361-01, 3064-391-01, and 3064-401-02), which are currently vacant. The proposed project is two distribution warehouses totaling 3,912,000 square feet and associated parking.



LSA

FIGURE 1

N

0 1000 2000
FEET

Hesperia 196 acre

Regional and Project Location

SOURCE: USGS 7.5' Quad - Baldy Mesa (1988)

I:\CGI1801\Reports\Cultural\fig1_Reg_Loc.mxd (11/19/2018)

SETTING

NATURAL SETTING

The natural setting of the project vicinity is presented based on the underlying theoretical assumption that humans and human societies are in continual interaction with the physical environment. Being an integral and major part of the ecological system, humans adapt to the environment through technological and behavioral changes. Locations of archaeological sites are based on the constraints of these adaptations, whether it is proximity to a particular resource, topographical restrictions, or shelter and protection. Sites will also contain an assemblage of artifacts and ecofacts consistent with the particular interaction.

Climate and Watershed

The project region is characterized by an arid climate, with dry, hot summers and moderate winters. Rainfall ranges from 5 to 8 inches annually (Beck and Haase 1974). Precipitation usually occurs in the form of winter rain, with warm monsoonal showers in summer. The project area is located approximately 2,000 feet west of the Mojave River, which drains north.

Biology

At an average elevation of approximately 3,500 feet, the project is at the upper end of the Lower Sonoran Life Zone of California (Schoenherr 1992), which ranges from below sea level to 3,500 feet elevation. Common wild plants observed included creosote, rubber rabbitbrush, Joshua tree, and sparse xeric grass. Extensive fauna are known locally, including many endemic species of reptiles, birds, and insects.

Geology

The project is located in the Mojave Desert Geomorphic Province, which forms an elevated alluvial plain with large expanses of desert punctuated by isolated mountain ranges (California Geological Survey 2002; Norris and Webb 1976). This province is located on a wedge-shaped fault block bounded by the San Andreas Fault Zone and Transverse Ranges to the southwest and the Garlock Fault Zone and Tehachapi Mountains to the north (California Geological Survey 2002; Norris and Webb 1976). The geology of this province is similar to that of the Sierra Nevada, with numerous rock outcroppings useful to the Native Americans for resource milling, shelter and ceremonial art.

CULTURAL SETTING

Prehistory

Chronologies of prehistoric cultural change in Southern California have been attempted numerous times, and several are reviewed in Moratto (1984). No single description is universally accepted as the various chronologies are based primarily on material developments identified by researchers familiar with sites in a particular region and variation exists essentially due to the differences in those items found at the sites. Small differences occur over time and space, which combine to form patterns that are variously interpreted.

Currently, two primary regional culture chronology syntheses are commonly referenced in the archaeological literature. The first, Wallace (1955), describes four cultural horizons or time periods: Horizon I – Early Man (9000–6000 BC), Horizon II – Milling Stone Assemblages (6000–3000 BC), Horizon III – Intermediate Cultures (3000 BC–AD 500), and Horizon IV – Late Prehistoric Cultures (AD 500–historic contact). This chronology was refined (Wallace 1978) using absolute chronological dates obtained after 1955.

The second cultural chronology (Warren 1968) is based broadly on Southern California prehistoric cultures and was also revised (Warren 1984; Warren and Crabtree 1986). Warren's (1984) chronology includes five periods in prehistory: Lake Mojave (7000–5000 BC), Pinto (5000–2000 BC), Gypsum (2000 BC–AD 500), Saratoga Springs (AD 500–1200), and Protohistoric (AD 1200–historic contact). Changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment, which begins with gradual environmental warming in the late Pleistocene, continues with the desiccation of the desert lakes, followed by a brief return to pluvial conditions, and concludes with a general warming and drying trend, with periodic reversals that continue to the present (Warren and Crabtree 1986).

After AD 500, there was an influx of Native American groups from the eastern deserts into southern California. These groups brought changes in subsistence focus and associated technologies, as well as burial practices. These cultural changes along with the group migrations are known as the Shoshonean Intrusion or Shoshonean Wedge (Kroeber 1925; Koerper 1979) and the Takic Wedge (Bergin and Ferraro 1999). The term Takic Wedge refers to the wedge of Takic culture groups that moved to the coast, displacing tribes of the Hokan and Yuman language stocks to the north and south (Shipley 1978). The ethnographically recorded Luiseño, Juaneño, and Gabrielino are thought to be the descendants of prehistoric Takic populations that settled along the coast during the Late Prehistoric Period, or perhaps even earlier. The Serrano and Cahuilla, more distant from the coast, are also Takic-speaking tribes within this wedge.

Ethnography

The project is located within the traditional cultural territory of the Serrano (Bean and Smith 1978; Kroeber 1925). Tribal territories were somewhat fluid and changed over time. Like other Native American groups in Southern California, they were semi-nomadic hunter-gatherers who subsisted by exploitation of seasonably available plant and animal resources. The first written accounts of Native American groups in Southern California were by Spanish missionaries in the late 18th century. Later documentation of the Serrano was by Benedict (1924), Bright (1975), Strong (1929), and many others.

Serrano

The Serrano lived in the area generally north of Cahuilla territory (western Riverside County), occupying much of present-day San Bernardino County and northeastern Los Angeles County, but there is some overlap in the perceived ancestral areas. The term Serrano is Spanish for "mountaineer" or "highlander" and was given to people who inhabited the areas of the San Bernardino Mountains that had no associated mission.

The Serrano were hunter-gatherers who relied on the women to do much of the collecting while the men hunted and captured various animals. Although they exploited whatever flora was available in the area they happened to be, generally they collected acorns, pinion nuts, honey, mesquite, yucca, and cactus fruits, in addition to various seeds, bulbs, and roots. Plants were consumed both raw and cooked. Food processing involved the use of manos, metates, mortars, and pestles. Antelope, deer, mountain sheep, rabbits, and rodents were killed and captured, and the most common hunting implements were the bow and arrow, throwing stick, traps, snares, and deadfalls. Meat was prepared in earth ovens, by boiling in watertight baskets, or by parching (Bean and Smith 1978).

Most of the Serrano lived in small villages near reliable sources of water (springs, perennial seeps, streams, and small lakes) (Benedict 1924). They lived in tule-covered, dome-shaped structures and had ceremonial houses and sweat houses for their religious activities. The basic settlement unit was a village with a number of small satellite resource-gathering camps.

The Serrano had a patrilineal society composed of clans and families linked by both ancestry and ceremony. Three clans divided this group: the Mohineyam, the Yuhevatam, and the Maringayam. The Serrano were also divided by moieties: the Wildcats and the Coyotes.

With the Spanish intrusion came a drastic change in lifestyle for the natives of Southern California. Incorporation of the indigenous populations into the mission system led to the disruption of native cultures and changes in subsistence and land use practices. Mission San Gabriel, established in 1771, probably had a limited effect on the Serrano population until the San Bernardino Asistencia were established in what would become Redlands around 1820 (Harley 1988). Within a short time, the missions controlled many ranchos where Indians lived and worked.

Travel through Cajon Pass between the desert and the San Bernardino Valley was initiated by the Serrano and other Native American groups via what became known as the Old Spanish Trail (see below).

History

In California, the historic era is generally divided into three periods: the Spanish Period (1769–1821), the Mexican Period (1821–1848), and the American Period (1848–present). With one exception, the resources identified within the project area date to the 20th century, this historic context will focus on San Bernardino County and the City of Hesperia.

Old Spanish Trail/Salt Lake-Santa Fe Trail

As the name implies, the first transit of this route during the historic period was by explorers, soldiers, missionaries, and traders during the Spanish Period. These early journeys led to increased geographical knowledge and subsequent travel along the route during the American period by the military, Mormon pioneers, wagon freighters, and eventually railroad surveyors. Ultimately, the trail proved of limited use for wheeled transport and was superseded by other routes through the region during the mid-19th century (Reynolds 1980). The trail has been documented as cultural resource (36-004272, see below).

San Bernardino County

San Bernardino County was created in 1853 from portions of Los Angeles and San Diego Counties due to its mineral wealth. After the San Bernardino Baseline and Meridian were established that same year, the desert began to be surveyed in earnest. This facilitated homesteading and mining activities that led to the settlement of the Mojave. The need to transport lumber and supplies to the region resulted in the establishment of a road from the town of San Bernardino through the San Bernardino Mountains in the 1850s. The Oro Grande Mining District, consisting of Hesperia, Victor, and Oro Grande yielded gold, silver, gem stones, marble, and limestone (Sturm 1993). In 1883, the California Southern Railroad, later to be the Atchison, Topeka, and Santa Fe Railroad (AT&SF), was built in the Cajon Pass (Sturm 1993). Agriculture ultimately replaced mining as the county's economic base, with thousands of acres under cultivation by the beginning of World War I (McGroarty 1914).

Hesperia (from Tibbet 2018)

Hesperia was established by German investors in 1869 and initially prospered by providing supplies for the surrounding mining communities. When the California Southern Railway depot was constructed in Hesperia in 1885, the amount and variety of goods available to local merchants increased greatly. The railroad also created additional depots and support towns in the region. During the early 1900s, with the advent of cross-country automobile travel, travelers passed directly through Hesperia, which was the last major stopping point for automotive services prior to crossing the Cajon Pass. However, the little community suffered a major blow in 1923 when Route 66 (now Interstate 15 (I-15) was located several miles to the west, bypassing the little community. By 1926, Route 66 was paved from Victorville southwest to Los Angeles and plans were underway to install an upgraded gravel surface northeast from Victorville to Daggett (Mead & Hunt, Inc. 2011).

Hesperia's remote location kept development to a minimum through the 1920s, 1930s, and 1940s. A review of historic USGS maps reveals that Ranchero Road did not exist until sometime between 1936 and 1941, when it extended from 7th Avenue west to the California-Nevada Power Lines/Maple Avenue (USGS 1942). During the 1950s, the area became popular with land speculators for its vast tracts of cheap real estate and development spread in all directions from the original core of the community near Main Street and First Avenue (USGS 1956a). However, Ranchero Road did not extend to Route 66/I-15 until sometime between 1956 and 1968 (USGS 1956b, 1968). Until subdivisions began to take shape in the 1980s, there was little to no development south of Ranchero Road and development north of the road was very sparse (Historicaerials.com var.). The 1980s surge in development formed the foundation for the current community, which was incorporated in 1988 (McGinnis 2005).

METHODS

RECORDS SEARCH

On December 3, 2018, Allegria Garcia conducted the cultural resources records search for the project area at the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton. It included a review of all recorded historic and prehistoric archaeological sites within one mile of the project, as well as a review of known cultural resource survey and excavation reports. In addition, the California State Historic Property Data File (HPD), which includes the National Register of Historic Places (National Register), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI), was searched.

ADDITIONAL RESEARCH

In December 2018, LSA Archaeologist Riordan Goodwin conducted additional research, including review of historic period aerial photographs and maps.

ARCHAEOLOGICAL FIELD SURVEY

On December 12 and 13, 2018, LSA Archaeologist Riordan Goodwin and Archaeological Technicians Allegria Garcia and Melissa Jenkins completed an intensive pedestrian survey of the project parcel. The property was surveyed in systematic parallel transects spaced by approximately 10 meters (approximately 35 feet). Special attention was paid to areas of exposed soil for surface artifacts and features and rodent burrows for evidence of archaeosols. The purpose of this survey was to identify and document, prior to the beginning of ground-disturbing activities, any cultural resources and thus also to identify any area(s) that might be sensitive for buried cultural resources.

RESULTS

RECORDS SEARCH

Data from the SCCIC indicate there have been 33 cultural resource studies previously conducted within one mile of the proposed project, with several that included portions or the entirety of the project area (Pollock and Becker 2006; Brock 1993; Sturm et al. 1993)(Appendix A). Two of these studies documented nine historic period resources within the project area, including a trail segment, refuse scatters, and isolated artifacts (Pollock and Becker 2006; Sturm et al. 1993). An additional four prehistoric and 32 historic period resources have been recorded within a mile (Table A). The Old Spanish Trail/Salt Lake-Santa Fe Trail (36-004272) was evaluated as potentially eligible for the National Register of Historic Places (National Register) and is California Point of Historic Interest. The nearest prehistoric resource (36-012347, an isolated artifact) is approximately 750 meters (0.46 mile) south-southwest of the project area.

Table A: Resources Within One Mile of the Project Area with DPR Documentation

Primary #	Trinomial	OHP #	Site Description	Status Code
36-004179	SBR-004179H	—	Historic period road (Canal Lane)	—
36-004263	SBR-004263H	—	Historic period refuse scatter	—
36-004266	SBR-004266	—	Minimal prehistoric artifact scatter (3 artifacts) and possible hearth feature	—
36-004267	SBR-004267H	—	Historic period road segment	—
36-004268	SBR-004268H	—	Historic period road segment	—
36-004269	SBR-004269H	—	Historic period road segment	—
36-004270	SBR-004270H	—	Patterson Ranch/Warner Ranch Road, historic period road segment	—
36-004272*	SBR-004272H	—	Old Spanish Trail, Mojave Trail; Historic period trail	—
36-007545	SBR-007545H	—	U.S. 395 Highway, historic period highway	—
36-007694	SBR-007694H	—	Boulder Transmission lines, historic period transmissions tower	—
36-007755*	SBR-007755H	—	Historic period refuse scatter	—
36-007756	SBR-007756H	—	Historic period refuse scatter	—
36-007757	SBR-007757H	—	Historic period refuse scatter	—
36-007758	SBR-007758H	—	Historic period road segment	—
36-008077	SBR-008077H	—	Historic period refuse scatter	—
36-008078	—	—	Woodruff Homestead, historic period building	—
36-008082	SBR-008082H	—	Phelan Road; historic period road and refuse scatter	—
36-010288	SBR-010288H	—	John E. Dufton Homestead and William Goatman Property; historic period refuse scatter	—
36-012149*	SBR-012153H	—	Historic period refuse scatter	—
36-012150*	SBR-012154H	—	Historic period refuse scatter	—
36-012151*	SBR-012155H	—	Historic period refuse scatter	—

Table A: Resources Within One Mile of the Project Area with DPR Documentation

Primary #	Trinomial	OHP #	Site Description	Status Code
36-012339	SBR-012217H	—	Historic period refuse scatter	—
36-012340	SBR-012218H	—	Historic period refuse scatter	—
36-012341	SBR-012219H	—	Historic period refuse scatter	—
36-012342	SBR-012220H	—	Historic period refuse scatter	—
36-012343	SBR-012221H	—	Historic period refuse scatter	—
36-012344	SBR-012222H	—	Historic period road segment and refuse scatter	—
36-012345	SBR-012223H	—	Historic period road segment and refuse scatter	—
36-012346	SBR-012224H	—	Historic period road segment and refuse scatter	—
36-012347	—	—	Isolated prehistoric artifact	—
36-012631	—	—	Historic period refuse scatter	—
36-012632	—	—	Historic period refuse scatter	—
36-012633	—	—	Historic period refuse scatter	—
36-012634	—	—	Historic period refuse scatter	—
36-012635	—	—	Isolated prehistoric artifact	—
36-020263	—	—	Isolated prehistoric artifact	—
36-020555*	—	—	Isolated historic period artifact	—
36-020556*	—	—	Isolated historic period artifact	—
36-020557*	—	—	Isolated historic period artifact	—
36-020558*	—	—	Isolated historic period artifact	—
36-021366	SBR-013725H	—	Historic period trash scatter	—
36-021372	SBR-013731H	—	Historic period trash scatter	—
36-026211	SBR-016620H	—	Historic period trash scatter	—
36-026212	SBR-016621H	—	Historic period trash scatter	—
36-026213	SBR-016622H	—	Historic period trash scatter	—

* Within project area

ADDITIONAL RESEARCH

Review of aerial photographs and site record updates indicates that there were never any buildings within the project area during the historic period (Historic Aerials.com var.; Petersen 1991).

ARCHAEOLOGICAL FIELD SURVEY

Mr. Goodwin, Ms. Garcia, and Ms. Jenkins conducted the pedestrian survey of the entire project area. Visibility was excellent at approximately 95 percent with the surface partially obscured by vegetation. The project parcel has been subjected to surface disturbance from off-road activities. Sparse modern refuse was noted on the surface throughout the project parcels. Soils are alluvium. A number of the previously documented resources, along with nine previously undocumented

resources were identified. Appendix B contains site records and site record updates describing the resources in greater detail.

36-004272/CA-SBR-004272H (Old Spanish Trail/Salt Lake-Santa Fe Trail)

A portion of this 19th century trail's route transects the southwestern portion of the project area. Its condition and description are consistent with its last site record update (Pollock et al. 2005a).

36-007755/CA-SBR-007755H

This minor early to mid-20th century 45 × 40-foot refuse scatter was documented in the early 1990s. Its condition and description are consistent with its site record (Becker et al. 1993).

36-012149/CA-SBR-012153H

This minor early to mid-20th century refuse scatter (30 × 20 feet in area, totaling approximately 20 cans) was originally documented in the early 1990s. Its condition and description are consistent with its site record (Pollock et al. 2005b).

36-012150/CA-SBR-012154H

This early to mid-20th century historic period refuse scatter (55 × 35 feet in area, totaling approximately 100 items comprising cans, glass, and ceramic fragments) was originally documented in the mid-2000s. Its condition and description are consistent with its site record update (Pollock et al. 2005c).

36-012151/CA-SBR-012155H

This early 20th century historic period refuse scatter (45 × 30 feet in area, totaling approximately 200 items consisting of cans, glass, and ceramic fragments) was originally documented in the mid-2000s. Its condition and description are consistent with its site record update (Pollock et al. 2005d).

36-020555

Originally recorded as an isolate (a small glass scatter) in the mid-2000s, this was subsequently designated Locus A after additional artifacts were identified 50 feet to the east on the east side of Oak Hill Road (Old Spanish Trail/Salt Lake-Santa Fe Trail, 36-004272) and documented as Locus B (Pollock et al. 2005e). The refuse scatter dates from the late 19th to mid-20th century, spans 150 × 110 feet and comprises approximately 70 items (cans, glass, and ceramic fragments).

36-020557

Originally recorded as an isolate (two meat cans) in the mid-2000s, this was subsequently designated Locus A after additional artifacts were identified 60 feet to the west, which were designated Locus B (Pollock et al 2005f). The refuse scatter dates from the early to mid-20th century, spans 105 × 104 feet, and comprises approximately 70 items (cans, glass, and ceramic fragments).

Two isolated artifacts previously documented within the project area (36-020556 and 36-020558) were not identified.

36-033084/CA-SBR-033084H

This previously undocumented sparse, minimal refuse scatter (totaling 7 cans) dates to the late 1930s and spans 246 × 87 feet.

36-033085/CA-SBR-033085H

This previously undocumented sparse refuse scatter (totaling approximately 22 items including cans, glass, and ceramic fragments) dates to the 1920s and spans 120 × 65 feet.

36-033086/CA-SBR-033086H

This previously undocumented sparse refuse scatter (totaling approximately 35 items including cans, can fragments, and glass fragments) dates to the 1920s and spans 160 × 80 feet.

36-033087/CA-SBR-033087H

This previously undocumented sparse, minimal refuse scatter (totaling approximately 10 items including cans and can fragments) dates to the 1930s and spans 60 × 20 feet.

36-033088/CA-SBR-033088H

This previously undocumented dense refuse scatter (totaling more than 1,350 items including cans, glass, and ceramic fragments) dates to the early to mid-20th century and spans 240 × 225 feet, straddling Oak Hill Road (a segment of the route of the Old Spanish/Salt Lake-Santa Fe Trail, 36-04272).

36-033089/CA-SBR-033089H

This previously undocumented refuse scatter (totaling approximately 100 items including cans, can fragments, and glass fragments) dates to the early to mid-20th century and spans 170 × 45 feet.

36-033090

These previously undocumented isolated artifacts (glass fragments) date to the early 20th century.

36-033091

These previously undocumented isolated artifacts (food cans) date to the early 20th century.

36-033092

These previously undocumented isolated artifacts (food cans) date to the early 20th century.

DISCUSSION

The cultural resources assessment previously conducted by Statistical Research, Inc. (Pollock and Becker 2006) for the project area noted the following:

> "This portion of the Mojave Desert has been a transportation corridor for more than a hundred years. During that time, numerous roads have been created, used, and abandoned.

> Some of these roads were important links between communities, such as the Old Spanish Trail, whereas others were shortcuts or other seldom-used routes. During the mid- to late-twentieth century and up to the current day, abandoned road sections were frequently used for illegal refuse dumping, and the sites found during our survey probably resulted from such activities. The early- to mid-twentieth century also saw an increase in the popularity of the desert, as the number amateur prospectors increased during the Depression and again after World War II. More recently, the desert has been an off-road vehicle use and target shooting area. Typically, these recreational activities occur on weekends, with the participants camping for one or two nights and discarding their camp debris at the campsite. Many of the recent refuse deposits reflect this kind of activity."

As the newly recorded resources are predominantly similar to those previously documented (historic period refuse), the above comments apply to them as well. With the exception of the Old Spanish Trail/Salt Lake-Santa Fe Trail (36-004272, which lacks integrity and is not a contributing element to the resource), none of the sites within the project area is associated with any known historical events or important persons. On the contrary, they are typical examples of isolated historic-period refuse deposits with no specific associations and fail to meet the CEQA criteria of "historical resources" or "unique archaeological resources" (Pollock and Becker 2006). Therefore, their cultural resources value has been exhausted by previous and current documentation.

RECOMMENDATIONS

A cultural resources records search, additional research, and a field survey were conducted for the project area. Historic period cultural resources previously documented within the project area were identified, along with a number of undocumented resources of the same era. However, none is a "historical resource" as defined by CEQA. Despite the presence of several minor prehistoric resources within a mile, the project area has been surveyed twice over the course of more than a decade with no trace of any prehistoric resources identified. As a result of these findings, the potential of the proposed project to affect previously undocumented significant resources appears to be low. Therefore, no further cultural resources investigations or monitoring are recommended.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the NAHC, which will determine and notify an MLD. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD will have the opportunity to offer recommendations for the disposition of the remains.

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APPENDIX A

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SB-01219	NADB-R - 1061219; Voided - 81-12.7	1981	HALL, MATTHEW C., PHILIP J. WILKE, DORAN L. CART, and JAMES D. SWENSON	AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED SOUTHERN CALIFORNIA EDISON IVANPAH GENERATING STATION, PLANT SITE, AND RELATED RAIL, COAL SLURRY, WATER AND TRANSMISSION LINE CORRIDORS, SAN BERNARDINO COUNTY, CALIFORNIA, AND CLARK COUNTY, NEVADA	ARCHAEOLOGICAL RESEARCH UNIT, UCR	36-001065, 36-001066, 36-001933, 36-002131, 36-002402, 36-002690, 36-002978, 36-003728, 36-003729, 36-004590, 36-004693, 36-004694, 36-004695, 36-004696, 36-004697, 36-004698, 36-004699, 36-004700, 36-004701, 36-004702, 36-004703, 36-004704, 36-004705, 36-004706, 36-004707, 36-004708, 36-004709, 36-004710, 36-004711, 36-004712, 36-004713, 36-004714, 36-004715, 36-004716, 36-004717, 36-004718, 36-004719, 36-004720, 36-004721, 36-004722, 36-004723, 36-004724, 36-004725, 36-004726, 36-004888
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SB-02732	NADB-R - 1062732	1992	PARR, ROBERT E.	AN ARCHAEOLOGICAL ASSESSMENT OF TENTATIVE PARCEL MAP #14242 BALDY MESA, SAN BERNARDINO COUNTY,CA	CSUB	36-004179
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SB-03020	NADB-R - 1063020	1993	STURM, BRAD, D. MCLEAN, K. BECKER, and J. ROSENTHAL	(DRAFT) ADELANTO-LUGO TRANSMISSION PROJECT CULTURAL RESOURCES ASSESSMENT	WOODWARD-CLYDE	36-002910, 36-004019, 36-004251, 36-004255, 36-004266, 36-004267, 36-004268, 36-004269, 36-004272, 36-004274, 36-004275, 36-004276, 36-004411, 36-006353, 36-006532, 36-006533, 36-007739, 36-007740, 36-007741, 36-007742, 36-007743, 36-007744, 36-007745, 36-007746, 36-007747, 36-007748, 36-007749, 36-007750, 36-007751, 36-007752, 36-007753, 36-007754, 36-007755, 36-007756, 36-007757, 36-007758, 36-007759, 36-007760, 36-007761, 36-007762, 36-007763
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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
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Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
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SB-07493	NADB-R - 1067493	2013	Dahdul, Miriam, Daniel Ballester, John D. Goodman II, and Nina Gallardo	Historical/Archaeological Resources Survey Report: Westside Terraces Project, Assessor’s Parcel No’s 3064-441-01 to -03, City of Hesperia, San Bernardino County, California.		
SB-08179	Paleo -	2015	Hogan, Michael	Archaeological/Paleontological Monitoring Program, Tractor Supply Company Retail Facility Project, 12543 Main Street, City of Hesperia, San Bernardino County, CRM TECH Contract No. 2956	CRM TECH	
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Appendix E-2

Supplemental Cultural Resources Survey Results Memorandum

38 NORTH MARENGO AVENUE
PASADENA, CALIFORNIA 91101
T 626.204.9800 F 626.204.9834

July 29, 2020 12122

Brandon Gallup, Project Manager
Covington Group, Inc.
14180 Dallas Parkway, Suite 730
Dallas, Texas 75254

Subject: Supplemental Cultural Resources Inventory for the for the Hesperia Commerce Center II Project, Hesperia, San Bernardino County, California

Dear Mr. Gallup:

This report documents the results of a supplemental cultural resources inventory completed for the proposed Off-Site Utilities Alignments for the Hesperia Commerce Center II Project (Project), located in Hesperia, California for Covington Group, Inc. This supplemental inventory, completed in compliance with the California Environmental Quality Act (CEQA) and the City of Hesperia General Plan for cultural resources, includes a review of previous research completed by LSA (2019), a review of historic topographic maps and aerial images, and intensive pedestrian surveys.

Project Location and Present Use

The proposed Off-Site Utilities Alignments are located in the eastern part of the City of Hesperia (City), in the Victor Valley/High Desert region of western San Bernardino County. The Off-Site Utilities Alignments are within public land survey system (PLSS) Sections 15 and 16 of Township 4 North, Range 5 West, within *Baldy Mesa*, CA 7.5-minute USGS Quadrangle (Attachment A: Figure 1, Project Location).

The Off-Site Storm Drain Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, and terminating at a west-facing bank of the Oro Grande Wash to the east.

The Off-Site Sewer Alignment extends along Yucca Terrace Drive (bisected by US Highway 395) extending from the intersection of Yucca Terrace Drive and Merito Road, crossing under US Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45-degree angle to the southeast and extending roughly 1,100 feet across Oro Grande Wash. Within the Oro Grande Wash, the sewer line will be located under the existing grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

The Off-Site Water Alignment extends west from U.S. Highway 395, crosses the Oro Grande Wash and continues along Sultana Street, then travels north at Los Banos Avenue, terminating at Phelan Road.

Regional access to the Off-Site Utilities Alignments is provided by U.S. Highway 395 and Interstate (I) 15 (Attachment A: Figure 1, Project Location).

The Off-Site Utilities Alignments are situated along existing dirt access roads surrounded by vacant, undeveloped land, with a few residences along the Off-Site Water Alignment, and has been disturbed as a result of illegal dumping, trespassing, and unpermitted off-road vehicle use. These previously unpermitted activities have led to areas of exposed bare soils (where trails have formed) and several refuse piles sporadically along both the Off-Site Utilities Alignments. Ground surface cover consists of moderate native brush and shrub growth, with occasional Juniper and Joshua trees located throughout the site. The site's surface elevation ranges between approximately 3,522 and 3,602 feet above mean sea level (msl) and the local topographic gradient is approximately two percent towards the northeast with the southwestern corner of the site sloping moderately downward to the west. Land uses generally surrounding the Off-Site Utilities Alignments primarily consist of vacant land, along with some scattered residential, commercial, light industrial, and utility uses. The study area for the Off-Site Utilities Alignments includes the entire proposed Off-Site Utilities Alignments and a 500-foot buffer around the entire route.

Project Description

The Project consists of the development of a three industrial/warehouse buildings totaling approximately of 3,745,429 square feet. The Off-Site Utilities Alignments would be constructed to support the Project.

Off-Site Storm Drain Alignment

A new engineered stormwater drainage system would be constructed as part of the three-building industrial/warehouse development to collect and treat on-site stormwater. The Project and its new stormwater drainage system would be required to capture and treat all on-site stormwater generated by design storm events, as defined by both the City of Hesperia and County of San Bernardino. Stormwater from actual storm events that exceed these design storm events would be permitted to flow into the Oro Grande Wash by means of the Off-Site Storm Drain Alignment, which would be 96-inch-diameter storm drain pipe. This new storm drain alignment would exit the Project site in an easterly direction, traversing along Yucca Terrace Drive to the east, crossing under U.S. Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45° angle to the southeast and extending roughly 175 feet before outletting into the bank of the wash. The Oro Grande Wash is a regional storm drain facility that is part of the City of Hesperia's Master Plan of Drainage, is located in the Project's off-site improvement area. The wash has an earthen bottom and is routinely maintained by the San Bernardino County Flood Control District. This flood control channel flows for approximately 9 miles to the north and northeast of the Project site, recharging the underlying groundwater basin (Upper Mojave River Valley Basin) before eventually draining into the Mojave River.

Off-Site Sewer Alignment

Sanitary sewer service would be provided to the Project via a new connection with a new 12-inch-diameter sewer line located within an easement held by the City of Hesperia to master-planned sewer facilities in the City of Hesperia. Similar to new storm drain line, the new sewer alignment would exit the Project site in an easterly direction, traversing along Yucca Terrace Drive to the east, crossing under U.S. Highway 395 and continuing approximately 2,200 feet along Yucca Terrace Drive, before turning in a 45° angle to the southeast and extending roughly 1,100 feet across the wash. Within the Oro Grande Wash, the sewer line will be located under the existing

grade of the wash and installed via jack-and-bore techniques in order to avoid the jurisdictional limits of the ephemeral watercourse.

Off-Site Water Alignment

Domestic, irrigation, and fire protection water services would be made via new connections to existing Hesperia Water District Company facilities located on the north side of the Project site. Existing 6-inch-diameter, 8-inch-diameter, and 12-inch-diameter water lines are located within U.S. Highway 395, Phelan Road, and the portions of Yucca Terrace Road immediately northwest of the Project site. Certain segments of these existing water lines will need to be upsized as a result of the Project. In addition, a new 12-inch-diameter water line will installed within the remaining part of Yucca Terrace Road that is not currently served by water, as well as along the western Project boundary.

A new 16-inch-diameter transmission water pipeline will also be installed to provide adequate water service for the Project. This new 16-inch-diameter transmission water pipeline will begin at the intersection of U.S. Highway 395 and Sultana Street and traverse west along Sultana Street crossing the Oro Grande Wash to Los Banos Avenue. From there it will traverse north and connect to a new 12-inch–diameter water main along Phelan Road.

Because the new 16-inch-diameter transmission water pipeline will travel across the Oro Grande Wash and traditional trenching pipe installations will not be feasible, this new water pipeline be installed using the jack and bore method as not to disturb the wash. This will be similar to the installation method of the proposed 12-inch diameter sewer main that will also be installed across the Oro Grande Wash, as discussed above. A pit will be constructed at each end of the wash and the pipe will be bored through from one pit to the other without disturbing the ground surface.

Regulatory Context

State

Work for this Project was conducted in compliance with the California Environmental Quality Act (CEQA). The regulatory framework as it pertains to cultural resources under CEQA is detailed below.

Under the provisions of CEQA, including the CEQA Statutes (PRC Sections 21083.2 and 21084.1), the CEQA Guidelines (14 CCR 15064.5), and California Public Resources Code (PRC) Section 5024.1 (14 CCR 4850 et seq.), properties expected to be directly or indirectly affected by a proposed project must be evaluated for California Register of Historical Resources (CRHR) eligibility (PRC Section 5024.1).

The purpose of the CRHR is to maintain listings of the state's historical resources and to indicate which properties are to be protected, to the extent prudent and feasible, from material impairment and substantial adverse change. The term historical resources includes a resource listed in or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; and any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (14 CCR 15064.5[a]). The criteria for listing properties in the CRHR were developed in accordance with previously established criteria developed for

listing in the National Register of Historic Places. The California Office of Historic Preservation regards "any physical evidence of human activities over 45 years old" as meriting recordation and evaluation (OHP 1995:2).

California Register of Historic Resources

A cultural resource is considered "historically significant" under CEQA if the resource meets one or more of the criteria for listing on the CRHR. The CRHR was designed to be used by state and local agencies, private groups, and citizens to identify existing cultural resources within the state and to indicate which of those resources should be protected, to the extent prudent and feasible, from substantial adverse change. The following criteria have been established for the CRHR. A resource is considered significant if it:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. is associated with the lives of persons important in our past;

3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated in regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Under CEQA, if an archeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

- An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

    - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information

    - Has a special and particular quality, such as being the oldest of its type or the best available example of its type

    - Is directly associated with a scientifically recognized important prehistoric or historic event or person

Resources that neither meet any of these criteria for listing in the CRHR nor qualify as a "unique archaeological resource" under CEQA (PRC Section 21083.2) are viewed as not significant. Under CEQA, "A non-unique

archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects" (PRC Section 21083.2[h]).

Impacts that adversely alter the significance of a resource listed in or eligible for listing in the CRHR are considered a significant effect on the environment. Impacts to historical resources from a proposed project are thus considered significant if the project (1) physically destroys or damages all or part of a resource; (2) changes the character of the use of the resource or physical feature within the setting of the resource, which contributes to its significance; or (3) introduces visual, atmospheric, or audible elements that diminish the integrity of significant features of the resource

California Environmental Quality Act

As described further, the following CEQA statutes (PRC Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)–(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; 14 CCR 15064.5[b]). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[q]), it is an "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5[b][1]; PRC Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following:

1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (14 CCR 15064.5[b][2]).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a]–[c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2[g]).

Impacts on nonunique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a nonunique archaeological resource qualifies as a tribal cultural resource (PRC Sections 21074[c] and 21083.2[h]), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

Assembly Bill (AB) 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that tribal cultural resources must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. PRC Section 21074 describes a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe. A tribal cultural resource is either:

- On the CRHR or a local historic register;
- Eligible for the CRHR or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project area, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety

Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (Section 7050.5[b]). Public Resources Code Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (Section 7050.5[c]). NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Local

The City of Hesperia (City) General Plan contains the following goals and policies that address cultural resources and are applicable to the Project (City of Hesperia 2010):

Conservation Element: Historical, Paleontological, and Cultural Resources

- **Goal: CN-5.** The City shall establish policies and procedures in compliance with state and Federal laws and regulations to identify and properly protect found historical, cultural and paleontological artifacts and resources.
    - **Policy: CN-5.1.** Encourage the preservation of historical, paleontological and cultural resources.
    - **Policy: CN-5.2.** In those areas where surveys and records indicate historical, cultural or paleontological resources may be found, appropriate surveys and record searches shall be undertaken to determine the presence of such resources, if any.
    - **Policy: CN-5.3.** All historical, paleontological and cultural resources discovered shall be inventoried and evaluated according to CEQA regulations and the California Office of Historic Preservation.
    - **Policy: CN-5.4.** The City shall coordinate with the Archeological Information Center at the San Bernardino County Museum in reviewing potential records and in preserving such artifacts as may be found.
    - **Policy: CN-5.5.** Through its CEQA and other environmental procedures, the City shall notify appropriate Native American representatives of possible development and shall comply with all State and Federal requirements concerning the monitoring and preservation of Native American artifacts and places.

Background Research

SCCIC Records Search

Results from a previous, recent records search covering the Off-Site Utilities Route and conducted by LSA (2019) was reviewed for the current Project. LSA conducted the referenced records search at the South Central Coast

Information Center (SCCIC) located at California State University, Fullerton on December 3, 2018. The records search included a review the SCCIC's collections of mapped prehistoric, historic, and built environment resources, Department of Parks and Recreation Site Records, and technical reports. Additional consulted sources included the NRHP, the CRHR, the California Historic Property Data File, the lists of California State Historical Landmarks, and California Points of Historical Interest.

Previously Conducted Cultural Resource Studies

At the time the records search was conducted, the SCCIC records indicated that 33 cultural resources investigations have been previously conducted within the Project's records search area between 1973 and 1990 (Attachment B: Previous Cultural Resource Investigations Bibliography).

Previously Recorded Cultural Resources

At the time the records search was conducted, the SCCIC records indicated that a total of 45 previously recorded cultural resources fall within Project's records search area (Confidential Attachment C: Previously Recorded Cultural Resources). Of these, 41 are historic period resources, including a trail and/or road segments, transmission lines, buildings and/or structures, refuse scatters, and isolated artifacts. The remaining four resources are prehistoric resources and include three isolated artifacts and one possible hearth feature. None of these resources overlap the Project's Off-Site Utilities Alignments.

Review of Historic Aerials and Topographic Maps

Dudek consulted historic maps and aerial photographs to understand land use and possible previous development of the Project's Off-Site Utilities Route and surrounding properties. Topographic maps are available for the years 1902, 1906, 1912, 1923, 1936, 1942, 1945, 1957, 1963, 1969, 1970, 1980, 1985, 1988, 1999, 2012, 2015, and 2018 (NETR 2020a). Historic aerials are available for the years 1938, 1952, 1968, 1994, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016 (NETR 2020b).

Topographic Maps

The first USGS topographic map showing the Off-Site Utilities Alignments dates to 1902 and shows the Off-Site Utilities Alignments as void of structures and undeveloped. The 1957 topographic map shows the road the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment runs along, currently known as Yucca Terrace Road, as a dirt road, as well as increased development (i.e. roads and structures) in the surrounding area. The topographic map from 1980 shows continued development increase in the surrounding area. The remaining topographic maps illustrating conditions from 1980 to 2016 show no significant change to the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment.

The first available USGS topographic map for the Project's Off-Site Water Alignment dates to 1902 and shows the proposed alignment area as undeveloped and within the Oro Grande Wash. An apparent road traveling northeast to southwest is shown to extend from an unnamed road representing present-day Phelan Road. By 1942, the northeast-southwest oriented road that extended from present-day Phelan Road is no longer depicted; however, in the 1945 map, the road is illustrated. By 1957, a road extending from Phelan Road is shown to travel roughly

northeast to southwest and then redirects in a southerly direction. The 1980 map appears to show a road that travels roughly south from Phelan Road and may represent the present-day Los Banos Avenue, Los Banos Avenue is bisected by the unnamed northeast-southwest oriented road shown in the 1902 through 1945 maps. The topographic map from 1988 depicts a subdivision that overlaps the north-south present-day Los Banos Road and includes what appears to be four buildings, with two buildings to the west and two buildings to the east of Los Banos Avenue; the unnamed road is no longer shown to bisect Los Banos Avenue. The 2012 map does not show the subdivision or buildings represented in the 1988 map; however, an unnamed road extending east from Los Banos Road is depicted and likely represents present-day Sultana Street. By 2015, Los Banos Road is officially named on the topographic map, though again, no subdivisions or buildings are shown. No significant changes are illustrated in the 2018 map.

Historic Aerials

The first historic aerial of the Project's Off-Site Storm Drain Alignment and Off-Site Sewer Alignment dates to 1952 and shows the U.S. Highway 395 and Yucca Terrace Road as cleared paths, the rest of the alignment being undeveloped and void of structures. No changes were observed between 1952 and 2010. The historic aerial from 2010 shows an increase in development in the surrounding area. The remaining historic aerials show no significant change to the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment.

The first available historic aerial for the Project's Off-Site Water Alignment dates to 1938 and shows that the proposed alignment area is undeveloped, void of structures, with faint representations of well-traveled dirt roads. U.S. Highway 395 is represented to the east and the area where present-day Phelan Road would be located is not included in the 1938 aerial but is shown in the 1952 aerial. By 1968, Los Banos Avenue is shown extending from Phelan Road. The 1994 aerial shows subdivisions overlapping Los Banos Avenue and continuing to the east with graded areas associated with buildings depicted in the 1988 topographic map. The 2009 aerial shows an unnamed dirt road south of the subdivision traveling west-east through the Oro Grande Wash and likely represents present-day Sultana Street. South of this road is vacant land that appears to be heavily graded. No significant changes are shown in the remaining historic aerials for the Off-Site Water Alignment.

Native American Coordination

Assembly Bill 52

The Project is subject to compliance with AB 52 (California Public Resources Code [PRC] 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process, and requires the City of Hesperia (the CEQA lead agency for the proposed Project) to notify any groups who have requested notification of the Project who are traditionally or culturally affiliated with the geographic area of the Project. On May 22, 2020, the City sent letters to tribal representatives of the Cabazon Band of Mission Indians, Torres Martinez Desert Cahuilla Indians, and San Manuel Band of Mission Indians inviting each tribe to engage in tribal consultation, if desired. A detailed discussion of AB 52 as it relates to the Project is included in the Project's Tribal Cultural Resources section of the Environmental Impact Report (EIR). Because AB 52 is a government-to-government process including consultation regarding sensitive information, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the City.

Cultural Resources Survey

Methods

Dudek conducted an intensive pedestrian survey of the Project's Off-Site Utilities Route using standard archaeological procedures and techniques which met the Secretary of Interior's standards and guidelines for a cultural resources inventory. The intensive-level survey methods consisted of an intensive pedestrian survey conducted in parallel transects spaced no more than 2 meters (approximately 6 feet) apart, where feasible, over the entire Off-Site Utilities Alignments. Where transects were not feasible, a mixed approach (opportunistic survey) and reconnaissance survey (visual inspection) were utilized, selectively examining exposed ground surfaces, where possible. Within each transect, the ground surface was examined for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of cultural midden, soil depressions, features indicative of the current or former presence of structures or buildings (e.g., standing exterior walls, post holes, foundations), and historic artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as burrows, cut banks, and drainages were also visually inspected for exposed subsurface materials. No artifacts were collected during the survey. Location-specific photographs were taken using an Apple 6th Generation iPad equipped with 8-megapixel resolution and georeferenced PDF maps of the proposed Off-Site Utility Alignments. All field notes, photographs, and records related to the current study are on file at Dudek's Pasadena, California, office and are available upon request.

Results

Dudek archaeologist, Linda Kry, conducted an intensive-level pedestrian survey of the Project's Off-Site Storm Drain Alignment and Off-Site Sewer Alignment on June 5, 2020 and the proposed Off-Site Water Alignment on July 16, 2020. The survey footprint included the entirety of the Off-Site Utilities Alignments with a survey buffer of 8 feet from the centerline of the alignments.

The Off-Site Storm Drain Alignment and Off-Site Sewer Alignment survey generally follows the existing unpaved Yucca Terrace Road. Surface visibility within Yucca Terrace Road was unobstructed and provided for 100% visibility. Visibility within the areas to the north and south of the alignment, within the survey buffer, was hindered by desert grass and vegetation, as well as roadside refuse, and as such visibility along these areas was fair (50%). Boot and/or trowel scrapes in 10 to 15 meter intervals were implemented to identify subsurface conditions when necessary. All soils observed consisted of alluvial soils. The Off-Site Storm Drain Alignment and Off-Site Sewer Alignment involves uneven terrain as a result of the natural topography, including bioturbation and vehicular disturbances. As the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment traverses eastward and turns in a 45-degree angle towards the Oro Grande Wash, the terrain becomes steep and declines to approximately 45 degrees. The terrain of the Oro Grande Wash is undulating with numerous ephemeral and deep drainages that cut through the landscape in various directions. Because this portion of the survey is within a wash, all resources observed are disturbed and are likely not in primary depositional locations, meaning, they have been redeposited in arbitrary locations as result of natural wind and water activities. The eastern terminus of the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment intersects with a man-made earthen bank associated with the regional storm drain facility that is routinely maintained by the San Bernardino County Flood Control District. Modern refuse was observed scattered along the Off-Site Storm Drain Alignment and Off-Site Sewer Alignment, including consumables, auto parts, and miscellaneous metal items. No cultural materials were identified Project's Off-Site

Storm Drain Alignment and Off-Site Sewer Alignment during the survey; however, potential historical resources were observed that are within the survey buffer area. Because the survey buffer area does not represent the Project's Off-Site Utilities Alignments, no formal recordation or evaluation of the potential historical resources were conducted.

The Off-Site Water Alignment survey follows the existing unpaved Los Banos Avenue and Sultana Street and crosses the Oro Grande Wash to US Highway 395. Surface visibility, soils observed, and terrain within this survey alignment is generally the same as the Off-Site Utilities Alignments. No cultural materials were identified along the Off-Site Water Alignment, though modern consumables were observed.

Summary and Recommendations

No cultural resources associated with the Off-Site Utilities Alignments were identified in this supplemental study, which included a review of previous records search results, archival map research and intensive pedestrian surveys. Although, the intensive pedestrian survey for the Off-Site Utilities Alignments did identify potential historical resources within the survey buffer, potential resources were observed outside the Project's Off-Site Utilities Alignments footprint and consisted of refuse piles that do not appear to be associated with potentially buried resources. The intensive pedestrian survey for the Off-Site Water alignment did not result in the identification of cultural resources. As a result, the probability of the Project to impact previously undocumented/unknown significant archaeological resources is considered low.

Management Recommendations

Since it is not possible to completely rule out the presence of archaeological resources within the Project's Off-Site Utilities Alignments and based on the results of this supplemental study, the following recommendations are provided below to ensure that impacts to unanticipated archaeological resources and human remains during construction activities would be less than significant.

Workers Environmental Awareness Program (WEAP)

A Workers Environmental Awareness Program (WEAP) training is recommended to be conducted by a qualified archaeologist at the construction kickoff meeting in order to ensure proper identification and treatment of inadvertent discoveries.

Inadvertent Discovery of Archaeological Resources

In the event that potential archaeological resources (sites, features, artifacts, or fossilized material) are exposed during construction activities for the proposed Project's Off-Site Utilities Alignments, all construction work occurring within 100 feet of the find shall immediately stop until a qualified specialist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether additional study is warranted. Depending upon the significance of the find, the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted.

Inadvertent Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains, but no less than 100 feet from the discovery, shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant of the remains. The most likely descendant shall complete his/her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

Please do not hesitate to contact me if you have any questions about this report by email at lkry@dudek.com or phone at (626) 590-1739, or Heather McDaniel McDevitt by email at hmcdevitt@dudek.com or phone at (805) 679-3087.

Sincerely,

Linda Kry, BA
Archaeologist

Heather McDaniel McDevitt, MA, RPA
Senior Archaeologist

cc: Collin Ramsey, Patrick Cruz, Dudek

Att: Attachment A: Figure
Attachment B: Previous Cultural Resource Investigations Bibliography
Attachment C: (Confidential) Previously Recorded Cultural Resources

References

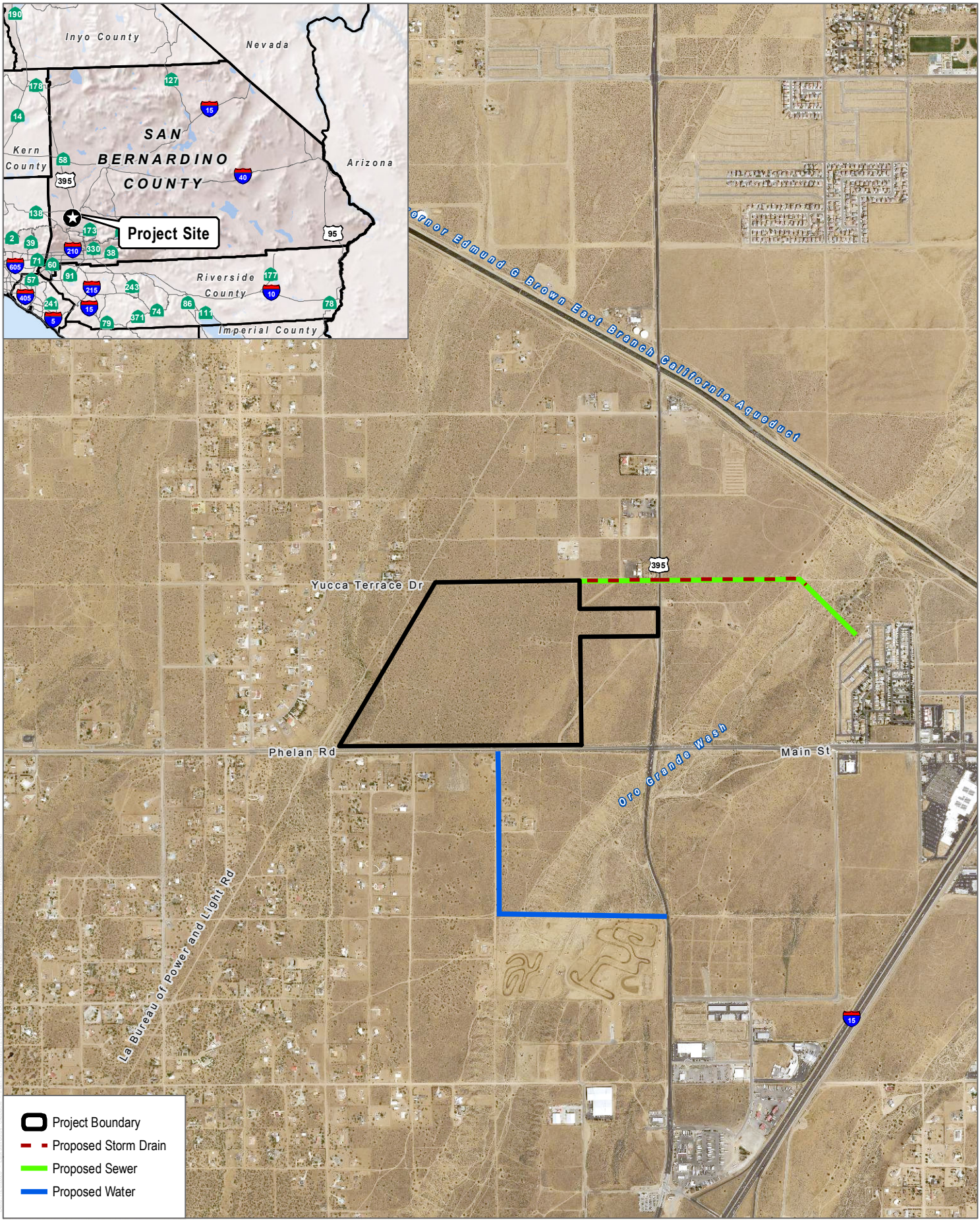
LSA (LSA Associates, Inc.). 2019. Cultural Resources Assessment, Hesperia Commerce Center II Project, City of Hesperia, San Bernardino County, California. Prepared for Covington Group, Inc. Prepared by Riordan Goodwin and Allegria Garcia, LSA Associates, Inc., Riverside, California.

NETR (Nationwide Environmental Title Research LLC). 2020a. Historic Topographic Maps: 1902, 1906, 1912, 1923, 1936, 1942, 1945, 1957, 1963, 1969, 1970, 1980, 1985, 1988, 1999, 2012, 2015, and 2018. Accessed June 30, 2020. https://www.historicaerials.com/viewer.

NETR. 2020b. Historic Aerial Photographs: 1938, 1952, 1968, 1994, 1995, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed June 30, 2020. https://www.historicaerials.com/viewer.

Attachment A

Figure



SOURCE: USDA 2016

DUDEK

0 1,000 2,000 Feet

Figure 1

Project Location

Hesperia Commerce Center II

Attachment B

Previous Cultural Resource Investigations Bibliography

Report List

CGI1801

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-00191	NADB-R - 1060191; Voided - 73-12.2A	1973	SMITH, GERALD A.	ARCHAEOLOGICAL, HISTORICAL AND PALEONTOLOGICAL SITE SURVEY FOR COUNTY SERVICE AREA NO. 70 IMPROVEMENT ZONE "J", ASSESSMENT OF IMPACT AND RECOMMENDATIONS	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	36-002208
SB-01219	NADB-R - 1061219; Voided - 81-12.7	1981	HALL, MATTHEW C., PHILIP J. WILKE, DORAN L. CART, and JAMES D. SWENSON	AN ARCHAEOLOGICAL SURVEY OF THE PROPOSED SOUTHERN CALIFORNIA EDISON IVANPAH GENERATING STATION, PLANT SITE, AND RELATED RAIL, COAL SLURRY, WATER AND TRANSMISSION LINE CORRIDORS, SAN BERNARDINO COUNTY, CALIFORNIA, AND CLARK COUNTY, NEVADA	ARCHAEOLOGICAL RESEARCH UNIT, UCR	36-001065, 36-001066, 36-001933, 36-002131, 36-002402, 36-002690, 36-002978, 36-003728, 36-003729, 36-004590, 36-004693, 36-004694, 36-004695, 36-004696, 36-004697, 36-004698, 36-004699, 36-004700, 36-004701, 36-004702, 36-004703, 36-004704, 36-004705, 36-004706, 36-004707, 36-004708, 36-004709, 36-004710, 36-004711, 36-004712, 36-004713, 36-004714, 36-004715, 36-004716, 36-004717, 36-004718, 36-004719, 36-004720, 36-004721, 36-004722, 36-004723, 36-004724, 36-004725, 36-004726, 36-004888
SB-01220	NADB-R - 1061220; Voided - 81-12.7A	1981	BEAN, LOWELL JOHN, SYLVIA BRAKKE VANE, and JACKSON YOUNG	THE IVANPAH GENERATING STATION PROJECT: ETHNOGRAPHIC (NATIVE AMERICAN) RESOURCES	CULTURAL SYSTEMS RESEARCH, INC.	36-000058, 36-000060, 36-000063, 36-000064, 36-000065, 36-000072, 36-000176, 36-000182, 36-000204, 36-000206, 36-000207, 36-000458, 36-000786, 36-000821, 36-000938, 36-000983, 36-001888, 36-001961, 36-002110, 36-002129, 36-002142, 36-002240, 36-002554, 36-002643, 36-002646, 36-002704, 36-002707, 36-003489, 36-004703, 36-004726
SB-01474	NADB-R - 1061474; Voided - 84-12.2	1984	SMITH, GERALD A. and E. GARY STICKEL	A CULTURAL RESOURCES ASSESSMENT OF THE PHELAN ROAD IMPROVEMENT PROJECT, HO9155, BALDY MESA AREA, SAN BERNARDINO COUNTY, CALIFORNIA	SAN BERNARDINO COUNTY MUSEUM ASSOCIATION	
SB-02202	NADB-R - 1062202; Voided - 90-11.6	1990	MCKENNA, JEANETTE A.	A PHASE I ARCHAEOLOGICAL INVESTIGATION OF PROPOSED WATER PIPELINE ROUTES AND RESERVOIR/PUMPING LOCATIONS, IN THE BALDY MESA/PHELAN AREA, SAN BERNARDINO COUNTY, CALIFORNIA	MCKENNA ET AL.	

Report List

CGI1801

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-02476	NADB-R - 1062476; Voided - 91-11.6	1991	MCKENNA, JEANETTE A.	A PHASE I LINEAR SURVEY: CULTURAL RESOURCES INVESTIGATIONS FOR THE HESPERIA IMPROVEMENT DISTRICT, HESPERIA, SAN BERNARDINO COUNTY, CALIFORNIA	MCKENNA ET AL.	
SB-02674	NADB-R - 1062674; Voided - 92-7.5	1992	SINGER, CLAY A., JOHN E. ATWOOD, and BARBIE S. LANEY	CULTURAL RESOURCES SURVEY AND IMPACT ASSESSMENT FOR APN 404-281-36 IN THE BALDY MESA AREA OF SAN BERNARDINO COUNTY, CALIFORNIA	C.A. SINGER & ASSOCIATES	36-004272
SB-02732	NADB-R - 1062732	1992	PARR, ROBERT E.	AN ARCHAEOLOGICAL ASSESSMENT OF TENTATIVE PARCEL MAP #14242 BALDY MESA, SAN BERNARDINO COUNTY,CA	CSUB	36-004179
SB-02802	NADB-R - 1062802	1993	BROCK, JAMES	HISTORICAL STRUCTURES ASSESSMENT FOR THE PHELAN ROAD WIDENING PROJECT, BALDY MESA ROAD TO LOS BANOS ROAD, COUNTY OF SAN BERNARDINO, CA	ARCHAEOLOGICAL ADVISORY GROUP	
SB-02803	NADB-R - 1062803	1993	LOVE, BRUCE	MAIN ST./I-15 INTERCHANGE, HESPERIA	CRM TECH	
SB-03020	NADB-R - 1063020	1993	STURM, BRAD, D. MCLEAN, K. BECKER, and J. ROSENTHAL	(DRAFT) ADELANTO-LUGO TRANSMISSION PROJECT CULTURAL RESOURCES ASSESSMENT	WOODWARD-CLYDE	36-002910, 36-004019, 36-004251, 36-004255, 36-004266, 36-004267, 36-004268, 36-004269, 36-004272, 36-004274, 36-004275, 36-004276, 36-004411, 36-006353, 36-006532, 36-006533, 36-007739, 36-007740, 36-007741, 36-007742, 36-007743, 36-007744, 36-007745, 36-007746, 36-007747, 36-007748, 36-007749, 36-007750, 36-007751, 36-007752, 36-007753, 36-007754, 36-007755, 36-007756, 36-007757, 36-007758, 36-007759, 36-007760, 36-007761, 36-007762, 36-007763
SB-03110	NADB-R - 1063110	1996	BROCK, JAMES and CHRISTINE L. D'IORIO	HISTORIC PROPERTY SURVEY AND HISTORIC ARCHITECTURAL EVALUATION REPORT FOR THE WIDENING OF PHELAN ROAD FROM BALDY MESA ROAD TO STATE HWY 395, SAN BERNARDINO COUNTY, CA. 68PP	ARCHAEOLOGICAL ADVISORY GROUP	36-004252, 36-004268, 36-004271, 36-004272, 36-007694, 36-007755, 36-007756, 36-008077, 36-008078, 36-008082
SB-04036	NADB-R - 1064036	2004	CERRETO, RICHARD and CHRISTY MALAN	CULTURAL RESOURCE ASSESSMENT FOR PARCEL 3, APN: 3064-591-17, CITY OF HESPERIA, SAN BERNARDINO COUNTY, CA. 18PP	ANALYTIC ARCHAEOLOGY	36-020263

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CGI1801

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-04281	NADB-R - 1064281	2004	CERRETO, RICHARD, CHRISTY MALAN, and KATHERINE WARD	CULTURAL RESOURCES ASSESSMENT FOR APN: 3064-481-12, CITY OF HESPERIA, SAN BERNARDINO COUNTY, CA. 16PP	ANALYTIC ARCHAEOLOGY	
SB-04282	NADB-R - 1064282	2004	FULTON, PHIL	CULTURAL RESOURCES ASSESSMENT: CINGULAR WIRELESS FACILITY NO. SB 333-01, HESPERIA, SAN BERNARDINO COUNTY, CA. 17PP	LSA	
SB-04285	NADB-R - 1064285	2004	GREEN, JULIA K.	CULTURAL RESOURCES INVENTORY & EVALUATION: TIMBISHA SHOSHONE HOTEL & CASINO, SAN BERNARDINO COUNTY, CA. 22PP	ECORP	
SB-04289	NADB-R - 1064289	2003	WHITE, ROBERT S. and LAURA S. WHITE	A CULTURAL RESOURCES ASSESSMENT OF TEH SAN BERNARDINO COUNTY SPECIAL DISTRICTS CSA 70 ZONE J CASITA AVE WATER PIPELINE PROJECT NEAR HESPERIA, SAN BERNARDINGO CO. 18PP	ARCHAEOLOGICAL ASSOCIATES	36-004246
SB-04290	NADB-R - 1064290	1997	HAMMOND, STEPHEN and DAVID BRICKER	THE REALIGBMENT OF US HIGHWAY 395 & MAIN ST IN THE CITY OF HESPERIA, SAN BERNARDINO COUNTY, CA. 26PP	CALTRANS	36-004179, 36-004267, 36-004268, 36-007545, 36-007755, 36-007756, 36-008077, 36-008082
SB-04582	NADB-R - 1064582	2005	Duff, Gabrielle and Manuel R. Palacios-Fest	Archaeological and Paleontological Survey of the Ludwig Property, Hesperia, San Bernardino County, California.		
SB-04796	NADB-R - 1064796	2005	BRUNZELL, DAVID	CULTURAL RESOURCE ASSESSMENT VISTA DEL VALLE CITY OF VICTORVILLE SAN BERNADINO COUNTY, CALIFORNIA		
SB-04927	NADB-R - 1064927	2006	Sander, Jay K.	Cultural Resources Inventory of 147 Acres: Tract 17598, Phelan, San Bernardino County, California.	Chambers Group, Inc	36-004272, 36-012631, 36-012632, 36-012633, 36-012634, 36-012635
SB-05466	NADB-R - 1065466	2007	TANG, BAI, SMALLWOOD, JOSH, DANIEL BALLESTER, and LAURA H. SHAKER	HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT: VICTOR VALLEY WATER DISTRICT PIPELINE PROJECT, CITY OF VICTORVILLE, SAN BERNARDINO COUNTY, CALIFORNIA		36-007694

Report List

CGI1801

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-05698	NADB-R - 1065698	2007	Hogan, Michael	Historical/Archaeological Resources Survey Report: US Highway 395 Realignment EIR, Victorville Area, San Bernardino County, California.	CRM Tech	36-004179, 36-004252, 36-004253, 36-004262, 36-004267, 36-004268, 36-004270, 36-004271, 36-004272, 36-004411, 36-004418, 36-006828, 36-007545, 36-007694, 36-008082, 36-010316, 36-012150, 36-012469, 36-013356, 36-013357, 36-013358, 36-013359, 36-013360, 36-013361, 36-013362, 36-013363, 36-013364, 36-013372, 36-013373, 36-013374, 36-013375, 36-013376, 36-013377, 36-013378, 36-013379, 36-013380, 36-013381, 36-013382, 36-013383, 36-013384, 36-013385, 36-013386
SB-05818	NADB-R - 1065818	2007	Budinger, Fred E.	An Archaeological Survey of 10-Acres (APN 3064-601-01) for the Proposed Holiday Inn Hesperia Project to located Southeas of the Intersection of Main Street and Mesa Linda Street in the City of Hesperia, San Bernardino County, California 92392.	Tetra Tech, Inc	
SB-06164		2007	Sander, Jay	Cultural Resources Inventory of APN 3064-561-12 Hesperia, San Bernardino County, California	Chambers Group	36-004266
SB-06333	NADB-R - 1066333	2005	HORNE, MELINDA C.	CULTURAL RESOURCES SURVEY FOR THE MOJAVE WATER AGENCY WATER BANKING PROJECT		36-000176
SB-06602	NADB-R - 1066602; OHP OTIS Report Nbr - FCC090824Q	2009	Wlodarski, Robert J.	Cultural Resources Record Search and Archaeological Survey Results for the proposed Royal Street Communications, California, LLC, Site LAee28A (Vacant Lot TMO-Pine Colo) located at 9980 Lassen Street, Hesperia, San Bernardino County, California 92345.	HEART	
SB-06859	NADB-R - 1066859	2010	Tang, Bai “Tom”, Terri Jacquemain, Daniel Ballester, and Harry Quinn	Identification and Evaluation of Historic Properties: Town of Apple Valley and City of Hesperia Wastewater Reclamation Plants and Related Facilities Project, Victor Valley Area, San Bernardino County, California.		
SB-06860	NADB-R - 1066860; Other - SCE	2011	Heidelberg, Kurt and Gabrielle Duff	Archaeological Survey Report for Southern California Edison's Line Extension Project in Victorville, California.	Inland Environmental Associates	36-007545

Report List

CGI1801

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SB-07156	NADB-R - 1067156	2011	Tang, Bai “Tom”, Daniel Ballester, and Nina Gallardo	Historical/Archaeological Resources Survey Report: Water Supply System Improvements Projects, Fiscal Years 2010/2011 – 2014/2015, Victorville Water District, San Bernardino County, California.	CRM TECH	36-000968, 36-002910, 36-006793, 36-007545, 36-007694, 36-009360, 36-010316, 36-012658
SB-07493	NADB-R - 1067493	2013	Dahdul, Miriam, Daniel Ballester, John D. Goodman II, and Nina Gallardo	Historical/Archaeological Resources Survey Report: Westside Terraces Project, Assessor’s Parcel No’s 3064-441-01 to -03, City of Hesperia, San Bernardino County, California.		
SB-08179	Paleo -	2015	Hogan, Michael	Archaeological/Paleontological Monitoring Program, Tractor Supply Company Retail Facility Project, 12543 Main Street, City of Hesperia, San Bernardino County, CRM TECH Contract No. 2956	CRM TECH	
SB-08205	Paleo -	2015	McKenna, Jeanette A.	A PHASE I CULTURAL RESOURCES INVESTIGATION OF THE PROPOSED SUMMIT LEADERSHIP ACADEMY, HIGH DESERT CAMPUS, CITY OF HESPERIA, SAN BERNARDINO CO., CALIFORNIA	McKENNA et al.	36-010288

Attachment C

(Confidential) Previously Recorded Cultural Resources

Appendix E-3

Tribal Consultation Records

City of Hesperia
Gateway to the High Desert

May 21, 2020

Cabazon Band of Mission Indians
Jacquelyn Barnum, Environmental Director
84-245 Indo Springs Parkway
Indio, CA, 92203

Re: ***Formal Notification for the Hesperia Commerce Center II Project, Pursuant to Assembly Bill 52***

Dear Ms. Barnum,

Pursuant to California Assembly Bill (AB) 52, the City of Hesperia (City) is providing you with notification of the Hesperia Commerce Center II Project (Project), located in the City of Hesperia, San Bernardino County, California.

Project Location and Description

The approximately 194.8-acre Project site is located in the eastern part of the City, which is found within the Victor Valley region of San Bernardino County. The Project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and a utility corridor to the west. The Project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the Project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map. Regional access to the Project site includes Highway 395, immediately adjacent to the east, and Interstate (I) 15, located approximately 1 mile east (see Project Location Map).

The Project would include construction of three industrial/warehouse buildings and associated improvements on 194.8-acres of vacant land. Building 1 (the northwesternmost building) would be 1,567,317 square feet, Building 2 (the southernmost building) would be 2,045,987 square feet, which would potentially be divided between two spaces within the same building, and Building 3 (the easternmost building) would be 103,125 square feet. Office space within each building would total up to 20,000 square feet. In total, the Project would provide 3,716,429 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and approximately 7 percent landscape area coverage.

Larry Bird, Mayor
Cameron Gregg, Mayor Pro Tem
Bill Holland, Council Member
Rebekah Swanson, Council Member
Brigit Bennington, Council Member

Nils Bentsen, City Manager

9700 Seventh Avenue
Hesperia, CA 92345

760-947-1000
TD 760-947-1119

www.cityofhesperia.us

The Project would also include off-site improvemvents, including improvements to surrounding streets, upsizing of existing water lines, and the installation of approximately 3,300 linear feet of underground sewer and storm drain line within Yucca Terrace Drive to Oro Grande Wash.

The Project would require discretionary approvals from the City, including: (1) approval of Conditional Use Permit (CUP19-00010); (2) approval of a Tentative Parcel Map; and (3) approval of a Development Agreement.

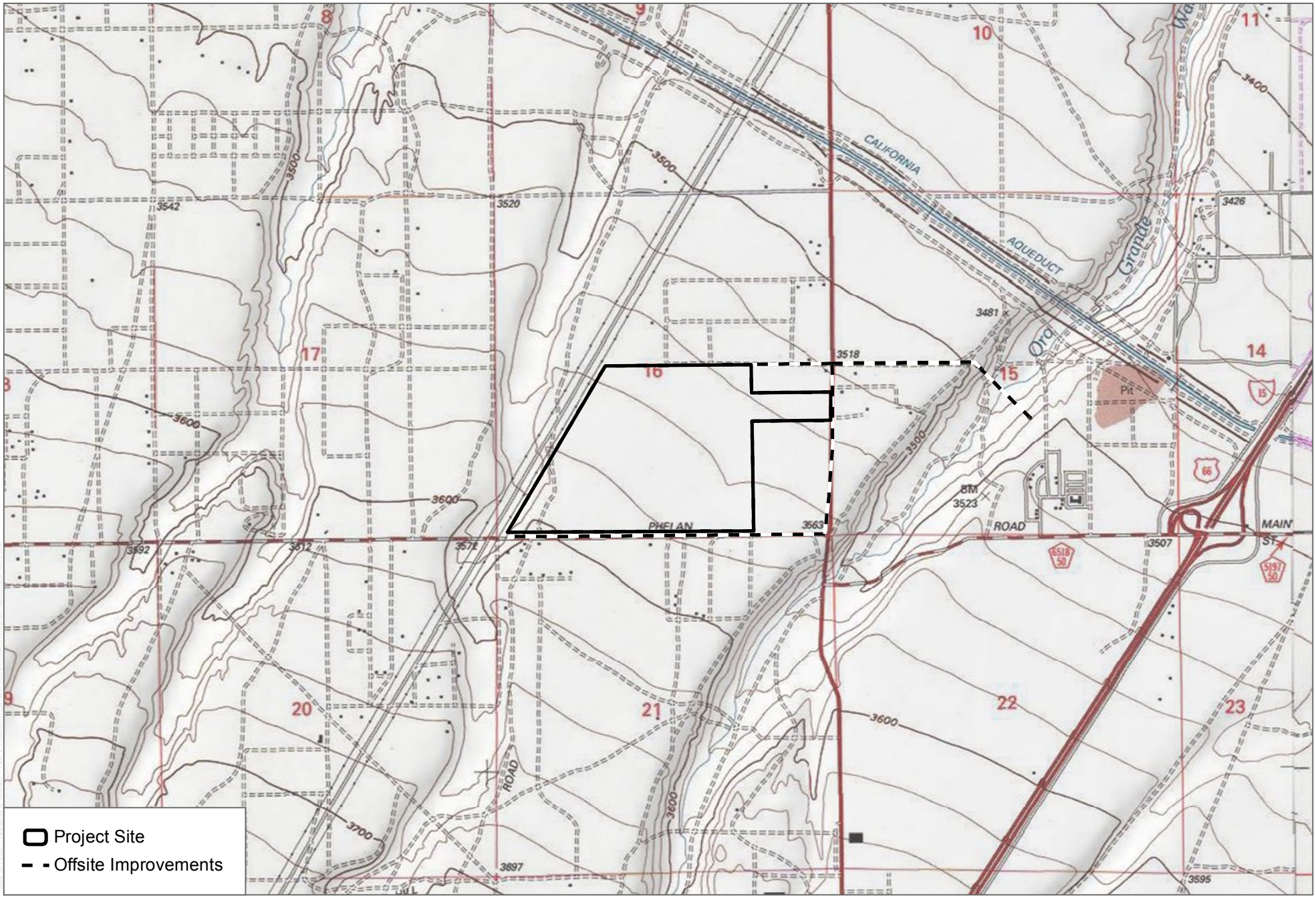
If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the Project, please provide a written request for consultation to the address above or via email to rleonard@cityofhesperia.us within 30 days of receipt of this notice and include the name of a designated lead contact person.

Respectfully,

_____

Ryan Leonard, AICP Planner
City of Hesperia, Planning Department
9700 Seventh Avenue
Hesperia, California 92345

Attachments:
Figure 1. Project Location Map.



SOURCE: USGS 7.5-Minute Series Baldy Mesa Quadrangle
Township 4N; Range 5W; Sections 15, 16, and 21

DUDEK

0 1,000 2,000 Feet

Project Location Map

Hesperia Commerce Center II

City of Hesperia
Gateway to the High Desert

May 21, 2020

Torres Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resources Coordinator
PO BOX 1160
Thermal, CA 92274

Re: ***Formal Notification for the Hesperia Commerce Center II Project, Pursuant to Assembly Bill 52***

Dear Mr. Mirelez,

Pursuant to California Assembly Bill (AB) 52, the City of Hesperia (City) is providing you with notification of the Hesperia Commerce Center II Project (Project), located in the City of Hesperia, San Bernardino County, California.

Project Location and Description

The approximately 194.8-acre Project site is located in the eastern part of the City, which is found within the Victor Valley region of San Bernardino County. The Project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and a utility corridor to the west. The Project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the Project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map. Regional access to the Project site includes Highway 395, immediately adjacent to the east, and Interstate (I) 15, located approximately 1 mile east (see Project Location Map).

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Larry Bird, Mayor
Cameron Gregg, Mayor Pro Tem
Bill Holland, Council Member
Rebekah Swanson, Council Member
Brigit Bennington, Council Member

Nils Bentsen, City Manager

9700 Seventh Avenue
Hesperia, CA 92345

760-947-1000
TD 760-947-1119

www.cityofhesperia.us

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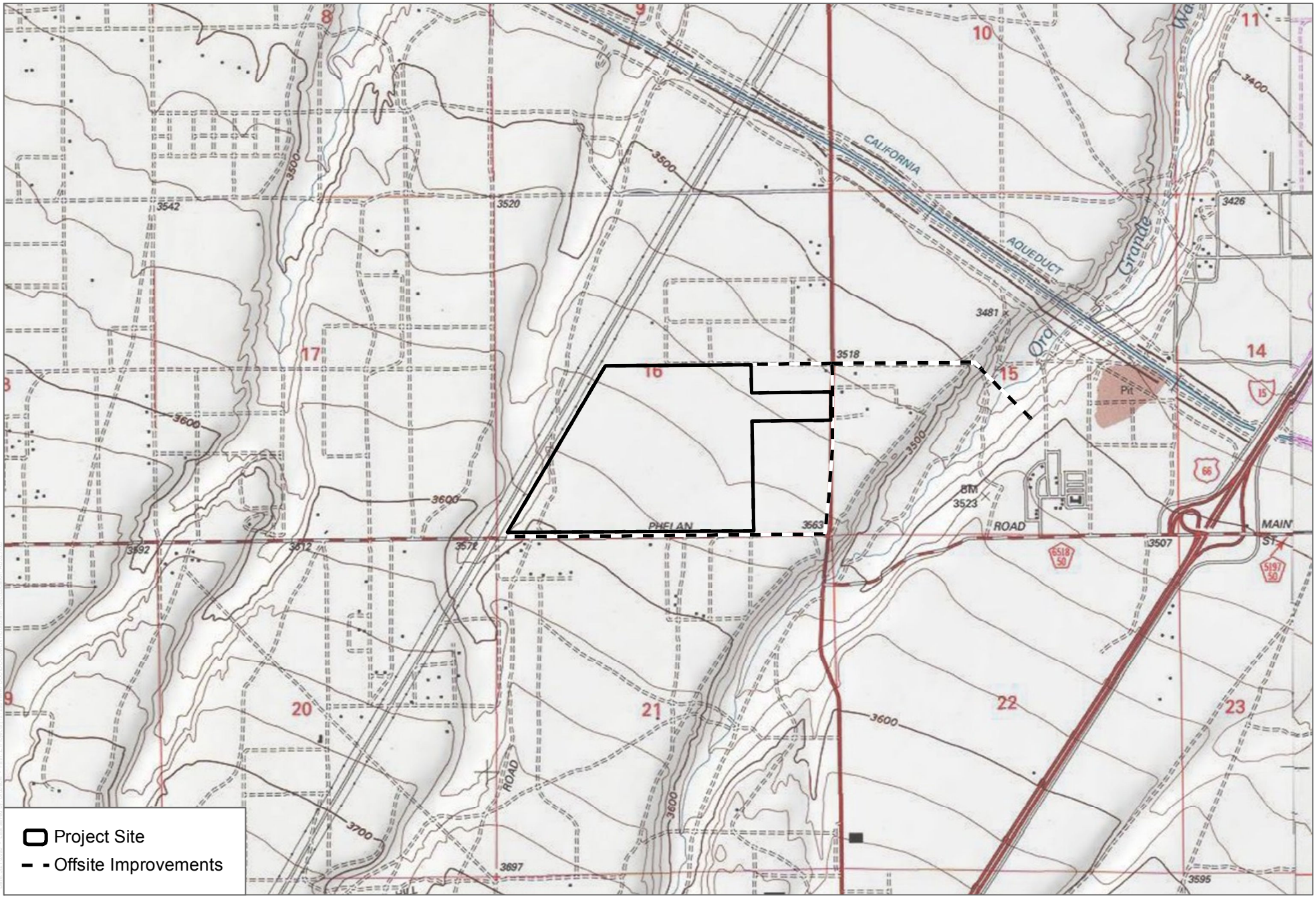
Respectfully,

_____

Ryan Leonard, AICP Planner
City of Hesperia, Planning Department
9700 Seventh Avenue
Hesperia, California 92345

Attachments:
Figure 1. Project Location Map.



SOURCE: USGS 7.5-Minute Series Baldy Mesa Quadrangle
Township 4N; Range 5W; Sections 15, 16, and 21

DUDEK

0 1,000 2,000 Feet

Project Location Map

Hesperia Commerce Center II

City of Hesperia
Gateway to the High Desert

May 21, 2020

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources Management
26569 Community Center Drive
Highland, CA, 92346

Re: ***Formal Notification for the Hesperia Commerce Center II Project, Pursuant to Assembly Bill 52***

Dear Ms. Mauck,

Pursuant to California Assembly Bill (AB) 52, the City of Hesperia (City) is providing you with notification of the Hesperia Commerce Center II Project (Project), located in the City of Hesperia, San Bernardino County, California.

Project Location and Description

The approximately 194.8-acre Project site is located in the eastern part of the City, which is found within the Victor Valley region of San Bernardino County. The Project site is located on the northwest quadrant of Highway 395 and Phelan Road/Main Street, and is bound by Yucca Terrace Drive to the north, Highway 395 to the east, Phelan Road to the south, and a utility corridor to the west. The Project site consists of Assessor's Parcel Numbers 306435103, 306436101, 306439101, and 306440102. Specifically, the Project is located in Section 16, Township 4 North, Range 5 West, as depicted on the U.S. Geological Survey Baldy Mesa, California 7.5-minute topographic quadrangle map. Regional access to the Project site includes Highway 395, immediately adjacent to the east, and Interstate (I) 15, located approximately 1 mile east (see Project Location Map).

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Larry Bird, Mayor
Cameron Gregg, Mayor Pro Tem
Bill Holland, Council Member
Rebekah Swanson, Council Member
Brigit Bennington, Council Member

Nils Bentsen, City Manager

9700 Seventh Avenue
Hesperia, CA 92345

760-947-1000
TD 760-947-1119

www.cityofhesperia.us

The Project would also include off-site improvemvents, including improvements to surrounding streets, upsizing of existing water lines, and the installation of approximately 3,300 linear feet of underground sewer and storm drain line within Yucca Terrace Drive to Oro Grande Wash.

The Project would require discretionary approvals from the City, including: (1) approval of Conditional Use Permit (CUP19-00010); (2) approval of a Tentative Parcel Map; and (3) approval of a Development Agreement.

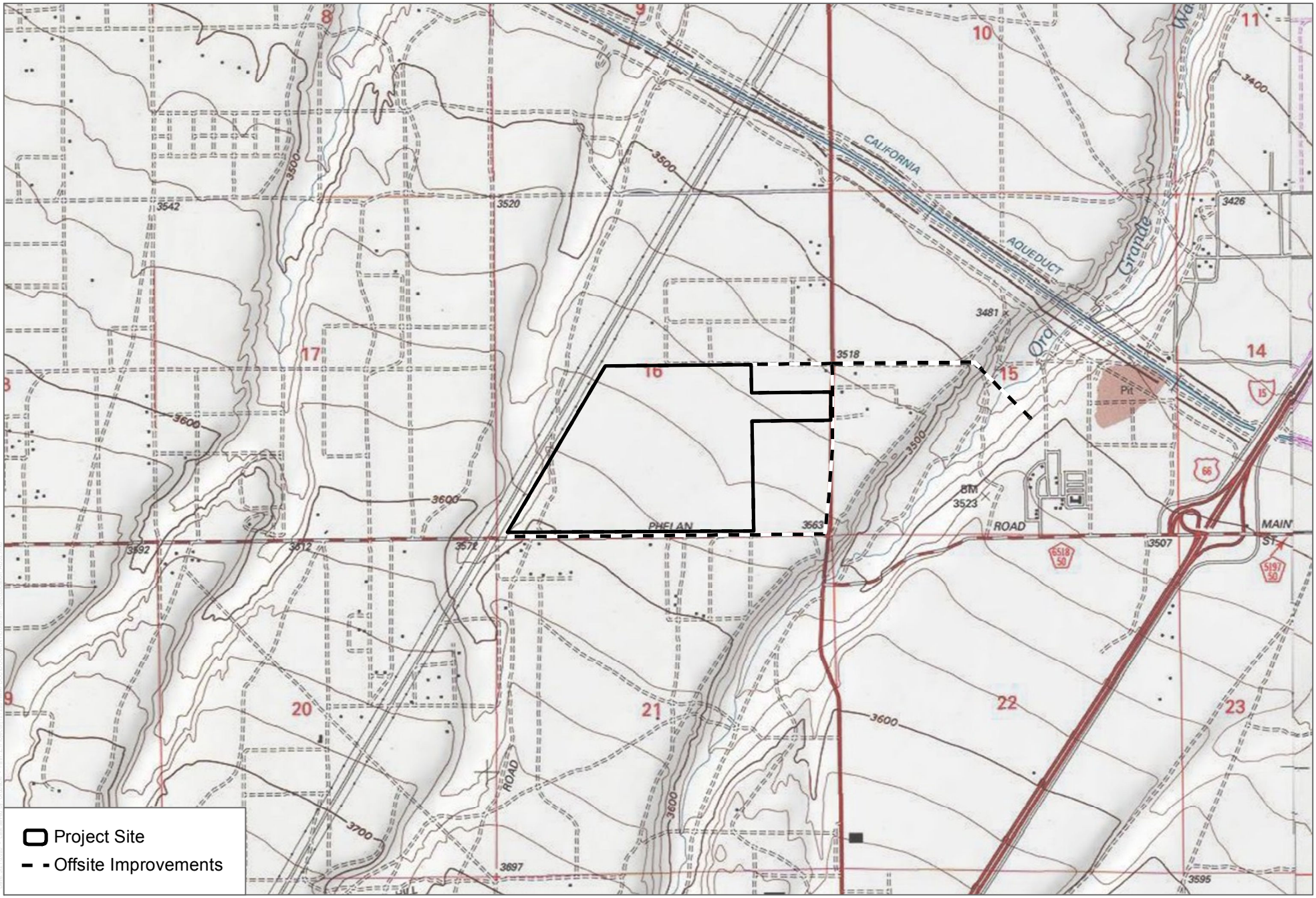
If you have any comments or concerns regarding potential impacts to tribal cultural resources (as defined in Public Resources Code § 21074) in relation to the Project, please provide a written request for consultation to the address above or via email to rleonard@cityofhesperia.us within 30 days of receipt of this notice and include the name of a designated lead contact person.

Respectfully,

_____

Ryan Leonard, AICP Planner
City of Hesperia, Planning Department
9700 Seventh Avenue
Hesperia, California 92345

Attachments:
Figure 1. Project Location Map.
Cultural Resources Report



SOURCE: USGS 7.5-Minute Series Baldy Mesa Quadrangle
Township 4N; Range 5W; Sections 15, 16, and 21

DUDEK

0 1,000 2,000 Feet

Project Location Map

Hesperia Commerce Center II

Appendix F

Energy Impact Analysis Report

Hesperia Commerce Center II

ENERGY ANALYSIS

CITY OF HESPERIA

PREPARED BY:

Haseeb Qureshi
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Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

AUGUST 7, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
AQIA	Air Quality Impact Analysis
BACM	Best Available Control Measures
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIA	Energy Information Administration
EIR	Environmental Impact Report
EMFAC	Emissions Factor
FERC	Federal Energy Regulatory Commission
GPA	General Plan Amendment
GS-1	General Service Rate Schedule
GWh	Gigawatt Hour
HHDT	Heavy-Heavy Duty
Hp-hr-gal	Horsepower-Hour Per Gallon
IEPR	Integrative Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Kilo-British Thermal Units
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
MDV	Medium Duty Trucks
MHDT	Medium-Heavy Duty Trucks
mpg	Miles Per Gallon
MPO	Metropolitan Planning Organization
PG&E	Pacific Gas and Electric
Project	Hesperia Commerce Center II
SCE	Southern California Edison
SDAB	San Diego Air Basin
SDG&E	San Diego Gas and Electric
sf	Square Feet

SoCalGas	Southern California Gas
TEA-21	Transportation Equity Act for the 21st Century
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Hesperia Commerce Center II Energy Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	5.0	*Less Than Significant*	*n/a*
Energy Impact #2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	5.0	*Less Than Significant*	*n/a*

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Hesperia Commerce Center II (Project). The purpose of this report is to ensure that energy implication is considered by the City of Hesperia, as the lead agency, and to quantify anticipated energy usage associated with construction of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. The Project location is shown on Exhibit 1-A. The Project Site is generally located in an undeveloped rural area with some residential homes located to the west and south.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the following uses:

- 2,361,648 square feet (sf) of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 sf of General Light Industrial use; 1,271,656 sf within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 sf within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at the Main Street interchange. At the time this energy study was prepared, the future tenants of the proposed Project were unknown.

This energy study is intended to describe energy usage associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

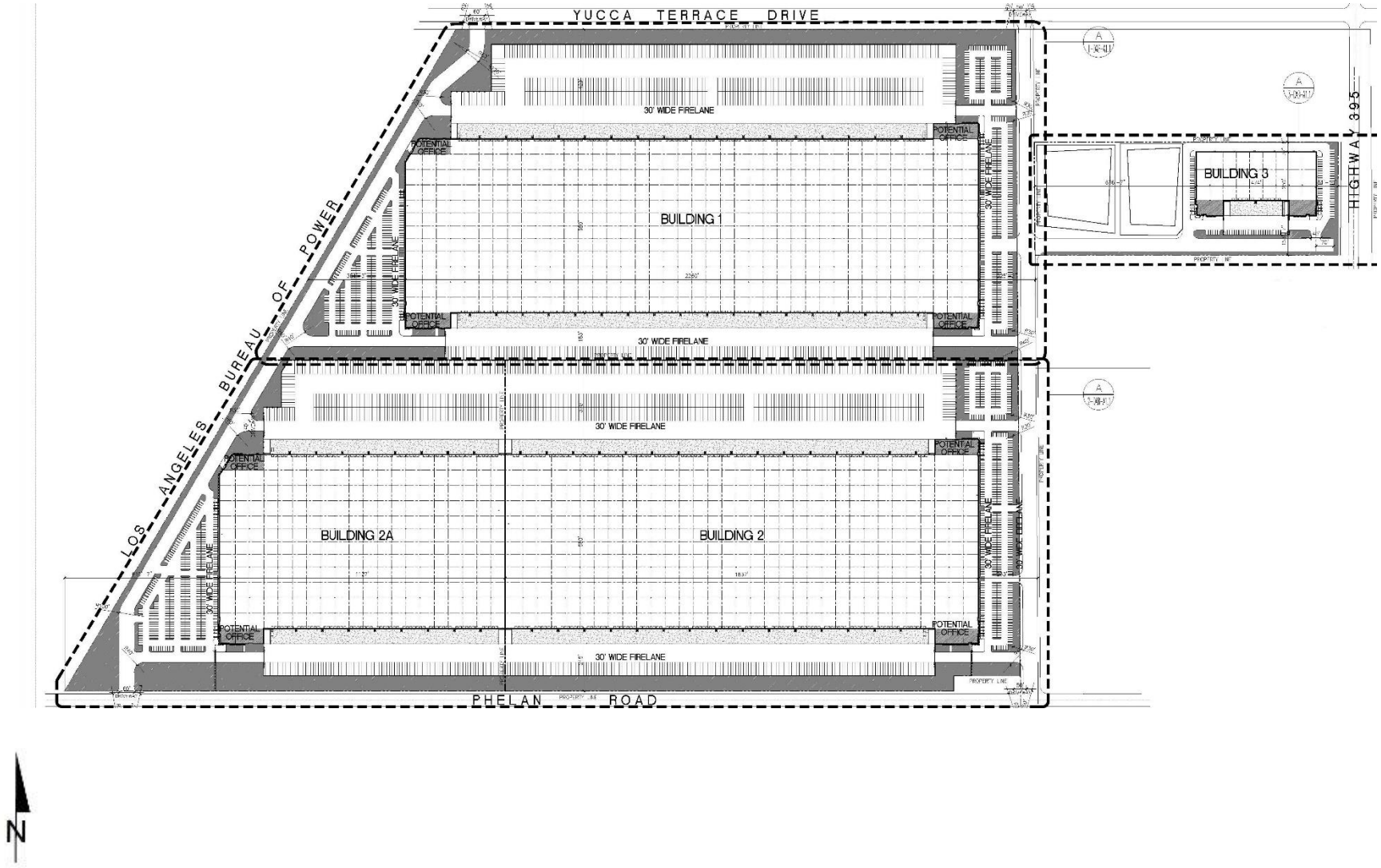
EXHIBIT 1-A: LOCATION MAP



LEGEND:

Site Boundary

EXHIBIT 1-B: SITE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption is from 2017 and natural gas consumption is from 2018, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2020 and included:

- Approximately 7,881 trillion British Thermal Unit (BTU) of energy was consumed;
- Approximately 683 million barrels of petroleum;
- Approximately 2,137 billion cubic feet of natural gas;
- Approximately 1 million short tons of coal (2)

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (3)
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (3)
    - Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017 (4)

The most recent data provided by the EIA for energy use in California by demand sector is from 2017 and is reported as follows:

- Approximately 40.3% transportation;
- Approximately 23.1% industrial;
- Approximately 18.0% residential; and
- Approximately 18.7% commercial (5)

In 2018, total system electric generation for California was 285,488 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,842 GWh which accounted for approximately 68% of the electricity it uses; the rest was imported from the Pacific Northwest (14%) and the U.S. Southwest (18%) (6). Natural gas is the main source for electricity generation at 47% of the total in-state electric generation system power as shown in Table 2-1.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2018)

Fuel Type	California In-State Generation	Percent of California In-State	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	294	0.15%	399	8,740	9,433	3.30%
Large Hydro	22,096	11.34%	7,418	985	30,499	10.68%
Natural Gas	90,691	46.54%	49	8,904	99,644	34.91%
Nuclear	18,268	9.38%	0	7,573	25,841	9.05%
Oil	35	0.02%	0	0	35	0.01%
Other	430	0.22%	0	9	439	0.15%
Renewables	63,028	32.35%	14,074	12,400	89,502	31.36%
Biomass	5,909	3.03%	772	26	6,707	2.35%
Geothermal	11,528	5.92%	171	1,269	12,968	4.54%
Small Hydro	4,248	2.18%	334	1	4,583	1.61%
Solar	27,265	13.99%	174	5,094	32,533	11.40%
Wind	14,078	7.23%	12,623	6,010	32,711	11.46%
Unspecified Sources of Power	N/A	N/A	17,576	12,519	30,095	10.54%
Total	**194,842**	**100%**	**39,517**	**51,130**	**285,488**	**100%**

Source: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018. (7)
- California's total energy consumption is second highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs. (8)
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar photovoltaic (PV) and solar thermal installations provided 19% of California's net electricity generation (9).

As indicated above, California is one of the nation's leading energy-producing states, and California's per capita energy use is among the nation's most efficient. Given the nature of the Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

2.2 ELECTRICITY

The usage associated with electricity use were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California ISO studies revealed the extent to which the South California Air Basin (SCAB) and the San Diego Air Basin (SDAB) region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts (10). Similarly, the 2019 and 2019 IEPR's identify broad strategies that are aimed at maintaining electricity system reliability.

Electricity is provided to the Project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2018 Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers (11).

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator (ISO) is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities [such as SCE] still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that enough power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (12).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission owners (investor-owned utilities such as SCE) file annual transmission expansion/modification plans to accommodate the

State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Table 2-2 identifies SCE's specific proportional shares of electricity sources in 2018. As indicated in Table 2-2, the 2018 SCE Power Mix has renewable energy at 36% of the overall energy resources. Geothermal resources are at 8%, wind power is at 13%, large hydroelectric sources are at 1%, solar energy is at 13%, and coal is at 0%. Biomass and waste sources have increased by 1% since 2017. Natural gas remains at 17% since 2017 (13).

TABLE 2-2: SCE 2018 POWER CONTENT MIX

Energy Resources	2018 SCE Power Mix
Eligible Renewable	**36%**
Biomass & waste	1%
Geothermal	8%
Small Hydroelectric	1%
Solar	13%
Wind	13%
Coal	**0%**
Large Hydroelectric	**4%**
Natural Gas	**17%**
Nuclear	**6%**
Other	**0%**
Unspecified Sources of power*	37%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

2.3 NATURAL GAS

The usage associated with natural gas use were calculated using the CalEEMod Version 2016.3.2. The following summary of natural gas customers & volumes, supplies, delivery of supplies, storage, service options, and operations is excerpted from information provided by the California Public Utilities Commission (CPUC).

> *"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural*

gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

California's natural gas utilities provide service to over 11 million gas meters. SoCalGas and PG&E provide service to about 5.9 million and 4.3 million customers, respectively, while SDG&E provides service to over 800, 000 customers. In 2018, California gas utilities forecasted that they would deliver about 4740 million cubic feet per day (MMcfd) of gas to their customers, on average, under normal weather conditions.

The overwhelming majority of natural gas utility customers in California are residential and small commercials customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

A significant amount of gas (about 19%, or 1131 MMcfd, of the total forecasted California consumption in 2018) is also directly delivered to some California large volume consumers, without being transported over the regulated utility pipeline system. Those customers, referred to as "bypass" customers, take service directly from interstate pipelines or directly from California producers.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, i.e. they receive deliveries of gas from SoCalGas and in turn deliver that gas to their own customers. (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area.) Similarly, West Coast Gas, a small gas utility, is a wholesale customer of PG&E. Some other wholesale customers are municipalities like the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California gas utilities are Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Mojave Pipeline, and Tuscarora. Another pipeline, the North Baja - Baja Norte Pipeline takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, and authorizes rates for that service, the CPUC may participate in FERC regulatory proceedings to represent the interests of California natural gas consumers.

The gas transported to California gas utilities via the interstate pipelines, as well as some of the California-produced gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipelines systems (commonly referred to as California's "backbone" pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered to the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large volume noncore customers take natural gas delivery directly off the

high-pressure backbone and local transmission pipeline systems, while core customers and other noncore customers take delivery off the utilities' distribution pipeline systems. The state's natural gas utilities operate over 100,000 miles of transmission and distribution pipelines, and thousands more miles of service lines.

Bypass customers take most of their deliveries directly off the Kern/Mojave pipeline system, but they also take a significant amount of gas from California production

PG&E and SoCalGas own and operate several natural gas storage fields that are located within their service territories in northern and southern California, respectively. These storage fields, and four independently owned storage utilities - Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage - help meet peak seasonal and daily natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. PG&E is a 25% owner of the Gill Ranch Storage field. These storage fields provide a significant amount of infrastructure capacity to help meet California's natural gas requirements, and without these storage fields, California would need much more pipeline capacity in order to meet peak gas requirements .

Prior to the late 1980s, California regulated utilities provided virtually all natural gas services to all their customers. Since then, the Commission has gradually restructured the California gas industry in order to give customers more options while assuring regulatory protections for those customers that wish to, or are required to, continue receiving utility-provided services.

The option to purchase natural gas from independent suppliers is one of the results of this restructuring process. Although the regulated utilities procure natural gas supplies for most core customers, core customers have the option to purchase natural gas from independent natural gas marketers, called "core transport agents" (CTA). Contact information for core transport agents can be found on the utilities' web sites. Noncore customers, on the other hand, make natural gas supply arrangements directly with producers or with marketers.

Another option resulting from the restructuring process occurred in 1993, when the Commission removed the utilities' storage service responsibility for noncore customers, along with the cost of this service from noncore customers' transportation rates. The Commission also encouraged the development of independent storage fields, and in subsequent years, all the independent storage fields in California were established. Noncore customers and marketers may now take storage service from the utility or from an independent storage provider (if available), and pay for that service, or may opt to take no storage service at all. For core customers, the Commission assures that the utility has adequate storage capacity set aside to meet core requirements, and core customers pay for that service.

In a 1997 decision, the Commission adopted PG&E's "Gas Accord", which unbundled PG&E's backbone transmission costs from noncore transportation rates. This decision gave customers and marketers the opportunity to obtain pipeline capacity rights on

PG&E's backbone transmission pipeline system, if desired, and pay for that service at rates authorized by the Commission. The Gas Accord also required PG&E to set aside a certain amount of backbone transmission capacity in order to deliver gas to its core customers. Subsequent Commission decisions modified and extended the initial terms of the Gas Accord. The "Gas Accord" framework is still in place today for PG&E's backbone and storage rates and services and is now simply referred to as PG&E Gas Transmission and Storage (GT&S).

In a 2006 decision, the Commission adopted a similar gas transmission framework for Southern California, called the "firm access rights" system. SoCalGas and SDG&E implemented the firm access rights (FAR) system in 2008, and it is now referred to as the backbone transmission system (BTS) framework. As under the PG&E backbone transmission system, SoCalGas backbone transmission costs are unbundled from noncore transportation rates. Noncore customers and marketers may obtain, and pay for, firm backbone transmission capacity at various receipt points on the SoCalGas system. A certain amount of backbone transmission capacity is obtained for core customers to assure meeting their requirements.

Many if not most noncore customers now use a marketer to provide for several of the services formerly provided by the utility. That is, a noncore customer may simply arrange for a marketer to procure its supplies, and obtain any needed storage and backbone transmission capacity, in order to assure that it will receive its needed deliveries of natural gas supplies. Core customers still mainly rely on the utilities for procurement service, but they have the option to take procurement service from a CTA. Backbone transmission and storage capacity is either set aside or obtained for core customers in amounts to assure very high levels of service.

In order properly operate their natural gas transmission pipeline and storage systems, PG&E and SoCalGas must balance the amount of gas received into the pipeline system and delivered to customers or to storage fields. Some of these utilities' storage capacity is dedicated to this service, and under most circumstances, customers do not need to precisely match their deliveries with their consumption. However, when too much or too little gas is expected to be delivered into the utilities' systems, relative to the amount being consumed, the utilities require customers to more precisely match up their deliveries with their consumption. And, if customers do not meet certain delivery requirements, they could face financial penalties. The utilities do not profit from these financial penalties - the amounts are then returned to customers as a whole. If the utilities find that they are unable to deliver all the gas that is expected to be consumed, they may even call for a curtailment of some gas deliveries. These curtailments are typically required for just the largest, noncore customers. It has been many years since there has been a significant curtailment of core customers in California ." (14)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total.

The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. In March 2019, the Department of Motor Vehicles (DMV) identified 36.4 million registered vehicles in California (15), and those vehicles consume an estimated 17.8 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

California's on-road transportation system includes 394,383 land miles, more than 27.5 million passenger vehicles and light trucks, and almost 8.1 million medium- and heavy-duty vehicles (15). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 91% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (16). Nearly 17.8 billion gallons of on-highway fuel are burned each year, including 14.6 billion gallons of gasoline (including ethanol) and 3.2 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2019, Californians also used 194 million cubic feet of natural gas as a transportation fuel (17), or the equivalent of 183 billion gallons of gasoline.

[1] Fuel consumptions estimated utilizing information from EMFAC2017.

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3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency (EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the CEC are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below. Project consistency with applicable federal and state regulations is also presented in *italicized* text.

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

The ISTEA promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

Transportation and access to the Project sites are provided by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be realized pursuant to the ISTEA because SCAG is not planning for intermodal facilities on or through the Project sites.

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The TEA-21 was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

The Project sites are located along major transportation corridors with proximate access to the Interstate freeway system. The sites selected for the Project facilitates access, acts to reduce vehicle miles traveled (VMT), takes advantage of existing infrastructure systems, and promotes land use compatibilities through collocation of similar uses. The Project supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct implementation of TEA-21.

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301a]). The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 IEPR was adopted January 31, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as including the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast (18). The 2020 IEPR Update is currently in progress but is not anticipated to be adopted until February 2021.

Electricity would be provided to the Project by SCE and natural gas is provided by SoCalGas. SCE's Clean Power and Electrification Pathway (CPEP) white paper and SoCalGas 2018 Corporate Sustainability Report builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the 2019 IEPR.

3.2.2 STATE OF CALIFORNIA ENERGY PLAN

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies several strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled (VMT) and accommodate pedestrian and bicycle access.

The Project sites are located along major transportation corridors with proximate access to the Interstate freeway system. The sites selected for the Project facilitates access, acts to reduce VMT by developing industrial uses on a commercial/industrial business park-designated site. The Project therefore is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

3.2.3 CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the CEC and will become effective on January 1, 2020. The 2019 Title 24 standards go into effect on January 1, 2020 and are applicable to building permit applications submitted on or after that date. The 2019 Title 24 standards require solar PV systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar PV systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades compared to the prior code (19).

The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020. It should be noted that the analysis herein assumes compliance with the 2019 Title 24 Standards.

3.2.4 AB 1493 PAVLEY REGULATIONS AND FUEL EFFICIENCY STANDARDS

California AB 1493, enacted on July 22, 2002, required California Air Resources Board (CARB) to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.

3.2.5 CALIFORNIA'S RENEWABLE PORTFOLIO STANDARD (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 33 percent (%) of total retail sales by 2020 (20).

California's Renewable Portfolio Standard is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.

3.2.6 SB 350— CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

This measure is not directly applicable to development projects, but the proposed Project would use energy from Southern California Edison, which has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources.

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

44.1 EVALUATION CRITERIA

In compliance with Appendix G of the *State CEQA Guidelines* (21)*,* this report analyzes the project's anticipated energy use to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

In addition, Appendix F of the *State CEQA Guidelines* (22)*,* states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and

INCREASING RELIANCE ON RENEWABLE ENERGY SOURCES.

4.2 METHODOLOGY

Information from the CalEEMod outputs for the *Hesperia Commerce Center II Air Quality Impact Analysis* (Urban Crossroads, Inc.) (AQIA) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands (23).

4.2.1 CALEEMOD

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the CalEEMod Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources as well as energy usage. (24). Accordingly, the latest version of CalEEMod has been used to determine the proposed Project's anticipated transportation and facility energy demands. Output from the annual construction model runs are provided in Appendices 4.1 and Appendices 4.2 and 4.3 for annual operational emissions.

4.2.2 EMISSION FACTORS MODEL

On August 19, 2019, the EPA approved the 2017 version of the EMissions FACtor model (EMFAC) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (25). This energy study utilizes the different fuel types for each vehicle class from the annual EMFAC2017 emission inventory in order to derive the average vehicle fuel economy which is then used to determine the estimated annual fuel consumption associated

with vehicle usage during Project construction and operational activities. For purposes of analysis, the 2021 analysis year was utilized to determine the average vehicle fuel economy used throughout the duration of the Project.

4.2.3 CONSTRUCTION DURATION

Construction is expected to commence in January 2021 and will last through November 2021. Construction duration by phase is shown on Table 4-1.

TABLE 4-1: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	01/04/2021	01/29/2021	20
Grading	01/30/2021	03/12/2021	30
Building Construction	03/13/2021	11/19/2021	180
Paving	07/03/2021	11/19/2021	100
Architectural Coating	04/24/2021	11/19/2021	150

4.2.4 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The associated construction equipment was generally based on CalEEMod defaults. A detailed summary of construction equipment assumptions by phase is provided at Table 4-2.

TABLE 4-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS (1 OF 2)

Phase Name	Equipment	Number	Hours Per Day
Site Preparation	Rubber Tired Dozers	3	8
	Tractors/Loaders/Backhoes	4	8
Grading	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8

TABLE 4-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS (2 OF 2)

Phase Name	Equipment	Number	Hours Per Day
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

4.3 CONSTRUCTION ENERGY DEMANDS

4.3.1 CONSTRUCTION EQUIPMENT ELECTRICITY USAGE ESTIMATES

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project. Based on the *2017 National Construction Estimator*, Richard Pray (2017) (26), the typical power cost per 1,000 sf of construction per month is estimated to be $2.32. For the Hesperia Commerce Center II development, the Project plans to develop approximately 2,361,648 sf of High-Cube Fulfillment Center use, 1,383,781 sf of General Light Industrial use, 1,631 parking spaces, 593,998 sf of landscaped area, and 3,493,865 sf of other asphalt surfaces[2] over the course of 10 months. Based on Table 4-3, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately $196,868.05.

TABLE 4-3: CONSTRUCTION POWER COST

Land Use	**Power Cost** (per 1,000 SF of construction per month)	**Size** (1,000 SF)	**Construction Duration** (months)	**Project Construction Power Cost**
General Light Industrial	$2.32	1,383.781	10	$32,103.73
High-Cube Fulfillment Center Warehouse	$2.32	2,361.648	10	$54,790.22
Landscape	$2.32	593.998	10	$13,780.76
Parking	$2.32	652.400	10	$15,135.68
Other Asphalt Surfaces	$2.32	3,493.865	10	$81,057.66
PROJECT CONSTRUCTION POWER COST				***$196,868.05***

The SCE's general service rate schedule were used to determine the Project's electrical usage. As of January 1, 2020, SCE's general service rate is $0.08 per kilowatt hours (kWh) of electricity for industrial services (27). Though no physical structure is anticipated, electricity usage related to construction of the Project was based on the calculated construction power cost (identified in Table 4-3) and the SCE cost per kWh. This approach was taken in order to conservatively identify

[2] The total Project area is 8,485,692 sf (194.80 acres). For purposes of analysis, the remaining 3,493,865 sf (Total Area – (Building Area + Parking Area + Landscaped Area) will be modeled as Other Asphalt Surfaces. These surfaces are defined as an asphalt area not used as a parking lot

electricity usage from construction activities. As such, Table 4-4 identifies the total electricity usage from on-site Project construction related activities is estimated to be approximately 2,464,085 kWh.

TABLE 4-4: CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Project Construction Electricity Usage (kWh)
General Light Industrial	$0.08	401,824
High-Cube Fulfillment Center Warehouse	$0.08	685,778
Landscape	$0.08	172,486
Parking	$0.08	189,445
Other Asphalt Surfaces	$0.08	1,014,552
PROJECT CONSTRUCTION ELECTRICTY USAGE (kWh)		***2,464,085***

4.3.2 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-5. Eight-hour daily use of all equipment is assumed. The aggregate fuel consumption rate for all equipment is estimated at 18.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines (28). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is standard practice consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the City of Hesperia and region.

As presented in Table 4-5, Project construction activities would consume an estimated 84,769 gallons of diesel fuel. Project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-5: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Phase Name	Duration (Days)	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption
Site Preparation	20	Rubber Tired Dozers	247	3	8	0.40	2,371	2,563
		Tractors/Loaders/Backhoes	97	4	8	0.37	1,148	1,242
Grading	30	Excavators	158	4	8	0.38	1,921	3,116
		Graders	187	2	8	0.41	1,227	1,989
		Rubber Tired Dozers	247	2	8	0.40	1,581	2,563
		Scrapers	367	4	8	0.48	5,637	9,141
		Tractors/Loaders/Backhoes	97	4	8	0.37	1,148	1,862
Building Construction	180	Cranes	231	2	8	0.29	1,072	10,429
		Forklifts	89	6	8	0.20	854	8,313
		Generator Sets	84	2	8	0.74	995	9,677
		Tractors/Loaders/Backhoes	97	6	8	0.37	1,723	16,762
		Welders	46	2	8	0.45	331	3,222
Paving	100	Pavers	130	2	8	0.42	874	4,722
		Paving Equipment	132	2	8	0.36	760	4,110
		Rollers	80	2	8	0.38	486	2,629
Architectural Coating	150	Air Compressors	78	1	8	0.48	300	2,429
PROJECT CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)								***84,769***

4.3.3 CONSTRUCTION WORKER FUEL ESTIMATES

With respect to estimated VMT for the Project, the construction worker trips would generate an estimated 5,827,374 VMT (23). Based on CalEEMod methodology, it is assumed that 50% of all vendor trips are from light-duty-auto vehicles (LDA), 25% are from light-duty-trucks (LDT1[3]), and 25% are from light-duty-trucks (LDT2[4]). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA, LDT1, and LDT2 were estimated using information generated within the 2017 version of the EMFAC developed by CARB. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (25). EMFAC2017 was run for the LDA, LDT1, and LDT2 vehicle class within the California sub-area for the 2021 calendar year. Data from EMFAC2017 is shown in Appendix 4.4.

As generated by EMFAC2017, an aggregated fuel economy of LDAs ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 31.55 miles per gallon (mpg). Table 4-6 provides an estimated annual fuel consumption resulting from Project-related construction worker trips. Based on Table 4-6, it is estimated that 92,274 gallons of fuel will be consumed related to construction worker trips (LDA) during full construction of the Project.

TABLE 4-6: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDA)

Phase Name	Duration (Days)	Worker Trips / Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	20	9	14.7	2,646	31.55	84
Grading	30	20	14.7	8,820	31.55	280
Building Construction	180	891	14.7	2,357,586	31.55	74,719
Paving	150	8	14.7	17,640	31.55	559
Architectural Coating	100	357	14.7	524,790	31.55	16,632
PROJECT CONSTRUCTION WORKER (LDA) FUEL CONSUMPTION						***92,274***

The EMFAC2017 aggregated fuel economy of LDT1s ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 26.54 mpg. Table 4-7 provides an estimated annual fuel consumption resulting from LDT1s related to the Project construction worker trips. Based on Table 4-7, it is estimated that 54,925 gallons of will be consumed related to construction worker trips (LDT1) during full construction of the Project.

[3] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[4] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT1)

Phase Name	Duration (Days)	Worker Trips / Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	20	5	14.7	1,470	26.54	55
Grading	30	10	14.7	4,410	26.54	166
Building Construction	180	446	14.7	1,180,116	26.54	44,458
Paving	150	4	14.7	8,820	26.54	332
Architectural Coating	100	179	14.7	263,130	26.54	9,913
PROJECT CONSTRUCTION WORKER (LDT1) FUEL CONSUMPTION						***54,925***

The EMFAC2017 aggregated fuel economy of LDT2s ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 24.56 mpg. Table 4-8 provides an estimated annual fuel consumption resulting from LDT2s related to the Project construction worker trips. Based on Table 4-8, it is estimated that 59,368 gallons of will be consumed related to construction worker trips (LDT2) during full construction of the Project.

TABLE 4-8: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES (LDT2)

Phase Name	Duration (Days)	Worker Trips / Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	20	5	14.7	1,470	24.56	60
Grading	30	10	14.7	4,410	24.56	180
Building Construction	180	446	14.7	1,180,116	24.56	48,054
Paving	150	4	14.7	8,820	24.56	359
Architectural Coating	100	179	14.7	263,130	24.56	10,715
PROJECT CONSTRUCTION WORKER (LDT2) FUEL CONSUMPTION						***59,368***

[A] Trip has been rounded up.

It should be noted that construction worker trips would represent a "single-event" gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

4.3.4 CONSTRUCTION VENDOR FUEL ESTIMATES

With respect to estimated VMT, the construction vendor trips would generate an estimated 864,432 VMT along area roadways for the Project (23). It is assumed that 50% of all vendor trips are from medium-heavy duty trucks (MHDT) and 50% are from heavy-heavy duty trucks (HHDT). These assumptions are consistent with the CalEEMod defaults utilized within the within the AQIA (23). Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2017. As all vendor activities occur during 2021, EMFAC2017 was run for the MHDT and HHDT vehicle class within the California sub-area for the 2021 calendar year. Data from EMFAC2017 is shown in Appendix 4.4.

As generated by EMFAC2017, an aggregated fuel economy of MHDTs ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 8.47 mpg. Based on Table 4-9, it is estimated that 51,055 gallons of fuel will be consumed related to construction vendor trips (MHDTs) during full construction of the Project.

TABLE 4-9: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (MHDT)

Phase Name	Duration (Days)	Worker Trips / Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	180	348	6.9	432,216	8.47	51,055
PROJECT VENDOR (MHDT) TOTAL FUEL CONSUMPTION						***51,055***

As generated by EMFAC2017, an aggregated fuel economy of HHDTs ranging from model year 1974 to model year 2021 are estimated to have a fuel efficiency of 6.98 mpg. Based on Table 4-10, it is estimated that 61,917 gallons of fuel will be consumed related to construction vendor trips (HHDTs) during full construction of the Project.

TABLE 4-10: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (HHDT)

Phase Name	Duration (Days)	Worker Trips / Day	Trip Length (miles)	VMT	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	180	348	6.9	432,216	6.98	61,917
PROJECT VENDOR (HHDT) TOTAL FUEL CONSUMPTION						***61,917***

It should be noted that Project construction vendor trips would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

4.3.5 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

The equipment used for Project construction would conform to CARB regulations and California emissions standards. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The Project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions

and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, certain incidental construction-source energy efficiencies would likely accrue through implementation of California regulations and best available control measures (BACM). More specifically, CCR Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. To this end, "grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Indirectly, construction energy efficiencies and energy conservation would be achieved for the proposed development through energy efficiencies realized from bulk purchase, transport and use of construction materials.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, the construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.4 OPERATIONAL ENERGY DEMANDS

Energy consumption in support of or related to Project operations would include transportation energy demands (energy consumed by resident, employee, and patron vehicles accessing the Project sites) and facilities energy demands (energy consumed by building operations and site maintenance activities).

4.4.1 TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project sites.

LIGHT-DUTY AUTOS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 19,474,148 annual VMT along area roadways for all LDAs with full build-out of the Project (23). Table 4-11 provides an

estimated range of annual fuel consumption resulting from Project generated LDAs. Based on Table 4-11, it is estimated that 617,195 gallons of fuel will be consumed from Project generated LDA trips.

TABLE 4-11: PROJECT-GENERATED LDA VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
19,474,148	31.55	617,195

LIGHT-DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 1,314,803 annual VMT along area roadways for all Light-Duty Trucks (LDT1)[5] vehicles with full build-out of the Project (23). Table 4-12 provides an estimated range of annual fuel consumption resulting from Project generated LDT1s. Based on Table 4-12, it is estimated that 49,532 gallons of fuel will be consumed from Project generated LDT1 trips.

TABLE 4-12 PROJECT-GENERATED LDT1 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
1,314,803	26.54	49,532

Additionally, the Project would generate an estimated 6,360,635 annual VMT along area roadways for all LDT2[6] vehicles with full build-out of the Project (23). Table 4-13 provides an estimated range of annual fuel consumption resulting from Project generated LDT2s. Based on Table 4-13, it is estimated that 259,005 gallons of fuel will be consumed from Project generated LDT2 trips.

TABLE 4-13: PROJECT-GENERATED LDT2 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
6,360,635	24.56	259,005

MEDIUM-DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 4,229,963 annual VMT along area roadways for all Medium-Duty Trucks (MDV) vehicles with full build-out of the Project (23). Table 4-14 provides an estimated range of annual fuel consumption resulting from Project

[5] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

[6] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

generated MDVs. Based on Table 4-14, it is estimated that 213,909 gallons of fuel will be consumed from Project generated MDV trips.

TABLE 4-14: PROJECT-GENERATED MDV VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
4,229,963	19.77	213,909

LIGHT-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 8,725,411 annual VMT along area roadways for all Light-Heavy-Duty Trucks (LHDT1)[7] vehicles with full build-out of the Project (23). Table 4-15 provides an estimated range of annual fuel consumption resulting from Project generated LHDT1s. Based on Table 4-15, it is estimated that 628,826 gallons of fuel will be consumed from Project generated LHDT1 trips.

TABLE 4-15: PROJECT-GENERATED LHDT1 TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
8,725,411	13.88	628,826

MEDIUM-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 4,969,122 annual VMT along area roadways for all MHDTs with full build-out of the Project (23). Table 4-16 provides an estimated range of annual fuel consumption resulting from Project generated MHDTs. Based on Table 4-16, it is estimated that 586,976 gallons of fuel will be consumed from Project generated MHDT trips.

TABLE 4-16: PROJECT-GENERATED MHDT TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
4,969,122	8.47	586,976

HEAVY-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 18,966,447 annual VMT along area roadways for all HHDTs with full build-out of the Project (23). Table 4-17 provides an estimated range of annual fuel consumption resulting from Project generated HHDTs. Based on

[7] Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

Table 4-17, it is estimated that 2,717,019 gallons of fuel will be consumed from Project generated HHDT trips.

TABLE 4-17: PROJECT-GENERATED HHDT TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
18,966,447	6.98	2,717,019

As summarized on Table 4-18 the Project will result in 64,040,529 annual VMT and an estimated annual fuel consumption of 5,072,463 gallons of fuel.

TABLE 4-18: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	19,474,148	617,195
LDT1	1,314,803	49,532
LDT2	6,360,635	259,005
MDV	4,229,963	213,909
LHDT	8,725,411	628,826
MHDT	4,969,122	586,976
HHDT	18,966,447	2,717,019
TOTAL (ALL VEHICLES)	***64,040,529***	***5,072,463***

4.4.2 FACILITY ENERGY DEMANDS

Project building operations and Project site maintenance activities would result in the consumption of natural gas and electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied to the Project by SCE. Annual natural gas and electricity demands of the Project are summarized in Tables 4-19 and 4-20.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting (29). Non-building energy use, or “plug-in” energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

TABLE 4-19: PROJECT ANNUAL OPERATIONAL NATURAL GAS DEMAND SUMMARY

Natural Gas Demand	kWh/year
General Light Industrial	44,959,000
High-Cube Fulfillment Center Warehouse	0
Landscape	0
Parking	0
Other Asphalt Surfaces	4,794,150
TOTAL PROJECT NATURAL GAS DEMAND	***49,753,150***

kBTU – kilo-British Thermal Units

TABLE 4-20: PROJECT ANNUAL OPERATIONAL ELECTRICITY DEMAND SUMMARY

Electricity Demand	kWh/year
General Light Industrial	14,045,400
High-Cube Fulfillment Center Warehouse	0
Landscape	0
Parking	228,340
Other Asphalt Surfaces	5,573,490
TOTAL PROJECT ELECTRICITY DEMAND	***19,847,230***

kBTU – kilo-British Thermal Units

4.4.3 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title24, California Green Building Standards Code).

It should also be noted that the Project would not result in a substantial increase in demand or transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure because it would be served by the existing electric utility lines in the Project vicinity.

ENHANCED VEHICLE FUEL EFFICIENCIES

Project annual fuel consumption estimates presented previously in Tables 4-18 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project sites can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the Project is assumed to be around $196,868.05. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project build-, is calculated to be around 2,464,085 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 84,769 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. BACMs inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the Project would result in the estimated fuel consumption of 206,566 gallons of fuel. Additionally, fuel consumption from construction vendor trips (MHDTs and HHDTs) will total approximately 112,972 gallons of fuel. Diesel fuel would be supplied by City and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved through the use of bulk purchases, transport and use of construction materials. The 2019 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (18). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Annual vehicular trips and related VMT generated by the operational of the Project would result in an estimated 617,195 gallons of fuel consumption per year for LDAs, 49,532 gallons of fuel of LDT1s, 259,005 gallons of fuel for LDT2s, 213,909 gallons for fuel for MDVs, 628,826 gallons of fuel for LHDT1s, 586,976 gallons of fuel for MHDTs, and 2,717,019 gallons for fuel for HHDTs. The total estimated annual fuel consumption from Project generated VMT would result in a fuel demand 5,072,463 gallons of fuel.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other industrial uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip

Generation Manual (10th Ed., 2017); and CalEEMod. That is, the Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. In compliance with the California Green Building Standards Code, the Project would promote the use of bicycles as an alternative mean of transportation by providing short-term and/or long-term bicycle parking accommodations. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

FACILITY ENERGY DEMANDS

Project facility operational energy demands are estimated at: 49,753,150 kBTU/year of natural gas; and 19,847,230 kWh/year of electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional industrial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. Uses proposed by the Project are not inherently energy intensive, and the Project energy demands in total would be comparable to, or less than, other projects of similar scale and configuration.

Additionally, the Project will be required to comply with the applicable Title 24 standards which will further ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

5 CONCLUSIONS

5.1 ENERGY IMPACT 1

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

As supported by the preceding analyses, Project construction and operations would not result in the inefficient, wasteful or unnecessary consumption of energy. Further, the energy demands of the Project can be accommodated within the context of available resources and energy delivery systems. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

5.2 ENERGY IMPACT 2

Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The proposed Project is subject to California Building Code requirements. New buildings must achieve compliance with 2019 Building and Energy Efficiency Standards and the 2019 California Green Building Standards requirements.

The Project would provide for, and promote, energy efficiencies equal to or beyond those required under other applicable federal and State of California standards and regulations, and in so doing would meet or exceed all California Building Standards Code Title 24 standards. Moreover, energy consumed by the Project's operation is calculated to be comparable to, or less than, energy consumed by other industrial uses of similar scale and intensity that are constructed and operating in California. On this basis, the Project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Further, the Project would not cause or result in the need for additional energy producing facilities or energy delivery systems.

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7 CERTIFICATIONS

The contents of this energy report represent an accurate depiction of the environmental impacts associated with the proposed Hesperia Commerce Center II. The information contained in this energy report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June, 2013
Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – CARB • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 4.1:

CALEEMOD ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Annual

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
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tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	10.00
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tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

tblConstructionPhase	NumDays	120.00	20.00
tblConstructionPhase	NumDays	310.00	30.00
tblConstructionPhase	NumDays	220.00	150.00
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	NumDays	220.00	100.00
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tblVehicleEF	LDA	6.1500e-004	5.5000e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1450e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9150e-003
tblVehicleEF	LDA	6.1100e-004	5.4200e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5900e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.09	0.20

tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5510e-003
tblVehicleEF	LDA	6.1500e-004	5.4900e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3480e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003

tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003

tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003

tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26

tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7000e-003
tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7300e-004	6.6000e-005
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7100e-004	6.5000e-005
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
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tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
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tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
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tblVehicleEF	MH	3.12	0.00
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tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
tblVehicleEF	MHD	0.02	5.4630e-003
tblVehicleEF	MHD	4.1450e-003	6.2250e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
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tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003

tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
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tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4900e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
tblVehicleEF	MHD	5.61	1.72
tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78

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tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8700e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09

tblVehicleEF	MHD	0.02	5.8910e-003
tblVehicleEF	MHD	4.1530e-003	6.2420e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
tblVehicleEF	MHD	142.41	68.88
tblVehicleEF	MHD	1,105.72	1,107.76
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tblVehicleEF	MHD	0.60	0.56
tblVehicleEF	MHD	1.06	1.85
tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1320e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
tblVehicleEF	OBUS	0.01	9.8280e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
tblVehicleEF	OBUS	6.67	3.30
tblVehicleEF	OBUS	70.21	51.97
tblVehicleEF	OBUS	1,126.32	1,610.98
tblVehicleEF	OBUS	71.08	24.56
tblVehicleEF	OBUS	0.32	0.26
tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4300e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8610e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
tblVehicleEF	OBUS	71.08	24.00
tblVehicleEF	OBUS	0.33	0.26
tblVehicleEF	OBUS	1.02	1.08

tblVehicleEF	OBUS	1.92	0.45
tblVehicleEF	OBUS	9.5000e-005	8.7200e-004
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.39	0.15
tblVehicleEF	OBUS	7.1200e-004	5.0100e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.1800e-004	2.3700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.42	0.16
tblVehicleEF	OBUS	0.01	9.8320e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	0.28	0.44
tblVehicleEF	OBUS	0.73	1.53
tblVehicleEF	OBUS	6.62	3.24
tblVehicleEF	OBUS	65.88	51.61
tblVehicleEF	OBUS	1,126.32	1,611.00
tblVehicleEF	OBUS	71.08	24.45
tblVehicleEF	OBUS	0.31	0.26
tblVehicleEF	OBUS	1.08	1.17
tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2520e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.3100e-004	1.1980e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9500e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4200e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03

tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4370e-003
tblVehicleEF	SBUS	0.07	1.1460e-003
tblVehicleEF	SBUS	5.64	1.00
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.49	0.17
tblVehicleEF	SBUS	1,270.71	324.55
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9580e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.7870e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004

tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.28	6.0120e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	1.0000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.31	6.5820e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4520e-003
tblVehicleEF	SBUS	0.06	8.8900e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98

tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003

tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	4.0934	12.7435	12.4162	0.0422	3.0449	0.3305	3.3755	0.8375	0.3087	1.1462	0.0000	3,876.4256	3,876.4256	0.3579	0.0000	3,885.3727
Maximum	**4.0934**	**12.7435**	**12.4162**	**0.0422**	**3.0449**	**0.3305**	**3.3755**	**0.8375**	**0.3087**	**1.1462**	**0.0000**	**3,876.4256**	**3,876.4256**	**0.3579**	**0.0000**	**3,885.3727**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	4.0934	12.7435	12.4162	0.0422	3.0449	0.3305	3.3755	0.8375	0.3087	1.1462	0.0000	3,876.4247	3,876.4247	0.3579	0.0000	3,885.3718
Maximum	**4.0934**	**12.7435**	**12.4162**	**0.0422**	**3.0449**	**0.3305**	**3.3755**	**0.8375**	**0.3087**	**1.1462**	**0.0000**	**3,876.4247**	**3,876.4247**	**0.3579**	**0.0000**	**3,885.3718**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-4-2021	4-3-2021	2.9001	2.9001
2	4-4-2021	7-3-2021	4.9988	4.9988
3	7-4-2021	9-30-2021	5.6878	5.6878
		Highest	5.6878	5.6878

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**19.4472**	**8.0000e-004**	**0.0873**	**1.0000e-005**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**19.4472**	**8.0000e-004**	**0.0873**	**1.0000e-005**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3928	0.0000	0.3928	0.1222	0.0000	0.1222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.3928**	**0.0204**	**0.4132**	**0.1222**	**0.0188**	**0.1410**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.8000e-004	4.9500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.2127	1.2127	3.0000e-005	0.0000	1.2136
Total	**6.6000e-004**	**4.8000e-004**	**4.9500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2127**	**1.2127**	**3.0000e-005**	**0.0000**	**1.2136**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3928	0.0000	0.3928	0.1222	0.0000	0.1222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.3928**	**0.0204**	**0.4132**	**0.1222**	**0.0188**	**0.1410**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.8000e-004	4.9500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.2127	1.2127	3.0000e-005	0.0000	1.2136
Total	**6.6000e-004**	**4.8000e-004**	**4.9500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2127**	**1.2127**	**3.0000e-005**	**0.0000**	**1.2136**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4988	0.0000	0.4988	0.1337	0.0000	0.1337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4849	163.4849	0.0529	0.0000	164.8068
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.4988**	**0.0596**	**0.5584**	**0.1337**	**0.0548**	**0.1885**	**0.0000**	**163.4849**	**163.4849**	**0.0529**	**0.0000**	**164.8068**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.5900e-003	0.0165	4.0000e-005	4.8300e-003	3.0000e-005	4.8700e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.0424	4.0424	1.2000e-004	0.0000	4.0453
Total	**2.2000e-003**	**1.5900e-003**	**0.0165**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8700e-003**	**1.2800e-003**	**3.0000e-005**	**1.3100e-003**	**0.0000**	**4.0424**	**4.0424**	**1.2000e-004**	**0.0000**	**4.0453**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4988	0.0000	0.4988	0.1337	0.0000	0.1337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4848	163.4848	0.0529	0.0000	164.8066
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.4988**	**0.0596**	**0.5584**	**0.1337**	**0.0548**	**0.1885**	**0.0000**	**163.4848**	**163.4848**	**0.0529**	**0.0000**	**164.8066**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.5900e-003	0.0165	4.0000e-005	4.8300e-003	3.0000e-005	4.8700e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.0424	4.0424	1.2000e-004	0.0000	4.0453
Total	**2.2000e-003**	**1.5900e-003**	**0.0165**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8700e-003**	**1.2800e-003**	**3.0000e-005**	**1.3100e-003**	**0.0000**	**4.0424**	**4.0424**	**1.2000e-004**	**0.0000**	**4.0453**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3641	3.3749	3.1807	5.1900e-003		0.1845	0.1845		0.1733	0.1733	0.0000	446.7775	446.7775	0.1102	0.0000	449.5335
Total	**0.3641**	**3.3749**	**3.1807**	**5.1900e-003**		**0.1845**	**0.1845**		**0.1733**	**0.1733**	**0.0000**	**446.7775**	**446.7775**	**0.1102**	**0.0000**	**449.5335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1701	6.2030	1.2646	0.0173	0.4177	0.0110	0.4288	0.1206	0.0105	0.1311	0.0000	1,655.9633	1,655.9633	0.1082	0.0000	1,658.6681
Worker	0.5884	0.4245	4.4071	0.0120	1.2924	8.7000e-003	1.3011	0.3433	8.0100e-003	0.3513	0.0000	1,080.5288	1,080.5288	0.0310	0.0000	1,081.3039
Total	**0.7584**	**6.6275**	**5.6716**	**0.0293**	**1.7101**	**0.0197**	**1.7298**	**0.4639**	**0.0186**	**0.4824**	**0.0000**	**2,736.4921**	**2,736.4921**	**0.1392**	**0.0000**	**2,739.9719**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3641	3.3749	3.1807	5.1900e-003		0.1845	0.1845		0.1733	0.1733	0.0000	446.7770	446.7770	0.1102	0.0000	449.5329
Total	**0.3641**	**3.3749**	**3.1807**	**5.1900e-003**		**0.1845**	**0.1845**		**0.1733**	**0.1733**	**0.0000**	**446.7770**	**446.7770**	**0.1102**	**0.0000**	**449.5329**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1701	6.2030	1.2646	0.0173	0.4177	0.0110	0.4288	0.1206	0.0105	0.1311	0.0000	1,655.9633	1,655.9633	0.1082	0.0000	1,658.6681
Worker	0.5884	0.4245	4.4071	0.0120	1.2924	8.7000e-003	1.3011	0.3433	8.0100e-003	0.3513	0.0000	1,080.5288	1,080.5288	0.0310	0.0000	1,081.3039
Total	**0.7584**	**6.6275**	**5.6716**	**0.0293**	**1.7101**	**0.0197**	**1.7298**	**0.4639**	**0.0186**	**0.4824**	**0.0000**	**2,736.4921**	**2,736.4921**	**0.1392**	**0.0000**	**2,739.9719**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3951					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.1527	0.1818	3.0000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5763
Total	**2.4170**	**0.1527**	**0.1818**	**3.0000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5763**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1962	0.1415	1.4694	3.9900e-003	0.4309	2.9000e-003	0.4338	0.1145	2.6700e-003	0.1171	0.0000	360.2773	360.2773	0.0103	0.0000	360.5358
Total	**0.1962**	**0.1415**	**1.4694**	**3.9900e-003**	**0.4309**	**2.9000e-003**	**0.4338**	**0.1145**	**2.6700e-003**	**0.1171**	**0.0000**	**360.2773**	**360.2773**	**0.0103**	**0.0000**	**360.5358**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3951					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.1527	0.1818	3.0000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5763
Total	**2.4170**	**0.1527**	**0.1818**	**3.0000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5763**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1962	0.1415	1.4694	3.9900e-003	0.4309	2.9000e-003	0.4338	0.1145	2.6700e-003	0.1171	0.0000	360.2773	360.2773	0.0103	0.0000	360.5358
Total	**0.1962**	**0.1415**	**1.4694**	**3.9900e-003**	**0.4309**	**2.9000e-003**	**0.4338**	**0.1145**	**2.6700e-003**	**0.1171**	**0.0000**	**360.2773**	**360.2773**	**0.0103**	**0.0000**	**360.5358**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0628	0.6460	0.7327	1.1400e-003		0.0339	0.0339		0.0312	0.0312	0.0000	100.1174	100.1174	0.0324	0.0000	100.9269
Paving	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1875**	**0.6460**	**0.7327**	**1.1400e-003**		**0.0339**	**0.0339**		**0.0312**	**0.0312**	**0.0000**	**100.1174**	**100.1174**	**0.0324**	**0.0000**	**100.9269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7500e-003	1.9900e-003	0.0206	6.0000e-005	6.0400e-003	4.0000e-005	6.0800e-003	1.6100e-003	4.0000e-005	1.6400e-003	0.0000	5.0530	5.0530	1.4000e-004	0.0000	5.0566
Total	**2.7500e-003**	**1.9900e-003**	**0.0206**	**6.0000e-005**	**6.0400e-003**	**4.0000e-005**	**6.0800e-003**	**1.6100e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**5.0530**	**5.0530**	**1.4000e-004**	**0.0000**	**5.0566**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0628	0.6460	0.7327	1.1400e-003		0.0339	0.0339		0.0312	0.0312	0.0000	100.1173	100.1173	0.0324	0.0000	100.9268
Paving	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1875**	**0.6460**	**0.7327**	**1.1400e-003**		**0.0339**	**0.0339**		**0.0312**	**0.0312**	**0.0000**	**100.1173**	**100.1173**	**0.0324**	**0.0000**	**100.9268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7500e-003	1.9900e-003	0.0206	6.0000e-005	6.0400e-003	4.0000e-005	6.0800e-003	1.6100e-003	4.0000e-005	1.6400e-003	0.0000	5.0530	5.0530	1.4000e-004	0.0000	5.0566
Total	**2.7500e-003**	**1.9900e-003**	**0.0206**	**6.0000e-005**	**6.0400e-003**	**4.0000e-005**	**6.0800e-003**	**1.6100e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**5.0530**	**5.0530**	**1.4000e-004**	**0.0000**	**5.0566**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 4.2:

CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS (PASSENGER CARS)

Hesperia Commerce Center II (Operations - Passenger Cars)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20

tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

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tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7002e-003
tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
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tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
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tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
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tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
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tblVehicleEF	LHD1	0.01	7.8854e-003
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tblVehicleEF	LHD1	0.15	0.17
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tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
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tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
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tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
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tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
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tblVehicleEF	LHD1	0.01	7.6945e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
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tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
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tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
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tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
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tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

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tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
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tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
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tblVehicleEF	LHD2	1.21	0.51
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tblVehicleEF	LHD2	1.59	2.07
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tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
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tblVehicleEF	LHD2	0.01	0.02
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tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	0.02	0.02
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tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
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tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17

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tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
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tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
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tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

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tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
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tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

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tblVehicleEF	MH	6.31	0.00
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tblVehicleEF	MH	0.01	0.02
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tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
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tblVehicleEF	MH	3.12	0.00
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tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
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tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
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tblVehicleEF	MHD	0.02	0.20
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tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1738e-003
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tblVehicleEF	MHD	3.6900e-004	1.4820e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

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tblVehicleEF	MHD	0.05	0.09
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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.28	6.0115e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.5621e-006
tblVehicleEF	SBUS	3.0740e-003	5.7898e-005
tblVehicleEF	SBUS	0.02	2.1608e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.1958e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7428e-003
tblVehicleEF	SBUS	0.31	6.5819e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4522e-003
tblVehicleEF	SBUS	0.06	8.8875e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3452e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
tblVehicleEF	SBUS	0.32	0.32

tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.56
tblVehicleTrips	ST_TR	1.68	1.75

tblVehicleTrips	SU_TR	0.68	3.93
tblVehicleTrips	SU_TR	1.68	1.75
tblVehicleTrips	WD_TR	6.97	3.90
tblVehicleTrips	WD_TR	1.68	1.75
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	7,291.3285	7,291.3285	0.3120	0.1027	7,329.7294
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	648.7898	716.4594	6.9869	0.1717	942.2885
Total	**24.3373**	**10.4030**	**43.8836**	**0.1298**	**11.6924**	**0.3877**	**12.0801**	**3.1040**	**0.3717**	**3.4757**	**866.6096**	**18,491.9227**	**19,358.5322**	**55.1153**	**0.2744**	**20,818.1746**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	6,600.8578	6,600.8578	0.2885	0.0919	6,635.4473
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	199.7350	0.0000	199.7350	11.8040	0.0000	494.8350
Water						0.0000	0.0000		0.0000	0.0000	54.1357	519.0318	573.1675	5.5895	0.1373	753.8308
Total	**24.2953**	**10.0209**	**43.5627**	**0.1275**	**11.6924**	**0.3587**	**12.0511**	**3.1040**	**0.3426**	**3.4466**	**253.8707**	**17,671.6940**	**17,925.5646**	**18.2825**	**0.2292**	**18,450.9300**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.17**	**3.67**	**0.73**	**1.76**	**0.00**	**7.49**	**0.24**	**0.00**	**7.81**	**0.84**	**70.71**	**4.44**	**7.40**	**66.83**	**16.46**	**11.37**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Unmitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,361.7263	4,361.7263	0.2456	0.0508	4,383.0099
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,636.3088	4,636.3088	0.2611	0.0540	4,658.9322
NaturalGas Mitigated	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	2,239.1314	2,239.1314	0.0429	0.0411	2,252.4375
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	3.85826e+007	0.2080	1.8913	1.5887	0.0114		0.1437	0.1437		0.1437	0.1437	0.0000	2,058.9135	2,058.9135	0.0395	0.0378	2,071.1486
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.37716e+006	0.0182	0.1656	0.1391	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.2179	180.2179	3.4500e-003	3.3000e-003	181.2889
Total		**0.2263**	**2.0569**	**1.7278**	**0.0123**		**0.1563**	**0.1563**		**0.1563**	**0.1563**	**0.0000**	**2,239.1314**	**2,239.1314**	**0.0429**	**0.0411**	**2,252.4375**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	3,281.0011	0.1848	0.0382	3,297.0111
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.57349e+006	1,301.9675	0.0733	0.0152	1,308.3206
Total		**4,636.3088**	**0.2611**	**0.0540**	**4,658.9322**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.31321e+007	3,067.6552	0.1727	0.0357	3,082.6242
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.31135e+006	1,240.7309	0.0699	0.0145	1,246.7852
Total		**4,361.7263**	**0.2456**	**0.0508**	**4,383.0099**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	573.1675	5.5895	0.1373	753.8308
Unmitigated	716.4594	6.9869	0.1717	942.2885

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	716.4594	6.9869	0.1717	942.2885
Total		**716.4594**	**6.9869**	**0.1717**	**942.2885**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	170.638 / 0	573.1675	5.5895	0.1373	753.8308
Total		**573.1675**	**5.5895**	**0.1373**	**753.8308**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	199.7350	11.8040	0.0000	494.8350
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	428.973	87.0775	5.1461	0.0000	215.7309
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	554.987	112.6575	6.6579	0.0000	279.1041
Total		**199.7350**	**11.8040**	**0.0000**	**494.8350**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 4.3:

CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS (TRUCKS)

Hesperia Commerce Center II (Operations - Trucks)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00

tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
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tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
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tblVehicleEF	LDT1	3.95	2.51
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tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
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tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
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tblVehicleEF	LHD1	3.5800e-004	1.0204e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
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tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
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tblVehicleEF	LHD1	0.01	7.6945e-003
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tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
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tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
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tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
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tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

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tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8953e-003
tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
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tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
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tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8873e-003
tblVehicleEF	LHD2	5.2490e-003	4.5947e-003
tblVehicleEF	LHD2	9.0820e-003	8.7354e-003
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tblVehicleEF	LHD2	1.27	0.54
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tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
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tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1158e-003
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
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tblVehicleEF	MCY	21.02	22.01
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tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

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tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
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tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
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tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
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tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	4.1450e-003	6.2249e-003
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tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
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tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7551e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004

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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7339e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4901e-004
tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1738e-003
tblVehicleEF	MHD	4.2290e-003	6.3499e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
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tblVehicleEF	MHD	1,105.72	1,107.78
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.5300e-004	1.4178e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4652e-004
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tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.05	0.10

tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
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tblVehicleEF	MHD	4.1530e-003	6.2416e-003
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tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
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tblVehicleEF	MHD	5.3200e-004	2.1323e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

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tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4813e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
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tblVehicleEF	OBUS	1.1300e-004	1.0316e-003

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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
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tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
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tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00

tblVehicleTrips	ST_TR	1.32	0.43
tblVehicleTrips	ST_TR	1.68	0.38
tblVehicleTrips	SU_TR	0.68	1.07
tblVehicleTrips	SU_TR	1.68	0.38
tblVehicleTrips	WD_TR	6.97	1.06
tblVehicleTrips	WD_TR	1.68	0.38
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	7,291.3285	7,291.3285	0.3120	0.1027	7,329.7294
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	648.7898	716.4594	6.9869	0.1717	942.2885
Total	**23.0531**	**97.4686**	**30.3474**	**0.4114**	**14.2101**	**1.8885**	**16.0985**	**3.9934**	**1.8093**	**5.8026**	**866.6096**	**45,717.5238**	**46,584.1333**	**54.9356**	**0.2744**	**48,039.2819**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	6,600.8578	6,600.8578	0.2885	0.0919	6,635.4473
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	199.7350	0.0000	199.7350	11.8040	0.0000	494.8350
Water						0.0000	0.0000		0.0000	0.0000	54.1357	519.0318	573.1675	5.5895	0.1373	753.8308
Total	**23.0110**	**97.0866**	**30.0264**	**0.4091**	**14.2101**	**1.8594**	**16.0695**	**3.9934**	**1.7802**	**5.7736**	**253.8707**	**44,897.2951**	**45,151.1657**	**18.1028**	**0.2292**	**45,672.0373**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.18**	**0.39**	**1.06**	**0.56**	**0.00**	**1.54**	**0.18**	**0.00**	**1.61**	**0.50**	**70.71**	**1.79**	**3.08**	**67.05**	**16.46**	**4.93**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Unmitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.373600	0.000000	0.182100	0.444300	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.107100	0.000000	0.107100	0.785800	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,361.7263	4,361.7263	0.2456	0.0508	4,383.0099
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,636.3088	4,636.3088	0.2611	0.0540	4,658.9322
NaturalGas Mitigated	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	2,239.1314	2,239.1314	0.0429	0.0411	2,252.4375
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	3.85826e+007	0.2080	1.8913	1.5887	0.0114		0.1437	0.1437		0.1437	0.1437	0.0000	2,058.9135	2,058.9135	0.0395	0.0378	2,071.1486
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.37716e+006	0.0182	0.1656	0.1391	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.2179	180.2179	3.4500e-003	3.3000e-003	181.2889
Total		**0.2263**	**2.0569**	**1.7278**	**0.0123**		**0.1563**	**0.1563**		**0.1563**	**0.1563**	**0.0000**	**2,239.1314**	**2,239.1314**	**0.0429**	**0.0411**	**2,252.4375**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	3,281.0011	0.1848	0.0382	3,297.0111
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.57349e+006	1,301.9675	0.0733	0.0152	1,308.3206
Total		**4,636.3088**	**0.2611**	**0.0540**	**4,658.9322**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.31321e+007	3,067.6552	0.1727	0.0357	3,082.6242
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.31135e+006	1,240.7309	0.0699	0.0145	1,246.7852
Total		**4,361.7263**	**0.2456**	**0.0508**	**4,383.0099**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	573.1675	5.5895	0.1373	753.8308
Unmitigated	716.4594	6.9869	0.1717	942.2885

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	716.4594	6.9869	0.1717	942.2885
Total		**716.4594**	**6.9869**	**0.1717**	**942.2885**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	170.638 / 0	573.1675	5.5895	0.1373	753.8308
Total		**573.1675**	**5.5895**	**0.1373**	**753.8308**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	199.7350	11.8040	0.0000	494.8350
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	428.973	87.0775	5.1461	0.0000	215.7309
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	554.987	112.6575	6.6579	0.0000	279.1041
Total		**199.7350**	**11.8040**	**0.0000**	**494.8350**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/ Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 4.4:

EMFAC 2014 MODEL OUTPUTS

EMFAC2017 Derived CalEEMod Annual Emission Rates: Year 2021[1,2]

Season	Pollutant	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
Annual	CH4_IDLEX	0	0	0	0	0.0047002	0.002884393	0.005462799	0.033944412	0.0098281	0	0	0.0148569	0
Annual	CH4_RUNEX	0.0026749	0.0073485	0.0046236	0.0067807	0.0076648	0.00458596	0.006224944	0.00277306	0.013413	3.5090854	0.3255683	0.0044371	0.0040644
Annual	CH4_STREX	0.0578648	0.0956738	0.0841905	0.1027589	0.0167827	0.008863023	0.016065028	1.18311E-07	0.0304842	0.0390267	0.2651581	0.0011456	0
Annual	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.441332374	9.629008375	0.4258242	0	0	0.9993574	0
Annual	CO_RUNEX	0.6683081	1.4995434	1.0191772	1.3735844	1.1461745	0.691622288	0.667847037	0.277099563	1.5190457	26.99105	22.013324	0.2793525	0.3770585
Annual	CO_STREX	2.2969213	2.6225455	2.9966249	3.6754582	1.0718362	0.554496556	1.871427004	0.000833471	3.30223	2.8692608	8.9844073	0.1653752	0
Annual	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	70.78529758	1752.039462	51.970891	0	0	324.54587	0
Annual	CO2_NBIO_RUNEX	266.85269	316.00046	341.92445	425.57046	651.42903	635.5045078	1107.75197	1319.403427	1610.984	1847.2145	210.64393	1170.3186	936.21688
Annual	CO2_NBIO_STREX	55.748836	67.906481	73.807937	90.686337	10.459744	6.645552615	15.05777141	0.011729666	24.557554	32.354784	62.809923	0.9662743	0
Annual	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.566606408	8.890806324	0.2583853	0	0	3.5179937	0
Annual	NOX_RUNEX	0.046995	0.1511193	0.1113042	0.1567988	2.0544623	2.201925109	1.886552977	2.622989174	1.2049041	0.3881814	1.1909885	5.1565592	5.0527138
Annual	NOX_STREX[3]	0.2056189	0.3324369	0.3596246	0.4385097	0.3043943	0.173823645	0.977976616	1.950342423	0.4712958	0.2816151	0.2684624	0.976146	0
Annual	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.001755109	0.013662057	0.0010316	0	0	0.0039578	0
Annual	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061625751	0.13034	0.1001032	0.01176	0.7448002	0.13034
Annual	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035931291	0.012	0.0219395	0.004	0.0115259	0.016
Annual	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808762	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Annual	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Annual	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.001679184	0.013071042	0.000987	0	0	0.0037866	0
Annual	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026411036	0.05586	0.0429014	0.00504	0.3192001	0.05586
Annual	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982823	0.003	0.0054849	0.001	0.0028815	0.004
Annual	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567525	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Annual	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Annual	ROG_DIURN	0.0686027	0.2140615	0.1163696	0.1295337	0.0034939	0.00143893	0.00120368	2.36398E-06	0.0030916	0.0022153	1.461458	5.79E-05	0
Annual	ROG_HTSK	0.1140346	0.29062	0.1683612	0.1866671	0.0953605	0.042301854	0.036930097	6.93275E-05	0.0305995	0.0154164	0.8796803	0.0002161	0
Annual	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.026933596	0.730244569	0.0489331	0	0	0.0799162	0
Annual	ROG_RESTL	0.051984	0.1434438	0.0901802	0.1061315	0.0015523	0.000670337	0.000557764	1.2306E-06	0.0011802	0.0008901	0.8162044	2.196E-05	0
Annual	ROG_RUNEX	0.0106151	0.0328535	0.0195157	0.0319818	0.0812705	0.072897571	0.078673463	0.053070192	0.0813611	0.0566542	2.2061452	0.0886078	0.087504
Annual	ROG_RUNLS	0.2287987	0.9834642	0.5470746	0.5638528	0.671418	0.271613447	0.204632415	0.000367536	0.3536574	0.0930351	2.2378205	0.0017428	0
Annual	ROG_STREX	0.2622446	0.4997704	0.4080381	0.5210898	0.0849194	0.043950296	0.083861199	6.08414E-07	0.156008	0.1642388	1.9869902	0.0060115	0
Annual	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000673394	0.016551555	0.0004987	0	0	0.003072	0
Annual	SO2_RUNEX	0.0026339	0.0031199	0.0033752	0.0041982	0.0063337	0.006115786	0.010638055	0.01246288	0.0158273	0.0065545	0.0020845	0.0111005	0.0088506
Annual	SO2_STREX	0.0005504	0.0006704	0.0007287	0.0008954	0.0001035	6.57631E-05	0.000149009	1.16075E-07	0.000243	0.0003202	0.0006216	9.562E-06	0
Annual	TOG_DIURN	0.0686095	0.2140829	0.1163812	0.1295467	0.0034939	0.00143893	0.00120368	2.36398E-06	0.0030916	0.0022153	1.461458	5.79E-05	0
Annual	TOG_HTSK	0.114046	0.290649	0.168378	0.1866858	0.0953605	0.042301854	0.036930097	6.93275E-05	0.0305995	0.0154164	0.8796803	0.0002161	0
Annual	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.03671194	0.831354429	0.0663601	0	0	0.1089966	0
Annual	TOG_RESTL	0.0519892	0.1434582	0.0901892	0.1061422	0.0015523	0.000670337	0.000557764	1.2306E-06	0.0011802	0.0008901	0.8162044	2.196E-05	0
Annual	TOG_RUNEX	0.0154364	0.0478809	0.0284369	0.0445839	0.1005817	0.085208121	0.094760997	0.060752637	0.1113712	3.588771	2.6880152	0.1013931	0.0996175
Annual	TOG_RUNLS	0.2288216	0.9835625	0.5471293	0.5639092	0.671418	0.271613447	0.204632415	0.000367536	0.3536574	0.0930351	2.2378205	0.0017428	0
Annual	TOG_STREX	0.2871802	0.5472901	0.4468374	0.5705648	0.0929761	0.048120042	0.091817457	6.66137E-07	0.1708092	0.1798209	2.1613607	0.0065819	0
Summer	CH4_IDLEX	0	0	0	0	0.0047187	0.002895333	0.005173765	0.03555194	0.0098612	0	0	0.0148762	0
Summer	CH4_RUNEX	0.0031454	0.0085438	0.0054059	0.0078195	0.0078854	0.00464152	0.00634993	0.00277429	0.0138262	3.5091583	0.3176694	0.0044522	0.0040644
Summer	CH4_STREX	0.0479321	0.0785458	0.0695562	0.0848259	0.0158536	0.00837419	0.015164352	1.10826E-07	0.0284746	0.034398	0.2224301	0.0008888	0
Summer	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.35188912	9.44758006	0.4131207	0	0	0.9606434	0
Summer	CO_RUNEX	0.848539	1.8637435	1.280343	1.692519	1.1749269	0.698093127	0.682499887	0.277528535	1.5670807	26.994273	22.206278	0.280191	0.3770585
Summer	CO_STREX	1.8729499	2.1262353	2.4312682	2.9894728	0.9886781	0.512171237	1.723460472	0.000767818	2.9725315	2.2865079	8.0447805	0.1033972	0
Summer	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	72.16075658	1740.606667	52.231838	0	0	332.89886	0
Summer	CO2_NBIO_RUNEX	295.36402	345.58074	371.15686	456.90769	651.47987	635.5158777	1107.777975	1319.404146	1611.0689	1847.2205	210.70519	1170.3202	936.21688
Summer	CO2_NBIO_STREX	54.914408	66.802807	72.656748	89.274077	10.310935	6.569679426	14.80651523	0.011625479	23.999229	31.363762	60.211341	0.863482	0
Summer	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.572538683	8.563880877	0.2580462	0	0	3.5900222	0
Summer	NOX_RUNEX	0.0426474	0.1353447	0.1003464	0.1409154	1.9178599	2.065042641	1.756708404	2.462832844	1.0836509	0.3769315	0.9999713	4.8196409	4.7330264
Summer	NOX_STREX[3]	0.1910134	0.308476	0.3339413	0.4070907	0.2861811	0.163441967	0.96930326	1.9503283	0.4534051	0.2627958	0.2469996	0.9752466	0
Summer	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.001481959	0.013167913	0.0008718	0	0	0.0033452	0
Summer	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061625751	0.13034	0.1001032	0.01176	0.7448002	0.13034
Summer	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035931291	0.012	0.0219395	0.004	0.0115259	0.016
Summer	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808762	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Summer	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Summer	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.00141785	0.012598274	0.0008341	0	0	0.0032005	0
Summer	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026411036	0.05586	0.0429014	0.00504	0.3192001	0.05586
Summer	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982823	0.003	0.0054849	0.001	0.0028815	0.004
Summer	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567525	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Summer	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Summer	ROG_DIURN	0.1557458	0.493328	0.2633941	0.2917439	0.0076478	0.00312269	0.002668816	5.65315E-06	0.0066825	0.0045597	3.5436931	0.0001311	0
Summer	ROG_HTSK	0.1411721	0.388091	0.2116025	0.2267625	0.1227998	0.053995519	0.046967391	8.77623E-05	0.035726	0.0204902	1.4606602	0.0003023	0
Summer	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.025666587	0.764823046	0.0489581	0	0	0.0797945	0
Summer	ROG_RESTL	0.1306789	0.3702802	0.2242604	0.2606185	0.0043187	0.001839844	0.001608566	4.03344E-06	0.0033478	0.002565	2.5274785	7.427E-05	0
Summer	ROG_RUNEX	0.0123358	0.0379384	0.0225903	0.036078	0.0824906	0.073155694	0.079317948	0.053079255	0.0833996	0.0568686	2.1361077	0.0886668	0.087504
Summer	ROG_RUNLS	0.2301911	0.9968321	0.5528288	0.5699317	0.6834737	0.276876048	0.210412452	0.000384076	0.3590939	0.0922682	2.2521319	0.0015133	0
Summer	ROG_STREX	0.214331	0.4059684	0.3327034	0.4250718	0.0798556	0.041333226	0.078880534	5.72279E-07	0.1453639	0.1441845	1.6530152	0.0046553	0
Summer	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000686586	0.016443552	0.0005011	0	0	0.0031509	0
Summer	SO2_RUNEX	0.0029154	0.0034119	0.0036638	0.0045076	0.0063342	0.006115898	0.010638313	0.012462887	0.0158282	0.0065546	0.0020851	0.0111005	0.0088506
Summer	SO2_STREX	0.0005422	0.0006596	0.0007173	0.0008814	0.000102	6.50123E-05	0.000146522	1.15044E-07	0.0002375	0.0003104	0.0005958	8.545E-06	0
Summer	TOG_DIURN	0.1557613	0.4933773	0.2634204	0.291773	0.0076478	0.00312269	0.002668816	5.65315E-06	0.0066825	0.0045597	3.5436931	0.0001311	0
Summer	TOG_HTSK	0.1411862	0.3881298	0.2116236	0.2267852	0.1227998	0.053995519	0.046967391	8.77623E-05	0.035726	0.0204902	1.4606602	0.0003023	0
Summer	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.034906564	0.870720848	0.0663885	0	0	0.1088581	0
Summer	TOG_RESTL	0.1306919	0.3703173	0.2242828	0.2606446	0.0043187	0.001839844	0.001608566	4.03344E-06	0.0033478	0.002565	2.5274785	7.427E-05	0
Summer	TOG_RUNEX	0.0179449	0.0552921	0.0329196	0.0506269	0.1023621	0.085584774	0.095701429	0.060765863	0.1143458	3.5890837	2.6058402	0.1014791	0.0996175
Summer	TOG_RUNLS	0.2302141	0.9969318	0.5528841	0.5699887	0.6834737	0.276876048	0.210412452	0.000384076	0.3590939	0.0922682	2.2521319	0.0015133	0
Summer	TOG_STREX	0.2347108	0.4445693	0.3643394	0.4654297	0.0874318	0.04525468	0.086364256	6.26574E-07	0.1591552	0.1578639	1.79816	0.0050969	0

Winter	CH4_IDLEX	0	0	0	0	0.0047053	0.002887331	0.005890815	0.031700032	0.0098316	0	0	0.014866	0
Winter	CH4_RUNEX	0.0025905	0.007125	0.0044829	0.0065501	0.0076945	0.004594716	0.006241599	0.002480891	0.0134788	3.5090966	0.3196593	0.0044384	0.0040644
Winter	CH4_STREX	0.0566311	0.0934567	0.0823531	0.1004643	0.0165382	0.008735425	0.015787123	1.16312E-07	0.0301582	0.0380602	0.2495332	0.0011307	0
Winter	CO_IDLEX	0	0	0	0	0.1684277	0.126983399	0.566254416	9.87905054	0.4433672	0	0	1.0528195	0
Winter	CO_RUNEX	0.617299	1.3939069	0.944598	1.2689154	1.149984	0.692542589	0.669977396	0.276075954	1.5262654	26.991476	20.783926	0.2794205	0.3770585
Winter	CO_STREX	2.2022723	2.5111953	2.8744225	3.5220018	1.0433986	0.540379625	1.818488598	0.000810268	3.2372798	2.7128399	8.4044802	0.1578565	0
Winter	CO2_NBIO_IDLEX	0	0	0	0	9.5248787	15.17260314	68.87746911	1767.737047	51.610534	0	0	313.01079	0
Winter	CO2_NBIO_RUNEX	258.48166	307.31545	333.34237	416.34827	651.43572	635.5061277	1107.755748	1319.159044	1610.9968	1847.2153	208.5212	1170.3188	936.21688
Winter	CO2_NBIO_STREX	55.576148	67.683144	73.578255	90.39556	10.410133	6.620851303	14.96929322	0.011692854	24.448803	32.092634	61.473182	0.954093	0
Winter	NOX_IDLEX	0	0	0	0	0.0883012	0.131332727	0.558413089	9.341832015	0.2588537	0	0	3.4185259	0
Winter	NOX_RUNEX	0.0436753	0.1408216	0.1035247	0.1460964	2.0188258	2.166145569	1.852985277	2.583567528	1.173618	0.3853519	1.1444349	5.0749656	4.970195
Winter	NOX_STREX[3]	0.2006999	0.3246921	0.3511054	0.4281314	0.2978902	0.170097764	0.97512097	1.950337773	0.4653645	0.2771659	0.2632045	0.97606	0
Winter	PM10_IDLEX	0	0	0	0	0.0010218	0.001515623	0.002132317	0.014344279	0.0012524	0	0	0.0048038	0
Winter	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061621215	0.13034	0.1001032	0.01176	0.7448002	0.13034
Winter	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100668	0.010956414	0.012000003	0.035928646	0.012	0.0219395	0.004	0.0115259	0.016
Winter	PM10_RUNEX	0.0014183	0.0021814	0.0014805	0.0016562	0.0135621	0.016497405	0.062150004	0.051808539	0.0178282	0.0026233	0.0017184	0.0324313	0.1852408
Winter	PM10_STREX	0.0019604	0.0031178	0.0020856	0.0022357	0.00028	0.000118469	0.000195749	4.76187E-07	0.0002473	0.0002346	0.0032085	1.441E-05	0
Winter	PM25_IDLEX	0	0	0	0	0.0009776	0.001450058	0.002040074	0.013723751	0.0011982	0	0	0.004596	0
Winter	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026409092	0.05586	0.0429014	0.00504	0.3192001	0.05586
Winter	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025167	0.002739104	0.003000001	0.008982161	0.003	0.0054849	0.001	0.0028815	0.004
Winter	PM25_RUNEX	0.0013072	0.0020076	0.0013625	0.0015301	0.012951	0.015773414	0.059452771	0.049567312	0.0170332	0.0024902	0.0016112	0.0310217	0.1772273
Winter	PM25_STREX	0.0018026	0.0028671	0.0019178	0.002058	0.0002574	0.000108928	0.000179984	4.37836E-07	0.0002274	0.0002157	0.0030299	1.325E-05	0
Winter	ROG_DIURN	0.0736593	0.2410085	0.1236088	0.1345147	0.0041507	0.001641618	0.001422545	2.73437E-06	0.0034748	0.0024056	1.8435234	7.323E-05	0
Winter	ROG_HTSK	0.125992	0.3389592	0.1883636	0.2045931	0.1153841	0.049653004	0.041823676	8.44099E-05	0.0331301	0.0174081	1.188463	0.0002541	0
Winter	ROG_IDLEX	0	0	0	0	0.0205898	0.015414074	0.028704829	0.68249299	0.0488987	0	0	0.0800842	0
Winter	ROG_RESTL	0.0470322	0.128741	0.081932	0.0969481	0.0014654	0.000621704	0.000518002	1.10931E-06	0.0011271	0.0008208	0.6725868	1.984E-05	0
Winter	ROG_RUNEX	0.0102385	0.031703	0.0188404	0.0306903	0.0814211	0.072934926	0.078766411	0.053066986	0.0816807	0.0566849	2.157056	0.0886133	0.087504
Winter	ROG_RUNLS	0.2587147	1.15611	0.6373986	0.6519435	0.7247069	0.294198042	0.223001825	0.000382932	0.3774331	0.1125847	2.5444428	0.0023232	0
Winter	ROG_STREX	0.2555883	0.4859417	0.3974461	0.5070816	0.0835682	0.043257652	0.082500654	5.98543E-07	0.1542801	0.1600051	1.8612281	0.0059331	0
Winter	SO2_IDLEX	0	0	0	0	9.201E-05	0.000144713	0.000655094	0.016700703	0.0004953	0	0	0.002963	0
Winter	SO2_RUNEX	0.0025512	0.0030341	0.0032904	0.0041071	0.0063337	0.006115802	0.010638093	0.01246288	0.0158275	0.0065546	0.0020635	0.0111005	0.0088506
Winter	SO2_STREX	0.0005487	0.0006682	0.0007264	0.0008925	0.000103	6.55187E-05	0.000148133	1.1571E-07	0.0002419	0.0003176	0.0006083	9.442E-06	0
Winter	TOG_DIURN	0.0736667	0.2410326	0.1236211	0.1345282	0.0041507	0.001641618	0.001422545	2.73437E-06	0.0034748	0.0024056	1.8435234	7.323E-05	0
Winter	TOG_HTSK	0.1260046	0.3389931	0.1883824	0.2046135	0.1153841	0.049653004	0.041823676	8.44099E-05	0.0331301	0.0174081	1.188463	0.0002541	0
Winter	TOG_IDLEX	0	0	0	0	0.0287558	0.02054545	0.039236531	0.776966316	0.066321	0	0	0.1091879	0
Winter	TOG_RESTL	0.0470369	0.1287539	0.0819402	0.0969578	0.0014654	0.000621704	0.000518002	1.10931E-06	0.0011271	0.0008208	0.6725868	1.984E-05	0
Winter	TOG_RUNEX	0.0148879	0.0462068	0.0274535	0.0428005	0.1008015	0.085262629	0.094896626	0.060455735	0.1118376	3.5888158	2.629509	0.1014012	0.0996175
Winter	TOG_RUNLS	0.2587406	1.1562256	0.6374623	0.6520087	0.7247069	0.294198042	0.223001825	0.000382932	0.3774331	0.1125847	2.5444428	0.0023232	0
Winter	TOG_STREX	0.2798911	0.5321468	0.4352384	0.5552304	0.0914967	0.047361684	0.090327832	6.55329E-07	0.1689173	0.1751855	2.0246287	0.0064959	0

1 Source: California Air Resources Board. EMFAC2017 Web Database. https://www.arb.ca.gov/emfac/2017/; California Air Pollution Control Officers Association (CAPCOA). 2017, November. California Emissions Estimator Model User's Guide, Version 2016.3.2, Appendix A.

2 Unless otherwise noted, per CalEEMod methodology, the calculated CalEEMod emission rates are derived from the emission rates obtained using the EMFAC2017 Web Database for the San Bernardino County (MD) region .

3 Because EMFAC2017 provides vehicle trips data for MHDT and HHDT diesel trucks, the formula provided in Appendix A of the CalEEMod User's Guide in calculating the NO_x STREX emission rates are utilized.

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Appendix G

Greenhouse Gas Analysis Report

Hesperia Commerce Center II

GREENHOUSE GAS ANALYSIS

CITY OF HESPERIA

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LIST OF ABBREVIATED TERMS

(1)	Reference
%	Percent
AB	Assembly Bill
AB 32	Global Warming Solutions Act of 2006
AB 1493	Pavley Fuel Efficiency Standards
AB 1881	California Water Conservation in Landscaping Act of 2006
APA	Administrative Procedure Act
AQIA	Air Quality Impact Analysis
BAU	Business As Usual
BSC	Building Standards Commission
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model™
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
CALGAPS	California LBNL GHG Analysis of Policies Spreadsheet
CALGreen	Californina Green Building Standards Code
CalRecycle	California's Department of Resources Recycling and Recovery
CalSTA	California State Transportation Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CH_4	Methane
CNRA	California Natural Resources Agency
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Convention	United Nations Framework Convention on Climate Change
COP	UNCFCC Conference of the Parties
CPUC	California Public Utilities Commission

CTC	California Transportation Commission
DOF	Department of Finance
EPA	Environmental Protection Agency
FED	Functional Equivelent Document
GCC	Global Climate Change
Gg	Gigagram
GHG	Greenhouse Gas
GHGA	Greenhouse Gas Analysis
Gpd/acre	Gallons per Day per Acre
GO-Biz	Governor's Office of Business and Economic Development
GWP	Global Warming Potential
H_2O	Water Vapor
HD	Heavy-Duty
HFC	Hydrofluorocarbons
IBank	California Infrastructure and Economic Development Bank
IPCC	Intergovernmental Panel on Climate Change
IRP	Integrated Resource Planning
LBNL	Lawrence Berkeley National Laboratory
LCA	Life-Cycle Analysis
LCFS	Low Carbon Fuel Standard
MD	Medium-Duty
MDAQMD	Mojave Desert Air Quality Management District
MMT	Million Metric Tons
$MMTCO_2e$	Million Metric Ton of Carbon Dioxide Equivalent
MPG	Miles Per Gallon
MT	Metric Tons
MT/yr	Metric Tons per Year
$MTCO_2e$	Metric Ton of Carbon Dioxide Equivalent
MY	Model Year
N_20	Nitrogen Dioxide
NDC	Nationally Determined Contributions
NHTSA	National Highway Traffic Safety Administration
NO_X	Oxides of Nitrogen
NF_3	Nitrogen Trifluoride
OAL	Office of Administrative Law
Ordinance	Model Water Efficient Landscape Ordinance
OPR	Govenor's Office of Planning and Research
PDF	Project Design Features

PFC	Perfluorocarbons
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
ppb	Parts Per Billion
ppm	Parts Per Million
ppt	Parts Per Trillion
Project	Hesperia Commerce Center II
PSD	Prevention Significant Deterioration
RPS	Renewables Portfolio Standard
SB	Senate Bill
SB 32	Senate Bill 32
SB 375	Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies
SCAQMD	South Coast Air Quality Management District
Scoping Plan	CARB's Climate Change Scoping Plan
sf	Square Feet
SF_6	Sulfur Hexafluoride
SGC	Strategic Growth Council
SLPS	Short-Lived Climate Pollutant Strategy
SO_X	Oxides of Sulfur
SWRCB	California State Water Resources Control Board
tpy	Tons Per Year
TSF	Thousand Square Feet
UNFCCC	United Nations' Framework Convention on Climate Change
Update	CARB approved First Updated to the Scoping Plan
VMT	Vehicle-Miles Traveled
VOC	Volatile Organic Compounds
ZE/NZE	Zero- and near-zero-emission
ZEV	Zero Emission Vehicle

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Hesperia Commerce Center II Greenhouse Gas Analysis* (GHGA) are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* (1). Table ES-1 shows the findings of significance for potential greenhouse gas (GHG) impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
GHG Impact #1: The Project would not generate direct or indirect GHG emission that would result in a significant impact on the environment.	3.8	*Less Than Significant*	*n/a*
GHG Impact #2: The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	3.8	*Less Than Significant*	*n/a*

ES.2 REGULATORY REQUIREMENTS

The Project would be required to comply with all mandates imposed by the State of California and the Mojave Desert Air Quality Management District (MDAQMD). Those that are applicable to the Project and that would assist in the reduction of GHG emissions are:

- Global Warming Solutions Act of 2006 (AB 32) (2).
- Regional GHG Emissions Reduction Targets/Sustainable Communities Strategies (SB 375) (3).
- Pavley Fuel Efficiency Standards (AB 1493). Establishes fuel efficiency ratings for new vehicles (4).
- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (5).
- Title 20 California Code of Regulations (Appliance Energy Efficiency Standards). Establishes energy efficiency requirements for appliances (6).
- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (7).
- California Water Conservation in Landscaping Act of 2006 (AB 1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or

equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8).

- Statewide Retail Provider Emissions Performance Standards (SB 1368). Requires energy generators to achieve performance standards for GHG emissions (9).
- Renewable Portfolio Standards (SB 1078). Requires electric corporations to increase the amount of energy obtained from eligible renewable energy resources to 20 percent (%) by 2010 and 33% by 2020 (10).
- Senate Bill 32 (SB 32). Requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (11).

ES.3 PROJECT DESIGN FEATURES

Energy-saving and sustainable design features and operational programs would be incorporated into facilities developed pursuant to the currently proposed Project. The Project also incorporates and expresses the following project design features (PDF) and attributes promoting energy efficiency and sustainability. Because these features/attributes are integral to the Project, and/or are regulatory requirements, they are not considered to be mitigation measures.

- The Project will design building shells and building components, such as windows; roof systems: electrical and lighting systems: and heating, ventilating, and air conditioning systems to meet 2019 Title 24 Standards which expects 30% less energy for non-residential buildings.
- To reduce water demands and associated energy use, subsequent development proposals within the Project site would be required to implement a Water Conservation Strategy and demonstrate a minimum 20% reduction in indoor and outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy)[1].
- In order to reduce the amount of waste disposed at landfills, the Project would implement a 75% waste diversion.

1 Reduction of 20% indoor and outdoor water usage is consistent with the current CALGreen Code performance standards for residential and non-residential land uses. Per CALGreen, the reduction shall be based on the maximum allowable water use per plumbing fixture and fittings as required by the California Building Standards Code.

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1 INTRODUCTION

This report presents the results of the GHGA prepared by Urban Crossroads, Inc., for the Hesperia Commerce Center II (Project).

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of GHG impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. The Project location is shown on Exhibit 1-A. The Project Site is generally located in a undeveloped rural area with some residential homes located to the west and south.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the following uses:

- 2,361,648 square feet (sf) of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 sf of General Light Industrial use; 1,271,656 sf within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 sf within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at the Main Street interchange. At the time this GHGA was prepared, the future tenants of the proposed Project were unknown.

The on-site Project-related emission sources are expected to include loading dock activity and entry gate & truck movements. This GHG study is intended to describe air quality impacts associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

EXHIBIT 1-A: LOCATION MAP



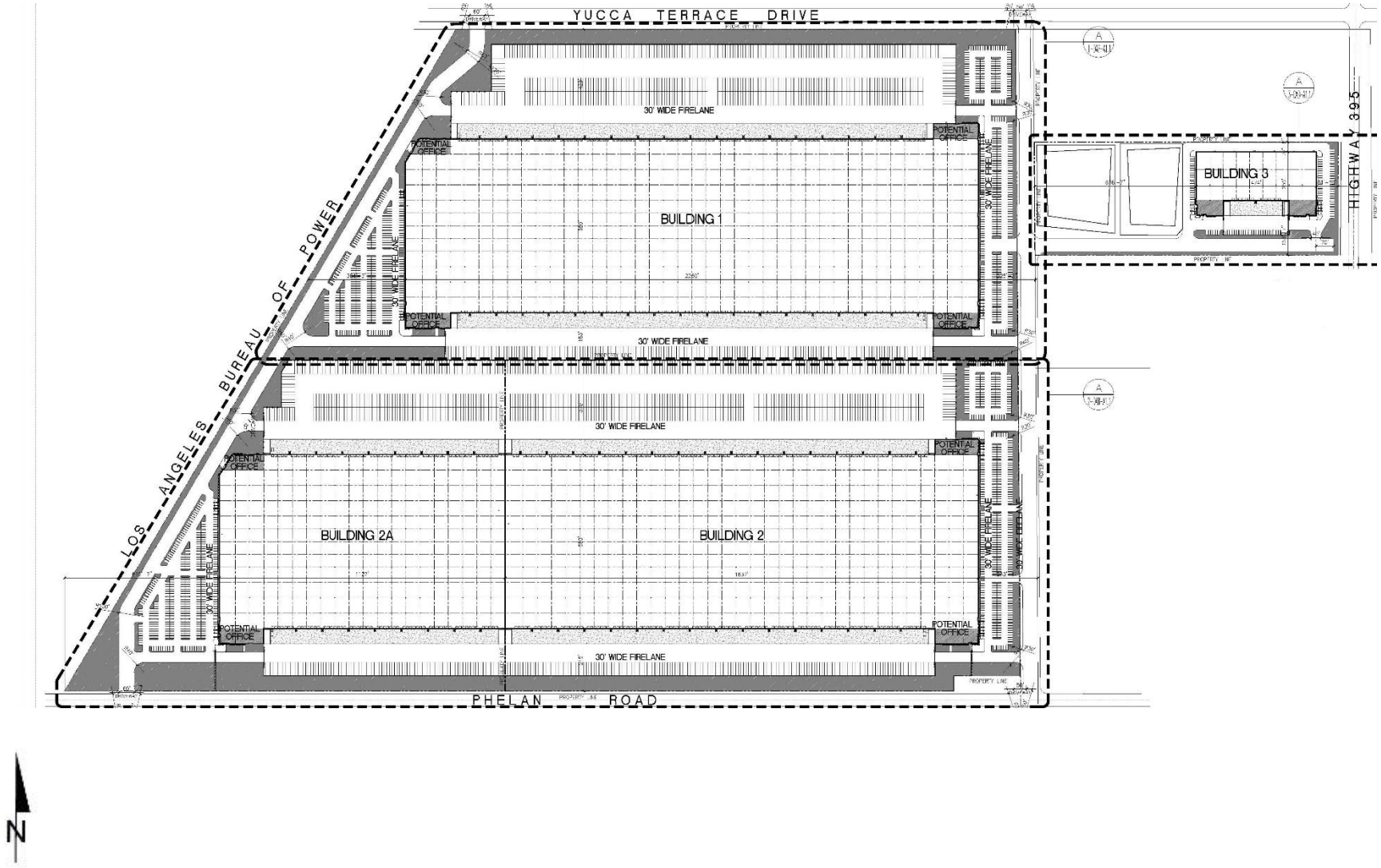
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS

N

LEGEND:

Site Boundary

EXHIBIT 1-B: SITE PLAN



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2 CLIMATE CHANGE SETTING

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

GCC is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. The majority of scientists believe that the climate shift taking place since the Industrial Revolution is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of GHGs in the earth's atmosphere, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases. The majority of scientists believe that this increased rate of climate change is the result of GHGs resulting from human activity and industrialization over the past 200 years.

An individual project like the proposed Project evaluated in this GHGA cannot generate enough GHG emissions to affect a discernible change in global climate. However, the proposed Project may participate in the potential for GCC by its incremental contribution of GHGs combined with the cumulative increase of all other sources of GHGs, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 will evaluate the potential for the proposed Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GLOBAL CLIMATE CHANGE DEFINED

GCC refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO_2, N_2O, CH_4, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3), and sulfur hexafluoride (SF_6). These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the earth's atmosphere, but prevent radioactive heat from escaping, thus warming the earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages.

Gases that trap heat in the atmosphere are often referred to as GHGs. GHGs are released into the atmosphere by both natural and anthropogenic activity. Without the natural GHG effect, the earth's average temperature would be approximately 61 degrees Fahrenheit (°F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

2.3 GHGS

2.3.1 GHGS AND HEALTH EFFECTS

GHGs trap heat in the atmosphere, creating a GHG effect that results in global warming and climate change. Many gases demonstrate these properties and as discussed in Table 2-1. For the purposes of this analysis, emissions of CO_2, CH_4, and N_2O were evaluated (see Table 3-1 later in

this report) because these gases are the primary contributors to GCC from development projects. Although there are other substances such as fluorinated gases that also contribute to GCC, these fluorinated gases were not evaluated as their sources are not well-defined and do not contain accepted emissions factors or methodology to accurately calculate these gases.

TABLE 2-1: GHGS

GHGs	Description	Sources	Health Effects
Water	Water is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive	The main source of water vapor is evaporation from the oceans (approximately 85%). Other sources include evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.	There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

GHGs	Description	Sources	Health Effects
	feedback loop will continue is unknown as there are also dynamics that hold the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the earth's surface and heat it up) (12).		
CO_2	CO_2 is an odorless and colorless GHG. Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO_2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30%. Left unchecked, the concentration of CO_2 in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (13).	CO_2 is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. CO_2 is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (14).	Outdoor levels of CO_2 are not high enough to result in negative health effects. According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of CO_2 can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of CO_2 in the earth's atmosphere are estimated to be approximately 370 ppm, the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (15).

GHGs	Description	Sources	Health Effects
CH_4	CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than CO_2 and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs.	CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of CH_4. Other anthropocentric sources include fossil-fuel combustion and biomass burning (16).	CH_4 is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Exposure to high levels of CH_4 can cause asphyxiation, loss of consciousness, headache and dizziness, nausea and vomiting, weakness, loss of coordination, and an increased breathing rate.
N_2O	N_2O, also known as laughing gas, is a colorless GHG. Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb).	N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also	N_2O can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (17).

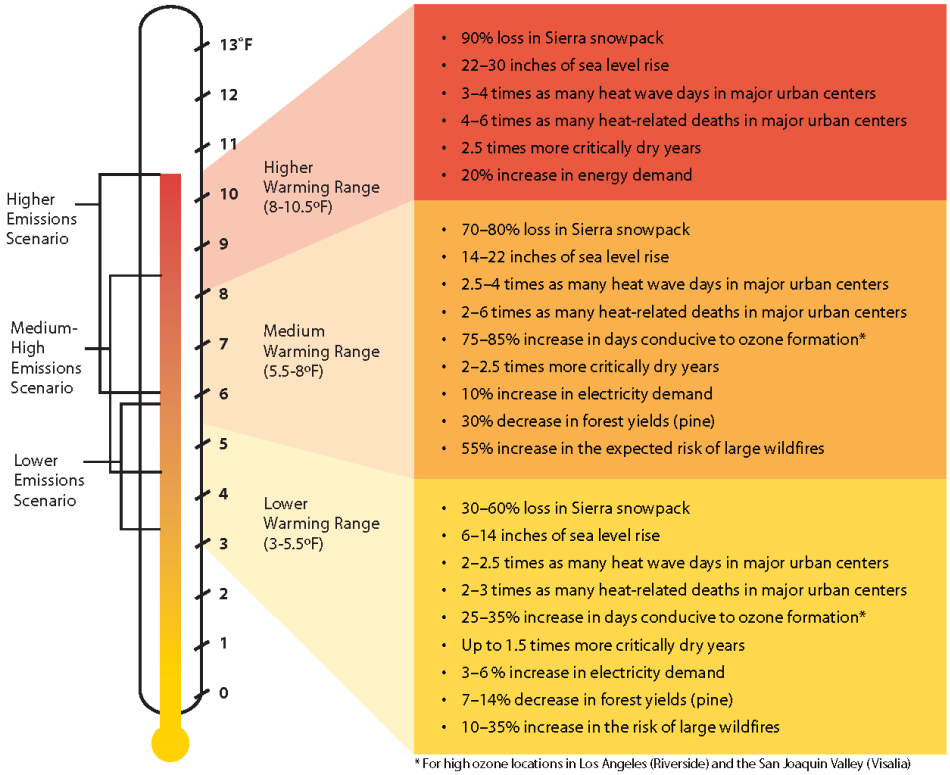
GHGs	Description	Sources	Health Effects
		used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. N_2O can be transported into the stratosphere, be deposited on the earth's surface, and be converted to other compounds by chemical reaction (17).	
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in CH_4 or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the earth's surface).	CFCs have no natural source but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years (18).	In confined indoor locations, working with CFC-113 or other CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

GHGs	Description	Sources	Health Effects
HFCs	HFCs are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential (GWP). The HFCs with the largest measured atmospheric abundances are (in order), Fluoroform (HFC-23), 1,1,1,2-tetrafluoroethane (HFC-134a), and 1,1-difluoroethane (HFC-152a). Prior to 1990, the only significant emissions were of HFC-23. HCF-134a emissions are increasing due to its use as a refrigerant.	HFCs are manmade for applications such as automobile air conditioners and refrigerants.	No health effects are known to result from exposure to HFCs.
PFCs	PFCs have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). The EPA estimates that concentrations of CF_4 in the atmosphere are over 70 parts per trillion (ppt).	The two main sources of PFCs are primary aluminum production and semiconductor manufacture.	No health effects are known to result from exposure to PFCs.
SF_6	SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900) (19). The EPA indicates that concentrations in the 1990s were about 4 ppt.	SF_6 is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.	In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

GHGs	Description	Sources	Health Effects
Nitrogen Trifluoride (NF_3)	NF_3 is a colorless gas with a distinctly moldy odor. The World Resources Institute (WRI) indicates that NF_3 has a 100-year GWP of 17,200 (20).	NF_3 is used in industrial processes and is produced in the manufacturing of semiconductors, Liquid Crystal Display (LCD) panels, types of solar panels, and chemical lasers.	Long-term or repeated exposure may affect the liver and kidneys and may cause fluorosis (21).

The potential health effects related directly to the emissions of CO_2, CH_4, and N_2O as they relate to development projects such as the proposed Project are still being debated in the scientific community. Their cumulative effects to GCC have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change will likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (22). Exhibit 2-A presents the potential impacts of global warming (23).

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Source: Barbara H. Allen-Diaz. "Climate change affects us all." *University of California, Agriculture and Natural Resources*

2.4 GLOBAL WARMING POTENTIAL

GHGs have varying GWP values. GWP of a GHG indicates the amount of warming a gas causes over a given period of time and represents the potential of a gas to trap heat in the atmosphere. CO_2 is utilized as the reference gas for GWP, and thus has a GWP of 1. CO_2 equivalent (CO_2e) is a term used for describing the difference GHGs in a common unit. CO_2e signifies the amount of CO_2 which would have the equivalent GWP.

The atmospheric lifetime and GWP of selected GHGs are summarized at Table 2-2. As shown in the table below, GWP for the 2nd Assessment Report, the Intergovernmental Panel on Climate Change (IPCC)'s scientific and socio-economic assessment on climate change, range from 1 for CO_2 to 23,900 for SF_6 and GWP for the IPCC's 5th Assessment Report range from 1 for CO_2 to 23,500 for SF_6 (24).

TABLE 2-2: GWP AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	GWP (100-year time horizon)		
		2nd Assessment Report	4th Assessment Report	5th Assessment Report
CO_2	See*	1	1	1
CH_4	12 .4	21	25	28
N_2O	121	310	298	265
HFC-23	222	11,700	14,800	12,400
HFC-134a	13.4	1,300	1,430	1,300
HFC-152a	1.5	140	124	138
SF_6	3,200	23,900	22,800	23,500
NF_3	740	-	17,200	16,100

*As per Appendix 8.A. of IPCC's 5th Assessment Report, no single lifetime can be given.
Source: IPCC Fourth Assessment Report: https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html
IPCC Fifth Assessment Report: https://www.ipcc.ch/pdf/assessmentreport/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf

2.5 GHG EMISSIONS INVENTORIES

2.5.1 GLOBAL

Worldwide anthropogenic GHG emissions are tracked by the IPCC for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2017. Based on the latest available data, the sum of these emissions totaled approximately 29,216,501 gigagram (Gg) CO_2e[2] (25) (26) as summarized on Table 2-3.

[2] The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2017 data, the United Nations' Framework Convention on Climate Change (UNFCCC) data for the most recent year were used U.N. Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF," The most recent GHG emissions for China and India are from 2014.

2.5.2 UNITED STATES

As noted in Table 2-3, the United States, as a single country, was the number two producer of GHG emissions in 2017.

TABLE 2-3: TOP GHG PRODUCING COUNTRIES AND THE EUROPEAN UNION [3]

Emitting Countries	GHG Emissions (Gg CO_2e)
China	11,911,710
United States	6,456,718
European Union (28-member countries)	4,323,163
India	3,079,810
Russian Federation	2,155,470
Japan	1,289,630
Total	**29,216,501**

2.5.3 STATE OF CALIFORNIA

California has significantly slowed the rate of growth of GHG emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls, but is still a substantial contributor to the United States (U.S.) emissions inventory total (27). The California Air Resource Board (CARB) compiles GHG inventories for the State of California. Based upon the 2019 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2017 GHG emissions period, California emitted an average 424.1 million metric tons (MMT) of CO_2e per year ($MMTCO_2e/yr$) (28).

2.6 EFFECTS OF CLIMATE CHANGE IN CALIFORNIA

2.6.1 PUBLIC HEALTH

Higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35% under the lower warming range to 75 to 85% under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55% more frequent if GHG emissions are not significantly reduced (29).

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures

[3] Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer in https://www.climatewatchdata.org site to reference Non-Annex I countries of China and India.

remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat (29).

2.6.2 WATER RESOURCES

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on the Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages (29).

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90%. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. Winter tourism could be adversely affected, under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding (29).

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply (29).

2.6.3 AGRICULTURE

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25% of the water supply needed. Although higher CO_2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth (29).

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts (29).

In addition, continued GCC could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued GCC could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates (29).

2.6.4 FORESTS AND LANDSCAPES

GCC has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55%, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90% due to decreased precipitation (29).

Moreover, continued GCC has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80% by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of GCC (29).

2.6.5 RISING SEA LEVELS

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches (29).

2.7 REGULATORY SETTING

2.7.1 INTERNATIONAL

Climate change is a global issue involving GHG emissions from all around the world; therefore, countries such as the ones discussed below have made an effort to reduce GHGs.

IPCC

In 1988, the United Nations (U.N.) and the World Meteorological Organization established the IPCC to assess the scientific, technical and socioeconomic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

UNITED NATION'S FRAMEWORK CONVENTION ON CLIMATE CHANGE (CONVENTION)

On March 21, 1994, the U.S. joined a number of countries around the world in signing the Convention. Under the Convention, governments gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

INTERNATIONAL CLIMATE CHANGE TREATIES

The Kyoto Protocol is an international agreement linked to the Convention. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions at an average of 5% against 1990 levels over the five-year period 2008–2012. The Convention (as discussed above) encouraged industrialized countries to stabilize emissions; however, the Protocol commits them to do so. Developed countries have contributed more emissions over the last 150 years; therefore, the Protocol places a heavier burden on developed nations under the principle of "common but differentiated responsibilities."

In 2001, President George W. Bush indicated that he would not submit the treaty to the U.S. Senate for ratification, which effectively ended American involvement in the Kyoto Protocol. In December 2009, international leaders met in Copenhagen to address the future of international climate change commitments post-Kyoto. No binding agreement was reached in Copenhagen; however, the Committee identified the long-term goal of limiting the maximum global average temperature increase to no more than 2 degrees Celsius (°C) above pre-industrial levels, subject to a review in 2015. The UN Climate Change Committee held additional meetings in Durban, South Africa in November 2011; Doha, Qatar in November 2012; and Warsaw, Poland in November 2013. The meetings are gradually gaining consensus among participants on individual climate change issues.

On September 23, 2014 more than 100 Heads of State and Government and leaders from the private sector and civil society met at the Climate Summit in New York hosted by the U.N. At the Summit, heads of government, business and civil society announced actions in areas that would have the greatest impact on reducing emissions, including climate finance, energy, transport, industry, agriculture, cities, forests, and building resilience.

Parties to the U.N. Framework Convention on Climate Change (UNFCCC) reached a landmark agreement on December 12, 2015 in Paris, charting a fundamentally new course in the two-decade-old global climate effort. Culminating a four-year negotiating round, the new treaty ends the strict differentiation between developed and developing countries that characterized earlier efforts, replacing it with a common framework that commits all countries to put forward their best efforts and to strengthen them in the years ahead. This includes, for the first time, requirements that all parties report regularly on their emissions and implementation efforts and undergo international review.

The agreement and a companion decision by parties were the key outcomes of the conference, known as the 21st session of the UNFCCC Conference of the Parties (COP) 21. Together, the Paris Agreement and the accompanying COP decision:

- Reaffirm the goal of limiting global temperature increase well below 2°C, while urging efforts to limit the increase to 1.5 degrees;
- Establish binding commitments by all parties to make "nationally determined contributions" (NDCs), and to pursue domestic measures aimed at achieving them;
- Commit all countries to report regularly on their emissions and "progress made in implementing and achieving" their NDCs, and to undergo international review;
- Commit all countries to submit new NDCs every five years, with the clear expectation that they will "represent a progression" beyond previous ones;
- Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too;
- Extend the current goal of mobilizing $100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025;
- Extend a mechanism to address "loss and damage" resulting from climate change, which explicitly will not "involve or provide a basis for any liability or compensation;"
- Require parties engaging in international emissions trading to avoid "double counting;" and
- Call for a new mechanism, similar to the Clean Development Mechanism under the Kyoto Protocol, enabling emission reductions in one country to be counted toward another country's NDC (C2ES 2015a) (30).

On November 4, 2019, the Trump administration formally notified the U.N. that the U.S. would withdraw from the Paris Agreement. It should be noted that withdrawal would be effective one year after notification in 2020.

2.7.2 NATIONAL

Prior to the last decade, there have been no concrete federal regulations of GHGs or major planning for climate change adaptation. The following are actions regarding the federal government, GHGs, and fuel efficiency.

GHG ENDANGERMENT

In *Massachusetts v. Environmental Protection Agency* (EPA) 549 U.S. 497 (2007), decided on April 2, 2007, the U.S. Supreme Court (Supreme Court) found that four GHGs, including CO_2, are air pollutants subject to regulation under Section 202(a)(1) of the Federal Clean Air Act (CAA). The Court held that the EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution, which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs— CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles, as discussed in the section "Clean Vehicles" below. After a lengthy legal challenge, the Supreme Court declined to review an Appeals Court ruling that upheld the EPA Administrator's findings (31).

CLEAN VEHICLES

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the U.S. On April 1, 2010, the EPA and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) announced a joint final rule establishing a national program that would reduce GHG emissions and improve fuel economy for new cars and trucks sold in the U.S.

The first phase of the national program applies to passenger cars, light-duty trucks, and medium-duty (MD) passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (mpg) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Together, these standards would cut CO_2 emissions by an estimated 960 MMT and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016). The EPA and the NHTSA issued final rules on a second-phase joint rulemaking establishing national standards for light-duty vehicles for model years 2017 through 2025 in August 2012. The new standards for model years 2017 through 2025 apply to passenger cars, light-duty trucks, and MD passenger vehicles. The final standards are projected to result in an average industry fleetwide level of 163 grams/mile of CO_2 in model year 2025, which is equivalent to 54.5 mpg if achieved exclusively through fuel economy improvements.

The EPA and the U.S. Department of Transportation issued final rules for the first national standards to reduce GHG emissions and improve fuel efficiency of heavy-duty trucks (HDT) and buses on September 15, 2011, effective November 14, 2011. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20% reduction in CO_2 emissions and fuel consumption by the 2018 model year. For HDT and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10% reduction for gasoline vehicles and a 15% reduction for diesel vehicles by the 2018 model year (12 and 17% respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the engine and vehicle

standards would achieve up to a 10% reduction in fuel consumption and CO_2 emissions from the 2014 to 2018 model years.

On August 2,2018, the NHTSA in conjunction with the EPA, released a notice of proposed rulemaking, the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). The SAFE Vehicles Rule was proposed to amend exiting CAFE and tailpipe CO_2 standards for passenger cars and light trucks and to establish new standards covering model years 2021 through 2026. As of March 31, 2020, the NHTSA and EPA finalized the SAFE Vehicle Rule which increased stringency of CAFE and CO_2 emissions standards by 1.5% each year through model year 2026 (32).

MANDATORY REPORTING OF GHGS

The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory GHG reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of GHGs Rule, which became effective January 1, 2010. The rule requires reporting of GHG emissions from large sources and suppliers in the U.S. and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons per year (MT/yr) or more of GHG emissions are required to submit annual reports to the EPA.

NEW SOURCE REVIEW

The EPA issued a final rule on May 13, 2010, that establishes thresholds for GHGs that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these CAA permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the Federal Code of Regulations, the EPA states:

> *"This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the CAA, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to GHG sources, starting with the largest GHG emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for GHG emissions until at least April 30, 2016."*

The EPA estimates that facilities responsible for nearly 70% of the national GHG emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest GHG emitters—power plants, refineries, and cement production facilities.

STANDARDS OF PERFORMANCE FOR GHG EMISSIONS FOR NEW STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS

As required by a settlement agreement, the EPA proposed new performance standards for emissions of CO_2 for new, affected, fossil fuel-fired electric utility generating units on March 27, 2012. New sources greater than 25 megawatts (MW) would be required to meet an output-based standard of 1,000 pounds (lbs) of CO_2 per MW-hour (MWh), based on the performance of widely used natural gas combined cycle technology. It should be noted that on February 9, 2016 the Supreme Court issued a stay of this regulation pending litigation. Additionally, the current EPA Administrator has also signed a measure to repeal the Clean Power Plan, including the CO_2 standards. The Clean Power Plan was officially repealed on June 19, 2019, when the EPA issued the final Affordable Clean Energy rule (ACE). Under ACE, new state emission guidelines were established that provided existing coal-fired electric utility generating units with achievable standards.

CAP-AND-TRADE

Cap-and-trade refers to a policy tool where emissions are limited to a certain amount and can be traded or provides flexibility on how the emitter can comply. Successful examples in the U.S. include the Acid Rain Program and the N_2O Budget Trading Program and Clean Air Interstate Rule in the northeast. There is no federal GHG cap-and-trade program currently; however, some states have joined to create initiatives to provide a mechanism for cap-and-trade.

The Regional GHG Initiative is an effort to reduce GHGs among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. Each state caps CO_2 emissions from power plants, auctions CO_2 emission allowances, and invests the proceeds in strategic energy programs that further reduce emissions, save consumers money, create jobs, and build a clean energy economy. The Initiative began in 2008 and in 2020 has retained all participating states.

The Western Climate Initiative (WCI) partner jurisdictions have developed a comprehensive initiative to reduce regional GHG emissions to 15% below 2005 levels by 2020. The partners were originally California, British Columbia, Manitoba, Ontario, and Quebec. However, Manitoba and Ontario are not currently participating. California linked with Quebec's cap-and-trade system January 1, 2014, and joint offset auctions took place in 2015. While the WCI has yet to publish whether it has successfully reached the 2020 emissions goal initiative set in 2007, SB 32, requires that California, a major partner in the WCI, adopt the goal of reducing statewide GHG emissions to 40% below the 1990 level by 2030.

SMARTWAY PROGRAM

The SmartWay Program is a public-private initiative between the EPA, large and small trucking companies, rail carriers, logistics companies, commercial manufacturers, retailers, and other federal and state agencies. Its purpose is to improve fuel efficiency and the environmental performance (reduction of both GHG emissions and air pollution) of the goods movement supply chains. SmartWay is comprised of four components (33):

1. SmartWay Transport Partnership: A partnership in which freight carriers and shippers commit to benchmark operations, track fuel consumption, and improve performance annually.
2. SmartWay Technology Program: A testing, verification, and designation program to help freight companies identify equipment, technologies, and strategies that save fuel and lower emissions.
3. SmartWay Vehicles: A program that ranks light-duty cars and small trucks and identifies superior environmental performers with the SmartWay logo.
4. SmartWay International Interests: Guidance and resources for countries seeking to develop freight sustainability programs modeled after SmartWay.

SmartWay effectively refers to requirements geared towards reducing fuel consumption. Most large trucking fleets driving newer vehicles are compliant with SmartWay design requirements. Moreover, over time, all HDTs will have to comply with CARB GHG Regulation that is designed with the SmartWay Program in mind, to reduce GHG emissions by making them more fuel-efficient. For instance, in 2015, 53 foot or longer dry vans or refrigerated trailers equipped with a combination of SmartWay-verified low-rolling resistance tires and SmartWay-verified aerodynamic devices would obtain a total of 10% or more fuel savings over traditional trailers.

Through the SmartWay Technology Program, the EPA has evaluated the fuel saving benefits of various devices through grants, cooperative agreements, emissions and fuel economy testing, demonstration projects and technical literature review. As a result, the EPA has determined the following types of technologies provide fuel saving and/or emission reducing benefits when used properly in their designed applications, and has verified certain products:

- Idle reduction technologies – less idling of the engine when it is not needed would reduce fuel consumption.
- Aerodynamic technologies minimize drag and improve airflow over the entire tractor-trailer vehicle. Aerodynamic technologies include gap fairings that reduce turbulence between the tractor and trailer, side skirts that minimize wind under the trailer, and rear fairings that reduce turbulence and pressure drop at the rear of the trailer.
- Low rolling resistance tires can roll longer without slowing down, thereby reducing the amount of fuel used. Rolling resistance (or rolling friction or rolling drag) is the force resisting the motion when a tire rolls on a surface. The wheel will eventually slow down because of this resistance.
- Retrofit technologies include things such as diesel particulate filters, emissions upgrades (to a higher tier), etc., which would reduce emissions.
- Federal excise tax exemptions.

2.7.3 CALIFORNIA

2.7.3.1 LEGISLATIVE ACTIONS TO REDUCE GHGS

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation such as the landmark AB 32 was specifically enacted to address GHG emissions. Other legislation such as Title 24 and Title 20 energy standards were originally adopted for other purposes such as energy and water

conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

EXECUTIVE ORDER S-3-05

Former California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for GHG emissions:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80% below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

AB 32

The California State Legislature enacted AB 32, which requires that GHGs emitted in California be reduced to 1990 levels by the year 2020. "GHGs" as defined under AB 32 include CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Since AB 32 was enacted, a seventh chemical, nitrogen trifluoride, has also been added to the list of GHGs. CARB is the state agency charged with monitoring and regulating sources of GHGs. Pursuant to AB 32, CARB adopted regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 states the following:

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems."*

CARB approved the 1990 GHG emissions level of 427 $MMTCO_2e$ on December 6, 2007 (34). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" (BAU) scenario were estimated to be 596 $MMTCO_2e$, which do not account for reductions from AB 32 regulations (35). At that level, a 28.4% reduction was required to achieve the 427 $MMTCO_2e$ 1990 inventory. In October 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. The forecasted inventory without the benefits of adopted regulation is now estimated at 545 $MMTCO_2e$. Therefore, under the updated forecast, a 21.7% reduction from BAU is required to achieve 1990 levels (36) .

PROGRESS IN ACHIEVING AB 32 TARGETS AND REMAINING REDUCTIONS REQUIRED

The State has made steady progress in implementing AB 32 and achieving targets included in Executive Order S-3-05. The progress is shown in updated emission inventories prepared by CARB for 2000 through 2012 (37). The State has achieved the Executive Order S-3-05 target for 2010 of reducing GHG emissions to 2000 levels. As shown below, the 2010 emission inventory achieved this target.

- 1990: 427 $MMTCO_2e$ (AB 32 2020 target)
- 2000: 463 $MMTCO_2e$ (an average 8% reduction needed to achieve 1990 base)
- 2010: 450 $MMTCO_2e$ (an average 5% reduction needed to achieve 1990 base)

CARB has also made substantial progress in achieving its goal of achieving 1990 emissions levels by 2020. As described earlier in this section, CARB revised the 2020 BAU inventory forecast to account for new lower growth projections, which resulted in a new lower reduction from BAU to achieve the 1990 base. The previous reduction from 2020 BAU needed to achieve 1990 levels was 28.4% and the latest reduction from 2020 BAU is 21.7%.

- 2020: 545 $MMTCO_2e$ BAU (an average 21.7% reduction from BAU needed to achieve 1990 base)

SB 375 – THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008

Passing the Senate on August 30, 2008, Senate Bill (SB) 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of GHG emissions, which emits over 40% of the total GHG emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: it (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies.

SB 375 also requires Metropolitan Planning Organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region. SB 375 uses CEQA streamlining as an incentive to encourage residential projects, which help achieve AB 32 goals to reduce GHG emissions. Although SB 375 does not prevent CARB from adopting additional regulations, such actions are not anticipated in the foreseeable future.

Concerning CEQA, SB 375, as codified in Public Resources Code Section 21159.28, states that CEQA findings for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts, or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network, if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that CARB accepts as achieving the GHG emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).

3. Incorporates the mitigation measures required by an applicable prior environmental document.

AB 1493

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the U.S. District Court for the District of Columbia in 2011.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near-term (2009–2012) standards will result in about a 22% reduction compared with the 2002 fleet, and the mid-term (2013–2016) standards will result in about a 30% reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

The second phase of the implementation for the Pavley bill was incorporated into Amendments to the Low-Emission Vehicle Program (LEV III) or the Advanced Clean Cars program. The Advanced Clean Car program combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements for model years 2017 through 2025. The regulation will reduce GHGs from new cars by 34% from 2016 levels by 2025. The new rules will clean up gasoline and diesel-powered cars, and deliver increasing numbers of zero-emission technologies, such as full battery electric cars, newly emerging plug-in hybrid electric vehicles (EV) and hydrogen fuel cell cars. The package will also ensure adequate fueling infrastructure is available for the increasing numbers of hydrogen fuel cell vehicles planned for deployment in California.

SB 350— CLEAN ENERGY AND POLLUTION REDUCTION ACT OF 2015

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the RPS, higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for EV charging stations. Provisions for a 50% reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33% to 50% by 2030, with interim targets of 40% by 2024, and 25% by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.

- Reorganize the Independent System Operator to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

SB 32

On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, AB 197. SB 32 requires the state to reduce statewide GHG emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide GHG reduction target of 80% below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that CARB not only responds to the Governor, but also the Legislature (11).

CARB SCOPING PLAN

CARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 to comply with AB 32 (35). The Scoping Plan identifies recommended measures for multiple GHG emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 GHG target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33%;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the LCFS; and
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

CARB approved the First Scoping Plan Update on May 22, 2014. The First Scoping Plan Update identifies the next steps for California's climate change strategy. The First Scoping Plan Update shows how California continues on its path to meet the near-term 2020 GHG limit, but also sets a path toward long-term, deep GHG emission reductions. The report establishes a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050. The First Scoping Plan Update identifies progress made to meet the near-term objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The First Scoping Plan Update does not set new targets for the State but describes

a path that would achieve the long term 2050 goal of Executive Order S-3-05 for emissions to decline to 80% below 1990 levels by 2050 (37).

Forecasting the amount of emissions that would occur in 2020 if no actions are taken was necessary to assess the amount of reductions California must achieve to return to the 1990 emissions level by 2020 as required by AB 32. The no-action scenario is known as "business-as-usual" or BAU. CARB originally defined the BAU scenario as emissions in the absence of any GHG emission reduction measures discussed in the Scoping Plan.

As part of CEQA compliance for the Scoping Plan, CARB prepared a Supplemental Functional Equivalent Document (FED) in 2011. The FED included an updated 2020 BAU emissions inventory projection based on current economic forecasts (i.e., as influenced by the economic downturn) and emission reduction measures already in place, replacing its prior 2020 BAU emissions inventory. CARB staff derived the updated emissions estimates by projecting emissions growth, by sector, from the state's average emissions from 2006–2008. The new BAU estimate includes emission reductions for the million-solar-roofs program, the AB 1493 motor vehicle GHG emission standards, and the LCFS. In addition, CARB factored into the 2020 BAU inventory emissions reductions associated with 33% RPS for electricity generation. The updated BAU estimate of 507 $MMTCO_2e$ by 2020 requires a reduction of 80 $MMTCO_2e$, or a 16% reduction below the estimated BAU levels to return to 1990 levels (i.e., 427 $MMTCO_2e$) by 2020.

In order to provide a BAU reduction that is consistent with the original definition in the Scoping Plan and with threshold definitions used in thresholds adopted by lead agencies for CEQA purposes and many CAPs, the updated inventory without regulations was also included in the Supplemental FED. CARB 2020 BAU projection for GHG emissions in California was originally estimated to be 596 $MMTCO_2e$. The updated CARB 2020 BAU projection in the Supplemental FED is 545 $MMTCO_2e$. Considering the updated BAU estimate of 545 $MMTCO_2e$ by 2020, CARB estimates a 21.7% reduction below the estimated statewide BAU levels is necessary to return to 1990 emission levels (i.e., 427 $MMTCO_2e$) by 2020, instead of the approximate 28.4% BAU reduction previously reported under the original Climate Change Scoping Plan (35).

2017 CLIMATE CHANGE SCOPING PLAN UPDATE

In compliance with AB 32 and the 2008 Scoping Plan, the target year 2020 has been fulfilled and will look onward to the 2017 Scoping Plan that should be in compliance by 2030.

In November 2017, CARB released the 2017 Scoping Plan Update, which identifies the State's post-2020 reduction strategy. The 2017 Scoping Plan Update reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the LCFS, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce CH_4 emissions from agricultural and other wastes.

The 2017 Scoping Plan Update establishes a new emissions limit of 260 $MMTCO_2e$ for the year 2030, which corresponds to a 40% decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (CH_4, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- LCFS, with an increased stringency (18% by 2030).
- Implementing SB 350, which expands the RPS to 50% RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of zero-emission vehicles (ZEV) trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing CH_4 and hydroflurocarbon emissions by 40% and anthropogenic black carbon emissions by 50% by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20% reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

Note, however, that the 2017 Scoping Plan acknowledges that:

> *"[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA."*

In addition to the statewide strategies listed above, the 2017 Scoping Plan Update also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 metric tons of CO_2e ($MTCO_2e$) or less per capita by 2030 and 2 $MTCO_2e$ or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG

goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a CAP or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory (LBNL) and supported by CARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 $MTCO_2e$ per year ($MTCO_2e$/yr), "indicating that existing state policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 $MTCO_2e$/yr, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40% below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Although the research indicated that the emissions would not meet the State's 80% reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (38) (39).

CAP-AND-TRADE PROGRAM

The Scoping Plan identifies a Cap-and-Trade Program as one of the key strategies for California to reduce GHG emissions. According to CARB, a cap-and-trade program will help put California on the path to meet its goal of reducing GHG emissions to 1990 levels by the year 2020 and ultimately achieving an 80% reduction from 1990 levels by 2050. Under cap-and-trade, an overall limit on GHG emissions from capped sectors is established, and facilities subject to the cap will be able to trade permits to emit GHGs within the overall limit.

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. See Title 17 of the CCR §§ 95800 to 96023). The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Covered entities that emit more than 25.000 $MTCO_2e$/yr must comply with the Cap-and-Trade Program. Triggering of the 25.000 $MTCO_2e$/yr "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of GHG Emissions (Mandatory Reporting Rule or "MRR").

Under the Cap-and-Trade Program, CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities.

Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits. Each covered entity with a compliance obligation is required to surrender "compliance instruments" (30) for each $MTCO_2e$ of GHG they emit. There also are requirements to surrender compliance instruments covering 30% of the prior year's compliance obligation by November of each year. For example, in November 2014, a covered entity was required to submit compliance instruments to cover 30% of its 2013 GHG emissions.

The Cap-and-Trade Program provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. As summarized by CARB in the First Update:

> *"The Cap-and-Trade Regulation gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more have to turn in more allowances or other compliance instruments. Companies that can cut their GHG emissions have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced. In other words, a covered entity theoretically could increase its GHG emissions every year and still comply with the Cap-and-Trade Program if there is a reduction in GHG emissions from other covered entities. Such a focus on aggregate GHG emissions is considered appropriate because climate change is a global phenomenon, and the effects of GHG emissions are considered cumulative (CARB 2014)."*

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate:

> *"The Cap-and-Trade Program establishes an overall limit on GHG emissions from most of the California economy—the "capped sectors." Within the capped sectors, some of the reductions are being accomplished through direct regulations, such as improved building and appliance efficiency standards, the [Low Carbon Fuel Standard] LCFS, and the 33% [Renewables Portfolio Standard] RPS. Whatever additional reductions are needed to bring emissions within the cap is accomplished through price incentives posed by emissions allowance prices. Together, direct regulation and price incentives assure that emissions are brought down cost-effectively to the level of the overall cap. The Cap-and-Trade Regulation provides assurance that California's 2020 limit will be met because the regulation sets a firm limit on 85% of California's GHG emissions. In sum, the Cap-and-Trade Program will achieve aggregate, rather than site specific or project-level, GHG emissions reductions. Also, due to the regulatory architecture adopted by CARB in*

> *AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures* (37)*."*

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85% of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program's first compliance period. While the Cap-and-Trade Program technically covered fuel suppliers as early as 2012, they did not have a compliance obligation (i.e., they were not fully regulated) until 2015. The Cap-and-Trade Program covers the GHG emissions associated with the combustion of transportation fuels in California, whether refined in-state or imported. The point of regulation for transportation fuels is when they are "supplied" (i.e., delivered into commerce). Accordingly, as with stationary source GHG emissions and GHG emissions attributable to electricity use, virtually all, if not all, of GHG emissions from CEQA projects associated with vehicle miles traveled (VMT) are covered by the Cap-and-Trade Program (40). In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the Program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional GHG emission reductions.[4]

2.7.3.2 EXECUTIVE ORDERS RELATED TO GHG EMISSIONS

California's Executive Branch has taken several actions to reduce GHGs through the use of Executive Orders. Although not regulatory, they set the tone for the state and guide the actions of state agencies.

EXECUTIVE ORDER S-13-08

Executive Order S-13-08 states that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures,

[4] On March 17, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of CARB Scoping Plan for the implementation of AB 32, the Court enjoined CARB from further rulemaking under AB 32 until CARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court. On May 23, 2011, CARB filed an appeal. On June 24, 2011, the Court of Appeal granted CARB's petition staying the trail court's order pending consideration of the appeal. In the interest of informed decision-making, on June 13, 2011, CARB released the expanded alternatives analysis in a draft Supplement to the AB 32 Scoping Plan Functional Equivalent Document. CARB Board approved the Scoping Plan and the CEQA document on August 24, 2011.

thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the Order, the 2009 California Climate Adaptation Strategy was adopted, which is the "…first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

EXECUTIVE ORDER B-30-15

On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40% below 1990 levels by 2030. The Governor's executive order aligns California's GHG reduction targets with those of leading international governments ahead of the United Nations Climate Change Conference in Paris late 2015. The Order sets a new interim statewide GHG emission reduction target to reduce GHG emissions to 40% below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80% below 1990 levels by 2050 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of $MMTCO_2e$. The Order also requires the state's climate adaptation plan to be updated every three years, and for the State to continue its climate change research program, among other provisions. As with Executive Order S-3-05, this Order is not legally enforceable for local governments and the private sector. Legislation that would update AB 32 to make post 2020 targets and requirements a mandate is in process in the State Legislature.

EXECUTIVE ORDER S-01-07 – LCFS

The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020. In particular, the Executive Order established a LCFS and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by CEC on December 24, 2007) and was submitted to CARB for consideration as an "early action" item under AB 32. CARB adopted the LCFS on April 23, 2009.

The LCFS was challenged in the U.S. District Court in Fresno in 2011. The court's ruling issued on December 29, 2011, included a preliminary injunction against CARB's implementation of the rule. The Ninth Circuit Court of Appeals stayed the injunction on April 23, 2012, pending final ruling on appeal, allowing CARB to continue to implement and enforce the regulation. The Ninth Circuit Court's decision, filed September 18, 2013, vacated the preliminary injunction. In essence, the court held that LCFS adopted by CARB were not in conflict with federal law. On August 8, 2013, the Fifth District Court of Appeal (California) ruled CARB failed to comply with CEQA and the Administrative Procedure Act (APA) when adopting regulations for LCFS. In a partially published opinion, the Court of Appeal reversed the trial court's judgment and directed issuance of a writ of mandate setting aside Resolution 09-31 and two executive orders of CARB approving LCFS regulations promulgated to reduce GHG emissions. However, the court tailored its remedy to

protect the public interest by allowing the LCFS regulations to remain operative while CARB complies with the procedural requirements it failed to satisfy.

To address the Court ruling, CARB was required to bring a new LCFS regulation to the Board for consideration in February 2015. The proposed LCFS regulation was required to contain revisions to the 2010 LCFS as well as new provisions designed to foster investments in the production of the low-carbon intensity fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. On November 16, 2015 the Office of Administrative Law (OAL) approved the Final Rulemaking Package. The new LCFS regulation became effective on January 1, 2016.

EXECUTIVE ORDER B-55-18 AND SB 100

Executive Order B-55-18 was signed by Governor Brown on September 10, 2018. The order establishes an additional Statewide policy to achieve carbon neutrality by 2045 and maintain net negative emissions thereafter. As per Executive Order B-55-18, CARB is directed to work with relevant State agencies to develop a framework for implementation and accounting that tracks progress toward this goal and to ensure future Climate Change Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

2.7.3.3 CALIFORNIA REGULATIONS AND BUILDING CODES

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

TITLE 20 CCR

CCR, Title 20: Division 2, Chapter 4, Article 4, Sections 1601-1608: Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the state and those designed and sold exclusively for use in recreational vehicles or other mobile equipment (CEC 2012).

TITLE 24 CCR

CCR Title 24 Part 6: The California Energy Code was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption.

The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. CCR, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2009, and is administered by the California Building Standards Commission.

CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that became effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction waste and demolition ordinances and defers to them as the ruling guidance provided they establish a minimum 65% diversion requirement. The code also provides exemptions for areas not served by construction waste and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2020.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the Mojave Desert Air Basin (MDAB) and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings.

The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53% less energy than homes built under the 2016 standards. Nonresidential buildings (such as the Project) will use approximately 30% less energy due to lighting upgrade requirements (19).

Because the Project will be constructed after January 1, 2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (20):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5% of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5% of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking for clean air vehicles. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- EV charging stations. New construction shall facilitate the future installation of EV supply equipment. The compliance requires empty raceways for future conduit and documentation that the electrical system has adequate capacity for the future load. The number of spaces to be provided for is contained in Table 5.106. 5.3.3 (5.106.5.3).

- Outdoor light pollution reduction. Outdoor lighting systems shall be designed to meet the backlight, uplight and glare ratings per Table 5.106.8 (5.106.8)
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65% of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100% of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).
- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gallons per day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).

- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

MWELO

The MWELO was required by AB 1881, the Water Conservation Act. The bill required local agencies to adopt a local landscape ordinance at least as effective in conserving water as the Model Ordinance by January 1, 2010. Reductions in water use of 20% consistent with (SBX-7-7) 2020 mandate are expected upon compliance with the ordinance. Governor Brown's Drought Executive Order of April 1, 2015 (Executive Order B-29-15) directed Department of Water Resources (DWR) to update the Ordinance through expedited regulation. The California Water Commission approved the revised Ordinance on July 15, 2015 effective December 15, 2015. New development projects that include landscape areas of 500 sf or more are subject to the Ordinance. The update requires:

- More efficient irrigation systems;
- Incentives for graywater usage;
- Improvements in on-site stormwater capture;
- Limiting the portion of landscapes that can be planted with high water use plants; and
- Reporting requirements for local agencies.

TRACTOR-TRAILER GHG REGULATION

The tractors and trailers subject to this regulation must either use EPA SmartWay certified tractors and trailers or retrofit their existing fleet with SmartWay verified technologies. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the HD tractors that pull them on California highways. These owners are responsible for replacing or retrofitting their affected vehicles with compliant aerodynamic technologies and low rolling resistance tires. Sleeper cab tractors model year 2011 and later must be SmartWay certified. All other tractors must use SmartWay verified low rolling resistance tires. There are also requirements for trailers to have low rolling resistance tires and aerodynamic devices.

PHASE I AND 2 HEAVY-DUTY VEHICLE GHG STANDARDS

CARB has adopted a new regulation for GHG emissions from HDTs and engines sold in California. It establishes GHG emission limits on truck and engine manufacturers and harmonizes with the EPA rule for new trucks and engines nationally. Existing HD vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer GHG Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation. In September 2011, the EPA adopted their new rule for HDTs and engines. The EPA rule has compliance requirements for new compression and spark ignition engines, as well as trucks from Class 2b through Class 8. Compliance requirements begin with model year 2014 with stringency levels increasing through

model year 2018. The rule organizes truck compliance into three groupings, which include a) HD pickups and vans; b) vocational vehicles; and c) combination tractors. The EPA rule does not regulate trailers.

CARB staff has worked jointly with the EPA and the NHTSA on the next phase of federal GHG emission standards for medium-duty trucks (MDT) and HDT vehicles, called federal Phase 2. The federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 and later model year HDT vehicles, including trailers. But as discussed above, the EPA and NHTSA have proposed to roll back GHG and fuel economy standards for cars and light-duty trucks, which suggests a similar rollback of Phase 2 standards for MDT and HDT vehicles may be pursued.

In February 2019, the OAL approved the Phase 2 Heavy-Duty Vehicle GHG Standards and became effective April 1, 2019. The Phase 2 GHG standards are needed to offset projected VMT growth and keep heavy-duty truck CO_2 emissions declining. The federal Phase 2 standards establish for the first time, federal emissions requirements for trailers hauled by heavy-duty tractors. The federal Phase 2 standards are more technology-forcing than the federal Phase 1 standards, requiring manufacturers to improve existing technologies or develop new technologies to meet the standards. The federal Phase 2 standards for tractors, vocational vehicles, and heavy-duty pick-up trucks and vans (PUVs) will be phased-in from 2021-2027, additionally for trailers, the standards are phased-in from 2018 (2020 in California) through 2027 (41).

SB 97 AND THE *CEQA GUIDELINES* UPDATE

Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research (OPR) shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of GHG emissions or the effects of GHG emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the OPR pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to analyze adequately the effects of GHGs would not violate CEQA.

On December 28, 2018, the Natural Resources Agency announced the OAL approved the amendments to the *CEQA Guidelines* for implementing the CEQA. The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing *CEQA Guidelines* to reference climate change.

Section 1506.4 was amended to state that in determining the significance of a project's GHG emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental

contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes. Additionally, a lead agency may use a model or methodology to estimate GHG emissions resulting from a project. The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change. The lead agency must support its selection of a model or methodology with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use (42).

CALIFORNIA RPS PROGRAM (SB 100)

Under the existing RPS, 25% of retail sales are required to be from renewable sources by December 31, 2016, 33% by December 31, 2020, 40% by December 31, 2024, 45% by December 31, 2027, and 50% by December 31, 2030. SB 100 raises California's RPS requirement to 50% renewable resources target by December 31, 2026, and to achieve a 60% target by December 31, 2030. SB 100 also requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt hours (kWh) of those products sold to their retail end-use customers achieve 44% of retail sales by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030. In addition to targets under AB 32 and SB 32, Executive Order B-55-18 establishes a carbon neutrality goal for the state of California by 2045; and sets a goal to maintain net negative emissions thereafter. The Executive Order directs the California Natural Resources Agency (CNRA), California Environmental Protection Agency (CalEPA), the Department of Food and Agriculture (CDFA), and CARB to include sequestration targets in the Natural and Working Lands Climate Change Implementation Plan consistent with the carbon neutrality goal.

2.8 DISCUSSION ON ESTABLISHMENT OF SIGNIFICANCE THRESHOLDS

The City of Hesperia has not adopted a numeric significance threshold for determining significant impacts associated with GHG emissions. As such thresholds established by the MDAQMD are utilized.

On May 13, 2010 EPA finalized the GHG Tailoring Rule (75 FR 31514, June 3, 2010). The Tailoring Rule sets major source emissions thresholds that define when federal operating permits under Prevention Significant Deterioration (PSD) or Title V are required. The Tailoring Rule establishes a threshold of 100,000 tons per year (tpy) or 90,719 MT/yr[5] of GHGs from new sources above which sources are considered major sources requiring a federal operating permit.

As such, the MDAQMD has adopted a significance threshold for GHGs of 100,000 tpy and is thus applied to this project (43). More specifically, 100,000 tpy of GHG emissions from a single facility constitutes major sources that require a federal operating permit. Similarly, the MDAQMDs NO_X significance threshold of 25 tons/year is equal to the major source threshold applicable to areas

[5] For purposes of analysis, this GHGA utilizes the 90,719 MT/yr threshold.

designated severe non-attainment for ozone. As such, use of the EPAs determination of whether a Project is a major source and consequently establishing a threshold based on that is supported by substantial evidence.

2.9 CITY OF HESPERIA CLIMATE ACTION PLAN (CAP)

On July 20, 2010, the City of Hesperia adopted the CAP, which provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate (44). The CAP recommends GHG emissions targets that are consistent with the reduction targets of the State of California and presents a number of strategies that will make it possible for the City to meet the recommended targets. Strategy CAP-1 specifies that "projects that are consistent with this CAP could result in less than significant impacts regarding climate change. This is because emissions from these projects are generally accounted for in this CAP and would be consistent with this CAP reduction target. To be consistent with this CAP, CEQA projects must implement the applicable CAP implementation strategies listed in Section 4.2" Per CAP Implementation Action 1.5 (CAP-1.5), projects that require a discretionary approval shall reduce operational GHG emissions by at least 12%, without accounting for regulations discussed in the CAP.

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will result in a significant GHG impact. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related GHG impacts are taken from the Initial Study Checklist in Appendix G of the State *CEQA Guidelines* (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to GHG if it would (45):

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

3.3 MODELS EMPLOYED TO ANALYZE GREENHOUSE GASES EMISSIONS

Land uses such as the Project affect GHGs through construction-source and operational-source emissions.

3.3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL™

On October 17, 2017, the South Coast Air Quality Management District (SCAQMD) in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (46). Accordingly, the latest version of CalEEMod has been used for this Project to determine construction and operational air quality emissions. The CalEEMod protocol includes GHG emissions from the following source categories: construction, area, energy, mobile, waste, water. The Project GHG emissions are reported herein for informational purposes. CalEEMod output model runs are provided in Appendices 3.1 through 3.3. Unless otherwise noted, CalEEMod default inputs and parameters were employed in all modeling applications.

3.3.1 EMISSION FACTORS MODEL

The EMissions FACtor model (EMFAC) is a mathematical model that was developed to calculate emission rates, fuel consumption, VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by CARB to project changes in future emissions from on-road mobile sources (47).

The latest version of CalEEMod uses vehicle emission rates obtained from the EMFAC2014 web database. EMFAC2014 emission rates of all vehicle categories are based on aggregated model year and aggregated speed for all counties, air basins, air districts and statewide average for thirty one (31) scenario years that each includes three seasons (annual, summer, and winter). It should be noted that emission rates for CH_4 were provided by CARB directly as they were not included in EMFAC2014 (48).

Although CalEEMod Version 2016.3.2 includes EMFAC2014 mobile source emission factors, the EPA approved the 2017 version of the EMFAC web database on August 19, 2019, for use in SIP and transportation conformity analyses. This GHGA utilizes annual EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season.

Because the EMFAC2017 emission rates are associated with vehicle fuel types while CalEEMod vehicle emission factors are aggregated to include all fuel types for each individual vehicle class, the EMFAC2017 emission rates for different fuel types of a vehicle class are averaged by activity or by population and activity to derive CalEEMod emission factors. Methodology for converting EMFAC2017 emission rates into CalEEMod vehicle emission factors for each emission type are detailed in CalEEMod User's Guide *Appendix A: Calculation Details for CalEEMod* (48).

3.4 CONSTRUCTION EMISSIONS

Project construction actvities would generate CO_2 and CH_4 emissions The report *Hesperia Commerce Center II Air Quality Impact Analysis Report* (Urban Crossroads, Inc.) (AQIA) contains detailed information regarding Project construction activities (49). As discussed in the AQIA, Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

3.4.1 CONSTRUCTION DURATION

Construction is expected to commence in January 2021 and will last through November 2021. Construction duration by phase is shown on Table 3-1. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[6] The duration of construction activity and associated equipment represents a reasonable approximation of the

[6] As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2, Section 4.3"OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

expected construction fleet as required per *CEQA Guidelines*. The duration of construction activity was based on the 2021 opening year.

TABLE 3-1: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	01/04/2021	01/29/2021	20
Grading	01/30/2021	03/12/2021	30
Building Construction	03/13/2021	11/19/2021	180
Paving	07/03/2021	11/19/2021	100
Architectural Coating	04/24/2021	11/19/2021	150

3.4.2 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The associated construction equipment was generally based on CalEEMod defaults. A detailed summary of construction equipment assumptions by phase is provided at Table 3-2. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this GHGA.

TABLE 3-2: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Number	Hours Per Day
Site Preparation	Rubber Tired Dozers	3	8
	Tractors/Loaders/Backhoes	4	8
Grading	Excavators	2	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Scrapers	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.3 CONSTRUCTION EMISSIONS SUMMARY

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. MDAQMD follows the SCAQMD recommendation in calculating the total GHG emissions for construction activities by amortizing the emissions over the life of the Project by dividing it by a 30- year project life then adding that number to the annual operational phase GHG emissions (50). As such, construction emissions were amortized over a 30-year period and added to the annual operational phase GHG emissions. The amortized construction emissions are presented in Table 3-3.

TABLE 3-3: AMORTIZED ANNUAL CONSTRUCTION EMISSIONS

Year	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2e
2021	3,876.42	0.36	0.00	3,885.37
Amortized Construction Emissions ($MTCO_2e$)	**129.51**			

3.5 OPERATIONAL EMISSIONS

Project operations would generate CO_2, CH_4, and N_2O emissions. Primary emissions sources would include:

- Area Source (landscape and site maintenance activities)
- Energy Source (combustion emissions associated with natural gas and electricity)
- Mobile Source (vehicles)
- On-Site Cargo Handling Equipment Emissions
- Solid Waste
- Water Supply, Treatment, and Distribution

3.5.1 AREA SOURCE EMISSIONS

LANDSCAPE MAINTENANCE EQUIPMENT

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in CalEEMod.

3.5.2 ENERGY SOURCE

COMBUSTION EMISSIONS ASSOCIATED WITH NATURAL GAS AND ELECTRICITY

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a

building; the building energy use emissions do not include street lighting[7]. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. GHG emissions associated with the natural gas and electricity usage associated with the Project were calculated by CalEEMod using default parameters.

TITLE 24 ENERGY EFFICIENCY STANDARDS

The CalEEMod defaults for Title 24 – Electricity and Lighting Energy were reduced by 30% in order to reflect consistency with the 2019 Title 24 standard.

3.5.3 MOBILE SOURCE

VEHICLES

Project-related GHG impacts derive primarily from vehicle trips generated by the Project. Trip characteristics available from the report, *Hesperia Commerce Center II Traffic Impact Analysis* (Urban Crossroads, Inc.) (TIA) were utilized in this analysis (51).

3.5.4 ON-SITE CARGO HANDLING EQUIPMENT EMISSIONS

It is common for industrial warehouse buildings to require cargo handling equipment to move empty containers and empty chassis to and from the various pieces of cargo handling equipment that receive and distribute containers. The most common type of cargo handling equipment is the yard truck which is designed for moving cargo containers. Yard trucks are also known as yard goats, utility tractors (UTRs), hustlers, yard hostlers, and yard tractors. The cargo handling equipment is assumed to have a horsepower (hp) range of approximately 175 hp to 200 hp. Based on the latest available information from SCAQMD (52); for example, high-cube warehouse projects typically have 3.6 yard trucks per million sf of building space. For this particular Project, based on the maximum square footage of warehouse building space permitted by the Project, on-site modeled operational equipment includes up to fifteen (15) 200 hp, compressed natural gas or gasoline-powered yard tractors operating at 4 hours a day for 365 days of the year.

3.5.5 SOLID WASTE

Industrial land uses will result in the generation and disposal of solid waste. A large percentage of this waste will be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated by CalEEMod using default parameters.

3.5.6 WATER SUPPLY, TREATMENT, AND DISTRIBUTION

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and

[7] The CalEEMod emissions inventory model does not include indirect emission related to street lighting. Indirect emissions related to street lighting are expected to be negligible and cannot be accurately quantified at this time as there is insufficient information as to the number and type of street lighting that would occur.

distribute water depends on the volume of water as well as the sources of the water. Based on the *City of Hesperia General Plan Evaluation Water Supply Evaluation*, demand rates for commercial land uses were 3,000 gallons per day per acre (gpd/acre) (53). As such, the proposed Project is anticipated to have a total water demand of 213,297,953.39 gallons per year.

3.6 EMISSIONS SUMMARY

IMPACTS WITHOUT REGULATORY REQUIREMENTS AND PDFS

As shown on Table 3-4, without accounting for applicable regulatory requirements and PDFs, the Project would result in 63,906.29 $MTCO_2e$ per year.

TABLE 3-4: PROJECT GHG EMISSIONS SUMMARY – WITHOUT REGULATORY REQUIREMENTS AND PDFS

Emission Source	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2e
Annual construction-related emissions amortized over 30 years	129.21	0.01	0.00	129.51
Area Source	0.17	4.5-e4	0.00	0.18
Energy Source	9,875.06	0.31	0.10	9,913.46
Mobile Sources (Passenger Cars)	12,783.37	0.35	0.00	12,792.21
Mobile Sources (Trucks)	37,014.63	0.17	0.00	37,018.97
On-Site Equipment Sources	762.61	0.25	0.00	768.77
Waste	798.94	47.22	0.00	1,979.34
Water Usage	1,078.02	0.99	0.17	1,303.85
Total $MTCO_2e$ (All Sources)	**63,906.29**			

Source: CalEEMod output, See Appendix 3.2 for detailed model outputs.

IMPACTS WITH REGULATORY REQUIREMENTS AND PDFS

As shown on Table 3-5, after implementation of applicable regulatory requirements and PDFs, the Project would result in 55,599.41 $MTCO_2e$ per year.

TABLE 3-5: PROJECT GHG EMISSIONS SUMMARY – WITH REGULATORY REQUIREMENTS AND PDFS

Emission Source	Emissions (MT/yr)			
	CO_2	CH_4	N_2O	Total CO_2e
Annual construction-related emissions amortized over 30 years	129.21	0.01	0.00	129.51
Area Source	0.17	4.5-e4	0.00	0.18
Energy Source	6,600.86	0.29	0.09	6,635.45
Mobile Sources (Passenger Cars)	9,789.03	0.35	0.00	9,797.86
Mobile Sources (Trucks)	37,014.63	0.17	0.00	37,018.97
On-Site Equipment Sources	762.61	0.25	0.00	768.77
Waste	199.74	11.80	0.00	494.84
Water Usage	573.17	5.59	0.14	753.83
Total $MTCO_2e$ (All Sources)	**55,599.41**			

Source: CalEEMod output, See Appendix 3.3 for detailed model outputs.

3.7 GREENHOUSE GAS EMISSIONS FINDINGS AND RECOMMENDATIONS

3.7.1 GHG IMPACT #1

The Project would not generate direct or indirect greenhouse gas emission that would result in a significant impact on the environment.

The City of Hesperia has not adopted a numeric significance threshold for determining significant impacts associated with GHG emissions. As such thresholds established by the MDAQMD are utilized.

On May 13, 2010, the EPA finalized the GHG Tailoring Rule (75 FR 31514, June 3, 2010). The Tailoring Rule sets major source emissions thresholds that define when federal operating permits under PSD or Title V are required. The Tailoring Rule establishes a threshold of 100,000 tpy or 90,719 MT/yr of GHGs from new sources above which sources are considered major sources requiring a federal operating permit.

As such, the MDAQMD has adopted a significance threshold for GHGs of 100,000 tpy and is thus applied to this project (43). More specifically, 100,000 tpy of GHG emissions from a single facility constitutes major sources that require a federal operating permit. Similarly, the MDAQMDs NO_X significance threshold of 25 tons/year is equal to the major source threshold applicable to areas designated severe non-attainment for ozone. As such, use of the EPAs determination of whether a Project is a major source and consequently establishing a threshold based on that is supported by substantial evidence.

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 63,906.29 $MTCO_2e$/yr as summarized in Table 3-4. Direct and indirect operational emissions associated with the Project are compared with the screening threshold of 90,719 $MTCO_2e$/yr (43). After implementation of regulatory requirements and PDFs, the Project would result in

55,599.41 $MTCO_2e$ per year. As such, the proposed Project would result in a less than significant impact with respect to GHG emissions for GHG Impact #1.

3.7.2 GHG IMPACT #2

The Project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

As previously stated, pursuant to 15604.4 of the *CEQA Guidelines*, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions (42). As such, the Project's consistency with SB 32 (2017 Scoping Plan) and the City's CAP, is discussed below. It should be noted that the Project's consistency with the 2017 Scoping Plan also satisfies consistency with AB 32 since the 2017 Scoping Plan is based on the overall targets established by AB 32. Consistency with the 2008 Scoping Plan is not necessary, since the target year for the 2008 Scoping Plan was 2020, and the Project's buildout year is 2021. As such the 2008 Scoping Plan does not apply and consistency with the 2017 Scoping Plan is relevant. For reasons outlined herein, the proposed Project would result in a less than significant impact with respect to GHG emissions for GHG Impact #2.

2017 SCOPING PLAN CONSISTENCY

The *2017 Scoping Plan* Update reflects the 2030 target of a 40% reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Table 3-6 summarizes the project's consistency with the *2017 Scoping Plan*. As summarized, the project will not conflict with any of the provisions of the *Scoping Plan* and in fact supports seven of the action categories.

TABLE 3-6: 2017 SCOPING PLAN CONSISTENCY SUMMARY[8]

Action	Responsible Parties	Consistency
Implement SB 350 by 2030		
Increase the Renewables Portfolio Standard to 50% of retail sales by 2030 and ensure grid reliability.	CPUC, CEC, CARB	Consistent. The Project would use energy from Southern California Edison (SCE). SCE has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources. The Project would not interfere with or obstruct SCE energy source diversification efforts.
Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.		Consistent. The Project would be constructed in compliance with current California Building Code requirements. Specifically, new buildings must achieve compliance with 2019 Building and Energy Efficiency Standards and the 2019 California Green Building Standards

[8] Measures can be found at the following link: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf

Action	Responsible Parties	Consistency
Reduce GHG emissions in the electricity sector through the implementation of the above measures and other actions as modeled in Integrated Resource Planning (IRP) to meet GHG emissions reductions planning targets in the IRP process. Load-serving entities and publicly- owned utilities meet GHG emissions reductions planning targets through a combination of measures as described in IRPs.		requirements. The proposed Project includes energy efficient field lighting and fixtures that meet the current Title 24 Standards throughout the Project Site and would be a modern development with energy efficient boilers, heaters, and air conditioning systems.
Implement Mobile Source Strategy (Cleaner Technology and Fuels)		
At least 1.5 million zero emission and plug-in hybrid light-duty EVs by 2025.	CARB, California State Transportation Agency (CalSTA), Strategic Growth Council (SGC), California Department of Transportation (Caltrans), CEC, OPR, Local Agencies	Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2025 targets. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
At least 4.2 million zero emission and plug-in hybrid light-duty EVs by 2030.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB zero emission and plug-in hybrid light-duty EV 2030 targets. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean cars regulations. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.
Medium- and Heavy-Duty GHG Phase 2.		Consistent. This is a CARB Mobile Source Strategy. The Project would not obstruct or interfere with CARB efforts to implement Medium- and Heavy-Duty GHG Phase 2. As this is a CARB enforced standard, vehicles that access the Project are required to comply with the standards and will therefore comply with the strategy.

Action	Responsible Parties	Consistency
Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20% of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100% of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO_X standard.		Not applicable. This measure is not within the purview of this Project.
Last Mile Delivery: New regulation that would result in the use of low NO_X or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5% of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10% in 2025 and remaining flat through 2030.		Not applicable. This Project is not responsible for implementation of SB 375 and would therefore not conflict with this measure
Further reduce VMT through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."		Consistent. This Project would not obstruct or interfere with implementation of SB 375 and would therefore not conflict with this measure.
Increase stringency of SB 375 Sustainable Communities Strategy (2035 targets).	CARB	Not applicable. The Project is not within the purview of SB 375 and would therefore not conflict with this measure.

Action	Responsible Parties	Consistency
Harmonize project performance with emissions reductions and increase competitiveness of transit and active transportation modes (e.g. via guideline documents, funding programs, project selection, etc.).	CalSTA, SGC, OPR, CARB, Governor's Office of Business and Economic Development (GO-Biz), California Infrastructure and Economic Development Bank (IBank), Department of Finance (DOF), California Transportation Commission (CTC), Caltrans	Consistent. The Project would not obstruct or interfere with agency efforts to harmonize transportation facility project performance with emissions reductions and increase competitiveness of transit and active transportation modes.
By 2019, develop pricing policies to support low-GHG transportation (e.g. low-emission vehicle zones for heavy duty, road user, parking pricing, transit discounts).	CalSTA, Caltrans, CTC, OPR, SGC, CARB	Consistent. The Project would not obstruct or interfere with agency efforts to develop pricing policies to support low-GHG transportation.
Implement California Sustainable Freight Action Plan		
Improve freight system efficiency.	CalSTA, CalEPA, CNRA, CARB, Caltrans, CEC, GO-Biz	Consistent. This measure would apply to all trucks accessing the Project sites, this may include existing trucks or new trucks that are part of the statewide goods movement sector. The Project would not obstruct or interfere with agency efforts to Improve freight system efficiency.
Deploy over 100,000 freight vehicles and equipment capable of zero emission operation and maximize both zero and near-zero emission freight vehicles and equipment powered by renewable energy by 2030.		Not applicable. This measure is not within the purview of this Project.
Adopt a Low Carbon Fuel Standard with a Carbon Intensity reduction of 18%.	CARB	Consistent. When adopted, this measure would apply to all fuel purchased and used by the Project in the state. The Project would not obstruct or interfere with agency efforts to adopt a Low Carbon

Action	Responsible Parties	Consistency
		Fuel Standard with a Carbon Intensity reduction of 18%.
Implement the Short-Lived Climate Pollutant Strategy (SLPS) by 2030		
40% reduction in methane and hydrofluorocarbon emissions below 2013 levels.	CARB, CalRecycle, CDFA, California State Water Resource Control Board (SWRCB), Local Air Districts	Not applicable. This measure is not within the purview of this Project.
50% reduction in black carbon emissions below 2013 levels.		
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	CARB, CalRecycle, CDFA, SWRCB, Local Air Districts	Not applicable. This measure is not within the purview of this Project.
Implement the post-2020 Cap-and-Trade Program with declining annual caps.	CARB	Consistent. The Project would be required to comply with any applicable Cap-and-Trade Program provisions. The Project would not obstruct or interfere agency efforts to implement the post-2020 Cap-and-Trade Program.
By 2018, develop Integrated Natural and Working Lands Implementation Plan to secure California's land base as a net carbon sink		
Protect land from conversion through conservation easements and other incentives.	CNRA, Departments Within CDFA, CalEPA, CARB	Not applicable. This measure is not within the purview of this Project. However, the Project site is not an identified property that needs to be conserved.
Increase the long-term resilience of carbon storage in the land base and enhance sequestration capacity		Not applicable. This measure is not within the purview of this Project. The majority of the site is already currently developed.
Utilize wood and agricultural products to increase the amount of carbon stored in the natural and built environments		Consistent. To the extent appropriate for the proposed industrial buildings, wood products would be used in construction, including for the roof structure. Additionally, the proposed project includes landscaping, including.
Establish scenario projections to serve as the foundation for the Implementation Plan		Not applicable. This measure is not within the purview of this Project.

Action	Responsible Parties	Consistency
Implement Forest Carbon Plan	CNRA, California Department of Forestry and Fire Protection (CAL FIRE), CalEPA and Departments Within	Not applicable. This measure is not within the purview of this Project.
Identify and expand funding and financing mechanisms to support GHG reductions across all sectors.	State Agencies & Local Agencies	Not applicable. This measure is not within the purview of this Project.

As shown above, the Project would not conflict with any of the *2017 Scoping Plan* elements as any regulations adopted would apply directly or indirectly to the Project. Further, recent studies show that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40% below 1990 levels by 2030 (38).

CONSISTENCY WITH THE CAP

As previously stated, the CAP presents a number of strategies that will make it possible for the City to meet the recommended GHG emissions targets that are consistent with the reduction targets of the State. The Project's consistency with applicable CAP strategies are presented in Table 3-7.

TABLE 3-7: CAP CONSISTENCY

CAP Strategy		Project Consistency
CAP-1.5	Projects that require a discretionary approval shall reduce operational GHG emissions by at least 12%, without accounting for regulations discussed in the CAP. The project inventory should include all potential sources, including but not limited to those identified in this CAP.	Consistent. The inventory prepared in this report includes all applicable sources of GHG emissions including area, mobile. Water use, water and solid waste. With the inclusion of Project design features the Project would reduce GHG emissions by 13% (as shown on Table 3-8).

The Project's emissions without regulatory requirements and PDFs as compared to the Project's emissions with regulatory requirements and PDFs are shown on Table 3-8. The proposed Project's emissions without accounting for regulatory requires and PDFs would be 63,906.29 $MTCO_2e$/yr. After implementation, Project GHG emissions would be reduced to 55,599.41 $MTCO_2e$/yr. This yields a reduction of approximately 13% which satisfies the City's CAP target of a 12% reduction. As such, the Project is consistent with the City's CAP.

TABLE 3-8: PROJECT CONSISTENCY WITH CAP

Project GHG Emissions	Emissions (MT/yr)
Total $MTCO_2e$ (Without Regulatory Requirements and PDFs)	63,906.29
Total $MTCO_2e$ (With Regulatory Requirements and PDFs)	55,599.41
% Reduction	**13%**

Source: CalEEMod output, See Appendices 3.2 and 3.3 for detailed model outputs.

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5 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Hesperia Commerce Center II Project. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 3.1:

CALEEMOD ANNUAL CONSTRUCTION EMISSIONS MODEL OUTPUTS

Hesperia Commerce Center II (Construction - Mitigated)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Annual

Project Characteristics -

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Construction Schedule anticipated to started January 2021 and be completed November 2021

Off-road Equipment - Hours are based on an 8-hour workday

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment - Based on the size of Project (194.8 acres), the equipment has been doubled to represent a more realistic scenario of the number of equipment used.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEmod default worker/vendor trips.

Grading - For purposes of analysis, and as a conservative measure, it is assumed that 20 acres will be graded per day.

Architectural Coating - Only “Low-Volatile Organic Compounds (VOC)” paints (no more than 50 gram/liter (g/L) of VOC)

Vehicle Trips - Construction Run Only.

Energy Use - Construction Run Only.

Water And Wastewater - Construction Run Only.

Solid Waste - Construction Run Only.

Construction Off-road Equipment Mitigation -

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
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tblArchitecturalCoating	EF_Residential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	50.00

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tblConstructionPhase	NumDays	220.00	150.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00

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tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003

tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
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tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26

tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19

tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99

tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003

tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003

tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70

tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003

tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54

tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19

tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03

tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57

tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51

tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
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tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00

tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	4.1450e-003	6.2250e-003
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tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
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tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003

tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4900e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
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tblVehicleEF	MHD	0.24	0.35
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tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78

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tblVehicleEF	MHD	1.01	1.76
tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
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tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8700e-004
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tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09

tblVehicleEF	MHD	0.02	5.8910e-003
tblVehicleEF	MHD	4.1530e-003	6.2420e-003
tblVehicleEF	MHD	0.06	0.02
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tblVehicleEF	MHD	0.31	0.67
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tblVehicleEF	MHD	1.06	1.85
tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1320e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
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tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
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tblVehicleEF	OBUS	1,126.32	1,610.98
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tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4300e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.06	0.11
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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
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tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
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tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
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tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.39	0.15
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tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.1800e-004	2.3700e-004
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tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
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tblVehicleEF	OBUS	0.01	9.8320e-003
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tblVehicleEF	OBUS	0.03	0.03

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tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2520e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.3100e-004	1.1980e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
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tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
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tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9500e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4200e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03

tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.7870e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004

tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.28	6.0120e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	1.0000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.31	6.5820e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4520e-003
tblVehicleEF	SBUS	0.06	8.8900e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98

tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003

tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004

tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004

tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04

tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	0.00

tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	CW_TTP	59.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	PR_TP	92.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	ST_TR	1.68	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	SU_TR	1.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblVehicleTrips	WD_TR	1.68	0.00
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	4.0934	12.7435	12.4162	0.0422	3.0449	0.3305	3.3755	0.8375	0.3087	1.1462	0.0000	3,876.4256	3,876.4256	0.3579	0.0000	3,885.3727
Maximum	**4.0934**	**12.7435**	**12.4162**	**0.0422**	**3.0449**	**0.3305**	**3.3755**	**0.8375**	**0.3087**	**1.1462**	**0.0000**	**3,876.4256**	**3,876.4256**	**0.3579**	**0.0000**	**3,885.3727**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	4.0934	12.7435	12.4162	0.0422	3.0449	0.3305	3.3755	0.8375	0.3087	1.1462	0.0000	3,876.4247	3,876.4247	0.3579	0.0000	3,885.3718
Maximum	**4.0934**	**12.7435**	**12.4162**	**0.0422**	**3.0449**	**0.3305**	**3.3755**	**0.8375**	**0.3087**	**1.1462**	**0.0000**	**3,876.4247**	**3,876.4247**	**0.3579**	**0.0000**	**3,885.3718**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-4-2021	4-3-2021	2.9001	2.9001
2	4-4-2021	7-3-2021	4.9988	4.9988
3	7-4-2021	9-30-2021	5.6878	5.6878
		Highest	5.6878	5.6878

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**19.4472**	**8.0000e-004**	**0.0873**	**1.0000e-005**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**19.4472**	**8.0000e-004**	**0.0873**	**1.0000e-005**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/29/2021	5	20	
2	Grading	Grading	1/30/2021	3/12/2021	5	30	
3	Building Construction	Building Construction	3/13/2021	11/19/2021	5	180	
4	Architectural Coating	Architectural Coating	4/24/2021	11/19/2021	5	150	
5	Paving	Paving	7/3/2021	11/19/2021	5	100	

Acres of Grading (Site Preparation Phase): 400

Acres of Grading (Grading Phase): 600

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,618,144; Non-Residential Outdoor: 1,872,715; Striped Parking Area: 284,416 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	4	8.00	158	0.38
Grading	Graders	2	8.00	187	0.41
Grading	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Scrapers	4	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Cranes	2	8.00	231	0.29
Building Construction	Forklifts	6	8.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	6	8.00	97	0.37
Building Construction	Welders	2	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	18	1,782.00	696.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	713.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3928	0.0000	0.3928	0.1222	0.0000	0.1222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.3928**	**0.0204**	**0.4132**	**0.1222**	**0.0188**	**0.1410**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.8000e-004	4.9500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.2127	1.2127	3.0000e-005	0.0000	1.2136
Total	**6.6000e-004**	**4.8000e-004**	**4.9500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2127**	**1.2127**	**3.0000e-005**	**0.0000**	**1.2136**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3928	0.0000	0.3928	0.1222	0.0000	0.1222	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.3928**	**0.0204**	**0.4132**	**0.1222**	**0.0188**	**0.1410**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6000e-004	4.8000e-004	4.9500e-003	1.0000e-005	1.4500e-003	1.0000e-005	1.4600e-003	3.9000e-004	1.0000e-005	3.9000e-004	0.0000	1.2127	1.2127	3.0000e-005	0.0000	1.2136
Total	**6.6000e-004**	**4.8000e-004**	**4.9500e-003**	**1.0000e-005**	**1.4500e-003**	**1.0000e-005**	**1.4600e-003**	**3.9000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2127**	**1.2127**	**3.0000e-005**	**0.0000**	**1.2136**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4988	0.0000	0.4988	0.1337	0.0000	0.1337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4849	163.4849	0.0529	0.0000	164.8068
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.4988**	**0.0596**	**0.5584**	**0.1337**	**0.0548**	**0.1885**	**0.0000**	**163.4849**	**163.4849**	**0.0529**	**0.0000**	**164.8068**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.5900e-003	0.0165	4.0000e-005	4.8300e-003	3.0000e-005	4.8700e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.0424	4.0424	1.2000e-004	0.0000	4.0453
Total	**2.2000e-003**	**1.5900e-003**	**0.0165**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8700e-003**	**1.2800e-003**	**3.0000e-005**	**1.3100e-003**	**0.0000**	**4.0424**	**4.0424**	**1.2000e-004**	**0.0000**	**4.0453**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4988	0.0000	0.4988	0.1337	0.0000	0.1337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4848	163.4848	0.0529	0.0000	164.8066
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.4988**	**0.0596**	**0.5584**	**0.1337**	**0.0548**	**0.1885**	**0.0000**	**163.4848**	**163.4848**	**0.0529**	**0.0000**	**164.8066**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-003	1.5900e-003	0.0165	4.0000e-005	4.8300e-003	3.0000e-005	4.8700e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.0424	4.0424	1.2000e-004	0.0000	4.0453
Total	**2.2000e-003**	**1.5900e-003**	**0.0165**	**4.0000e-005**	**4.8300e-003**	**3.0000e-005**	**4.8700e-003**	**1.2800e-003**	**3.0000e-005**	**1.3100e-003**	**0.0000**	**4.0424**	**4.0424**	**1.2000e-004**	**0.0000**	**4.0453**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3641	3.3749	3.1807	5.1900e-003		0.1845	0.1845		0.1733	0.1733	0.0000	446.7775	446.7775	0.1102	0.0000	449.5335
Total	**0.3641**	**3.3749**	**3.1807**	**5.1900e-003**		**0.1845**	**0.1845**		**0.1733**	**0.1733**	**0.0000**	**446.7775**	**446.7775**	**0.1102**	**0.0000**	**449.5335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1701	6.2030	1.2646	0.0173	0.4177	0.0110	0.4288	0.1206	0.0105	0.1311	0.0000	1,655.9633	1,655.9633	0.1082	0.0000	1,658.6681
Worker	0.5884	0.4245	4.4071	0.0120	1.2924	8.7000e-003	1.3011	0.3433	8.0100e-003	0.3513	0.0000	1,080.5288	1,080.5288	0.0310	0.0000	1,081.3039
Total	**0.7584**	**6.6275**	**5.6716**	**0.0293**	**1.7101**	**0.0197**	**1.7298**	**0.4639**	**0.0186**	**0.4824**	**0.0000**	**2,736.4921**	**2,736.4921**	**0.1392**	**0.0000**	**2,739.9719**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3641	3.3749	3.1807	5.1900e-003		0.1845	0.1845		0.1733	0.1733	0.0000	446.7770	446.7770	0.1102	0.0000	449.5329
Total	**0.3641**	**3.3749**	**3.1807**	**5.1900e-003**		**0.1845**	**0.1845**		**0.1733**	**0.1733**	**0.0000**	**446.7770**	**446.7770**	**0.1102**	**0.0000**	**449.5329**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1701	6.2030	1.2646	0.0173	0.4177	0.0110	0.4288	0.1206	0.0105	0.1311	0.0000	1,655.9633	1,655.9633	0.1082	0.0000	1,658.6681
Worker	0.5884	0.4245	4.4071	0.0120	1.2924	8.7000e-003	1.3011	0.3433	8.0100e-003	0.3513	0.0000	1,080.5288	1,080.5288	0.0310	0.0000	1,081.3039
Total	**0.7584**	**6.6275**	**5.6716**	**0.0293**	**1.7101**	**0.0197**	**1.7298**	**0.4639**	**0.0186**	**0.4824**	**0.0000**	**2,736.4921**	**2,736.4921**	**0.1392**	**0.0000**	**2,739.9719**

3.5 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3951					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.1527	0.1818	3.0000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5763
Total	**2.4170**	**0.1527**	**0.1818**	**3.0000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5763**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1962	0.1415	1.4694	3.9900e-003	0.4309	2.9000e-003	0.4338	0.1145	2.6700e-003	0.1171	0.0000	360.2773	360.2773	0.0103	0.0000	360.5358
Total	**0.1962**	**0.1415**	**1.4694**	**3.9900e-003**	**0.4309**	**2.9000e-003**	**0.4338**	**0.1145**	**2.6700e-003**	**0.1171**	**0.0000**	**360.2773**	**360.2773**	**0.0103**	**0.0000**	**360.5358**

3.5 Architectural Coating - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.3951					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0219	0.1527	0.1818	3.0000e-004		9.4100e-003	9.4100e-003		9.4100e-003	9.4100e-003	0.0000	25.5325	25.5325	1.7500e-003	0.0000	25.5763
Total	**2.4170**	**0.1527**	**0.1818**	**3.0000e-004**		**9.4100e-003**	**9.4100e-003**		**9.4100e-003**	**9.4100e-003**	**0.0000**	**25.5325**	**25.5325**	**1.7500e-003**	**0.0000**	**25.5763**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1962	0.1415	1.4694	3.9900e-003	0.4309	2.9000e-003	0.4338	0.1145	2.6700e-003	0.1171	0.0000	360.2773	360.2773	0.0103	0.0000	360.5358
Total	**0.1962**	**0.1415**	**1.4694**	**3.9900e-003**	**0.4309**	**2.9000e-003**	**0.4338**	**0.1145**	**2.6700e-003**	**0.1171**	**0.0000**	**360.2773**	**360.2773**	**0.0103**	**0.0000**	**360.5358**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0628	0.6460	0.7327	1.1400e-003		0.0339	0.0339		0.0312	0.0312	0.0000	100.1174	100.1174	0.0324	0.0000	100.9269
Paving	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1875**	**0.6460**	**0.7327**	**1.1400e-003**		**0.0339**	**0.0339**		**0.0312**	**0.0312**	**0.0000**	**100.1174**	**100.1174**	**0.0324**	**0.0000**	**100.9269**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7500e-003	1.9900e-003	0.0206	6.0000e-005	6.0400e-003	4.0000e-005	6.0800e-003	1.6100e-003	4.0000e-005	1.6400e-003	0.0000	5.0530	5.0530	1.4000e-004	0.0000	5.0566
Total	**2.7500e-003**	**1.9900e-003**	**0.0206**	**6.0000e-005**	**6.0400e-003**	**4.0000e-005**	**6.0800e-003**	**1.6100e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**5.0530**	**5.0530**	**1.4000e-004**	**0.0000**	**5.0566**

3.6 Paving - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0628	0.6460	0.7327	1.1400e-003		0.0339	0.0339		0.0312	0.0312	0.0000	100.1173	100.1173	0.0324	0.0000	100.9268
Paving	0.1247					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1875**	**0.6460**	**0.7327**	**1.1400e-003**		**0.0339**	**0.0339**		**0.0312**	**0.0312**	**0.0000**	**100.1173**	**100.1173**	**0.0324**	**0.0000**	**100.9268**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7500e-003	1.9900e-003	0.0206	6.0000e-005	6.0400e-003	4.0000e-005	6.0800e-003	1.6100e-003	4.0000e-005	1.6400e-003	0.0000	5.0530	5.0530	1.4000e-004	0.0000	5.0566
Total	**2.7500e-003**	**1.9900e-003**	**0.0206**	**6.0000e-005**	**6.0400e-003**	**4.0000e-005**	**6.0800e-003**	**1.6100e-003**	**4.0000e-005**	**1.6400e-003**	**0.0000**	**5.0530**	**5.0530**	**1.4000e-004**	**0.0000**	**5.0566**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Hesperia Commerce Center II (Construction - Mitigated) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.2:

CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS (WITHOUT REGUALTORY REQUIREMENTS OR PDFS)

Hesperia Commerce Center II (Operations - Passenger Cars)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	802	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - CO2 Intensity Factor per Total Non-RPS-Eligible/Non-Renewable Energy

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix.

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00

tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

tblProjectCharacteristics	CO2IntensityFactor	702.44	802
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7730e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3300e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.0000e-006

tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
tblVehicleEF	HHD	3.4490e-003	6.9000e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7740e-003
tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6800e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56
tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	0.00
tblVehicleEF	HHD	1.8400e-004	6.0000e-006
tblVehicleEF	HHD	3.9090e-003	8.8000e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4800e-004	3.8400e-004
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4810e-003

tblVehicleEF	HHD	0.11	0.00
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1000e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9820e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	0.96	0.68
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.06	1.0000e-006

tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
tblVehicleEF	HHD	3.7830e-003	8.4000e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.07	1.0000e-006
tblVehicleEF	LDA	4.6640e-003	2.6750e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	338.49
tblVehicleEF	LDA	59.28	73.81
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23

tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6340e-003
tblVehicleEF	LDA	6.1500e-004	5.5000e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1450e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	362.41
tblVehicleEF	LDA	59.28	73.81
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21

tblVehicleEF	LDA	2.8710e-003	2.9150e-003
tblVehicleEF	LDA	6.1100e-004	5.4200e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5900e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	324.46
tblVehicleEF	LDA	59.28	73.81
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	1.7130e-003	1.4180e-003
tblVehicleEF	LDA	2.3020e-003	1.9600e-003
tblVehicleEF	LDA	1.5790e-003	1.3070e-003
tblVehicleEF	LDA	2.1170e-003	1.8030e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5510e-003

tblVehicleEF	LDA	6.1500e-004	5.4900e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3480e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	390.98
tblVehicleEF	LDT1	72.77	85.14
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004

tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	418.50
tblVehicleEF	LDT1	72.77	85.14
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49

tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	376.36
tblVehicleEF	LDT1	72.77	85.14
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34

tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	459.55
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09

tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	492.93
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03

tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	441.55
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64

tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67

tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004

tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44

tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72

tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27

tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7300e-004	6.6000e-005
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004

tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7100e-004	6.5000e-005
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54

tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02

tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82

tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61

tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02

tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	586.82
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003

tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	628.23
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
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tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10

tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	564.27
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
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tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
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tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38

tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00

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tblVehicleEF	MH	6.31	0.00
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tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00

tblVehicleEF	MHD	0.02	5.4630e-003
tblVehicleEF	MHD	4.1450e-003	6.2250e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
tblVehicleEF	MHD	155.10	70.79
tblVehicleEF	MHD	1,105.72	1,107.75
tblVehicleEF	MHD	53.92	15.06
tblVehicleEF	MHD	0.63	0.57
tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01

tblVehicleEF	MHD	6.4400e-004	1.4900e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
tblVehicleEF	MHD	5.61	1.72
tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78
tblVehicleEF	MHD	53.92	14.81
tblVehicleEF	MHD	0.65	0.57
tblVehicleEF	MHD	1.01	1.76
tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003

tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8700e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
tblVehicleEF	MHD	0.02	5.8910e-003
tblVehicleEF	MHD	4.1530e-003	6.2420e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
tblVehicleEF	MHD	142.41	68.88
tblVehicleEF	MHD	1,105.72	1,107.76
tblVehicleEF	MHD	53.92	14.97
tblVehicleEF	MHD	0.60	0.56
tblVehicleEF	MHD	1.06	1.85

tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1320e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
tblVehicleEF	OBUS	0.01	9.8280e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
tblVehicleEF	OBUS	6.67	3.30
tblVehicleEF	OBUS	70.21	51.97
tblVehicleEF	OBUS	1,126.32	1,610.98
tblVehicleEF	OBUS	71.08	24.56
tblVehicleEF	OBUS	0.32	0.26
tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4300e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03

tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8610e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
tblVehicleEF	OBUS	71.08	24.00
tblVehicleEF	OBUS	0.33	0.26
tblVehicleEF	OBUS	1.02	1.08
tblVehicleEF	OBUS	1.92	0.45
tblVehicleEF	OBUS	9.5000e-005	8.7200e-004
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003

tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.39	0.15
tblVehicleEF	OBUS	7.1200e-004	5.0100e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.1800e-004	2.3700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.42	0.16
tblVehicleEF	OBUS	0.01	9.8320e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.28	0.44
tblVehicleEF	OBUS	0.73	1.53
tblVehicleEF	OBUS	6.62	3.24
tblVehicleEF	OBUS	65.88	51.61
tblVehicleEF	OBUS	1,126.32	1,611.00
tblVehicleEF	OBUS	71.08	24.45
tblVehicleEF	OBUS	0.31	0.26
tblVehicleEF	OBUS	1.08	1.17
tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2520e-003
tblVehicleEF	OBUS	5.4210e-003	0.02

tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.3100e-004	1.1980e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9500e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4200e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4370e-003
tblVehicleEF	SBUS	0.07	1.1460e-003
tblVehicleEF	SBUS	5.64	1.00
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.49	0.17

tblVehicleEF	SBUS	1,270.71	324.55
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
tblVehicleEF	SBUS	5.17	5.16
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9580e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.7870e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.28	6.0120e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	1.0000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.97	0.11

tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.31	6.5820e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4520e-003
tblVehicleEF	SBUS	0.06	8.8900e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08

tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003
tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99

tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18

tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004

tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.56
tblVehicleTrips	ST_TR	1.68	1.75
tblVehicleTrips	SU_TR	0.68	3.93
tblVehicleTrips	SU_TR	1.68	1.75
tblVehicleTrips	WD_TR	6.97	3.90
tblVehicleTrips	WD_TR	1.68	1.75
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	9,875.0579	9,875.0579	0.3120	0.1027	9,913.4587
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	12,783.3697	12,783.3697	0.3534	0.0000	12,792.2050
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	1,010.3484	1,078.0180	6.9869	0.1717	1,303.8471
Total	**24.3373**	**10.4030**	**43.8836**	**0.1298**	**11.6924**	**0.3877**	**12.0801**	**3.1040**	**0.3717**	**3.4756**	**866.6096**	**24,431.5534**	**25,298.1630**	**55.1153**	**0.2744**	**26,757.8055**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	9,875.0579	9,875.0579	0.3120	0.1027	9,913.4587
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	12,783.3697	12,783.3697	0.3534	0.0000	12,792.2050
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	1,010.3484	1,078.0180	6.9869	0.1717	1,303.8471
Total	**24.3373**	**10.4030**	**43.8836**	**0.1298**	**11.6924**	**0.3877**	**12.0801**	**3.1040**	**0.3717**	**3.4756**	**866.6096**	**24,431.5534**	**25,298.1630**	**55.1153**	**0.2744**	**26,757.8055**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	12,783.3697	12,783.3697	0.3534	0.0000	12,792.2050
Unmitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	12,783.3697	12,783.3697	0.3534	0.0000	12,792.2050

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,220.0382	7,220.0382	0.2611	0.0540	7,242.6616
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,220.0382	7,220.0382	0.2611	0.0540	7,242.6616
NaturalGas Mitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	5,109.4425	0.1848	0.0382	5,125.4525
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	83.0658	3.0000e-003	6.2000e-004	83.3261
Unrefrigerated Warehouse-No Rail	5.57349e+006	2,027.5300	0.0733	0.0152	2,033.8831
Total		**7,220.0382**	**0.2611**	**0.0540**	**7,242.6616**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	5,109.4425	0.1848	0.0382	5,125.4525
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	83.0658	3.0000e-003	6.2000e-004	83.3261
Unrefrigerated Warehouse-No Rail	5.57349e+006	2,027.5300	0.0733	0.0152	2,033.8831
Total		**7,220.0382**	**0.2611**	**0.0540**	**7,242.6616**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,078.0180	6.9869	0.1717	1,303.8471
Unmitigated	1,078.0180	6.9869	0.1717	1,303.8471

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	1,078.0180	6.9869	0.1717	1,303.8471
Total		**1,078.0180**	**6.9869**	**0.1717**	**1,303.8471**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	1,078.0180	6.9869	0.1717	1,303.8471
Total		**1,078.0180**	**6.9869**	**0.1717**	**1,303.8471**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	798.9400	47.2160	0.0000	1,979.3399
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Operations - Trucks)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	802	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - CO2 Intensity Factor per Total Non-RPS-Eligible/Non-Renewable Energy

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA.

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre)

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00

tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

tblProjectCharacteristics	CO2IntensityFactor	702.44	802
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tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3300e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
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tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
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tblVehicleEF	HHD	5.7000e-005	1.0000e-006

tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6800e-004
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tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.3000e-005	2.0000e-006
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tblVehicleEF	HHD	5.7000e-005	1.0000e-006
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tblVehicleEF	HHD	1,493.95	1,319.40
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tblVehicleEF	HHD	0.06	0.06

tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9830e-003
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tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	0.00
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9820e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	0.00
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tblVehicleEF	HHD	5.6000e-005	1.0000e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8300e-004
tblVehicleEF	HHD	0.06	1.0000e-006

tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	0.00
tblVehicleEF	HHD	9.4000e-005	3.0000e-006
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tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23

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tblVehicleEF	LDA	0.02	0.02
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tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21

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tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
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tblVehicleEF	LDA	59.28	73.81
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tblVehicleEF	LDA	0.03	0.05
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tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
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tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62
tblVehicleEF	LDT1	323.73	390.98
tblVehicleEF	LDT1	72.77	85.14
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tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
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tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1200e-003
tblVehicleEF	LDT1	7.9900e-004	6.7000e-004

tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5440e-003
tblVehicleEF	LDT1	0.02	0.08
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tblVehicleEF	LDT1	3.30	2.13
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tblVehicleEF	LDT1	72.77	85.14
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
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tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4120e-003
tblVehicleEF	LDT1	7.8600e-004	6.6000e-004
tblVehicleEF	LDT1	0.40	0.49

tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
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tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	376.36
tblVehicleEF	LDT1	72.77	85.14
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	2.8630e-003	2.1810e-003
tblVehicleEF	LDT1	3.8930e-003	3.1180e-003
tblVehicleEF	LDT1	2.6370e-003	2.0080e-003
tblVehicleEF	LDT1	3.5800e-003	2.8670e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0340e-003
tblVehicleEF	LDT1	7.9800e-004	6.6800e-004
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34

tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6240e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	459.55
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41
tblVehicleEF	LDT2	3.6440e-003	3.3750e-003
tblVehicleEF	LDT2	8.5100e-004	7.2900e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09

tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4060e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	492.93
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6640e-003
tblVehicleEF	LDT2	8.4600e-004	7.1700e-004
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03

tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4830e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
tblVehicleEF	LDT2	1.82	2.87
tblVehicleEF	LDT2	355.82	441.55
tblVehicleEF	LDT2	81.97	100.70
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	1.7370e-003	1.4800e-003
tblVehicleEF	LDT2	2.4180e-003	2.0860e-003
tblVehicleEF	LDT2	1.5980e-003	1.3630e-003
tblVehicleEF	LDT2	2.2230e-003	1.9180e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2900e-003
tblVehicleEF	LDT2	8.5100e-004	7.2600e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64

tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6650e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67

tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6200e-004	1.0400e-004
tblVehicleEF	LHD1	3.7970e-003	3.4940e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5520e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7190e-003
tblVehicleEF	LHD1	0.01	7.8850e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004

tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	6.0370e-003	6.3340e-003
tblVehicleEF	LHD1	3.5800e-004	1.0200e-004
tblVehicleEF	LHD1	7.5090e-003	7.6480e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3190e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7050e-003
tblVehicleEF	LHD1	0.01	7.6940e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44

tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0220e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.8000e-004
tblVehicleEF	LHD1	9.2400e-004	9.7800e-004
tblVehicleEF	LHD1	2.5280e-003	2.5170e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5700e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	6.0360e-003	6.3340e-003
tblVehicleEF	LHD1	3.6100e-004	1.0300e-004
tblVehicleEF	LHD1	4.1760e-003	4.1510e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4650e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72

tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8840e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.69	2.20
tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27

tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7300e-004	6.6000e-005
tblVehicleEF	LHD2	1.4000e-003	1.4390e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7000e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8950e-003
tblVehicleEF	LHD2	5.3190e-003	4.6420e-003
tblVehicleEF	LHD2	8.7380e-003	8.3740e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004

tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	2.7070e-003	3.1230e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
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tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8400e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8870e-003
tblVehicleEF	LHD2	5.2490e-003	4.5950e-003
tblVehicleEF	LHD2	9.0820e-003	8.7350e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54

tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.51
tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1800e-004
tblVehicleEF	LHD2	1.2470e-003	1.4500e-003
tblVehicleEF	LHD2	2.6810e-003	2.7390e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0900e-004
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4500e-004
tblVehicleEF	LHD2	5.9810e-003	6.1160e-003
tblVehicleEF	LHD2	2.7200e-004	6.6000e-005
tblVehicleEF	LHD2	1.4600e-003	1.6420e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02

tblVehicleEF	LHD2	7.2300e-004	6.2200e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
tblVehicleEF	MCY	0.16	0.27
tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
tblVehicleEF	MCY	46.87	62.81
tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99
tblVehicleEF	MCY	2.0790e-003	2.0840e-003
tblVehicleEF	MCY	6.9500e-004	6.2200e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82

tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0850e-003
tblVehicleEF	MCY	6.7100e-004	5.9600e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61

tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	1.8190e-003	1.7180e-003
tblVehicleEF	MCY	3.7460e-003	3.2090e-003
tblVehicleEF	MCY	1.7050e-003	1.6110e-003
tblVehicleEF	MCY	3.5370e-003	3.0300e-003
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	6.8600e-004	6.0800e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02

tblVehicleEF	MDV	0.01	6.7810e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	586.82
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1980e-003
tblVehicleEF	MDV	1.1710e-003	8.9500e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8200e-003

tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	628.23
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5080e-003
tblVehicleEF	MDV	1.1600e-003	8.8100e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5500e-003
tblVehicleEF	MDV	0.02	0.10

tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	564.27
tblVehicleEF	MDV	110.76	127.93
tblVehicleEF	MDV	0.19	0.15
tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	1.8680e-003	1.6560e-003
tblVehicleEF	MDV	2.5890e-003	2.2360e-003
tblVehicleEF	MDV	1.7240e-003	1.5300e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1070e-003
tblVehicleEF	MDV	1.1700e-003	8.9200e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38

tblVehicleEF	MH	6.96	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0640e-003
tblVehicleEF	MH	0.03	0.00

tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0640e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8510e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00

tblVehicleEF	MHD	0.02	5.4630e-003
tblVehicleEF	MHD	4.1450e-003	6.2250e-003
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tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
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tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	0.63	0.57
tblVehicleEF	MHD	1.08	1.89
tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7550e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	4.1800e-004	1.6790e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7300e-004
tblVehicleEF	MHD	0.01	0.01

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tblVehicleEF	MHD	1.4330e-003	1.2040e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1740e-003
tblVehicleEF	MHD	4.2290e-003	6.3500e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
tblVehicleEF	MHD	5.61	1.72
tblVehicleEF	MHD	164.29	72.16
tblVehicleEF	MHD	1,105.72	1,107.78
tblVehicleEF	MHD	53.92	14.81
tblVehicleEF	MHD	0.65	0.57
tblVehicleEF	MHD	1.01	1.76
tblVehicleEF	MHD	11.70	0.97
tblVehicleEF	MHD	3.6900e-004	1.4820e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	3.5300e-004	1.4180e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003

tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.35	0.08
tblVehicleEF	MHD	1.5770e-003	6.8700e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4700e-004
tblVehicleEF	MHD	2.8480e-003	2.6690e-003
tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6090e-003
tblVehicleEF	MHD	0.05	0.10
tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
tblVehicleEF	MHD	0.02	5.8910e-003
tblVehicleEF	MHD	4.1530e-003	6.2420e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	5.90	1.82
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tblVehicleEF	MHD	1,105.72	1,107.76
tblVehicleEF	MHD	53.92	14.97
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tblVehicleEF	MHD	1.06	1.85

tblVehicleEF	MHD	11.73	0.98
tblVehicleEF	MHD	5.3200e-004	2.1320e-003
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9600e-004
tblVehicleEF	MHD	5.0900e-004	2.0400e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.8000e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.3710e-003	6.5500e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4800e-004
tblVehicleEF	MHD	1.5800e-003	1.4230e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	7.0500e-004	5.1800e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.39	0.09
tblVehicleEF	OBUS	0.01	9.8280e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03

tblVehicleEF	OBUS	0.27	0.43
tblVehicleEF	OBUS	0.73	1.52
tblVehicleEF	OBUS	6.67	3.30
tblVehicleEF	OBUS	70.21	51.97
tblVehicleEF	OBUS	1,126.32	1,610.98
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tblVehicleEF	OBUS	0.32	0.26
tblVehicleEF	OBUS	1.10	1.20
tblVehicleEF	OBUS	1.97	0.47
tblVehicleEF	OBUS	1.1300e-004	1.0320e-003
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.41	0.16
tblVehicleEF	OBUS	6.8200e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2800e-004	2.4300e-004
tblVehicleEF	OBUS	2.2350e-003	3.0920e-003
tblVehicleEF	OBUS	0.02	0.03

tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.4600e-004	1.1800e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.35
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	OBUS	0.01	9.8610e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.26	0.41
tblVehicleEF	OBUS	0.75	1.57
tblVehicleEF	OBUS	6.11	2.97
tblVehicleEF	OBUS	73.34	52.23
tblVehicleEF	OBUS	1,126.32	1,611.07
tblVehicleEF	OBUS	71.08	24.00
tblVehicleEF	OBUS	0.33	0.26
tblVehicleEF	OBUS	1.02	1.08
tblVehicleEF	OBUS	1.92	0.45
tblVehicleEF	OBUS	9.5000e-005	8.7200e-004
tblVehicleEF	OBUS	5.4210e-003	0.02
tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	9.1000e-005	8.3400e-004
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	4.3510e-003	6.6820e-003
tblVehicleEF	OBUS	0.02	0.04
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	2.1830e-003	3.3480e-003

tblVehicleEF	OBUS	0.05	0.08
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.39	0.15
tblVehicleEF	OBUS	7.1200e-004	5.0100e-004
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tblVehicleEF	OBUS	8.1800e-004	2.3700e-004
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tblVehicleEF	OBUS	2.1830e-003	3.3480e-003
tblVehicleEF	OBUS	0.07	0.11
tblVehicleEF	OBUS	0.05	0.36
tblVehicleEF	OBUS	0.42	0.16
tblVehicleEF	OBUS	0.01	9.8320e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.03	0.03
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tblVehicleEF	OBUS	65.88	51.61
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tblVehicleEF	OBUS	0.31	0.26
tblVehicleEF	OBUS	1.08	1.17
tblVehicleEF	OBUS	1.96	0.47
tblVehicleEF	OBUS	1.3700e-004	1.2520e-003
tblVehicleEF	OBUS	5.4210e-003	0.02

tblVehicleEF	OBUS	9.1200e-004	2.4700e-004
tblVehicleEF	OBUS	1.3100e-004	1.1980e-003
tblVehicleEF	OBUS	5.1650e-003	0.02
tblVehicleEF	OBUS	8.3900e-004	2.2700e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
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tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.41	0.15
tblVehicleEF	OBUS	6.4100e-004	4.9500e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	8.2700e-004	2.4200e-004
tblVehicleEF	OBUS	2.3980e-003	3.4750e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.5900e-004	1.1270e-003
tblVehicleEF	OBUS	0.06	0.11
tblVehicleEF	OBUS	0.05	0.38
tblVehicleEF	OBUS	0.45	0.17
tblVehicleEF	SBUS	0.86	0.01
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tblVehicleEF	SBUS	0.07	1.1460e-003
tblVehicleEF	SBUS	5.64	1.00
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.49	0.17

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tblVehicleEF	SBUS	36.06	0.97
tblVehicleEF	SBUS	12.46	3.52
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tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.01	3.9580e-003
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tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.7870e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.28	6.0120e-003
tblVehicleEF	SBUS	0.01	3.0720e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	1.0000e-005
tblVehicleEF	SBUS	3.0740e-003	5.8000e-005
tblVehicleEF	SBUS	0.02	2.1600e-004
tblVehicleEF	SBUS	0.97	0.11

tblVehicleEF	SBUS	1.3130e-003	2.2000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	1.7430e-003
tblVehicleEF	SBUS	0.31	6.5820e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4520e-003
tblVehicleEF	SBUS	0.06	8.8900e-004
tblVehicleEF	SBUS	5.48	0.96
tblVehicleEF	SBUS	0.72	0.28
tblVehicleEF	SBUS	3.76	0.10
tblVehicleEF	SBUS	1,335.64	332.90
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.86
tblVehicleEF	SBUS	12.86	3.59
tblVehicleEF	SBUS	4.84	4.82
tblVehicleEF	SBUS	15.20	0.98
tblVehicleEF	SBUS	0.01	3.3450e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.01	3.2000e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.67	0.08

tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.23	4.6550e-003
tblVehicleEF	SBUS	0.01	3.1510e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	9.0000e-006
tblVehicleEF	SBUS	5.9210e-003	1.3100e-004
tblVehicleEF	SBUS	0.02	3.0200e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5130e-003
tblVehicleEF	SBUS	0.25	5.0970e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4380e-003
tblVehicleEF	SBUS	0.07	1.1310e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01
tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8040e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4000e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	2.7630e-003	2.8810e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3000e-005
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.29	5.9330e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.0000e-006
tblVehicleEF	SBUS	3.2090e-003	7.3000e-005
tblVehicleEF	SBUS	0.02	2.5400e-004
tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	2.0000e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3230e-003
tblVehicleEF	SBUS	0.32	6.4960e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99

tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6230e-003	3.2000e-004
tblVehicleEF	UBUS	8.4220e-003	2.2150e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9000e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18

tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.5760e-003	3.1000e-004
tblVehicleEF	UBUS	0.02	4.5600e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6230e-003
tblVehicleEF	UBUS	1.3790e-003	2.3500e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4850e-003
tblVehicleEF	UBUS	0.07	2.4900e-003
tblVehicleEF	UBUS	1.2680e-003	2.1600e-004
tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5550e-003
tblVehicleEF	UBUS	1.6140e-003	3.1800e-004

tblVehicleEF	UBUS	9.6690e-003	2.4060e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2100e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	0.43
tblVehicleTrips	ST_TR	1.68	0.38
tblVehicleTrips	SU_TR	0.68	1.07
tblVehicleTrips	SU_TR	1.68	0.38
tblVehicleTrips	WD_TR	6.97	1.06
tblVehicleTrips	WD_TR	1.68	0.38
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	9,875.0579	9,875.0579	0.3120	0.1027	9,913.4587
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	1,010.3484	1,078.0180	6.9869	0.1717	1,303.8471
Total	**23.0531**	**97.4686**	**30.3474**	**0.4114**	**14.2101**	**1.8885**	**16.0985**	**3.9934**	**1.8093**	**5.8027**	**866.6096**	**48,662.8117**	**49,529.4213**	**54.9356**	**0.2744**	**50,984.5699**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	9,875.0579	9,875.0579	0.3120	0.1027	9,913.4587
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	1,010.3484	1,078.0180	6.9869	0.1717	1,303.8471
Total	**23.0531**	**97.4686**	**30.3474**	**0.4114**	**14.2101**	**1.8885**	**16.0985**	**3.9934**	**1.8093**	**5.8027**	**866.6096**	**48,662.8117**	**49,529.4213**	**54.9356**	**0.2744**	**50,984.5699**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Unmitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.373600	0.000000	0.182100	0.444300	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.107100	0.000000	0.107100	0.785800	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,220.0382	7,220.0382	0.2611	0.0540	7,242.6616
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7,220.0382	7,220.0382	0.2611	0.0540	7,242.6616
NaturalGas Mitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	5,109.4425	0.1848	0.0382	5,125.4525
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	83.0658	3.0000e-003	6.2000e-004	83.3261
Unrefrigerated Warehouse-No Rail	5.57349e+006	2,027.5300	0.0733	0.0152	2,033.8831
Total		**7,220.0382**	**0.2611**	**0.0540**	**7,242.6616**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	5,109.4425	0.1848	0.0382	5,125.4525
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	83.0658	3.0000e-003	6.2000e-004	83.3261
Unrefrigerated Warehouse-No Rail	5.57349e+006	2,027.5300	0.0733	0.0152	2,033.8831
Total		**7,220.0382**	**0.2611**	**0.0540**	**7,242.6616**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,078.0180	6.9869	0.1717	1,303.8471
Unmitigated	1,078.0180	6.9869	0.1717	1,303.8471

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	1,078.0180	6.9869	0.1717	1,303.8471
Total		**1,078.0180**	**6.9869**	**0.1717**	**1,303.8471**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	1,078.0180	6.9869	0.1717	1,303.8471
Total		**1,078.0180**	**6.9869**	**0.1717**	**1,303.8471**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	798.9400	47.2160	0.0000	1,979.3399
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 3.3:

CALEEMOD ANNUAL OPERATIONAL EMISSIONS MODEL OUTPUTS (WITH REGUALTORY REQUIREMENTS OR PDFS)

Hesperia Commerce Center II (Operations - Passenger Cars)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20

tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
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tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
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tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
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tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
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tblVehicleEF	LDT1	3.95	2.51
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tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
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tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
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tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
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tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
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tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
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tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
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tblVehicleEF	LHD1	3.5800e-004	1.0204e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
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tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
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tblVehicleEF	LHD1	0.01	7.6945e-003
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tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
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tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
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tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
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tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
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tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
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tblVehicleEF	LHD2	0.56	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
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tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

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tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8953e-003
tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
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tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
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tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8873e-003
tblVehicleEF	LHD2	5.2490e-003	4.5947e-003
tblVehicleEF	LHD2	9.0820e-003	8.7354e-003
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tblVehicleEF	LHD2	1.27	0.54
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tblVehicleEF	LHD2	24.89	6.62
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.67	2.17
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
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tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1158e-003
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
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tblVehicleEF	MCY	21.02	22.01
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tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

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tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
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tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.61	4.97
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tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.1900e-004	0.00
tblVehicleEF	MH	1.88	0.00

tblVehicleEF	MH	0.12	0.00
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tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	4.1450e-003	6.2249e-003
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tblVehicleEF	MHD	0.33	0.44
tblVehicleEF	MHD	0.31	0.67
tblVehicleEF	MHD	6.00	1.87
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tblVehicleEF	MHD	1,105.72	1,107.75
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tblVehicleEF	MHD	11.74	0.98
tblVehicleEF	MHD	4.3700e-004	1.7551e-003
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004

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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.04	0.08
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.36	0.08
tblVehicleEF	MHD	1.4910e-003	6.7339e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4400e-004	1.4901e-004
tblVehicleEF	MHD	1.4330e-003	1.2037e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.04
tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
tblVehicleEF	MHD	0.02	0.20
tblVehicleEF	MHD	0.40	0.09
tblVehicleEF	MHD	0.02	5.1738e-003
tblVehicleEF	MHD	4.2290e-003	6.3499e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.24	0.35
tblVehicleEF	MHD	0.32	0.68
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tblVehicleEF	MHD	1,105.72	1,107.78
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
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tblVehicleEF	MHD	3.5300e-004	1.4178e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.3800e-004	1.4652e-004
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tblVehicleEF	MHD	0.05	0.05
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.05	0.10

tblVehicleEF	MHD	0.02	0.21
tblVehicleEF	MHD	0.38	0.09
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tblVehicleEF	MHD	4.1530e-003	6.2416e-003
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tblVehicleEF	MHD	0.46	0.57
tblVehicleEF	MHD	0.31	0.67
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tblVehicleEF	MHD	5.3200e-004	2.1323e-003
tblVehicleEF	MHD	0.13	0.13
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.5780e-003	0.06
tblVehicleEF	MHD	8.2200e-004	1.9575e-004
tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
tblVehicleEF	MHD	7.5600e-004	1.7998e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.03	0.03

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tblVehicleEF	MHD	0.02	0.22
tblVehicleEF	MHD	0.36	0.08
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tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	6.4300e-004	1.4813e-004
tblVehicleEF	MHD	1.5800e-003	1.4225e-003
tblVehicleEF	MHD	0.05	0.04
tblVehicleEF	MHD	0.04	0.04
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tblVehicleEF	OBUS	1.1300e-004	1.0316e-003

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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.01	3.2005e-003
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tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
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tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.23	4.6553e-003
tblVehicleEF	SBUS	0.01	3.1509e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.2700e-004	8.5449e-006
tblVehicleEF	SBUS	5.9210e-003	1.3114e-004
tblVehicleEF	SBUS	0.02	3.0235e-004
tblVehicleEF	SBUS	0.96	0.11
tblVehicleEF	SBUS	2.9370e-003	7.4268e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	9.6420e-003	1.5133e-003
tblVehicleEF	SBUS	0.25	5.0969e-003
tblVehicleEF	SBUS	0.86	0.01
tblVehicleEF	SBUS	0.01	4.4384e-003
tblVehicleEF	SBUS	0.07	1.1307e-003
tblVehicleEF	SBUS	5.85	1.05
tblVehicleEF	SBUS	0.71	0.28
tblVehicleEF	SBUS	5.54	0.16
tblVehicleEF	SBUS	1,181.05	313.01

tblVehicleEF	SBUS	1,144.20	1,170.32
tblVehicleEF	SBUS	36.06	0.95
tblVehicleEF	SBUS	11.91	3.42
tblVehicleEF	SBUS	5.09	5.07
tblVehicleEF	SBUS	15.23	0.98
tblVehicleEF	SBUS	0.02	4.8038e-003
tblVehicleEF	SBUS	0.74	0.74
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	5.0600e-004	1.4411e-005
tblVehicleEF	SBUS	0.02	4.5960e-003
tblVehicleEF	SBUS	0.32	0.32
tblVehicleEF	SBUS	2.7630e-003	2.8815e-003
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.6500e-004	1.3250e-005
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004
tblVehicleEF	SBUS	0.68	0.08
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.12	0.09
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.29	5.9331e-003
tblVehicleEF	SBUS	0.01	2.9630e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.5600e-004	9.4415e-006
tblVehicleEF	SBUS	3.2090e-003	7.3226e-005
tblVehicleEF	SBUS	0.02	2.5411e-004

tblVehicleEF	SBUS	0.97	0.11
tblVehicleEF	SBUS	1.2980e-003	1.9839e-005
tblVehicleEF	SBUS	0.14	0.10
tblVehicleEF	SBUS	0.01	2.3232e-003
tblVehicleEF	SBUS	0.32	6.4959e-003
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.32	1.56
tblVehicleTrips	ST_TR	1.68	1.75

tblVehicleTrips	SU_TR	0.68	3.93
tblVehicleTrips	SU_TR	1.68	1.75
tblVehicleTrips	WD_TR	6.97	3.90
tblVehicleTrips	WD_TR	1.68	1.75
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	7,291.3285	7,291.3285	0.3120	0.1027	7,329.7294
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	648.7898	716.4594	6.9869	0.1717	942.2885
Total	**24.3373**	**10.4030**	**43.8836**	**0.1298**	**11.6924**	**0.3877**	**12.0801**	**3.1040**	**0.3717**	**3.4757**	**866.6096**	**18,491.9227**	**19,358.5322**	**55.1153**	**0.2744**	**20,818.1746**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	6,600.8578	6,600.8578	0.2885	0.0919	6,635.4473
Mobile	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	199.7350	0.0000	199.7350	11.8040	0.0000	494.8350
Water						0.0000	0.0000		0.0000	0.0000	54.1357	519.0318	573.1675	5.5895	0.1373	753.8308
Total	**24.2953**	**10.0209**	**43.5627**	**0.1275**	**11.6924**	**0.3587**	**12.0511**	**3.1040**	**0.3426**	**3.4466**	**253.8707**	**17,671.6940**	**17,925.5646**	**18.2825**	**0.2292**	**18,450.9300**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.17**	**3.67**	**0.73**	**1.76**	**0.00**	**7.49**	**0.24**	**0.00**	**7.81**	**0.84**	**70.71**	**4.44**	**7.40**	**66.83**	**16.46**	**11.37**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620
Unmitigated	4.2478	3.7309	39.6288	0.1065	11.6924	0.0592	11.7516	3.1040	0.0545	3.1585	0.0000	9,789.0269	9,789.0269	0.3534	0.0000	9,797.8620

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	9.50	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.620600	0.041900	0.202700	0.134800	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Hesperia Commerce Center II (Operations - Passenger Cars) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,361.7263	4,361.7263	0.2456	0.0508	4,383.0099
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,636.3088	4,636.3088	0.2611	0.0540	4,658.9322
NaturalGas Mitigated	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	2,239.1314	2,239.1314	0.0429	0.0411	2,252.4375
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	3.85826e+007	0.2080	1.8913	1.5887	0.0114		0.1437	0.1437		0.1437	0.1437	0.0000	2,058.9135	2,058.9135	0.0395	0.0378	2,071.1486
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.37716e+006	0.0182	0.1656	0.1391	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.2179	180.2179	3.4500e-003	3.3000e-003	181.2889
Total		**0.2263**	**2.0569**	**1.7278**	**0.0123**		**0.1563**	**0.1563**		**0.1563**	**0.1563**	**0.0000**	**2,239.1314**	**2,239.1314**	**0.0429**	**0.0411**	**2,252.4375**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	3,281.0011	0.1848	0.0382	3,297.0111
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.57349e+006	1,301.9675	0.0733	0.0152	1,308.3206
Total		**4,636.3088**	**0.2611**	**0.0540**	**4,658.9322**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.31321e+007	3,067.6552	0.1727	0.0357	3,082.6242
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.31135e+006	1,240.7309	0.0699	0.0145	1,246.7852
Total		**4,361.7263**	**0.2456**	**0.0508**	**4,383.0099**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	573.1675	5.5895	0.1373	753.8308
Unmitigated	716.4594	6.9869	0.1717	942.2885

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	716.4594	6.9869	0.1717	942.2885
Total		**716.4594**	**6.9869**	**0.1717**	**942.2885**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	170.638 / 0	573.1675	5.5895	0.1373	753.8308
Total		**573.1675**	**5.5895**	**0.1373**	**753.8308**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	199.7350	11.8040	0.0000	494.8350
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	428.973	87.0775	5.1461	0.0000	215.7309
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	554.987	112.6575	6.6579	0.0000	279.1041
Total		**199.7350**	**11.8040**	**0.0000**	**494.8350**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hesperia Commerce Center II (Operations - Trucks)

San Bernardino-Mojave Desert County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	515	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

Project Characteristics - Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021

Land Use - Total Project Area is 194.80 acres.

Construction Phase - Operations Run Only.

Off-road Equipment - Operations Run Only.

Trips and VMT - Operations Run Only.

Vehicle Trips - Trip Rates based on information provided in the Hesperia Commerce Center II Traffic Impact Analysis by Urban Crossroads, Inc.

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use -

Water And Wastewater - As per the City of Hesperia General Plan Evaluation Water Supply Evalution (2009), the water demand fator for industrial land uses were 3,000 gallons per day per acre (gpd/acre).

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment - Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Busniess Survey Results (2014)

Fleet Mix - Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00

tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblLandUse	LandUseSquareFeet	1,383,780.00	1,383,781.00
tblLandUse	LandUseSquareFeet	2,361,650.00	2,361,648.00
tblLandUse	LandUseSquareFeet	3,493,860.00	3,493,865.00
tblLandUse	LotAcreage	14.68	14.96
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	365.00

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHorsePower	97.00	200.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	15.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	515
tblVehicleEF	HHD	1.24	0.03
tblVehicleEF	HHD	0.04	2.7731e-003
tblVehicleEF	HHD	0.11	1.1831e-007
tblVehicleEF	HHD	3.46	9.63
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.92	8.3347e-004
tblVehicleEF	HHD	6,983.95	1,752.04
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.07	8.89
tblVehicleEF	HHD	2.87	2.62
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007

tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	0.89	0.73
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.06	6.0841e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1607e-007
tblVehicleEF	HHD	9.3000e-005	2.3640e-006
tblVehicleEF	HHD	3.4490e-003	6.9327e-005
tblVehicleEF	HHD	1.02	0.83
tblVehicleEF	HHD	5.7000e-005	1.2306e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.4200e-004	3.6754e-004
tblVehicleEF	HHD	0.07	6.6614e-007
tblVehicleEF	HHD	1.17	0.04
tblVehicleEF	HHD	0.04	2.7743e-003
tblVehicleEF	HHD	0.11	1.1083e-007
tblVehicleEF	HHD	2.52	9.45
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.80	7.6782e-004
tblVehicleEF	HHD	7,395.94	1,740.61
tblVehicleEF	HHD	1,493.95	1,319.40
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	28.97	8.56

tblVehicleEF	HHD	2.70	2.46
tblVehicleEF	HHD	20.19	1.95
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9828e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.84	0.76
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	5.7228e-007
tblVehicleEF	HHD	0.07	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.7000e-005	1.1504e-007
tblVehicleEF	HHD	1.8400e-004	5.6532e-006
tblVehicleEF	HHD	3.9090e-003	8.7762e-005
tblVehicleEF	HHD	0.97	0.87
tblVehicleEF	HHD	1.2900e-004	4.0334e-006
tblVehicleEF	HHD	0.13	0.06

tblVehicleEF	HHD	2.4800e-004	3.8408e-004
tblVehicleEF	HHD	0.06	6.2657e-007
tblVehicleEF	HHD	1.34	0.03
tblVehicleEF	HHD	0.04	2.4809e-003
tblVehicleEF	HHD	0.11	1.1631e-007
tblVehicleEF	HHD	4.76	9.88
tblVehicleEF	HHD	0.58	0.28
tblVehicleEF	HHD	1.89	8.1027e-004
tblVehicleEF	HHD	6,415.00	1,767.74
tblVehicleEF	HHD	1,493.95	1,319.16
tblVehicleEF	HHD	5.71	0.01
tblVehicleEF	HHD	26.84	9.34
tblVehicleEF	HHD	2.83	2.58
tblVehicleEF	HHD	20.20	1.95
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.5000e-005	4.7619e-007
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8820e-003	8.9822e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	5.0000e-005	4.3784e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	0.96	0.68

tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.09	0.05
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.06	5.9854e-007
tblVehicleEF	HHD	0.06	0.02
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	8.9000e-005	1.1571e-007
tblVehicleEF	HHD	9.4000e-005	2.7344e-006
tblVehicleEF	HHD	3.7830e-003	8.4410e-005
tblVehicleEF	HHD	1.10	0.78
tblVehicleEF	HHD	5.6000e-005	1.1093e-006
tblVehicleEF	HHD	0.13	0.06
tblVehicleEF	HHD	2.5900e-004	3.8293e-004
tblVehicleEF	HHD	0.07	6.5533e-007
tblVehicleEF	LDA	4.6640e-003	2.6749e-003
tblVehicleEF	LDA	6.4640e-003	0.06
tblVehicleEF	LDA	0.62	0.67
tblVehicleEF	LDA	1.32	2.30
tblVehicleEF	LDA	261.85	266.85
tblVehicleEF	LDA	59.28	55.75
tblVehicleEF	LDA	0.06	0.05
tblVehicleEF	LDA	0.09	0.21
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02

tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
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tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.6230e-003	2.6339e-003
tblVehicleEF	LDA	6.1500e-004	5.5041e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.10	0.29
tblVehicleEF	LDA	5.3170e-003	3.1454e-003
tblVehicleEF	LDA	5.3900e-003	0.05
tblVehicleEF	LDA	0.76	0.85
tblVehicleEF	LDA	1.10	1.87
tblVehicleEF	LDA	286.52	295.36
tblVehicleEF	LDA	59.28	54.91
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	0.08	0.19
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003

tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.07	0.21
tblVehicleEF	LDA	2.8710e-003	2.9154e-003
tblVehicleEF	LDA	6.1100e-004	5.4218e-004
tblVehicleEF	LDA	0.10	0.16
tblVehicleEF	LDA	0.13	0.14
tblVehicleEF	LDA	0.08	0.13
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.23
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	4.5320e-003	2.5905e-003
tblVehicleEF	LDA	6.4200e-003	0.06
tblVehicleEF	LDA	0.58	0.62
tblVehicleEF	LDA	1.30	2.20
tblVehicleEF	LDA	256.02	258.48
tblVehicleEF	LDA	59.28	55.58
tblVehicleEF	LDA	0.05	0.04

tblVehicleEF	LDA	0.09	0.20
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.7130e-003	1.4183e-003
tblVehicleEF	LDA	2.3020e-003	1.9604e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5790e-003	1.3072e-003
tblVehicleEF	LDA	2.1170e-003	1.8026e-003
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tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.26
tblVehicleEF	LDA	2.5640e-003	2.5512e-003
tblVehicleEF	LDA	6.1500e-004	5.4871e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.12	0.13
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.02	0.01
tblVehicleEF	LDA	0.04	0.26
tblVehicleEF	LDA	0.09	0.28
tblVehicleEF	LDT1	0.02	7.3485e-003
tblVehicleEF	LDT1	0.02	0.10
tblVehicleEF	LDT1	1.71	1.50
tblVehicleEF	LDT1	4.02	2.62

tblVehicleEF	LDT1	323.73	316.00
tblVehicleEF	LDT1	72.77	67.91
tblVehicleEF	LDT1	0.18	0.15
tblVehicleEF	LDT1	0.24	0.33
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.29	0.50
tblVehicleEF	LDT1	3.2600e-003	3.1199e-003
tblVehicleEF	LDT1	7.9900e-004	6.7045e-004
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.36	0.29
tblVehicleEF	LDT1	0.13	0.14
tblVehicleEF	LDT1	0.06	0.05
tblVehicleEF	LDT1	0.21	0.98
tblVehicleEF	LDT1	0.31	0.55
tblVehicleEF	LDT1	0.02	8.5438e-003

tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	2.05	1.86
tblVehicleEF	LDT1	3.30	2.13
tblVehicleEF	LDT1	352.65	345.58
tblVehicleEF	LDT1	72.77	66.80
tblVehicleEF	LDT1	0.16	0.14
tblVehicleEF	LDT1	0.22	0.31
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.24	0.41
tblVehicleEF	LDT1	3.5540e-003	3.4119e-003
tblVehicleEF	LDT1	7.8600e-004	6.5955e-004
tblVehicleEF	LDT1	0.40	0.49
tblVehicleEF	LDT1	0.44	0.39
tblVehicleEF	LDT1	0.29	0.37
tblVehicleEF	LDT1	0.06	0.06

tblVehicleEF	LDT1	0.21	1.00
tblVehicleEF	LDT1	0.26	0.44
tblVehicleEF	LDT1	0.01	7.1250e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.62	1.39
tblVehicleEF	LDT1	3.95	2.51
tblVehicleEF	LDT1	316.91	307.32
tblVehicleEF	LDT1	72.77	67.68
tblVehicleEF	LDT1	0.17	0.14
tblVehicleEF	LDT1	0.24	0.32
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.8630e-003	2.1814e-003
tblVehicleEF	LDT1	3.8930e-003	3.1178e-003
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	2.6370e-003	2.0076e-003
tblVehicleEF	LDT1	3.5800e-003	2.8671e-003
tblVehicleEF	LDT1	0.20	0.24
tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.03
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.28	0.49
tblVehicleEF	LDT1	3.1900e-003	3.0341e-003
tblVehicleEF	LDT1	7.9800e-004	6.6824e-004
tblVehicleEF	LDT1	0.20	0.24

tblVehicleEF	LDT1	0.41	0.34
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.25	1.16
tblVehicleEF	LDT1	0.31	0.53
tblVehicleEF	LDT2	6.9330e-003	4.6236e-003
tblVehicleEF	LDT2	9.2890e-003	0.08
tblVehicleEF	LDT2	0.85	1.02
tblVehicleEF	LDT2	1.85	3.00
tblVehicleEF	LDT2	363.70	341.92
tblVehicleEF	LDT2	81.97	73.81
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.16	0.36
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.13	0.41

tblVehicleEF	LDT2	3.6440e-003	3.3752e-003
tblVehicleEF	LDT2	8.5100e-004	7.2871e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.13	0.17
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.14	0.45
tblVehicleEF	LDT2	7.8730e-003	5.4059e-003
tblVehicleEF	LDT2	7.7350e-003	0.07
tblVehicleEF	LDT2	1.04	1.28
tblVehicleEF	LDT2	1.53	2.43
tblVehicleEF	LDT2	397.09	371.16
tblVehicleEF	LDT2	81.97	72.66
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.15	0.33
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003
tblVehicleEF	LDT2	0.14	0.26
tblVehicleEF	LDT2	0.16	0.21
tblVehicleEF	LDT2	0.12	0.22

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.9810e-003	3.6638e-003
tblVehicleEF	LDT2	8.4600e-004	7.1735e-004
tblVehicleEF	LDT2	0.14	0.26
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tblVehicleEF	LDT2	0.12	0.22
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.07	0.55
tblVehicleEF	LDT2	0.11	0.36
tblVehicleEF	LDT2	6.7430e-003	4.4829e-003
tblVehicleEF	LDT2	9.2200e-003	0.08
tblVehicleEF	LDT2	0.81	0.94
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tblVehicleEF	LDT2	355.82	333.34
tblVehicleEF	LDT2	81.97	73.58
tblVehicleEF	LDT2	0.09	0.10
tblVehicleEF	LDT2	0.16	0.35
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.7370e-003	1.4805e-003
tblVehicleEF	LDT2	2.4180e-003	2.0856e-003
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5980e-003	1.3625e-003
tblVehicleEF	LDT2	2.2230e-003	1.9178e-003

tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.12	0.40
tblVehicleEF	LDT2	3.5650e-003	3.2904e-003
tblVehicleEF	LDT2	8.5100e-004	7.2645e-004
tblVehicleEF	LDT2	0.07	0.12
tblVehicleEF	LDT2	0.15	0.19
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.08	0.64
tblVehicleEF	LDT2	0.14	0.44
tblVehicleEF	LHD1	5.4860e-003	4.7002e-003
tblVehicleEF	LHD1	0.01	7.6648e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.77	1.07
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.43
tblVehicleEF	LHD1	30.92	10.46
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.26	2.05
tblVehicleEF	LHD1	1.02	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.29	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6200e-004	1.0351e-004
tblVehicleEF	LHD1	3.7970e-003	3.4939e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8480e-003	1.5523e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.67
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7187e-003

tblVehicleEF	LHD1	0.01	7.8854e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.18	1.17
tblVehicleEF	LHD1	2.58	0.99
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.48
tblVehicleEF	LHD1	30.92	10.31
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.12	1.92
tblVehicleEF	LHD1	0.97	0.29
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.35	0.68

tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0370e-003	6.3342e-003
tblVehicleEF	LHD1	3.5800e-004	1.0204e-004
tblVehicleEF	LHD1	7.5090e-003	7.6478e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	4.2150e-003	4.3187e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.35	0.68
tblVehicleEF	LHD1	0.30	0.09
tblVehicleEF	LHD1	5.4860e-003	4.7053e-003
tblVehicleEF	LHD1	0.01	7.6945e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	1.16	1.15
tblVehicleEF	LHD1	2.72	1.04
tblVehicleEF	LHD1	9.23	9.52
tblVehicleEF	LHD1	614.92	651.44
tblVehicleEF	LHD1	30.92	10.41
tblVehicleEF	LHD1	0.09	0.09
tblVehicleEF	LHD1	2.22	2.02
tblVehicleEF	LHD1	1.00	0.30
tblVehicleEF	LHD1	9.6600e-004	1.0218e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.02	0.01

tblVehicleEF	LHD1	1.0070e-003	2.7998e-004
tblVehicleEF	LHD1	9.2400e-004	9.7761e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5280e-003	2.5167e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	9.2600e-004	2.5743e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	9.2000e-005	9.2012e-005
tblVehicleEF	LHD1	6.0360e-003	6.3337e-003
tblVehicleEF	LHD1	3.6100e-004	1.0302e-004
tblVehicleEF	LHD1	4.1760e-003	4.1507e-003
tblVehicleEF	LHD1	0.13	0.12
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8200e-003	1.4654e-003
tblVehicleEF	LHD1	0.11	0.10
tblVehicleEF	LHD1	0.38	0.72
tblVehicleEF	LHD1	0.31	0.09
tblVehicleEF	LHD2	3.8190e-003	2.8844e-003
tblVehicleEF	LHD2	5.2410e-003	4.5860e-003
tblVehicleEF	LHD2	9.1660e-003	8.8630e-003
tblVehicleEF	LHD2	0.12	0.13

tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.29	0.55
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.50
tblVehicleEF	LHD2	24.89	6.65
tblVehicleEF	LHD2	0.12	0.13
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tblVehicleEF	LHD2	0.56	0.17
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tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003

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tblVehicleEF	LHD2	1.4000e-003	1.4389e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.3800e-004	6.7034e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.27
tblVehicleEF	LHD2	0.14	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8953e-003
tblVehicleEF	LHD2	5.3190e-003	4.6415e-003
tblVehicleEF	LHD2	8.7380e-003	8.3742e-003
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tblVehicleEF	LHD2	0.56	0.70
tblVehicleEF	LHD2	1.21	0.51
tblVehicleEF	LHD2	14.32	15.17
tblVehicleEF	LHD2	614.63	635.52
tblVehicleEF	LHD2	24.89	6.57
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	1.59	2.07
tblVehicleEF	LHD2	0.54	0.16
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04

tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.12	0.04
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tblVehicleEF	LHD2	5.9810e-003	6.1159e-003
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tblVehicleEF	LHD2	2.7070e-003	3.1227e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.6130e-003	1.8398e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.28
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	LHD2	3.8190e-003	2.8873e-003
tblVehicleEF	LHD2	5.2490e-003	4.5947e-003
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tblVehicleEF	LHD2	0.55	0.69
tblVehicleEF	LHD2	1.27	0.54
tblVehicleEF	LHD2	14.32	15.17

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tblVehicleEF	LHD2	1.67	2.17
tblVehicleEF	LHD2	0.55	0.17
tblVehicleEF	LHD2	1.3030e-003	1.5156e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	4.2500e-004	1.1847e-004
tblVehicleEF	LHD2	1.2470e-003	1.4501e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	2.6810e-003	2.7391e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9100e-004	1.0893e-004
tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.12	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4471e-004
tblVehicleEF	LHD2	5.9810e-003	6.1158e-003
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tblVehicleEF	LHD2	1.4600e-003	1.6416e-003
tblVehicleEF	LHD2	0.05	0.05

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	6.2170e-004
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.10	0.29
tblVehicleEF	LHD2	0.13	0.05
tblVehicleEF	MCY	0.42	0.33
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tblVehicleEF	MCY	21.02	22.01
tblVehicleEF	MCY	9.91	8.98
tblVehicleEF	MCY	167.12	210.64
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tblVehicleEF	MCY	1.17	1.19
tblVehicleEF	MCY	0.31	0.27
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.26	2.21
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.17	1.99

tblVehicleEF	MCY	2.0790e-003	2.0845e-003
tblVehicleEF	MCY	6.9500e-004	6.2156e-004
tblVehicleEF	MCY	1.45	1.46
tblVehicleEF	MCY	0.85	0.88
tblVehicleEF	MCY	0.80	0.82
tblVehicleEF	MCY	2.76	2.69
tblVehicleEF	MCY	0.50	2.24
tblVehicleEF	MCY	2.37	2.16
tblVehicleEF	MCY	0.41	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	21.14	22.21
tblVehicleEF	MCY	9.06	8.04
tblVehicleEF	MCY	167.12	210.71
tblVehicleEF	MCY	46.87	60.21
tblVehicleEF	MCY	0.99	1.00
tblVehicleEF	MCY	0.29	0.25
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003
tblVehicleEF	MCY	3.14	3.54
tblVehicleEF	MCY	1.28	1.46
tblVehicleEF	MCY	2.14	2.53

tblVehicleEF	MCY	2.19	2.14
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	1.87	1.65
tblVehicleEF	MCY	2.0790e-003	2.0851e-003
tblVehicleEF	MCY	6.7100e-004	5.9584e-004
tblVehicleEF	MCY	3.14	3.54
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tblVehicleEF	MCY	2.14	2.53
tblVehicleEF	MCY	2.69	2.61
tblVehicleEF	MCY	0.50	2.25
tblVehicleEF	MCY	2.03	1.80
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.25
tblVehicleEF	MCY	20.06	20.78
tblVehicleEF	MCY	9.53	8.40
tblVehicleEF	MCY	167.12	208.52
tblVehicleEF	MCY	46.87	61.47
tblVehicleEF	MCY	1.13	1.14
tblVehicleEF	MCY	0.31	0.26
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	1.8190e-003	1.7184e-003
tblVehicleEF	MCY	3.7460e-003	3.2085e-003
tblVehicleEF	MCY	5.0400e-003	5.0400e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.7050e-003	1.6112e-003
tblVehicleEF	MCY	3.5370e-003	3.0299e-003

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tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.22	2.16
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.10	1.86
tblVehicleEF	MCY	2.0630e-003	2.0635e-003
tblVehicleEF	MCY	6.8600e-004	6.0833e-004
tblVehicleEF	MCY	1.71	1.84
tblVehicleEF	MCY	1.14	1.19
tblVehicleEF	MCY	0.72	0.67
tblVehicleEF	MCY	2.71	2.63
tblVehicleEF	MCY	0.57	2.54
tblVehicleEF	MCY	2.28	2.02
tblVehicleEF	MDV	0.01	6.7807e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.55	1.37
tblVehicleEF	MDV	3.59	3.68
tblVehicleEF	MDV	498.66	425.57
tblVehicleEF	MDV	110.76	90.69
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.36	0.44
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02

tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.28	0.52
tblVehicleEF	MDV	5.0000e-003	4.1982e-003
tblVehicleEF	MDV	1.1710e-003	8.9536e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.21	0.19
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.56
tblVehicleEF	MDV	0.31	0.57
tblVehicleEF	MDV	0.02	7.8195e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.87	1.69
tblVehicleEF	MDV	2.99	2.99
tblVehicleEF	MDV	542.90	456.91
tblVehicleEF	MDV	110.76	89.27
tblVehicleEF	MDV	0.18	0.14
tblVehicleEF	MDV	0.33	0.41
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003

tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.21	0.29
tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.24	0.43
tblVehicleEF	MDV	5.4470e-003	4.5076e-003
tblVehicleEF	MDV	1.1600e-003	8.8141e-004
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tblVehicleEF	MDV	0.24	0.23
tblVehicleEF	MDV	0.18	0.26
tblVehicleEF	MDV	0.06	0.05
tblVehicleEF	MDV	0.11	0.57
tblVehicleEF	MDV	0.26	0.47
tblVehicleEF	MDV	0.01	6.5501e-003
tblVehicleEF	MDV	0.02	0.10
tblVehicleEF	MDV	1.47	1.27
tblVehicleEF	MDV	3.53	3.52
tblVehicleEF	MDV	488.33	416.35
tblVehicleEF	MDV	110.76	90.40
tblVehicleEF	MDV	0.19	0.15

tblVehicleEF	MDV	0.35	0.43
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.8680e-003	1.6562e-003
tblVehicleEF	MDV	2.5890e-003	2.2357e-003
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.7240e-003	1.5301e-003
tblVehicleEF	MDV	2.3820e-003	2.0580e-003
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.28	0.51
tblVehicleEF	MDV	4.8960e-003	4.1071e-003
tblVehicleEF	MDV	1.1700e-003	8.9248e-004
tblVehicleEF	MDV	0.10	0.13
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.13	0.65
tblVehicleEF	MDV	0.31	0.56
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.60	0.38
tblVehicleEF	MH	6.96	0.00

tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.64	5.05
tblVehicleEF	MH	0.95	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.2000e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.17	0.10
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.44	0.00
tblVehicleEF	MH	0.04	4.0644e-003

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.74	0.38
tblVehicleEF	MH	6.31	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
tblVehicleEF	MH	1.50	4.73
tblVehicleEF	MH	0.90	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.01	8.8506e-003
tblVehicleEF	MH	7.0900e-004	0.00
tblVehicleEF	MH	3.12	0.00
tblVehicleEF	MH	0.11	0.00
tblVehicleEF	MH	1.30	0.00
tblVehicleEF	MH	0.17	0.10

tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.41	0.00
tblVehicleEF	MH	0.04	4.0644e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	3.61	0.38
tblVehicleEF	MH	6.87	0.00
tblVehicleEF	MH	1,048.28	936.22
tblVehicleEF	MH	59.91	0.00
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tblVehicleEF	MH	0.94	0.00
tblVehicleEF	MH	0.13	0.13
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.19
tblVehicleEF	MH	1.2510e-003	0.00
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	3.2210e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.18
tblVehicleEF	MH	1.1500e-003	0.00
tblVehicleEF	MH	1.88	0.00
tblVehicleEF	MH	0.12	0.00
tblVehicleEF	MH	0.56	0.00
tblVehicleEF	MH	0.12	0.09
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.40	0.00
tblVehicleEF	MH	0.01	8.8506e-003
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tblVehicleEF	MH	0.43	0.00
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tblVehicleEF	MHD	7.1400e-004	5.5776e-004
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tblVehicleEF	MHD	7.1400e-004	5.5776e-004
tblVehicleEF	MHD	0.05	0.09
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tblVehicleEF	MHD	0.02	5.1738e-003
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tblVehicleEF	MHD	1,105.72	1,107.78
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tblVehicleEF	MHD	0.01	0.01
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tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	5.3330e-003	0.06
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tblVehicleEF	MHD	2.8480e-003	2.6688e-003
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tblVehicleEF	MHD	0.04	0.08
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tblVehicleEF	MHD	0.35	0.08
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tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	1.6690e-003	1.6086e-003
tblVehicleEF	MHD	0.05	0.10

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tblVehicleEF	MHD	5.0900e-004	2.0401e-003
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
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tblVehicleEF	MHD	1.5800e-003	1.4225e-003
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tblVehicleEF	MHD	0.03	0.03

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tblVehicleEF	MHD	0.04	0.04
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tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	5.4210e-003	0.02
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tblVehicleEF	OBUS	1.0800e-004	9.8700e-004
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tblVehicleEF	OBUS	0.01	0.01
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tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
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tblVehicleEF	SBUS	0.01	2.3232e-003
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tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.79	26.99
tblVehicleEF	UBUS	14.93	2.87
tblVehicleEF	UBUS	1,861.83	1,847.21
tblVehicleEF	UBUS	135.15	32.35
tblVehicleEF	UBUS	6.43	0.39
tblVehicleEF	UBUS	13.77	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.19	0.16

tblVehicleEF	UBUS	0.01	6.5545e-003
tblVehicleEF	UBUS	1.6230e-003	3.2018e-004
tblVehicleEF	UBUS	8.4220e-003	2.2153e-003
tblVehicleEF	UBUS	0.12	0.02
tblVehicleEF	UBUS	4.0730e-003	8.9013e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.30	0.18
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.08	0.03
tblVehicleEF	UBUS	9.90	26.99
tblVehicleEF	UBUS	12.23	2.29
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	31.36
tblVehicleEF	UBUS	5.98	0.38
tblVehicleEF	UBUS	13.65	0.26
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003

tblVehicleEF	UBUS	0.67	0.06
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.06	0.14
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.5760e-003	3.1037e-004
tblVehicleEF	UBUS	0.02	4.5597e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	9.6640e-003	2.5650e-003
tblVehicleEF	UBUS	2.69	3.59
tblVehicleEF	UBUS	0.02	0.09
tblVehicleEF	UBUS	1.16	0.16
tblVehicleEF	UBUS	1.95	3.51
tblVehicleEF	UBUS	0.09	0.04
tblVehicleEF	UBUS	9.80	26.99
tblVehicleEF	UBUS	14.43	2.71
tblVehicleEF	UBUS	1,861.83	1,847.22
tblVehicleEF	UBUS	135.15	32.09
tblVehicleEF	UBUS	6.31	0.39
tblVehicleEF	UBUS	13.74	0.28
tblVehicleEF	UBUS	0.52	0.10
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.07	2.6233e-003
tblVehicleEF	UBUS	1.3790e-003	2.3460e-004
tblVehicleEF	UBUS	0.22	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4849e-003
tblVehicleEF	UBUS	0.07	2.4902e-003
tblVehicleEF	UBUS	1.2680e-003	2.1571e-004

tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	0.66	0.06
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.17	0.16
tblVehicleEF	UBUS	0.01	6.5546e-003
tblVehicleEF	UBUS	1.6140e-003	3.1758e-004
tblVehicleEF	UBUS	9.6690e-003	2.4056e-003
tblVehicleEF	UBUS	0.15	0.02
tblVehicleEF	UBUS	4.2700e-003	8.2079e-004
tblVehicleEF	UBUS	2.68	3.59
tblVehicleEF	UBUS	0.03	0.11
tblVehicleEF	UBUS	1.28	0.18
tblVehicleTrips	CC_TTP	28.00	0.00
tblVehicleTrips	CNW_TTP	13.00	0.00
tblVehicleTrips	CNW_TTP	41.00	0.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TL	9.50	40.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	CW_TTP	59.00	100.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00

tblVehicleTrips	ST_TR	1.32	0.43
tblVehicleTrips	ST_TR	1.68	0.38
tblVehicleTrips	SU_TR	0.68	1.07
tblVehicleTrips	SU_TR	1.68	0.38
tblVehicleTrips	WD_TR	6.97	1.06
tblVehicleTrips	WD_TR	1.68	0.38
tblWater	IndoorWaterUseRate	319,999,125.00	0.00
tblWater	IndoorWaterUseRate	546,131,562.50	213,297,953.39

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	7,291.3285	7,291.3285	0.3120	0.1027	7,329.7294
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	798.9400	0.0000	798.9400	47.2160	0.0000	1,979.3399
Water						0.0000	0.0000		0.0000	0.0000	67.6696	648.7898	716.4594	6.9869	0.1717	942.2885
Total	**23.0531**	**97.4686**	**30.3474**	**0.4114**	**14.2101**	**1.8885**	**16.0985**	**3.9934**	**1.8093**	**5.8026**	**866.6096**	**45,717.5238**	**46,584.1333**	**54.9356**	**0.2744**	**48,039.2819**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Energy	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	6,600.8578	6,600.8578	0.2885	0.0919	6,635.4473
Mobile	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Offroad	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Waste						0.0000	0.0000		0.0000	0.0000	199.7350	0.0000	199.7350	11.8040	0.0000	494.8350
Water						0.0000	0.0000		0.0000	0.0000	54.1357	519.0318	573.1675	5.5895	0.1373	753.8308
Total	**23.0110**	**97.0866**	**30.0264**	**0.4091**	**14.2101**	**1.8594**	**16.0695**	**3.9934**	**1.7802**	**5.7736**	**253.8707**	**44,897.2951**	**45,151.1657**	**18.1028**	**0.2292**	**45,672.0373**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.18**	**0.39**	**1.06**	**0.56**	**0.00**	**1.54**	**0.18**	**0.00**	**1.61**	**0.50**	**70.71**	**1.79**	**3.08**	**67.05**	**16.46**	**4.93**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/4/2021	1/3/2021	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 108.81

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694
Unmitigated	2.9635	90.7965	26.0926	0.3881	14.2101	1.5599	15.7700	3.9934	1.4921	5.4855	0.0000	37,014.6280	37,014.6280	0.1737	0.0000	37,018.9694

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	40.00	7.30	7.30	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.000000	0.000000	0.000000	0.000000	0.373600	0.000000	0.182100	0.444300	0.000000	0.000000	0.000000	0.000000	0.000000
Other Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Other Non-Asphalt Surfaces	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.107100	0.000000	0.107100	0.785800	0.000000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Hesperia Commerce Center II (Operations - Trucks) - San Bernardino-Mojave Desert County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,361.7263	4,361.7263	0.2456	0.0508	4,383.0099
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,636.3088	4,636.3088	0.2611	0.0540	4,658.9322
NaturalGas Mitigated	0.2263	2.0569	1.7278	0.0123		0.1563	0.1563		0.1563	0.1563	0.0000	2,239.1314	2,239.1314	0.0429	0.0411	2,252.4375
NaturalGas Unmitigated	0.2683	2.4389	2.0487	0.0146		0.1854	0.1854		0.1854	0.1854	0.0000	2,655.0197	2,655.0197	0.0509	0.0487	2,670.7972

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.4959e+007	0.2424	2.2039	1.8513	0.0132		0.1675	0.1675		0.1675	0.1675	0.0000	2,399.1858	2,399.1858	0.0460	0.0440	2,413.4430
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	4.79415e+006	0.0259	0.2350	0.1974	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	255.8339	255.8339	4.9000e-003	4.6900e-003	257.3542
Total		**0.2683**	**2.4389**	**2.0487**	**0.0146**		**0.1854**	**0.1854**		**0.1854**	**0.1854**	**0.0000**	**2,655.0197**	**2,655.0197**	**0.0509**	**0.0487**	**2,670.7972**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	3.85826e+007	0.2080	1.8913	1.5887	0.0114		0.1437	0.1437		0.1437	0.1437	0.0000	2,058.9135	2,058.9135	0.0395	0.0378	2,071.1486
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	3.37716e+006	0.0182	0.1656	0.1391	9.9000e-004		0.0126	0.0126		0.0126	0.0126	0.0000	180.2179	180.2179	3.4500e-003	3.3000e-003	181.2889
Total		**0.2263**	**2.0569**	**1.7278**	**0.0123**		**0.1563**	**0.1563**		**0.1563**	**0.1563**	**0.0000**	**2,239.1314**	**2,239.1314**	**0.0429**	**0.0411**	**2,252.4375**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.40454e+007	3,281.0011	0.1848	0.0382	3,297.0111
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.57349e+006	1,301.9675	0.0733	0.0152	1,308.3206
Total		**4,636.3088**	**0.2611**	**0.0540**	**4,658.9322**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.31321e+007	3,067.6552	0.1727	0.0357	3,082.6242
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	228340	53.3402	3.0000e-003	6.2000e-004	53.6005
Unrefrigerated Warehouse-No Rail	5.31135e+006	1,240.7309	0.0699	0.0145	1,246.7852
Total		**4,361.7263**	**0.2456**	**0.0508**	**4,383.0099**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Unmitigated	19.4472	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.5048					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	14.9342					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.1500e-003	8.0000e-004	0.0873	1.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	0.1691	0.1691	4.5000e-004	0.0000	0.1803
Total	**19.4471**	**8.0000e-004**	**0.0873**	**1.0000e-005**		**3.1000e-004**	**3.1000e-004**		**3.1000e-004**	**3.1000e-004**	**0.0000**	**0.1691**	**0.1691**	**4.5000e-004**	**0.0000**	**0.1803**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	573.1675	5.5895	0.1373	753.8308
Unmitigated	716.4594	6.9869	0.1717	942.2885

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	213.298 / 0	716.4594	6.9869	0.1717	942.2885
Total		**716.4594**	**6.9869**	**0.1717**	**942.2885**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	170.638 / 0	573.1675	5.5895	0.1373	753.8308
Total		**573.1675**	**5.5895**	**0.1373**	**753.8308**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	199.7350	11.8040	0.0000	494.8350
Unmitigated	798.9400	47.2160	0.0000	1,979.3399

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1715.89	348.3102	20.5845	0.0000	862.9237
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	2219.95	450.6298	26.6315	0.0000	1,116.4162
Total		**798.9400**	**47.2160**	**0.0000**	**1,979.3399**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	428.973	87.0775	5.1461	0.0000	215.7309
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	554.987	112.6575	6.6579	0.0000	279.1041
Total		**199.7350**	**11.8040**	**0.0000**	**494.8350**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	15	4.00	365	200	0.37	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Tractors/Loaders/ Backhoes	0.3741	4.2324	2.1188	8.6800e-003		0.1429	0.1429		0.1315	0.1315	0.0000	762.6084	762.6084	0.2466	0.0000	768.7745
Total	**0.3741**	**4.2324**	**2.1188**	**8.6800e-003**		**0.1429**	**0.1429**		**0.1315**	**0.1315**	**0.0000**	**762.6084**	**762.6084**	**0.2466**	**0.0000**	**768.7745**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Appendix H

Phase I Environmental Site Assessment

PHASE I ENVIRONMENTAL SITE ASSESSMENT

PERFORMED ON:



RAW LAND

10120 FREMONTIA ROAD
HESPERIA, SAN BERNARDINO COUNTY, CALIFORNIA 92344
CCG PROJECT #: 4177

PREPARED FOR:

COVINGTON GROUP, INC.
14180 DALLAS PARKWAY, SUITE 730
DALLAS, TX 75254

PREPARED BY:

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ISSUE DATE: FEBRUARY 1, 2017

ROSS MACNAMES
PROJECT MANAGER

RICHARD A. MOSMAN
PROJECT DIRECTOR

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1.0 INTRODUCTION

1.1 Executive Summary

Subject Property Name:	Raw Land
Address:	10120 Fremontia Road Hesperia, San Bernardino County, California 92344
Site Location Intersection:	Approximately 0.25 mile northwest of the intersection of Highway 395 and Phelan Road/Main Street
Site Acreage:	193.90 acres - According to the San Bernardino County Office of the Assessor
Current Property Use:	The subject property is currently undeveloped.
Number of Buildings/Stories:	N/A - The subject property is currently undeveloped
Number of Tenant Spaces:	N/A - The subject property is currently undeveloped
Approximate Square Footage:	N/A - The subject property is currently undeveloped
Current Occupancy:	N/A - The subject property is currently undeveloped
Construction Year:	N/A - The subject property is currently undeveloped
Historic Property Use:	Undeveloped land from at least 1953 to present.

Consolidated Consulting Group, LLC (CCG) has performed a Phase I Environmental Site Assessment (ESA) in general conformance with the scope and limitations of ASTM Practice E-1527-13, on the Raw Land property located at 10120 Fremontia Road, in Hesperia, San Bernardino County, California 92344 (herein referred to as the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.4 "Investigation Requirements Not Satisfied".

This assessment has revealed no evidence of controlled recognized environmental conditions (CRECs) or historic recognized environmental conditions (HRECs) in connection with the subject property.

This assessment has revealed the following evidence of recognized environmental conditions (RECs) in connection with the subject property:

- Numerous debris piles/dump sites are located throughout the subject property. Observed debris generally consists of municipal waste (paper, plastic, etc.) and construction debris (lumber, sheetrock, brick, etc.); however, materials of specific environmental concern including used motor oil and used automotive tires were observed in debris piles on the east and northwest portions of the subject property. Multiple (50+) 5-gallon buckets and 5-quart jugs labeled as containing motor oil were observed in these areas. The containers were observed to be full, partially full or empty and several areas of stained soil were observed stemming from these containers. Based on observations made at the time of the site visit, CCG considers the used automotive tires and used oil containers, and associated staining, to represent a recognized environmental condition (REC) in connection with the subject property.

  Recommendation: CCG recommends that the observed tires/oil containers be removed from the subject property, and properly disposed of in accordance with all applicable local, state and federal guidelines. CCG further recommends that the observed areas of stained soil and any subsequently identified impacted soils be excavated, removed and properly disposed of. Confirmatory soil samples should be collected during excavation to ensure that the extent of impacted soils has been removed.

This assessment has revealed the following evidence of de minimis conditions in connection with the subject property:

- CCG considers the numerous piles of municipal waste and construction debris discussed above to represent a de minimis condition in connection with the subject property.

  Recommendation: CCG recommends that all municipal/construction debris be removed from the subject property and properly disposed of in accordance with all applicable local, state and federal guidelines.

This assessment has revealed the following evidence of Noteworthy Issues in connection with the subject property:

- Federally-listed threatened and endangered species and their habitats are protected under the Endangered Species Act of 1973, as amended. Individuals of state-listed species are protected under state law, although their habitats are not currently given regulatory protection. A review of endangered species on or in the vicinity of the subject property is beyond the scope of this investigation. However, according to the California Department of Fish & Wildlife there are multiple rare, threatened or endangered species listed for San Bernardino County.

  Recommendation: If future development will disturb the undeveloped portions of the subject property, an evaluation for Threatened or Endangered Species may be required.

1.2 Purpose

The purpose of this investigation is to conduct a Phase I Environmental Site Assessment (ESA), in general conformance with ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process on a parcel of commercial real estate (subject property) with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601). This assessment is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability: that is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601 (35) (B).

The purpose of a Phase I ESA is to evaluate environmental issues which may have a financial or liability impact on the owners of a parcel of property. The goal of this process is to identify the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.

CCG understands this assessment of the subject property was performed as part of a pending financial transaction.

1.3 Scope of Work

Consolidated Consulting Group, LLC was retained to perform a Phase I Environmental Site Assessment on the subject property in general conformance with ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment.

The following scope of services summarizes the activities performed by Consolidated Consulting Group, LLC:

- Survey the subject property and observe the adjacent and surrounding properties for the purposes of identifying land use and activities that may potentially affect the environmental integrity of the subject property.
- Interview available present and past owners and occupants of the subject property to identify current/historic subject property uses.
- Review available historic information for the subject property from first developed use to present.
- Interview accessible local, city, parish and state personnel to solicit pertinent environmental information regarding the subject property.
- Review available federal, state and local regulatory database information as prescribed in ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- Provide findings, conclusions and recommendations to the Client as a result of the information gathered.

ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process does not specifically call for the Phase I ESA report to address business environmental risks (BERs) or additional services. Business environmental risk is defined in the standard as "*a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-scope considerations, some of which are identified in Section 13 (*of the standard)*"*. In order to better serve the Client, CCG has included a consideration of business environmental risks in the relevant section of this report and the additional services listed in Section 5.4 "Additional Services" as a part of this investigation.

In preparing this report, Consolidated Consulting Group, LLC has relied upon and presumed accurate, certain information (or the absence thereof) about the subject property and adjacent properties provided by governmental officials and agencies, the Client and others identified herein. The accuracy of the results of the regulatory agency database searches are constrained and limited by the level of care and professional skill exercised by the subcontractors retained by Consolidated Consulting Group, LLC to perform these tasks. Except as otherwise stated in this report, Consolidated Consulting Group, LLC has not attempted to verify the accuracy or completeness of such information.

The conclusions and recommendations contained in this report/assessment are based upon professional opinions with regard to the subject matter. These opinions have been formulated in accordance with currently accepted industry standards and practices. The data reported and the findings, observations, and conclusions expressed in the report contain all of the limitations inherent in the methodologies referred to in ASTM 1527-13. Because of these limitations, the findings, observations, and conclusions expressed by CCG in this report are not, and should not be considered, an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state or local law or regulations. No warranty or guarantee, whether expressed or implied, is made with respect to the data reported. Furthermore, the results of this Phase I Environmental Site Assessment as reported herein are in no way intended to represent a guarantee that the subject property is free from the presence of past, present, or future contamination from hazardous substances; rather, it only represents that a reasonable inquiry has been conducted to ascertain the likelihood of such contamination under current applicable law.

Consolidated Consulting Group, LLC derived the data in this report primarily from visual inspections, examination of records in the public domain and interviews with individuals knowledgeable with the Site history. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration at the subject property, analysis of the data and reevaluation of the findings, observations, conclusions and recommendations expressed in this report. Conclusions and recommendations are based solely upon conditions in existence at the subject property at the time of the investigation.

1.4 Investigation Requirements Not Satisfied

This Phase I ESA substantially complies with ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, except for the following exceptions and/or limiting conditions.

- CCG was unescorted during the site inspection.

- CCG provided interview questionnaires to the *User* of this report, the Property Owner Representative and the Key Site Manager regarding issues of environmental concern relating to the subject property. At the time of writing, the interview questionnaires had not been returned to CCG. However, it is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources that the lack of the interview questionnaires will not alter the conclusions of this report.

- ASTM E 1527-13 "Standard for Environmental Site Assessments" suggests historical usage for a property be determined back to 1940 or the property's first developed use, whichever is earliest. CCG reviewed Topographic Maps back to 1902, Aerial Photographs back to 1953 and City Directories back to 1975, but was unable to document the historical usage of the subject property prior to 1953 due to data failure. In addition, CCG was not able to research the site history at 5-year intervals. No additional historical sources that were deemed reasonably ascertainable and likely to be sufficiently useful were identified at the time of the assessment. However, it is the Environmental Professional's opinion that this limitation would not alter the conclusions of this report.

- CCG contacted the San Bernardino County / City of Hesperia Fire Department and Environmental Health Department for information regarding hazardous material spills, permits for water wells, grease traps, septic systems, ASTs/USTs and general information regarding environmental issues/complaints associated with the subject property. At the time of writing, a response from these departments has not been received. Any pertinent information will be forwarded to the Client upon receipt. However, it is the Environmental Professional's opinion that this limitation would not alter the conclusions of this report.

There were no other unmet requirements of the ASTM 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

It is the Environmental Professional's opinion that these limitations, data gaps and/or data failures would not alter the conclusions of this report. No other exceptions, limitations, data gaps and/or data failures were encountered during the course of this investigation.

2.0 USER PROVIDED INFORMATION

The purpose of this section is to summarize and evaluate information provided by the *User* that may assist in the identification of recognized environmental conditions and business environmental risks in connection with the subject property.

2.1 Title Records

Title records can be reviewed to identify potential environmentally suspect historic owners of the subject property.

The *User* did not provide CCG with any title records for review.

2.2 Environmental Liens / Activity and Use Limitations

Reasonably ascertainable recorded land title records and lien records that are filed under federal, tribal, state, or local law can be reviewed to identify environmental liens or activity and use limitations (AULs), if any, that are currently recorded against the subject property.

The *User* did not inform CCG of any environmental liens, AULs, institutional controls or engineering control restrictions imposed on the subject property.

2.3 Specialized Knowledge

If the *User* is aware of any specialized knowledge or experience that is material to recognized environmental conditions or business environmental risk in connection with the subject property, it is the *User's* responsibility to communicate any information based on such specialized knowledge or experience to the environmental professional. The *User* should do so before the environmental professional conducts the site reconnaissance.

The *User* did not inform CCG of any specialized knowledge or experience that is material to recognized environmental conditions or business environmental risk in connection with the subject property.

2.4 Commonly Known or Reasonably Ascertainable Information

If the *User* is aware of any commonly known or reasonably ascertainable information within the local community about the subject property that is material to recognized environmental conditions or business environmental risk in connection with the subject property, it is the *User's* responsibility to communicate such information to the environmental professional. The *User* should do so before the environmental professional conducts the site reconnaissance.

The *User* did not inform CCG of any commonly known or reasonably ascertainable information within the local community about the subject property that is material to recognized environmental conditions or business environmental risk in connection with the subject property.

2.5 Valuation Reduction for Environmental Issues

If the *User* is aware that the sales price or valuation of the subject property has been reduced due to identified or potential environmental issues relating to the subject property, it is the *User's* responsibility to communicate such information to the environmental professional. The *User* should do so before the environmental professional conducts the site reconnaissance.

The *User* did not inform CCG of any valuation reductions for the subject property based on environmental issues.

2.6 Identification of the Key Site Manager

The key site manager of the subject property is Mr. Brandon Gallup, Senior Director - Covington Group, Inc.

3.0 SITE DESCRIPTION

3.1 Site Name and Address

Subject Property Name:	Raw Land
Street Address:	10120 Fremontia Road
City:	Hesperia (inside the Corporate City Limits)
County:	San Bernardino County
State:	California
Zip Code:	92344

3.2 Legal Description

Central Appraisal District (CAD) Account No:	3064-351-03-0000, 3064-361-01-0000, 3064-391-01-0000 & 3064-401-02-0000
Current Owner:	Ross, Carl E Living Trust
Abbreviated Legal Description:	Please refer to Section 7.2.1 "General Public Records" for the legal description of the subject property.
Number of Parcels:	Four (4)

3.3 Site and Vicinity General Characteristics

Site Location Intersection:	Approximately 0.25 mile northwest of the intersection of Highway 395 and Phelan Road/Main Street
Site Access:	Yucca Terrace Drive to the north, Highway 395 to the east, and Phelan Road to the south
Site Acreage:	193.90 acres - According to the San Bernardino County Office of the Assessor
Development of Surrounding Areas:	Please refer to Section 4.3 "Properties and Areas Surrounding the Site" for information regarding the development of the surrounding areas.

3.4 Site Description

General Information

Number of Buildings/stories:	N/A - The subject property is currently undeveloped
Number of Tenant Spaces:	N/A - The subject property is currently undeveloped
Net Rentable Square Footage:	N/A - The subject property is currently undeveloped
Gross Square Footage:	N/A - The subject property is currently undeveloped
Construction Year:	N/A - The subject property is currently undeveloped
Amenities:	Not Applicable

Structural/Finish-out

Exterior Façade:	Not Applicable
Roof Type:	Not Applicable
Interior Wall Coverings:	Not Applicable
Ceiling Type:	Not Applicable
Floor Coverings:	Not Applicable
Interior Lighting:	Not Applicable

Mechanical Systems

HVAC Type:	Not Applicable
Hot Water Source:	Not Applicable

Site Paving/Landscaping

Paving:

☐ Concrete	☐ Asphalt
☐ Pavers	☒ Gravel
☐ Other:	

Landscaping:

☐ Grass Turf	☒ Native Grasses
☒ Shrubs	☐ Heavily Wooded
☐ Decorative Trees	☐ Agricultural Fields
☒ Mature Trees	☐ Other:

Please refer to Section 5.2.8 "Landfills" for additional information regarding numerous debris piles/dump sites observed throughout the subject property.

Utility Providers Please refer to Section 5.0 "Site Reconnaissance and Investigation" for a discussion of the individual utility providers.

Special Utility Structures Please refer to Section 5.0 "Site Reconnaissance and Investigation" for a discussion of special utility structures on the subject property.

3.5 Current Uses of the Site

Current Property Use:	☐ Retail/Commercial	☐ Multi-family Residential
	☐ Office/Commercial	☐ Agricultural Land
	☐ Flex Warehouse	☐ Vacant Land
	☐ Industrial	☒ Undeveloped Land
	☐ Automotive/Gas Station	☐ Other:

Current Occupancy: N/A - The subject property is currently undeveloped

Comments: Please refer to Section 3.7 below for a discussion of environmental concerns associated with the current use/tenant(s) of the subject property.

3.6 Owners and Occupants of the Site

Current Owner: Ross, Carl E Living Trust

Current Tenants: The subject property is currently undeveloped.

Comments: CCG observed the following environmental concerns regarding the current use of the subject property during the course of this investigation:

- Please refer to Section 5.2.8 “Landfills” for additional information regarding numerous debris piles/dump sites observed throughout the subject property.

3.7 Recorded Land Title Records

Please refer to Section 2.2 “Environmental Liens / Activity and Use Limitations” for additional information.

4.0 RECORDS REVIEW

The purpose of this section is to summarize and evaluate information from general public and government environmental records with regard to the physical setting, historical use, current use and environmental listings for the subject property and surroundings. Copies of all maps, public records and non-copyright protected documents are appended to this report in Section 7.0 "Appendices".

4.1 Physical Setting Sources

4.1.1 Topography

Topo Quad:	Hesperia & Baldy Mesa, CA
Topo Date:	1902, 1942, 1947, 1956, 1968, 1980, 1988, 1996 & 2012
Subject Property Elevation:	Approximately 3,530 to 3,600 feet above Mean Sea Level
On-site Slope:	Generally Flat
Slope based on topo contours:	Northeast
Comments:	Based on a review of topographic conditions, the adjacent properties to the southwest appear to be located topographically upgradient of the subject property. A copy of the most recent USGS topographic map is included in Appendix 7.1.4 "Topographical Maps".

4.1.2 Nearest Surface Water

Nearest Surface Water Name:	California Aqueduct
Distance / Direction:	Approximately 0.58 mile northeast
Comments:	None

4.1.3 Wetlands & Jurisdictional Waters

On-site Suspect Wetlands or Jurisdictional Waters Observed:	None Observed
Adjacent Suspect Wetlands or Jurisdictional Waters Observed:	None Observed
Documented Wetlands Identified:	None Observed
Source:	Hesperia & Baldy Mesa, CA Topographic Map, dated 1902, 1942, 1947, 1956, 1968, 1980, 1988, 1996 & 2012 U.S. Fish & Wildlife Service, Geospatial Wetlands Digital Data website
Comments:	Based on CCG's desktop review of soil information, FEMA Flood Zone Maps, NWI maps, topographic maps and observations made during site reconnaissance, no potential wetland indicators were identified.

4.1.4 Floodplain

FEMA Community Panel	N/A
Date:	N/A
Flood Zone	X
Description:	Areas determined to be outside the 0.2 % annual chance floodplain
Comments:	There is no flood map printed for the subject property area, however CCG's review of the Federal Emergency Management Agency (FEMA) National Flood Hazard Layer website indicates that the subject property is located in Flood Zone X.

4.1.5 Soils

Source:	United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) website (http://websoilsurvey.nrcs.usda.gov)
Soil Type:	112 – Cajon sand, 0 to 2 percent slopes 114 – Cajon sand, 9 to 15 percent slopes
Soil Description:	Please refer to the National Resource Conservation Services (NRCS) Soil Map included in Appendix 7.1.7 "Other Maps & Data" for additional information.

4.1.6 Geology

Source:	Groundwater Atlas of the United States – Segment 1
Description:	The structural deformation that produced the system of basins and ranges generally began in Tertiary time with block faulting along steeply dipping normal faults. Crustal extension produced horst and graben blocks in some places and tilted blocks in others. The downthrown parts of the blocks became basins; the upthrown parts became mountain ranges. Vertical displacement across the fault zones exceeded 10,000 feet in some areas. Many of the resulting basins are asymmetrical because the grabens are not centered in the valleys. As the mountain blocks were uplifted and eroded, sediment was carried by streams into the basins, and alluvial fans were formed. The fans coalesced to produce broad surfaces that sloped gently to the center of the basins, where finegrained sediments were deposited in lakes and playas. Coarsegrained sediments tended to be deposited near the steeper margins of basins. Fault movement resulting from continuing deformation offset some of these older sediments. Deformation and sedimentation occurred at different rates through the area; as a result, the thickness, areal extent, and grain size of the basin fill are highly varied. Basin fill primarily consists of unconsolidated to moderately consolidated, well- to poorly sorted beds of gravel, sand, silt, and clay deposited on alluvial fans, pediments, flood plains, and playas. More cemented or compact sediments in the older basin fill and finer grained sediments near the center of the basin are less permeable than the coarser

grained sediments near the margins of the basins. Evaporites, such as gypsum, anhydrite (calcium sulfate), and halite (rock salt) are present in the deeper fine-grained sediments of the central parts of some basins. Extrusive volcanic rocks also are interspersed with basin fill in some basins; volcanic rocks overlie basin fill in a few areas. The thickness of the basin fill is not well known in some basins but ranges from about 1,000 to 5,000 feet in many basins and may exceed 10,000 in a few deep basins in Utah and south-central Arizona.

4.1.7 Hydrology

Source:	Groundwater Atlas of the United States – Segment 1
Description:	The Basin and Range aquifers are located in an area that comprises most of Nevada and the southern California desert. The water-yielding materials in this area are in valleys and basins, and consist primarily of unconsolidated alluvial-fan deposits, although locally flood plain and lacustrine (lake) beach deposits may yield water to wells. Also, the consolidated volcanic and carbonate rocks that underlie the unconsolidated alluvium are a source of water if the consolidated rocks are sufficiently fractured or have solution openings. Many of these valleys and basins are internally drained; that is, water from precipitation that falls within the basin recharges the aquifer and ultimately discharges to the land surface and evaporates within the basin. Ground water is generally under unconfined, or water-table, conditions at the margins of the basins, but as the unconsolidated deposits become finer grained toward the centers of the basins, the water becomes confined. Rarely, basins might be hydraulically connected in the subsurface by fractures or solution openings in the underlying bedrock. These multiple-basin systems end in a terminal discharge area, or sink, from which water leaves the flow system by evaporation. Also, several basins or valleys may develop surface-water drainage that hydraulically connects the basins, and ground water flows between the basins, mostly through the unconsolidated alluvial stream/flood plain sediments.

4.1.8 Depth to Groundwater

Site Specific Depth to Groundwater:	Unknown
General Depth of Regional Groundwater:	Based on a review of surface water features and topographic conditions in the subject property area, perched tables are anticipated to be encountered at depths ranging from >100 feet below ground surface.

4.1.9 Groundwater Utilization

On-site Water Wells:	None Observed or Reported
Comments:	Groundwater is not currently utilized on the subject property.

4.1.10 Groundwater Direction

Site Specific:	Unknown
Regional:	Northeast
Comments:	In order to determine actual groundwater flow beneath a site it is necessary to install a network of at least three permanent groundwater monitoring wells and perform a relative elevation survey. However, general groundwater flow can be inferred based on the natural slope of the land surface in the area of the subject property.

4.1.11 Oil and Gas Exploration/Distribution

Current On-site/Adjacent Oil or Gas Exploration:	None Observed
Historic On-site/Adjacent Oil or Gas Exploration:	None Identified
Current On-site/Adjacent Pipeline:	None Observed
Historic On-site/Adjacent Pipeline:	None Observed
Source:	Site reconnaissance, U.S. DOT National Pipeline Mapping System Website, historical USGS Hesperia & Baldy Mesa, CA topographical maps and historical aerial photographs
Comments:	None

4.2 Historical Use Information

4.2.1 Prior Uses of the Subject Property

Historic Sources Researched:	Historic aerial photographs, city directories, topographic maps and interviews with City/County officials and other individuals familiar with the history of the subject property
Earliest Date Researched:	1902 - Topographic Map Although USGS Topographic Maps were reviewed back to 1902, no indication of historical property use was identified in historical resources prior to 1953.
Historic Use of the Subject Property & Date Range:	Undeveloped land from at least 1953 to present.
Development Date of Current Improvements:	N/A - The subject property is currently undeveloped
Environmental Concerns Associated with Historic Use of the subject property:	☐ Historic Industrial Use ☐ Historic Agricultural Use ☐ Historic Dry Cleaner ☐ Historic Sand/Gravel Mining ☐ Historic Gas Station ☐ Other: ☒ No Environmental Concerns Associated with Historic Use of the Subject Property
Comments:	None
Historic Data Gaps:	Yes - See below
Historic Data Failure:	Yes - See below
Comments:	ASTM E 1527-13 "Standard for Environmental Site Assessments" suggests historical usage for a property be determined back to 1940 or the property's first developed use, whichever is earliest. CCG reviewed Topographic Maps back to 1902, Aerial Photographs back to 1953 and City Directories back to 1975, but was unable to document the historical usage of the subject property prior to 1953 due to data failure. In addition, CCG was not able to research the site history at 5-year intervals. No additional historical sources that were deemed reasonably ascertainable and likely to be sufficiently useful were identified at the time of the assessment. However, it is the Environmental Professional's opinion that this limitation would not alter the conclusions of this report.

4.2.2 Summary of Prior Phase I ESA, Environmental Checklists & Helpful Documents

CCG requested information from the User, Property Owner and Property Manager regarding the following documents/reports:

- Prior environmental compliance audit reports
- Environmental permits (i.e. solid waste disposal permits, hazardous waste disposal permits, waste water permits, NPDES permits, underground injection permits)
- Registrations for underground and above-ground storage tanks
- Safety data sheets
- Community Right to Know plans
- Safety Plans, preparedness and prevention plans; spill prevention, countermeasure and control plans; etc.
- Hydrogeologic reports
- Notice of violations
- Environmental liens
- Hazardous waste generator notices or reports
- Geotechnical studies
- Risk assessments
- Recorded activity and use limitations
- Any prior, current or pending proceedings involving the subject property relevant to hazardous substances or petroleum products

None of the requested documents were provided.

4.2.3 Aerial Photographs

Source:	Environmental Data Resources, Inc. (EDR)
Years Reviewed:	1953, 1959, 1968, 1975, 1985, 1994, 2005, 2009, 2010 & 2012
On-Site Concerns Identified:	☐ Yes ☒ No
Off-Site Concerns Identified:	☐ Yes ☒ No
Comments:	Copies of the aerial photographs reviewed for this assessment are included in Appendix 7.1.3 "Aerial Photographs".
Aerial Photographs Reviewed in Prior Report:	☐ Yes ☐ No ☒ Not Applicable ☐ Generally consistent with CCG's findings

4.2.4 Fire Insurance Maps

Fire Insurance Maps can be reviewed for information regarding historic property use. Historical use information was obtained using ASTM approved standard historical sources which did not include the review of Fire Insurance Maps.

Source:	Environmental Data Resources, Inc., Certified Sanborn Map Report
Years Reviewed:	No Coverage Available
On-Site Concerns Identified:	☐ Yes ☐ No ☒ Not Applicable
Off-Site Concerns Identified:	☐ Yes ☐ No ☒ Not Applicable
Comments:	Not Applicable
Fire Insurance Maps Reviewed in Prior Report:	☐ Yes ☐ No ☒ Not Applicable ☐ Generally consistent with CCG's findings

4.2.5 City Directories

Source:	The EDR-City Directory Image Report
City Directory Type:	Haines and EDR Digital Archive
Years Reviewed:	Various years between 1975 - 2014 at approximately 5-year intervals
Address Listings Reviewed:	CCG reviewed the following address listings in the historical city directories: Subject Property: 10120 Fremontia Road Surrounding Properties: 5373 – 17190 Fremontia Road
On-Site Concerns Identified:	☐ Yes ☒ No
Off-Site Concerns Identified:	☐ Yes ☒ No
Comments:	A copy of The EDR-City Directory Image Report is included in Appendix 7.1.6 "City Directories".
City Directories Reviewed in Prior Report:	☐ Yes ☐ No ☒ Not Applicable ☐ Generally consistent with CCG's findings

4.2.6 Other Maps

Historical USGS topographic maps can be reviewed to identify improvements and other historical conditions for the subject property and surrounding sites.

Source:	United States Geological Survey (USGS) 7.5-minute Topographic Quadrangle Map for Hesperia & Baldy Mesa, CA
Map Date(s):	1902, 1942, 1947, 1956, 1968, 1980, 1988, 1996 & 2012
On-Site Concerns Identified:	☐ Yes ☒ No
Off-Site Concerns Identified:	☐ Yes ☒ No
Comments:	A copy of the most recent USGS topographic map is included in Appendix 7.1.4 "Topographical Maps".
Other Maps Reviewed in Prior Report:	☐ Yes ☒ No ☒ Not Applicable ☐ Generally consistent with CCG's findings

4.2.7 Title Records / Property Tax Files

Title records and property tax files can be reviewed to identify potential environmentally suspect historic owners of the subject property, as well as AULs filed against the subject property.

Documents Reviewed:	Please refer to Sections 2.1 "Title Records" and 2.2 "Environmental Liens / Activity and Use Limitations" for additional information.

4.2.8 Zoning/Land Use Records

Source:	Not Applicable
Description:	Not Applicable
Comments:	Zoning and land use records can be reviewed for information regarding historic zoning designations and land uses for the subject property. Historical use information was obtained using ASTM approved standard historical sources which did not include the review of historical zoning and land use records.

4.2.9 Other Historical Sources

Source:	Not Applicable
Description:	Not Applicable
Comments:	No other sources were reviewed to determine the historic use of the subject property.

4.2.10 Personal Interviews

Source:	See Below
Description:	See Below
Comments:	CCG interviewed multiple individuals regarding the historic use of the subject property. Please refer to Section 5.3 "Interviews" for information regarding personal interviews performed as a part of this investigation.

4.3 Properties and Areas Surrounding the Site

4.3.1 Current Use of Adjacent Properties

CURRENT ADJACENT PROPERTIES	
North:	Yucca Terrace Drive followed by undeveloped land and several storage yards
Northeast:	Undeveloped land
East:	Highway 395 followed by a utilities sub-station and undeveloped land
Southeast:	Undeveloped land
South:	Phelan Road followed by undeveloped and single-family residential housing
West:	A utility easement

Comments: No environmental concerns were identified associated with the current adjacent properties. A site plan of the subject property was prepared by CCG personnel and is included in Appendix 7.1, "Site Background Attachments".

4.3.2 Past Use of Adjacent Properties

PAST ADJACENT PROPERTIES		
North:	1953 – 1985: 1994 – 2012: 2015 – Present:	Undeveloped land Yucca Terrace Drive followed by undeveloped land Yucca Terrace Drive followed by undeveloped land and several storage yards
Northeast:	1953 – Present:	Undeveloped land
East:	1953 – 1975: 1985 – Present:	Highway 395 followed by undeveloped land Highway 395 followed by a utilities sub-station and undeveloped land
Southeast:	1953 – Present:	Undeveloped land
South:	1953 – 1959: 1968 – 1975: 1985 – Present:	Phelan Road followed by agricultural/undeveloped land Phelan Road followed by agricultural/undeveloped land and single-family residential housing Phelan Road followed by undeveloped land and single-family residential housing
West:	1953 – Present:	A utility easement

Comments: No environmental concerns were identified associated with the past adjacent properties.

4.3.3 Current Uses of Surrounding Areas

Development in the area surrounding the subject property consists primarily of:

- ☒ Undeveloped land
- ☐ Vacant land
- ☐ Agricultural land
- ☒ Single-family residences
- ☐ Multi-family residences
- ☐ School(s)
- ☐ Retail/Commercial development
- ☐ Commercial office development
- ☐ Medical office development
- ☐ Warehouse/flex space facilities
- ☐ Light industrial facilities
- ☒ Other: Storage Yards/Lots

Comments: No environmental concerns were identified associated with the current use of the surrounding areas.

4.3.4 Past Uses of Surrounding Areas

Past development in the areas surrounding the subject property consisted primarily of:

- ☒ Undeveloped land
- ☐ Vacant land
- ☐ Agricultural land
- ☐ Single-family residences
- ☐ Multi-family residences
- ☐ School(s)
- ☐ Retail/Commercial development
- ☐ Commercial office development
- ☐ Medical office development
- ☐ Warehouse/flex space facilities
- ☐ Light industrial facilities
- ☐ Other:

Comments: No environmental concerns were identified associated with the past use of the surrounding areas.

4.4 Environmental Records Reviews and Interviews

4.4.1 Mapped Database Records Search

CCG's regulatory search for the subject property included a review of U.S. EPA and State of California databases. The information was compiled through a Regulatory Database Report prepared by Environmental Data Resources, Inc. (EDR). The database searches were performed for various radii, in accordance with ASTM standards. Descriptions of the State and Federal databases reviewed are contained in the Regulatory Database Report which is included in Appendix 7.2 "Governmental Agency Records Attachments".

CCG has not attempted to verify the accuracy or completeness of all the information provided. Any data search information, which potentially impacts the environmental integrity of the subject property, is investigated further if necessary. The following table summarizes the number of sites on the respective databases as identified by the Regulatory Database Report.

REGULATORY DATABASE SUMMARY TABLE		
Databases Reviewed	**Minimum Search Area**	**Sites Within Search Area**
FEDERAL DATABASES		
Federal NPL list	1-mile radius	-
Federal PNPL list	1-mile radius	-
Federal NPL LIENS list	Subject Property	-
Federal DNPL list	½-mile radius	-
Federal SEMS list	½-mile radius	-
Federal SEMS ARCHIVE list	½-mile radius	-
Federal RCRA CORRACTS list	1-mile radius	-
Federal RCRA TSD list	½-mile radius	-
Federal RCRA generators list (LQG, SQG, CESQG)	¼-mile radius	-
Federal LUCIS list	½-mile radius	-
Federal ENG list	½-mile radius	-
Federal INST	½-mile radius	-
Federal ERNS list	Subject Property	-
STATE DATABASES		
State RESPONSE list	1-mile radius	-
State ENVIROSTOR list	1-mail radius	-
State SWF/LF list	½-mile radius	-
State LUST list	½-mile radius	-
State INDIAN LUST list	½-mile radius	-
State SLIC list	½-mile radius	-
State FEMA UST list	¼-mile radius	-
State UST list	¼-mile radius	-
State AST list	¼-mile radius	-
State INDIAN UST list	¼-mile radius	-
State VCP list	½-mile radius	-
State INDIAN VCP list	½-mile radius	-
State BROWNFIELDS list	½-mile radius	-
ADDITIONAL ENVIRONMENTAL RECORDS		
Local Brownfield lists	½-mile radius	-
Local Landfill/Solid Waste Disposal Sites lists	Varies	-
Local Hazardous Waste/Contaminated Sites lists	Varies	-
Local Registered Storage Tanks lists	Varies	-
Local Land Records lists	Varies	-
Emergency Release Reports lists	Varies	**2**
Other Ascertainable Records	Varies	**4**
EDR HIGH RISK HISTORICAL RECORDS		
EDR MGP list	1-mile radius	-
EDR Hist Auto list	¼-mile radius	-
EDR Hist Cleaner list	¼-mile radius	-

Orphan Sites

The Regulatory Database Report identified two (2) "orphan" (location unknown/unplottable) sites on the regulatory database report. Based on CCG's review of the orphan list, review of local maps and observations made during the reconnaissance of the subject property and surrounding areas, the orphan facilities/listings do not appear to be located in the general vicinity of the subject property.

Regulatory Database Listings for the Subject Property

The Regulatory Database Report did not identify any federal or state regulatory listings for the subject property.

Off-Site Facilities of Potential Concern

None of the properties that were identified on the Regulatory Database Report within the ASTM-designated search radii are considered by CCG to pose a potential risk of impacting the subject property based on their regulatory information, distance and/or topographic direction from the subject property.

Vapor Encroachment Condition (VEC)

Based on a review of the regulatory database report, no facilities were identified which CCG considers a VEC concern to the subject property.

Non-ASTM Databases

No facilities/sites were identified on the non-ASTM, EDR High Risk Historical Records Databases. These databases are not maintained by any State or Federal agencies and are not an indication that hazardous conditions exist at a site.

4.4.2 Additional Regulatory Agency Information

City/County Department of Health/Environmental Division

Information Requested:	Any information regarding hazardous material spills, permits for water wells, grease traps, septic systems, ASTs/USTs and general information regarding environmental issues/complaints associated with the subject property.
Response:	At the time of writing, a response from the department has not been received. Any pertinent information will be forwarded to the Client upon receipt.

Fire Department

Information Requested:	Any information regarding records of ASTs/USTs or hazardous material spills associated with the subject property.
Response:	At the time of writing, a response from the department has not been received. Any pertinent information will be forwarded to the Client upon receipt.

Planning and Zoning Department

Information Requested:	Information regarding the current and historic zoning designations for the subject property.
Current Zoning Designation:	Administrative/Professional Office (AP)
Historic Zoning Designation:	No information regarding historic zoning designations was provided.

Building Permit/Inspection Department

Information Requested:	Any information regarding demolition permits, the construction/remodel year of the subject property and records of permits for ASTs/USTs.
Response:	No responsive records reported.

Local/Regional Pollution Control Agency

Information Reviewed:	CCG reviewed various State and Federal Databases for information regarding hazardous material spills or identified contamination associated with the subject property.
Response:	The subject property is not listed on any of the state or federal databases searched in conjunction with this Phase I ESA.

Appraisal District

Information Reviewed:	No information regarding environmental liens or activity and use limitations (i.e. deed restrictions or institutional/engineering controls) was identified based upon a review of Office of the Assessor's information. Please refer to Section 2.2 "Environmental Liens/Activity and Use Limitations" for additional information regarding environmental liens and activity and use limitations for the subject property.

5.0 SITE RECONNAISSANCE AND INVESTIGATION

The site inspection was conducted in accordance with the methodologies referred to in ASTM 1527-13 Section 9 (Site Reconnaissance) and the Client Scope of Work. Visual observations of the exterior of the subject property and all improvements were made during the site inspection. When necessary, large tracts of undeveloped/unimproved areas were inspected by walking or driving a grid pattern.

Site Inspector:	Ross MacNames
Inspection Date:	January 16, 2018
Inspection Time:	1:00 P.M.
Site Escort:	N/A – CCG was unescorted during the site inspection.
Units Inspected:	Large tracts of undeveloped/unimproved land were inspected by walking or driving a grid pattern.
Weather Conditions:	The weather conditions during the site inspection were clear with air temperatures in the 70s (degrees Fahrenheit).
Limitations to Site Inspection:	The following limitations to the site inspection were encountered during the course of this investigation. • CCG was unescorted during the site inspection No other limitations to the site inspection methodology were encountered during the course of this assessment
Comments:	It is the Environmental Professional's opinion that these limitations would not alter the conclusions of this report.

5.1 General Site Characteristics

5.1.1 Solid Waste Disposal

Collection Points:	None Observed
Disposal Contractor:	N/A
Comments:	Please refer to Section 5.2.8 "Landfills" for additional information regarding numerous debris piles/dump sites observed throughout the subject property.

5.1.2 Sanitary Sewage Discharge and Disposal

Floor Drains:	None Observed
Trench Drains:	None Observed
Grease Traps:	None Observed
Oil Water Separators:	None Observed
Sand Traps:	None Observed
Septic Systems:	None Observed
Utility Provider:	N/A
Comments:	None

5.1.3 Surface Water Drainage and Natural Surface Water Features

Surface flow to adjacent properties & streets:	Yes
On-site Storm Drains:	None Observed
Dry-wells:	None Observed
Drainage Ditches:	None Observed
Retention Pond:	None Observed
Detention Pond:	None Observed
Natural Surface Water Features (ponds, streams, lagoons, etc.):	None Observed
Storm Water Utility Provider:	City of Hesperia
Comments:	CCG did not observe any evidence of hazardous chemical/waste or petroleum product releases or disposal activities, such as significant surface stains in the area of the on-site surface water drainage features.

5.1.4 Heating and Cooling Systems

HVAC Type:	None Observed
Hot Water Source:	None Observed
Comments:	None

5.1.5 Water Wells, Cisterns and Springs

On-site Water Wells:	None Observed
On-site Monitoring Wells:	None Observed
On-site Cisterns:	None Observed
On-site Springs:	None Observed
Comments:	None

5.1.6 Potable Water

On-site Domestic Water Source:	None Observed
Comments:	None

5.1.7 Wastewater

Sanitary Wastewater Discharges:	None Observed
Process Wastewater Discharges:	None Observed
Other Wastewater Discharges:	None Observed
Comments:	None

5.1.8 Additional Property Impacts

Comments: With the exception of those discussed throughout the body of this report, no other conditions of concern were identified on the subject property.

5.2 Potential Environmental Hazards

5.2.1 Hazardous Substances & Petroleum Products Used or Stored on the Subject Property

CCG observed the following hazardous chemicals or petroleum products stored on the subject property:

Material	Size	Quantity	Use / Location
Used Motor Oil	5-gallon buckets 5-quart jugs	Multiple (50+)	Debris Piles / Throughout

Comments Please refer to Section 5.2.8 "Landfills" for additional information regarding numerous debris piles/dump sites observed throughout the subject property.

5.2.1.1 Labeled Containers and Drums

Comments: Other than the materials listed above, CCG did not observe any containers or drums labeled as containing hazardous materials and/or petroleum products stored on the subject property.

5.2.1.2 Unlabeled Containers and Drums

Comments: CCG did not observe any unlabeled containers or drums on the subject property.

5.2.1.3 Disposal Locations of Regulated / Hazardous Wastes

Comments: CCG did not observe any regulated/hazardous waste disposal locations on the subject property. According to management, there is no regulated/hazardous waste disposal on the subject property.

5.2.2 Evidence of Releases or Disposal of Hazardous Substances & Petroleum Products

Comments: CCG did not observe any evidence of hazardous chemical or petroleum product releases or disposal activities, such as significant surface stains or distressed vegetation with the exception of the following:

- Please refer to Section 5.2.8 "Landfills" for additional information regarding numerous debris piles/dump sites observed throughout the subject property.

5.2.3 Polychlorinated Biphenyls (PCBs)

PCBs often are found in electrical equipment such as transformers, ballasts in fluorescent lighting, circuit breakers and switchgears, and hydraulic fluids. PCBs contain toxic compounds that attach to human fat tissue and may act as possible carcinogens if ingested.

Transformers Present On-site:	☐ Yes ☒ No
Transformer Locations On-site:	N/A
Transformer Type:	N/A
Evidence of leaks or spills:	N/A
Transformer Owner:	N/A
Comments:	None
Fluorescent Lighting Present On-site:	☐ Yes ☒ No
Fluorescent Lighting Locations On-site:	N/A
Comments:	None
Hydraulic Elevators Present On-site:	None Observed
Elevator Locations On-site:	N/A
Comments:	None
Hydraulic Lifts Present On-site:	None Observed
Hydraulic Lift Locations On-site:	N/A
Comments:	None
Other PCB Equipment:	No other potential PCB-containing equipment, such as hydraulic lifts/systems, was identified on the subject property.

5.2.4 Asbestos-Containing Materials

Comments: In accordance with the Client scope of work and given current property use (undeveloped), asbestos sampling was not conducted as a part of this investigation.

5.2.5 Radon

EPA Radon Zone: Zone 2

Radon Zone Definition: Areas that have an average predicted indoor radon screening potential of between 2.0 and 4.0 pCi/L (picocuries per liter of air) for radon gas. The EPA and Surgeon General strongly recommend taking action when radon test results are 4.0 pCi/L or greater.

Comments: In accordance with the Client scope of work and given current property use (undeveloped), radon sampling was not conducted as a part of this investigation.

5.2.6 Lead-Based Paint

Comments: In accordance with the Client scope of work and given current property use (undeveloped), lead-based paint sampling was not conducted as a part of this investigation.

5.2.7 Lead in Drinking Water

Comments: In accordance with the Client scope of work and given current property use (undeveloped), lead in drinking water sampling was not conducted as a part of this investigation.

5.2.8 Landfills

Comments: Numerous debris piles/dump sites are located throughout the subject property. Observed debris generally consists of municipal waste (paper, plastic, etc.) and construction debris (lumber, sheetrock, brick, etc.); however, materials of specific environmental concern including used motor oil and used automotive tires were observed in debris piles on the east and northwest portions of the subject property. Multiple (50+) 5-gallon buckets and 5-quart jugs labeled as containing motor oil were observed in these areas. The containers were observed to be full, partially full or empty and several areas of stained soil were observed stemming from these containers. Based on observations made at the time of the site visit, CCG considers the used tires/oil containers and associated staining to represent a recognized environmental condition (REC) in connection with the subject property. Additionally, the observed municipal waste/construction debris is considered to represent a de minimis condition in connection with the subject property.

Otherwise, CCG did not observe any evidence of current or historic landfills on the subject property.

5.2.9 Pits, Sumps, Dry Wells and Catch Basins

Comments:	CCG observed one pit on the western central portion of the subject property. The pit was reportedly dug by a transient resident of the subject property for the purposes of municipal waste disposal. Please refer to Section 5.2.8 "Landfills" above for additional information regarding improper waste disposal/dumping observed throughout the subject property. Otherwise, CCG did not observe any evidence of pits, sumps or catch basins on the subject property.

5.2.10 On-Site Aboveground and Underground Storage Tanks

Current On-site ASTs:	None Observed
Historic On-site ASTs:	None Identified
Current On-site USTs:	None Observed
Historic On-site USTs:	None Identified
Comments:	No evidence of current or historic aboveground or underground storage tanks was observed on the subject property.

5.2.11 Radiological Hazards

Comments:	CCG did not observe any evidence of radiological hazards associated with the subject property.

5.2.12 Suspect Microbial Growth (SMG)

Visual Evidence of SMG:	Not Applicable
Visual Evidence of Water Damage:	Not Applicable
Visual Evidence of Roof, Sidewall or Window Leaks:	Not Applicable
Visual Evidence of HVAC/Plumbing Leaks:	Not Applicable
Property Management Reports of Current or Past SMG:	Not Applicable
High Humidity Levels Inside Building:	Not Applicable
Comments:	None

5.2.13 Additional Hazard Observations

5.2.13.1 Electro-Magnetic Fields (EMFs)

Comments: High tension power lines run northeast-southwest to the adjacent west of the subject property. Based on the lack of conclusive evidence regarding high-voltage electrical equipment and adverse human health issues and given that the subject property is currently undeveloped, CCG does not consider the power lines to represent an environmental concern to the subject property at this time.

5.2.13.2 Urea Formaldehyde

Comments: The subject property manager did not report the presence of urea formaldehyde insulation on the subject property. Although no destructive testing was performed during the course of the site inspection, CCG did not observe any evidence of urea formaldehyde insulation on the subject property.

5.2.13.3 Other Concerns

Comments: With the exception of those noted in previous sections, no additional hazards were observed.

5.3 Interviews

5.3.1 User

Individual Interviewed:	Mr. Brandon Gallup, Senior Director - Covington Group, Inc.
Relationship to Subject Property:	User/Key Sit Manager/Property Owner Representative
Interview Form Completed:	☐ Yes ☒ No
Interview Results:	N/A – No specific individual interviewed
Comments:	At the time of writing, the interview questionnaire had not been returned to CCG. It is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources and that completion of the interview questionnaire is not necessary to form an opinion regarding RECs, CRECs, HRECs or business environmental risks relating to the subject property.

5.3.2 Property Owner Representative

Individual Interviewed:	Mr. Brandon Gallup, Senior Director - Covington Group, Inc.
Relationship to Subject Property:	User/Key Sit Manager/Property Owner Representative
Interview Form Completed:	☐ Yes ☒ No
Interview Results:	N/A – No specific individual interviewed
Comments:	At the time of writing, the interview questionnaire had not been returned to CCG. It is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources and that completion of the interview questionnaire is not necessary to form an opinion regarding RECs, CRECs, HRECs or business environmental risks relating to the subject property.

5.3.3 Key Site Manager

Individual Interviewed:	Mr. Brandon Gallup, Senior Director - Covington Group, Inc.
Relationship to Subject Property:	User/Key Sit Manager/Property Owner Representative
Interview Form Completed:	☐ Yes ☒ No
Interview Results:	N/A – No specific individual interviewed
Comments:	At the time of writing, the interview questionnaire had not been returned to CCG. It is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources and that completion of the interview questionnaire is not necessary to form an opinion regarding RECs, CRECs, HRECs or business environmental risks relating to the subject property.

5.3.4 Occupants

Individual Interviewed:	N/A
Relationship to Subject Property:	N/A
Interview Form Completed:	N/A
Interview Results:	N/A
Comments:	The subject property is currently undeveloped.

5.3.5 Past Owners, Operators and Occupants

Individual Interviewed:	N/A
Relationship to Subject Property:	N/A
Interview Form Completed:	N/A
Interview Results:	N/A
Comments:	No past owners, operators or occupants of the subject property were interviewed during the course of this investigation. It is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources that interviews of these individuals were not necessary to form an opinion regarding RECs, CRECs, HRECs or business environmental risks relating to the subject property.

5.3.6 Adjacent Property Owners, Operators and Occupants

Individual Interviewed:	N/A
Relationship to Subject Property:	N/A
Interview Form Completed:	N/A
Interview Results:	N/A
Comments:	No adjacent property owners, operators or occupants were interviewed regarding the subject property during the course of this investigation. It is the Environmental Professional's opinion that sufficient information regarding the current and historic use of the subject property was obtained through other sources and that interviews of these individuals were not necessary to form an opinion regarding RECs, CRECs, HRECs or business environmental risks relating to the subject property.

5.3.7 State and/or Local Government Officials

Comments: CCG interviewed multiple state and local governmental agencies for information regarding the subject property. These agencies included:

- City/County Environmental Protection Division
- City/County Fire Marshal
- City/County Planning Department
- Local/Regional Pollution Control Agency
- County Central Appraisal District
- Local/Regional Water Quality Agency

Please refer to Section 4.4.2 "Additional Regulatory Agency Information" and Appendix 7.3 "Interview Record Attachments" regarding information obtained as a result of these interviews.

5.4 Additional Services

According to ASTM E1527-2013 Standard Practice for Environmental Site Assessments, *"There may be environmental issues or conditions at a property that parties may wish to assess in connection with commercial real estate that are outside the scope of this practice (the non-scope considerations). As noted by the legal analysis in Appendix X1 of this practice, some substances may be present on a property in quantities and under conditions that may lead to contamination of the property or of nearby properties but are not included in CERCLA's definition of hazardous substances (42 USC 9601(14)) or do not otherwise present potential CERCLA liability…"*

These "non-scope considerations" may pose a business environmental risk to the property and are classified as "Additional Services". Other than those previously discussed in the body of this report, the following are several additional non-scope considerations identified by ASTM that may be assessed in connection with commercial real estate. According to ASTM *"…No implication is intended as to the relative importance of inquiry into such non-scope considerations and this list of non-scope considerations is not intended to be all inclusive"*.

5.4.1 Regulatory Compliance

Comments: A regulatory compliance review is beyond the scope of this investigation. However, based on CCG's general observations during the site reconnaissance, no areas of gross non-compliance were observed.

5.4.2 Cultural and Historic Designations

Comments: A review of cultural and/or historical designations for the subject property is beyond the scope of this investigation. However, based upon the location of the subject property, it is unlikely regulations regarding cultural and/or historical property designations would represent a concern to current operations or future development of the subject property.

5.4.3 Coastal Development Zone

Comments: Based upon the location of the subject property, it is unlikely regulations regarding coastal development zones would represent a concern to current operations or future development of the subject property.

5.4.4 Endangered Species

Comments: Federally-listed threatened and endangered species and their habitats are protected under the Endangered Species Act of 1973, as amended. Individuals of state-listed species are protected under state law, although their habitats are not currently given regulatory protection. A review of endangered species on or in the vicinity of the subject property is beyond the scope of this investigation. However, according to the California Department of Fish & Wildlife there are multiple rare, threatened or endangered species listed for San Bernardino County. If future development will disturb the undeveloped portions of the subject property, an evaluation for Threatened or Endangered Species may be required.

5.4.5 Indoor Air Quality

Comments: A review of indoor air quality on or in the vicinity of the subject property is beyond the scope of this investigation.

5.4.6 Biological Agents

Comments: An evaluation of biological agents on the subject property is beyond the scope of this investigation. However, based on CCG's general observations during the site reconnaissance, no specific concerns regarding biological agents were observed.

5.4.7 Compliance with Activity & Use Limitations

Comments: Parties who wish to qualify for one of the CERCLA "Land Owner Liability Protections" (LLPs) must comply with activity and use limitations (AULs), including land use restrictions that were relied upon in connection with a response action for a subject property. The *User* did not inform CCG of any AULs, imposed on the subject property.

Please refer to Section 2.2 "Environmental Liens / Activity and Use Limitations" for additional information.

6.0 CONSULTANT INFORMATION

6.1 Project Personnel

The following individuals performed this ESA, including inspectors, research assistants, project managers, senior reviewers, etc.:

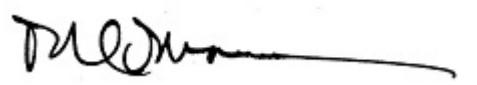
Ross MacNames, Project Manager
Richard A. Mosman, Environmental Professional

This Phase I ESA was prepared by Ross MacNames, project manager, and was conducted under the direct supervision of Richard A. Mosman, an environmental professional, who has reviewed and approved the Report. In addition, the methods and procedures employed in the development of the Report conform to minimum industry standards.

6.2 Report Certification

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



Richard A. Mosman
Environmental Professional

6.3 Certification/Licensing

The Contractor and all subcontractors are properly licensed and/or certified to do the work described herein where required.

6.4 Report Reliance

This Phase I Environmental Site Assessment was conducted in general accordance with ASTM Standard Practices for Environmental Site Assessments (E-1527-13) for the exclusive benefit of Covington Group, Inc., its successors and/or assigns. It is based, in part, upon documents, writings, and information owned, possessed, or secured by Consolidated Consulting Group, LLC. Neither this report, nor any information contained herein shall be used or relied upon for any purpose by any other person or entity without the express written permission of Consolidated Consulting Group, LLC.

7.0 APPENDICES

7.1 Site Background Attachments

Category	Attached	Not Applicable
7.1.1 Photographs	**X**	
7.1.2 Site Drawing	**X**	
7.1.3 Aerial Photographs	**X**	
7.1.4 Topographic Map	**X**	
7.1.5 Fire Insurance Maps	**X**	
7.1.6 City Directories	**X**	
7.1.7 Other Maps & Data	**X**	
7.1.8 Title Search Records		**X**
7.1.9 References	**X**	

Project No.: CCG-4177

Raw Land
10120 Fremontia Road
Hesperia, CA 92344



Representative view of undeveloped land



Representative view of undeveloped land



Representative view of undeveloped land



Representative view of undeveloped land



View of representative gravel road



View of representative gravel road

Project No.: CCG-4177

Raw Land
10120 Fremontia Road
Hesperia, CA 92344



View of representative debris pile



View of representative debris pile



View of representative debris pile



View of representative debris pile



View of representative waste oil disposal/dumping



View of representative waste oil disposal/dumping



View of representative waste oil disposal/dumping



View of representative waste oil disposal/dumping



View of representative used tire disposal/dumping



View of representative used tire disposal/dumping



View of trash pit



Adjacent North: Undeveloped land and several storage yards



Adjacent Northeast: Undeveloped land



Adjacent East: US Highway 395 followed by a utilities sub-station



Adjacent East: US Highway 395 followed by undeveloped land



Adjacent Southeast: Undeveloped land

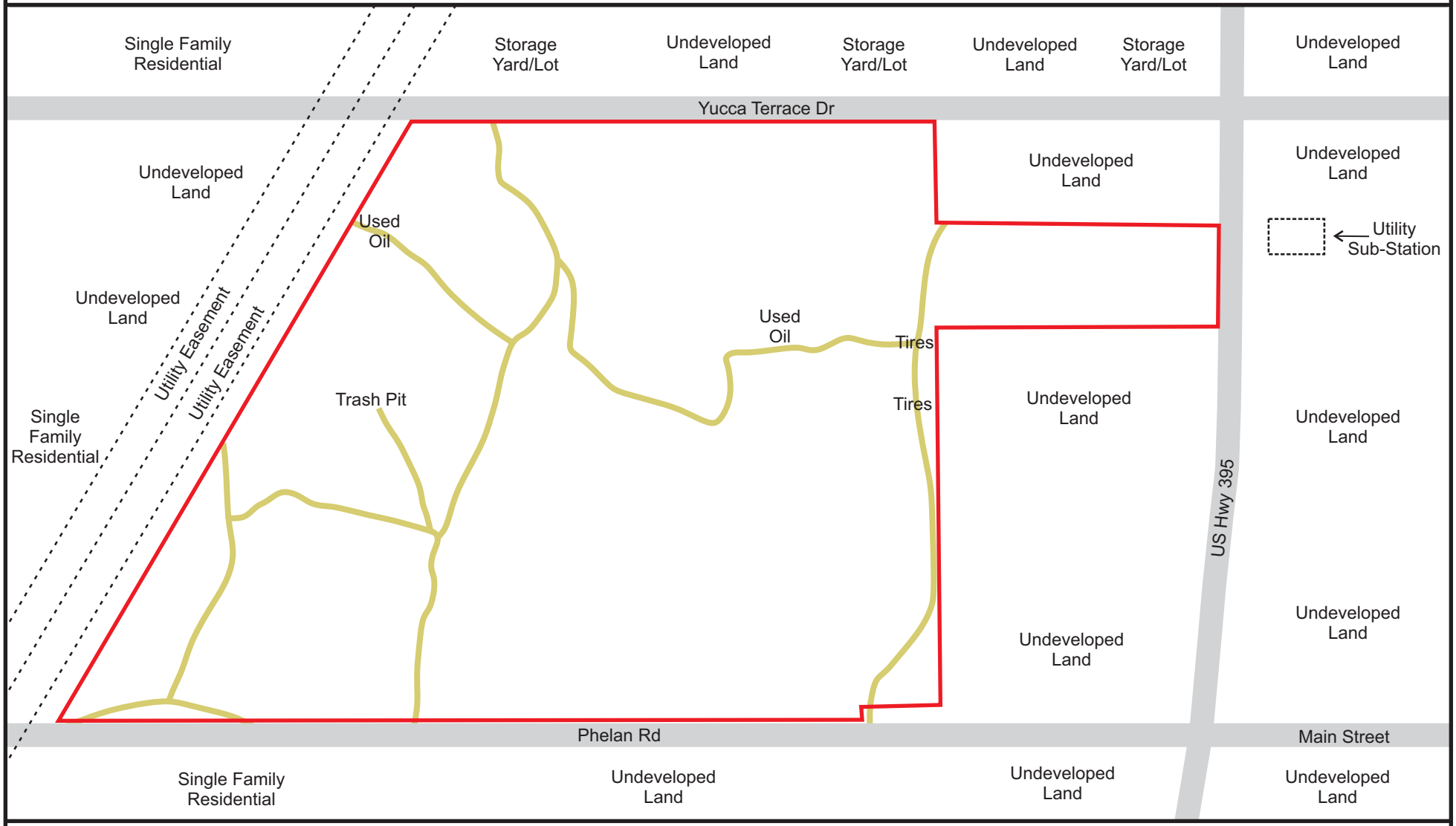


Adjacent South: Phelan Road followed by single-family residences and undeveloped land



Adjacent West: A utility easement

Site Plan



Legend: = Gravel/Dirt Road

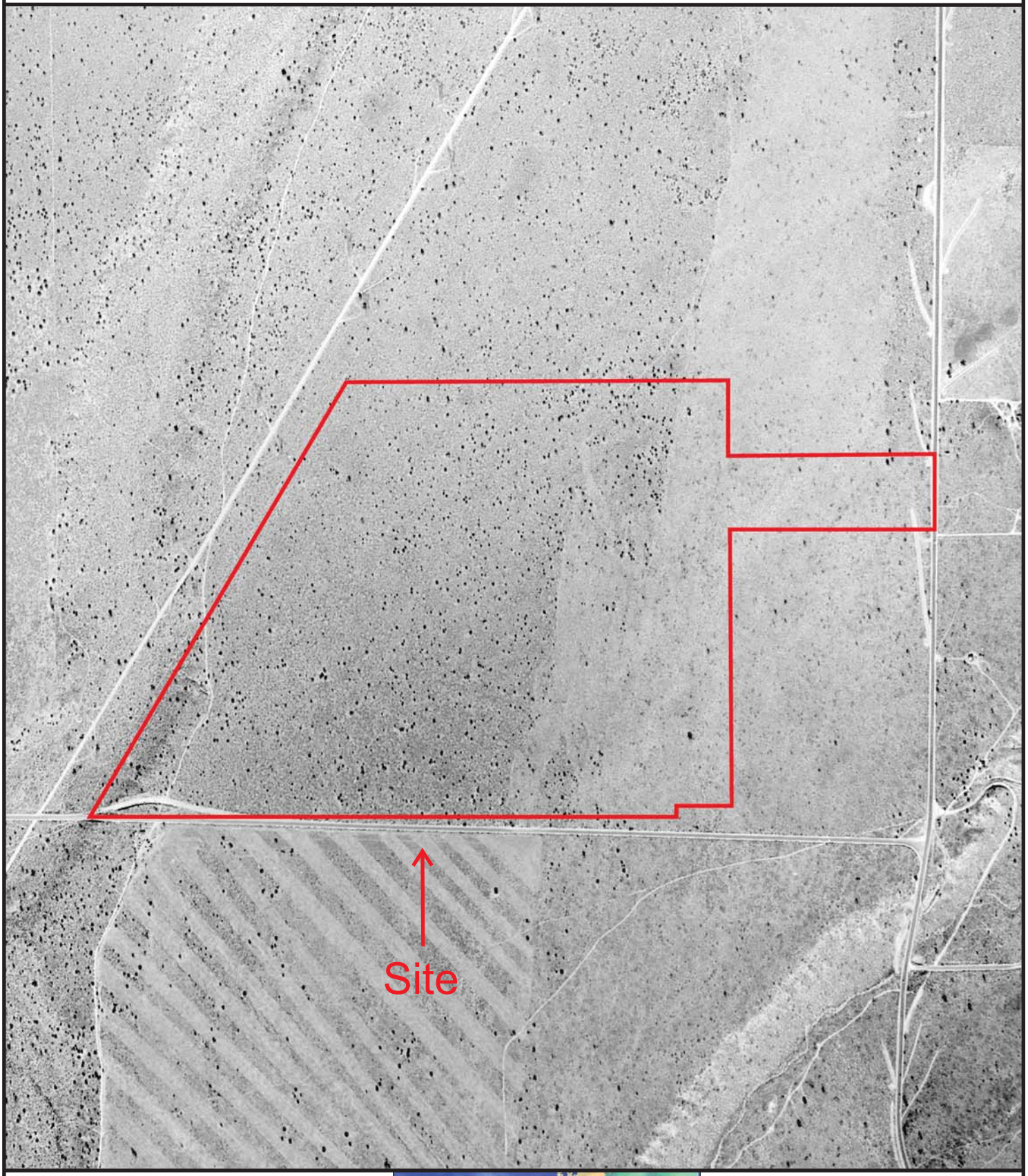
*Drawing Not To Scale

Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Date: January 2018
CCG Project #: 4177

Aerial Photograph

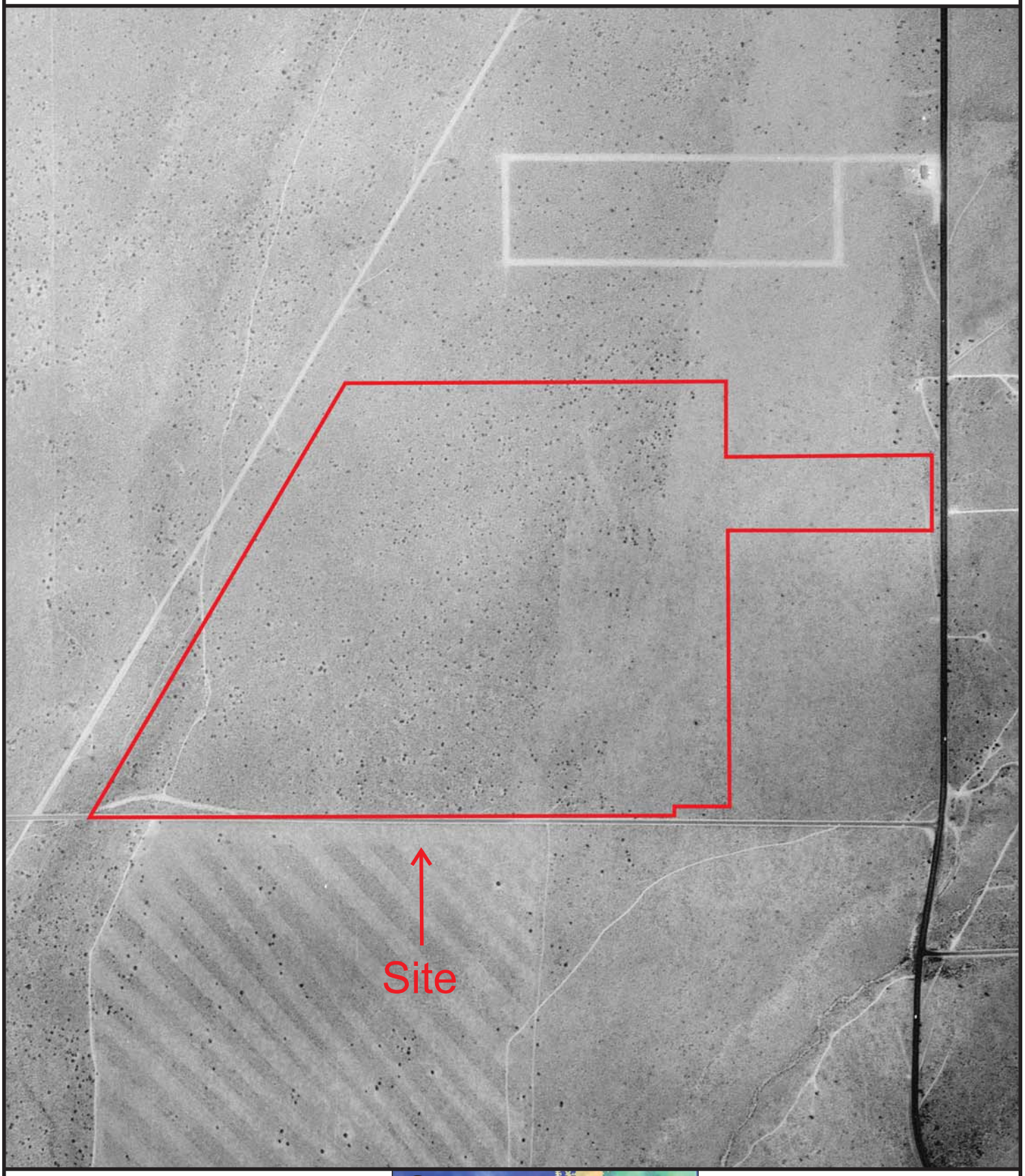


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1953
Source: USDA
Scale: 1"=750'

Aerial Photograph



Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1959
Source: USDA
Scale: 1”=750’

Aerial Photograph

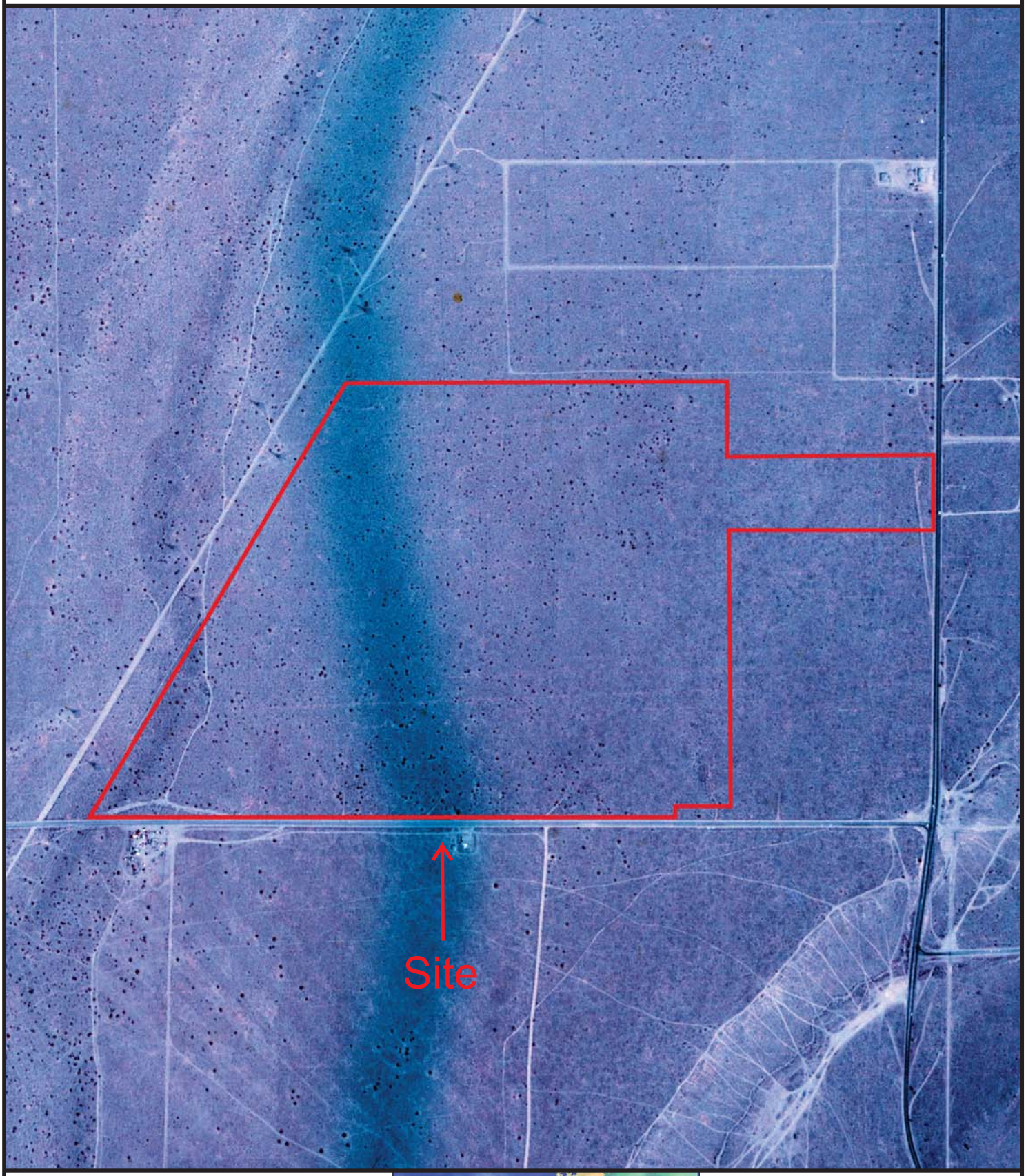


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1968
Source: USGS
Scale: 1”=750’

Aerial Photograph

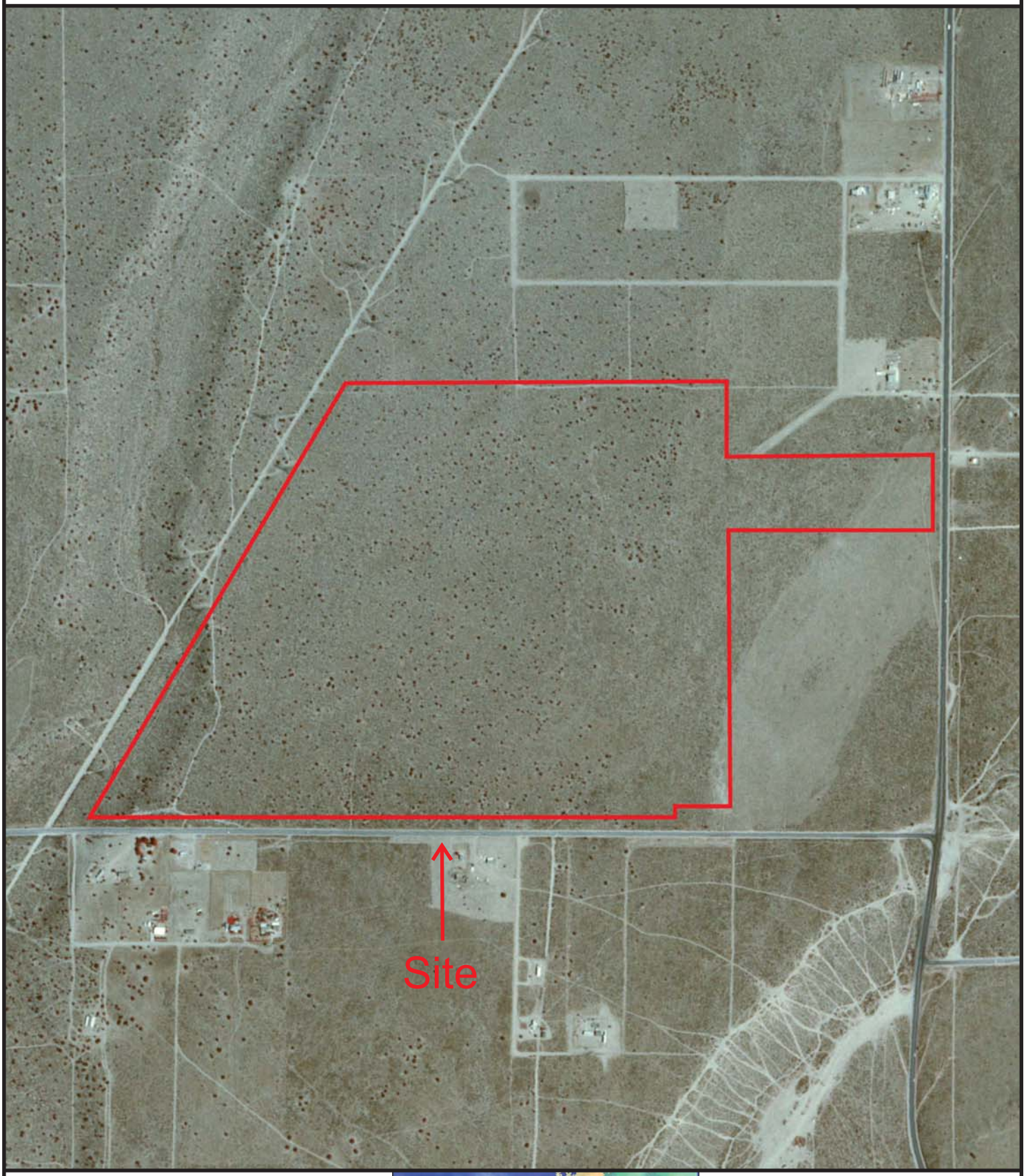


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1975
Source: USGS
Scale: 1”=750’

Aerial Photograph

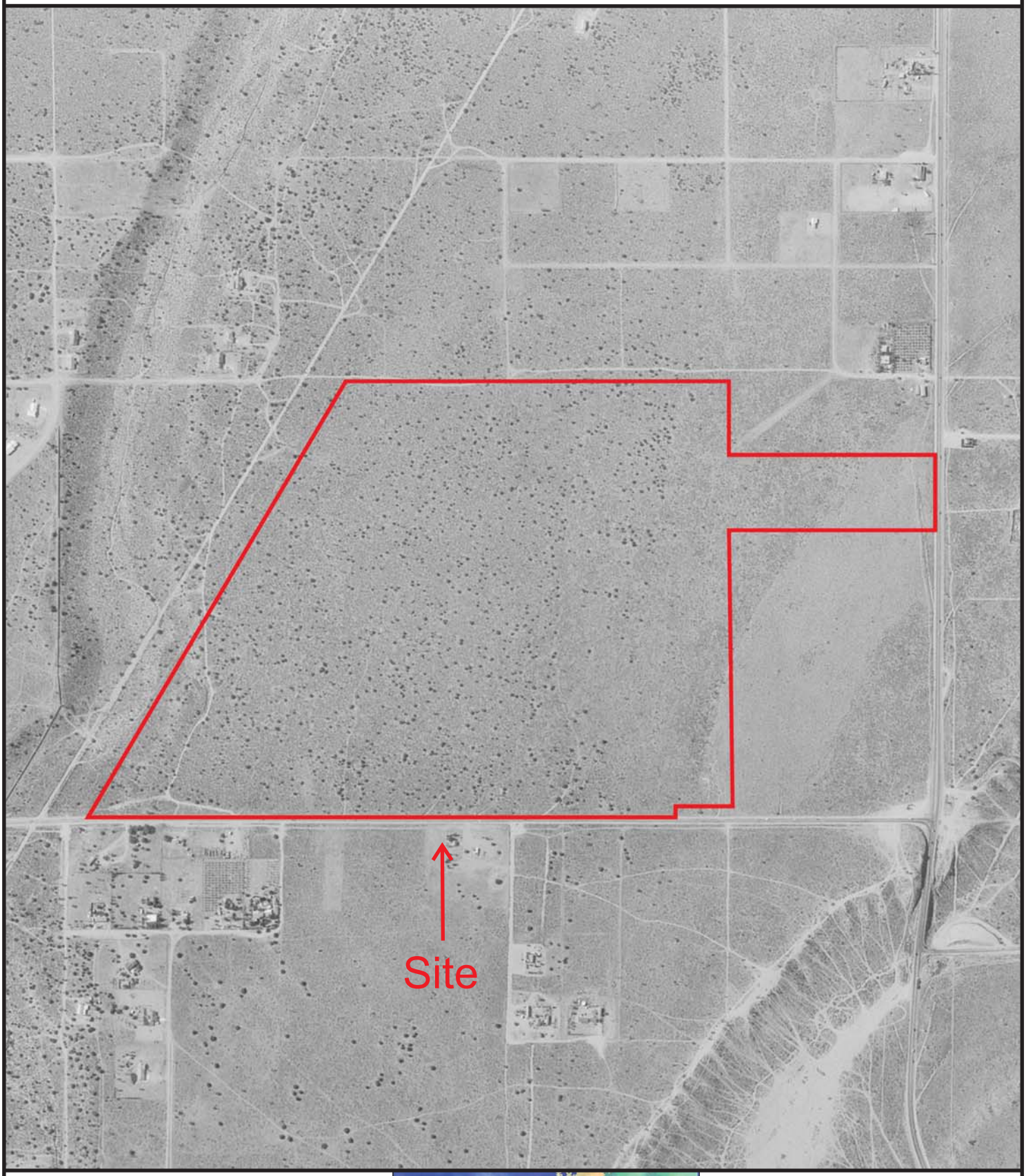


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1985
Source: USDA
Scale: 1”=750’

Aerial Photograph

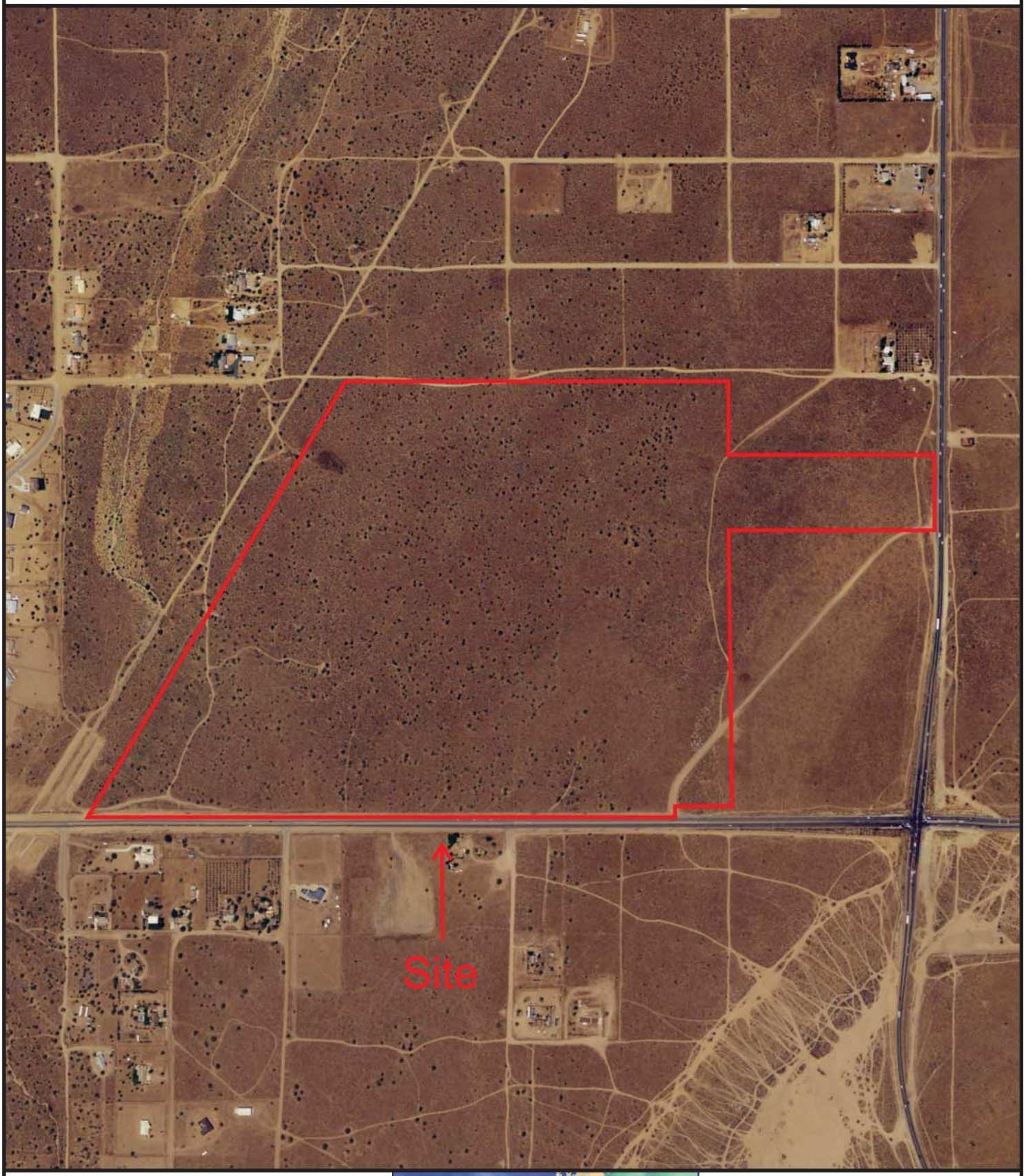


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 1994
Source: USGS
Scale: 1”=750’

Aerial Photograph

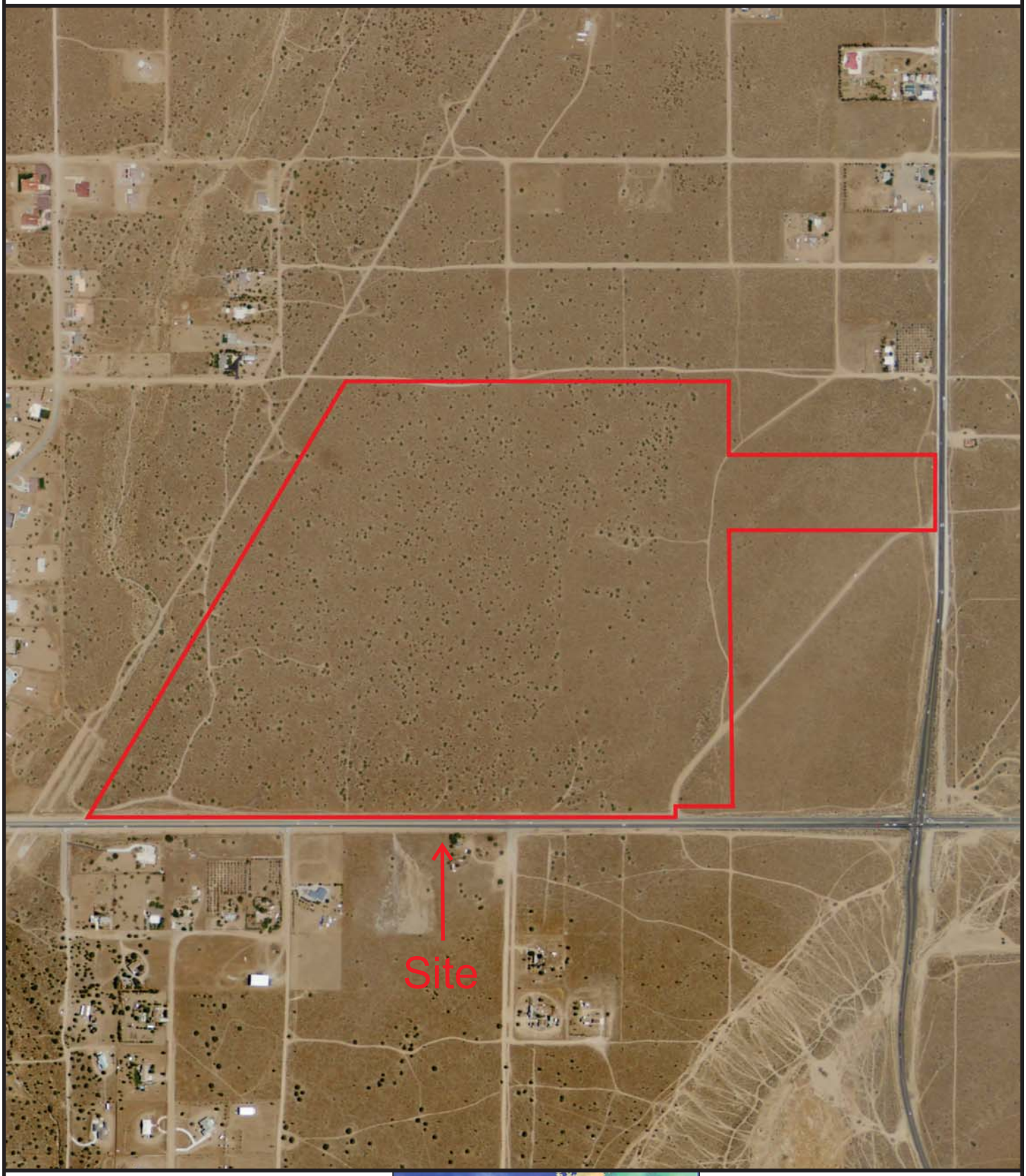


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 2005
Source: USDA
Scale: 1”=750’

Aerial Photograph

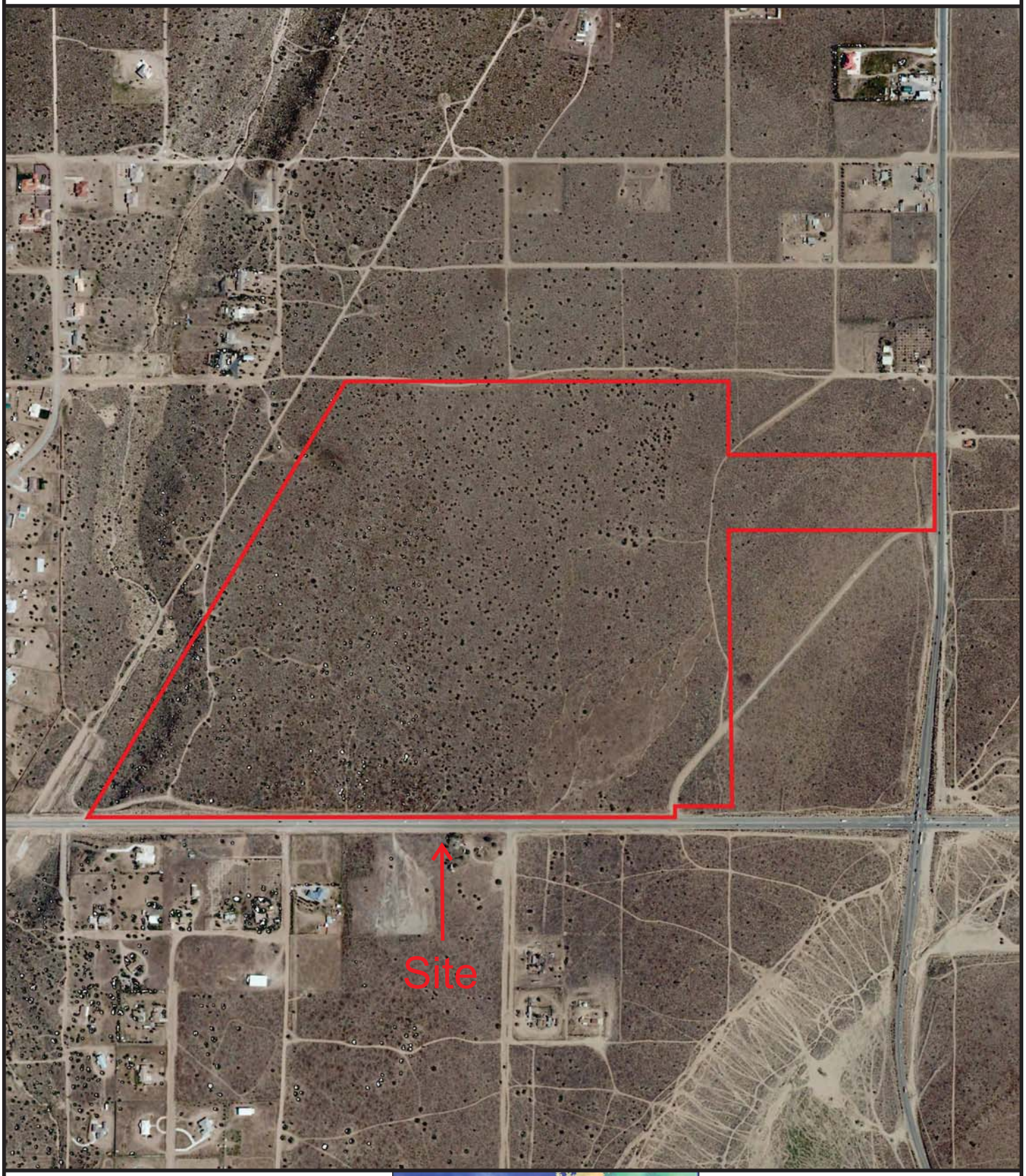


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 2009
Source: USDA
Scale: 1”=750’

Aerial Photograph

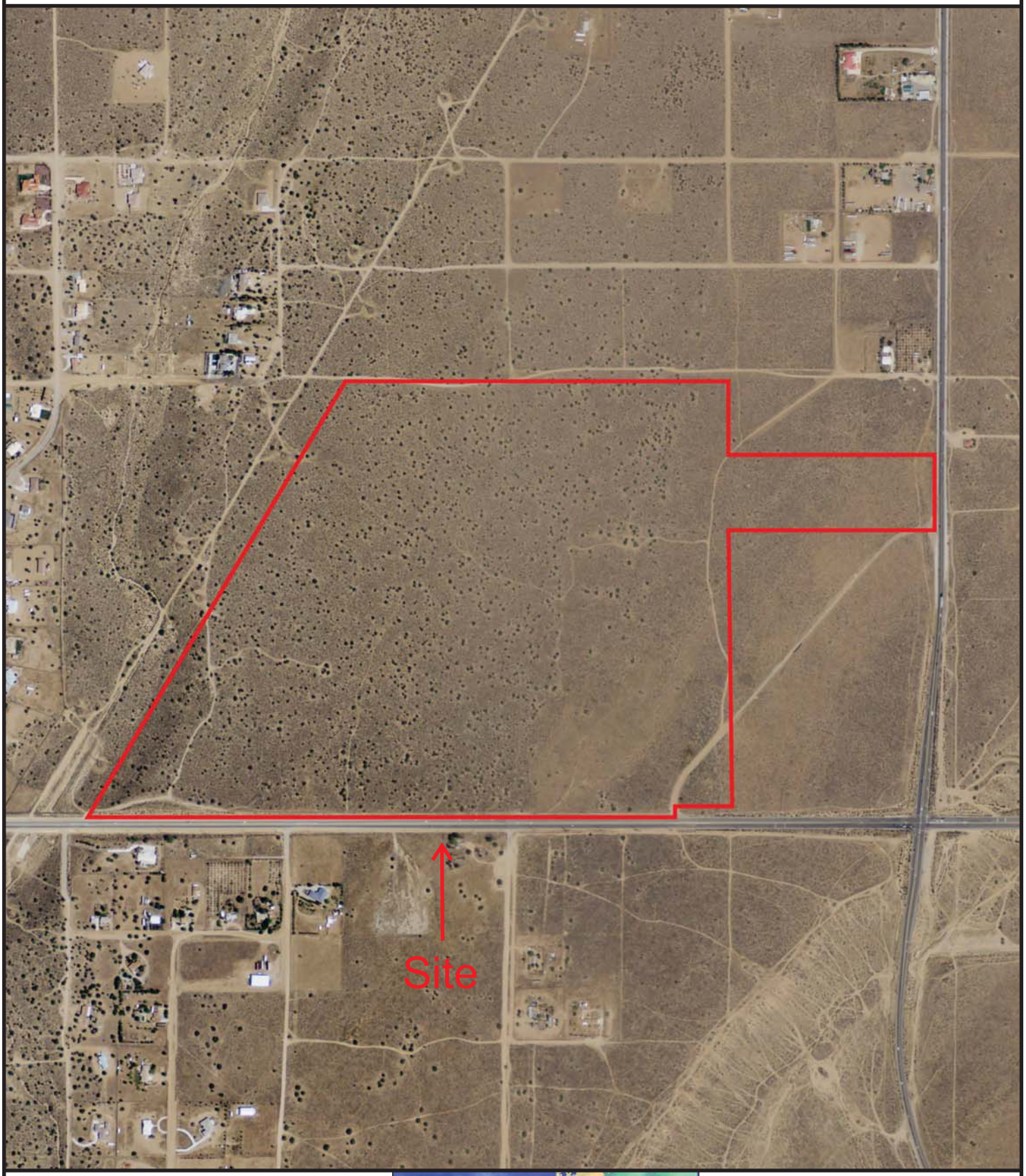


Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 2010
Source: USDA
Scale: 1”=750’

Aerial Photograph



Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Photo Date: 2012
Source: USDA
Scale: 1”=750’

Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Inquiry Number: 5157189.4
January 11, 2018

EDR Historical Topo Map Report
with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

01/11/18

Site Name:	Client Name:
Raw Land	Consolidated Consulting Group
10120 Fremontia Rd	6215 Colleyville Boulevard
Hesperia, CA 92344	Colleyville, TX 76034
EDR Inquiry # 5157189.4	Contact: Trevor Jackson

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Consolidated Consulting Group were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:		*Coordinates:*	
P.O.#	CCG-4177	**Latitude:**	34.428662 34° 25' 43" North
Project:	CCG-4177 Raw Land Hesperia	**Longitude:**	-117.413822 -117° 24' 50" West
		UTM Zone:	Zone 11 North
		UTM X Meters:	461977.35
		UTM Y Meters:	3809764.47
		Elevation:	3587.40' above sea level

Maps Provided:

2012	1902
1996	
1988	
1980	
1968	
1956	
1947	
1942	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Baldy Mesa

7.5-minute, 24000

1996 Source Sheets



Baldy Mesa

7.5-minute, 24000
Aerial Photo Revised 1994

1988 Source Sheets



Baldy Mesa

7.5-minute, 24000
Aerial Photo Revised 1985

1980 Source Sheets



Baldy Mesa

7.5-minute, 24000
Aerial Photo Revised 1952

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1968 Source Sheets



Baldy Mesa

7.5-minute, 24000
Aerial Photo Revised 1968

1956 Source Sheets



Baldy Mesa

7.5-minute, 24000
Aerial Photo Revised 1952

1947 Source Sheets



HESPERIA

15-minute, 50000

1942 Source Sheets



Hesperia

15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1902 Source Sheets

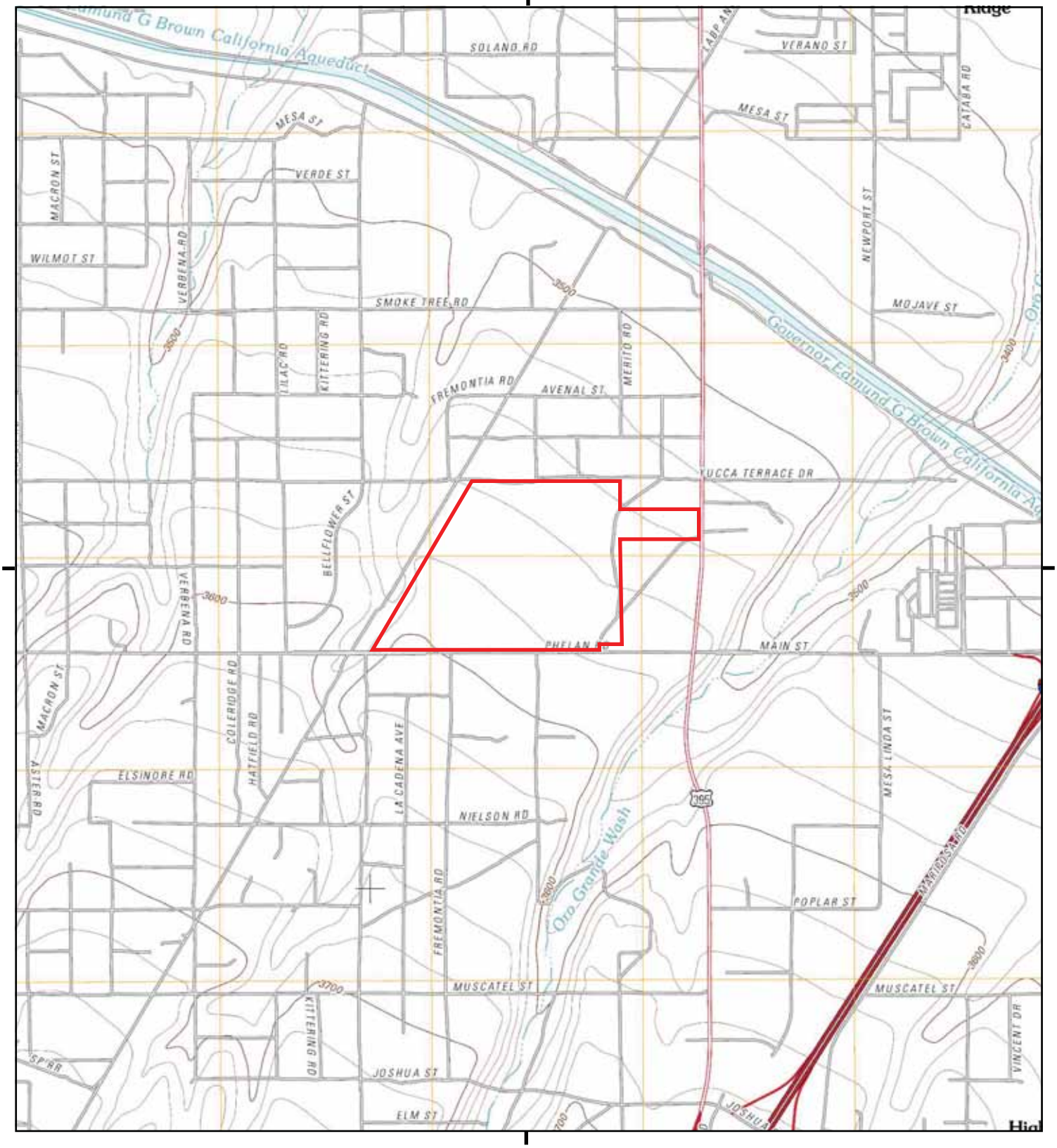


Hesperia

15-minute, 62500

Historical Topo Map

2012



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

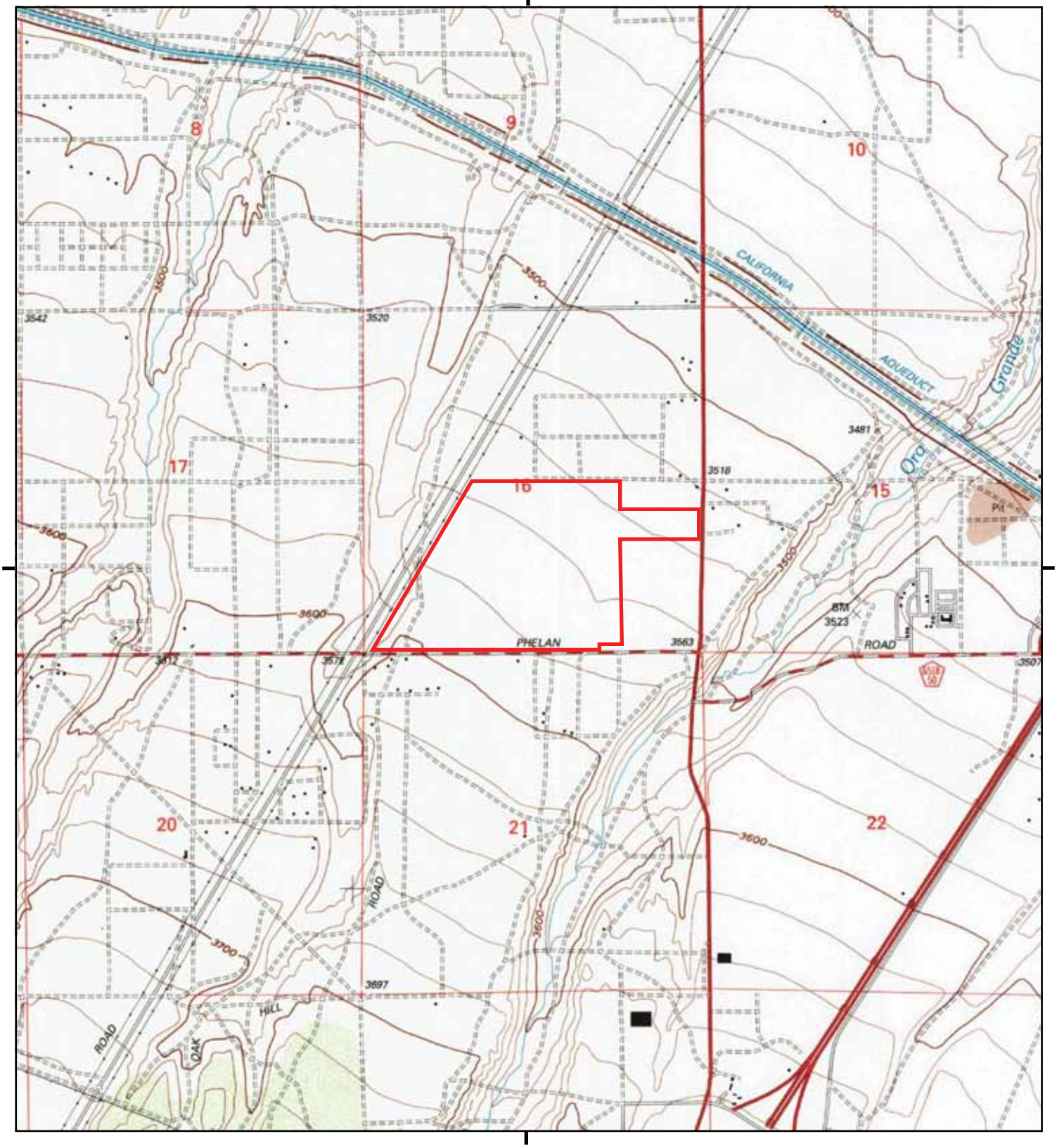
TP, Baldy Mesa, 2012, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Historical Topo Map

1996



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

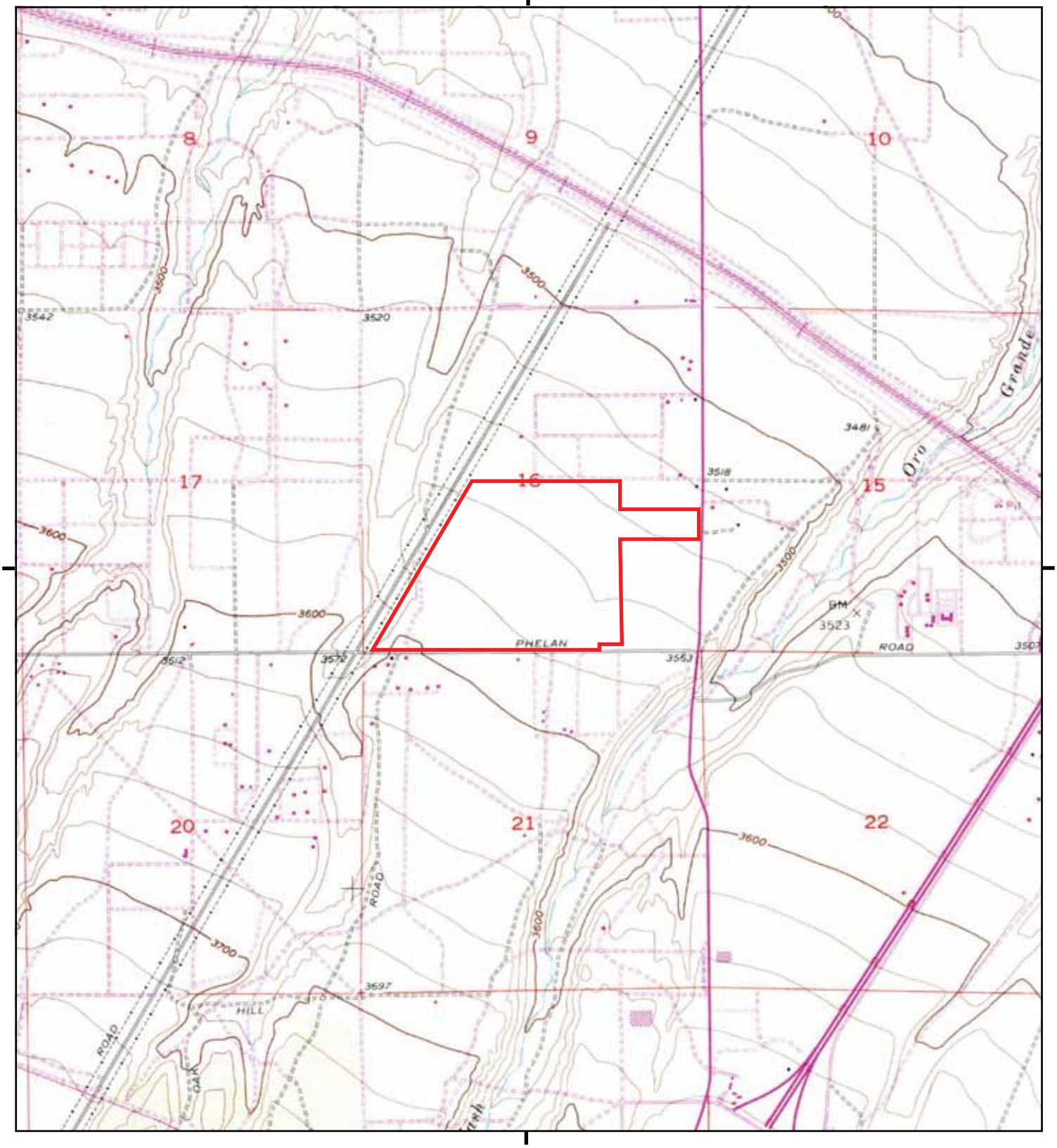
TP, Baldy Mesa, 1996, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Historical Topo Map

1988



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

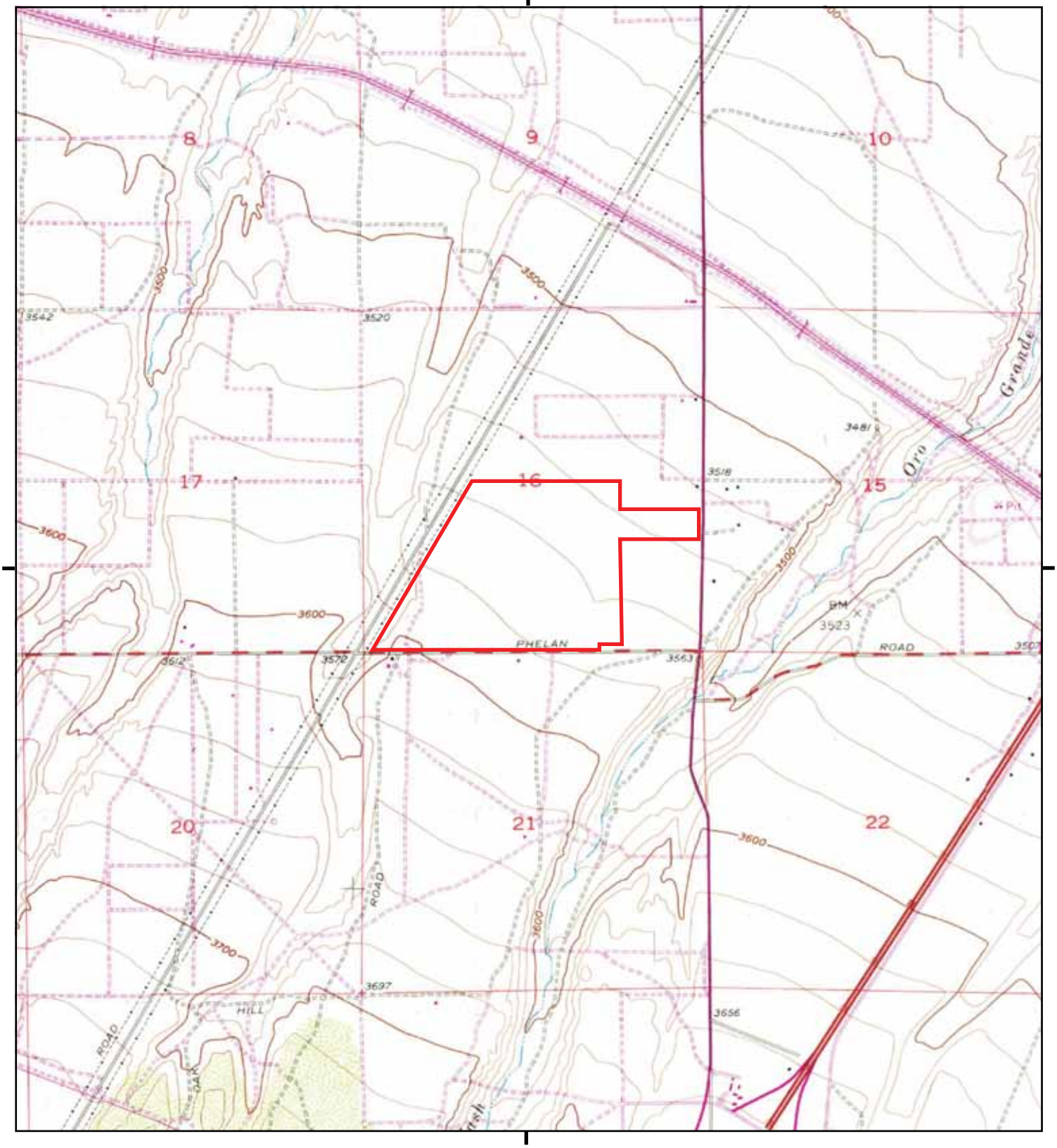
TP, Baldy Mesa, 1988, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Historical Topo Map

1980



This report includes information from the following map sheet(s).

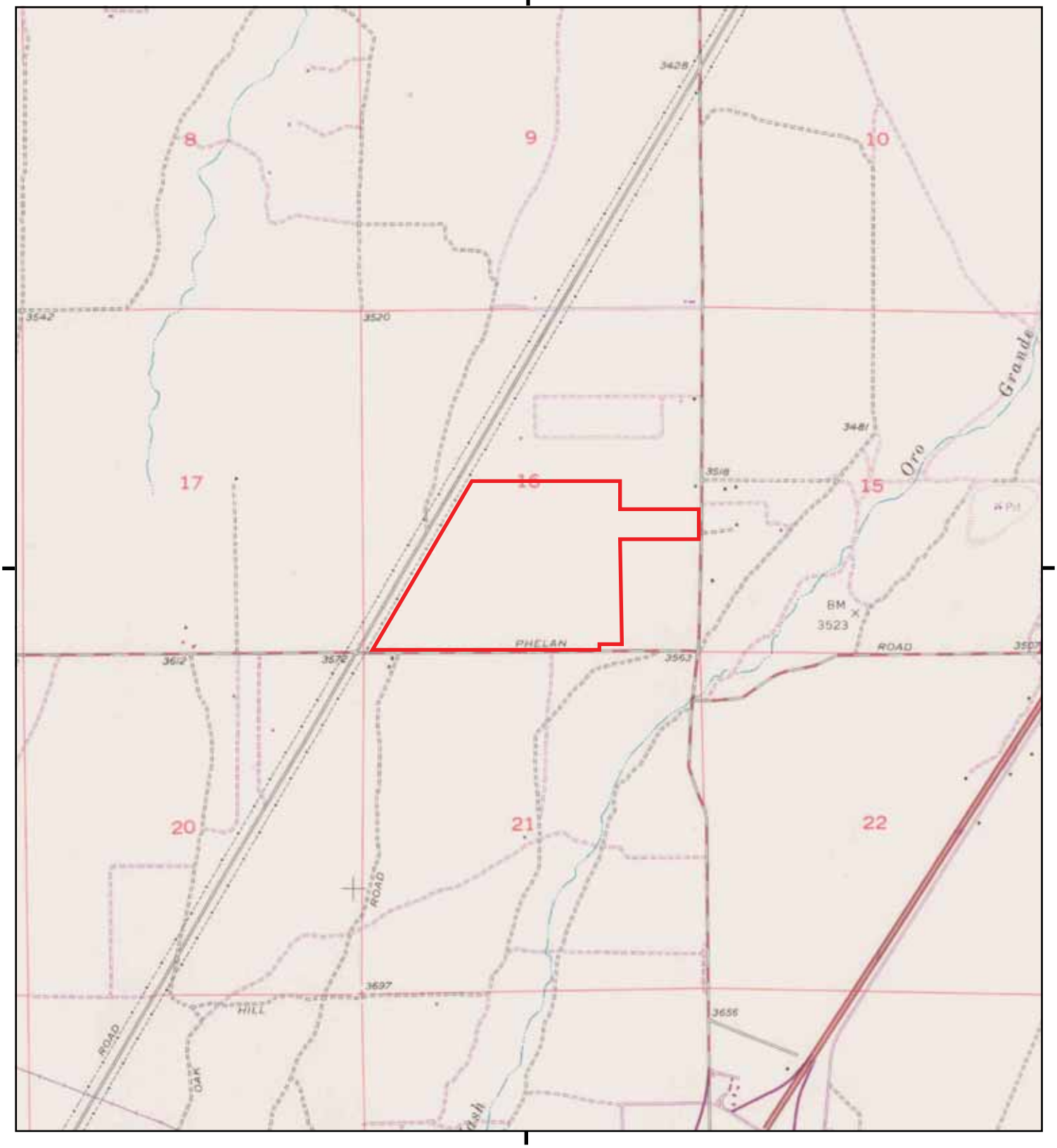
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Baldy Mesa, 1980, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

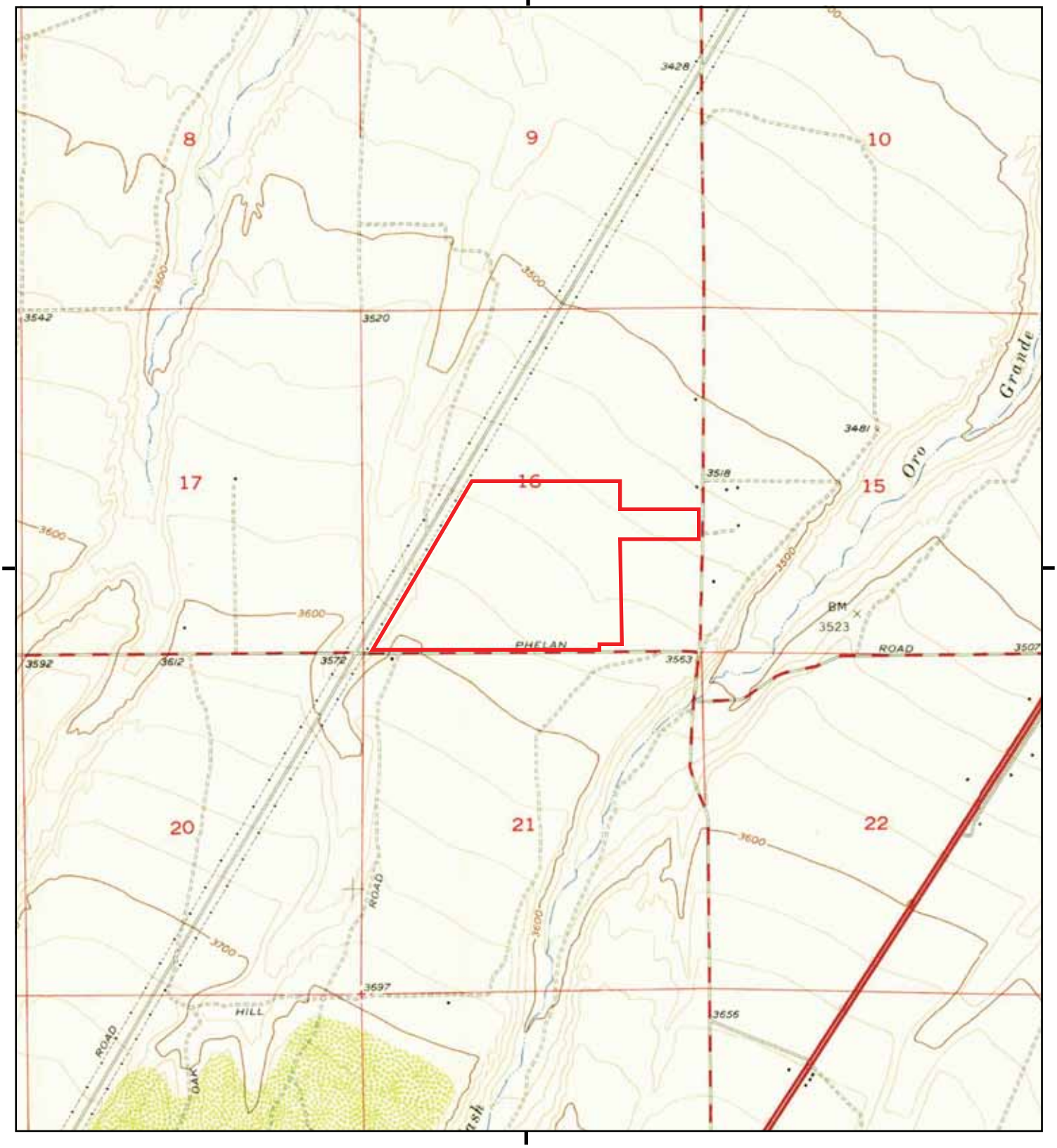
TP, Baldy Mesa, 1968, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Historical Topo Map

1956



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

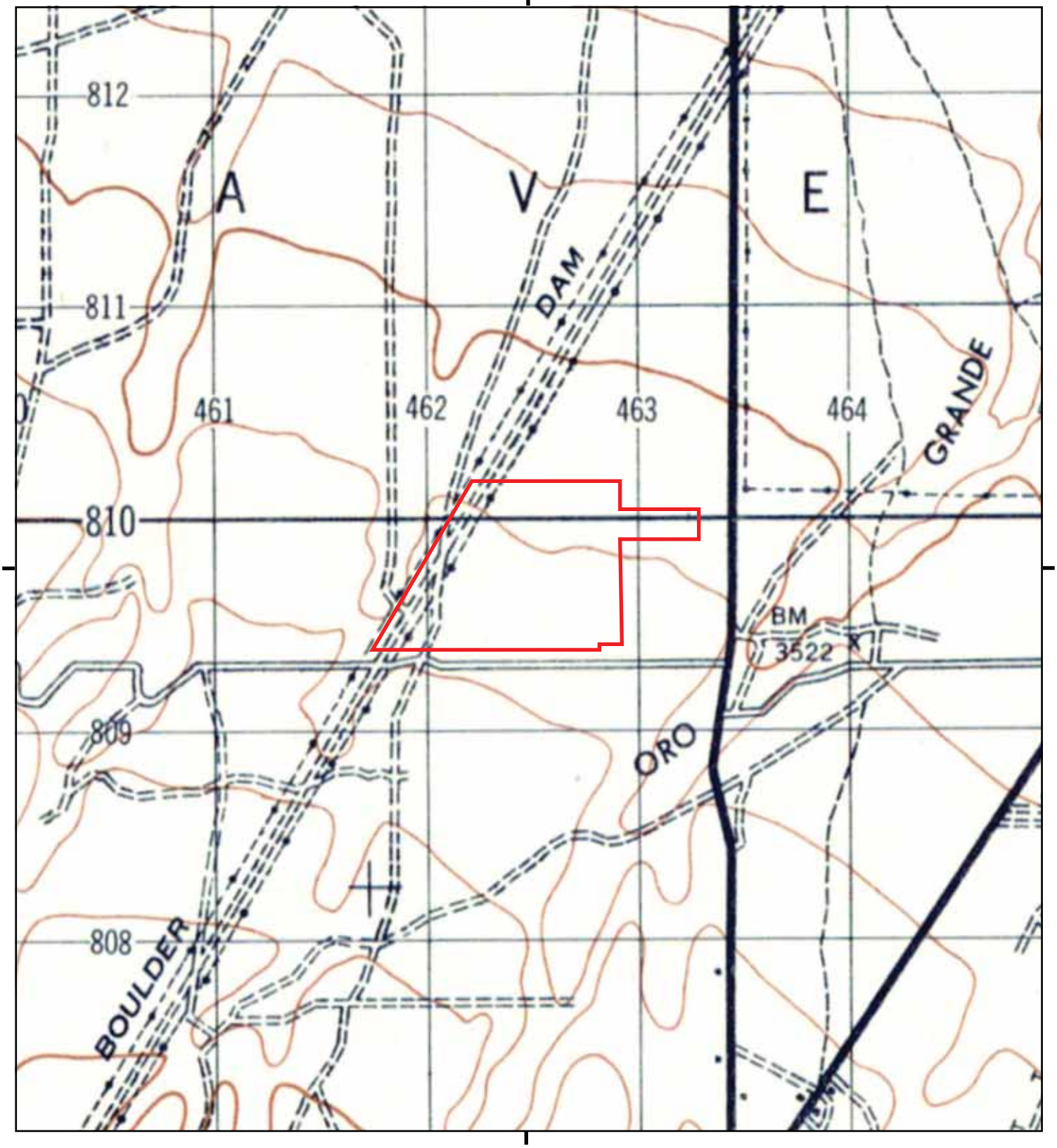
TP, Baldy Mesa, 1956, 7.5-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Historical Topo Map

1947



This report includes information from the following map sheet(s).

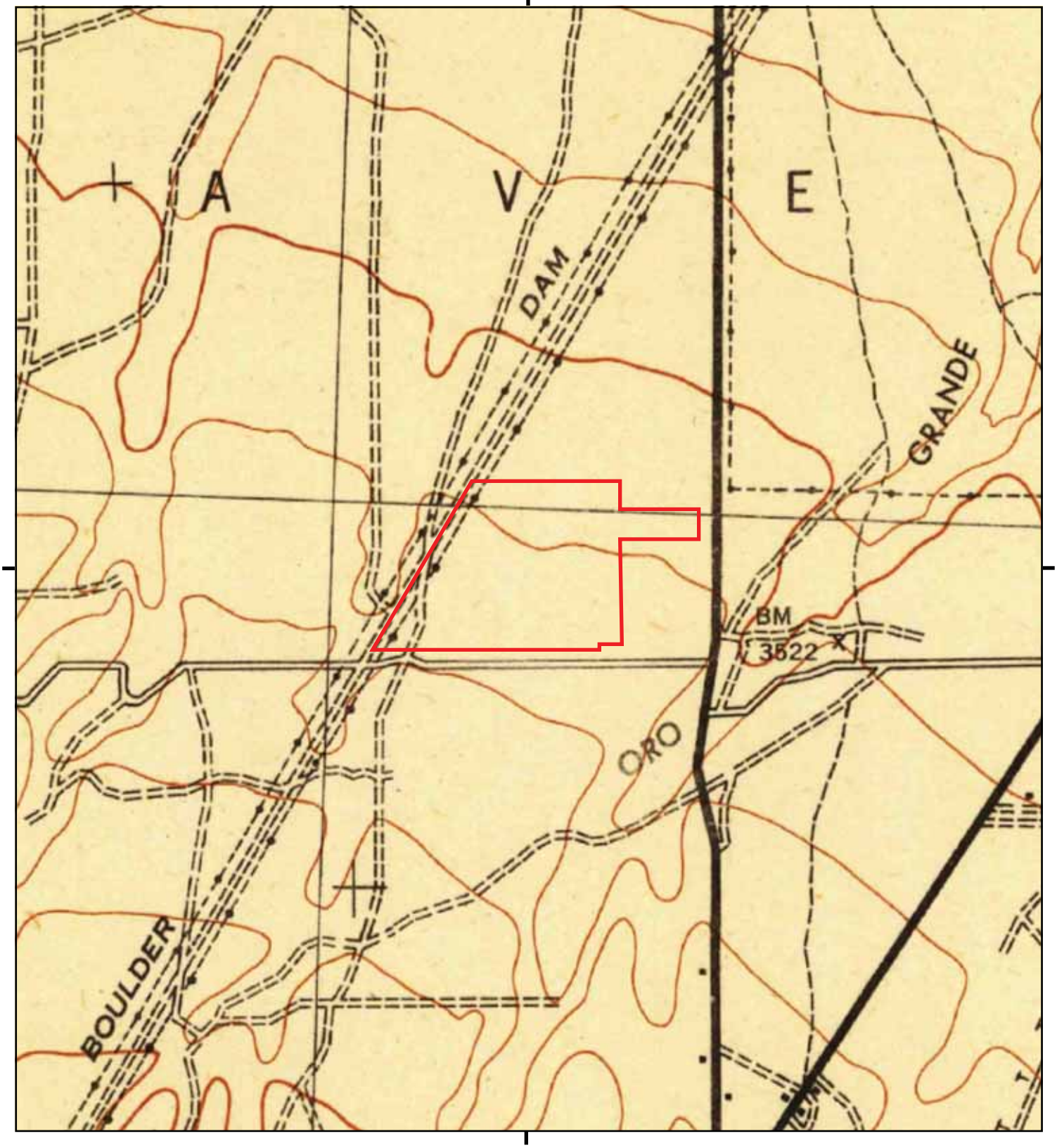
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, HESPERIA, 1947, 15-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N



This report includes information from the following map sheet(s).

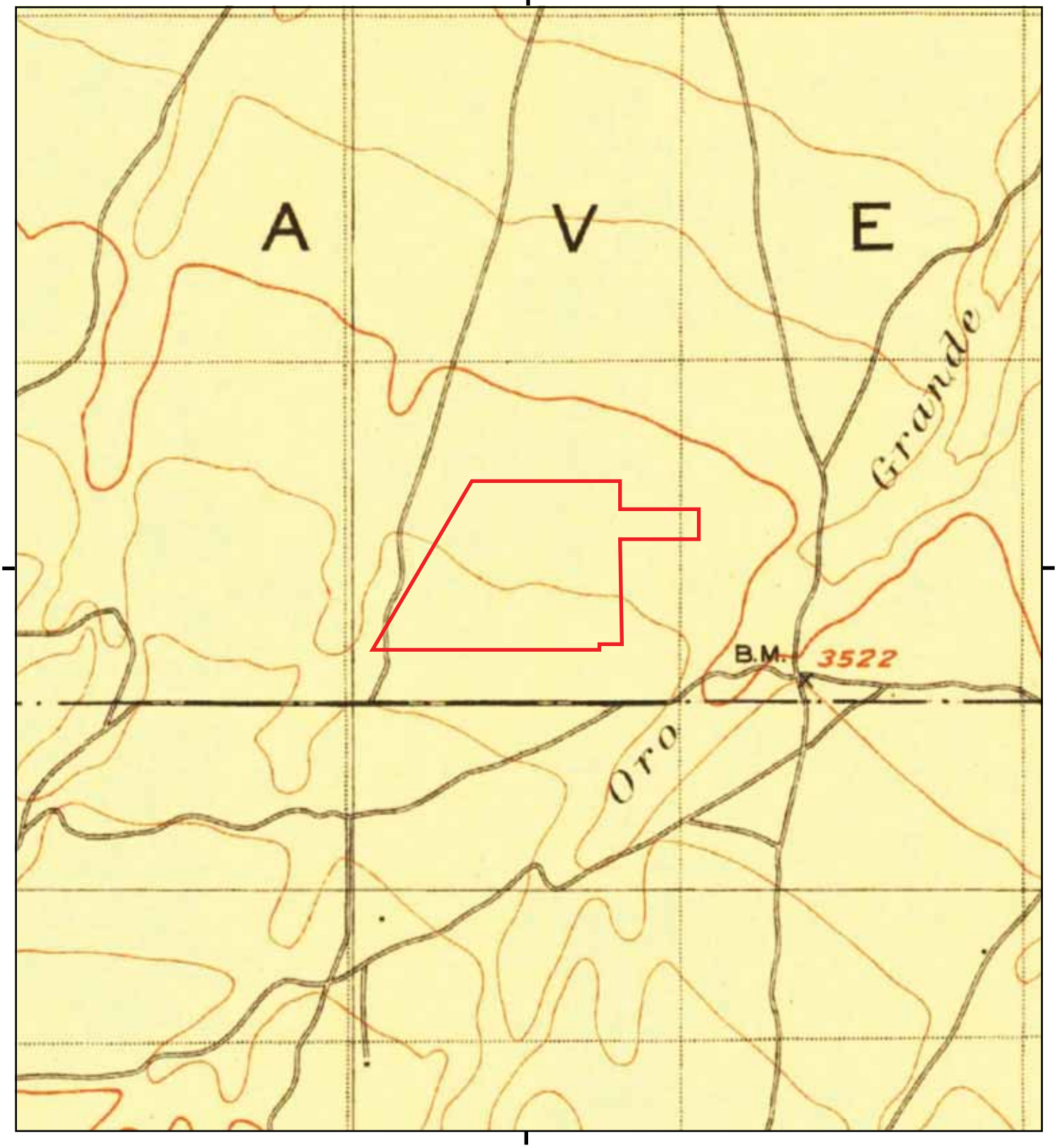
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hesperia, 1942, 15-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Hesperia, 1902, 15-minute

SITE NAME: Raw Land
ADDRESS: 10120 Fremontia Rd
Hesperia, CA 92344
CLIENT: Consolidated Consulting Group

N

Raw Land

10120 Fremontia Rd

Hesperia, CA 92344

Inquiry Number: 5157189.3

January 11, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

01/11/18

Site Name:

Raw Land
10120 Fremontia Rd
Hesperia, CA 92344
EDR Inquiry # 5157189.3

Client Name:

Consolidated Consulting Group
6215 Colleyville Boulevard
Colleyville, TX 76034
Contact: Trevor Jackson

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Consolidated Consulting Group were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 7C93-498F-9B1F

PO # CCG-4177

Project CCG-4177 Raw Land Hesperia

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 7C93-498F-9B1F

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Inquiry Number: 5157189.5
January 24, 2018

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Findings

City Directory Images

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2014	☑	☐	EDR Digital Archive
2010	☑	☐	EDR Digital Archive
2005	☑	☐	EDR Digital Archive
2000	☑	☐	EDR Digital Archive
1995	☑	☐	EDR Digital Archive
1992	☑	☐	EDR Digital Archive
1985	☑	☐	Haines Criss-Cross Directory
1980	☑	☐	Haines Criss-Cross Directory
1975	☑	☐	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

10120 Fremontia Rd
Hesperia, CA 92344

Year	*CD Image*	*Source*

FREMONTIA LN

1995	pg A9	EDR Digital Archive

FREMONTIA RD

2014	pg A1	EDR Digital Archive
2010	pg A3	EDR Digital Archive
2005	pg A5	EDR Digital Archive
2000	pg A7	EDR Digital Archive
1985	pg A11	Haines Criss-Cross Directory
1980	pg A12	Haines Criss-Cross Directory
1975	pg A13	Haines Criss-Cross Directory

FREMONTIA ST

2014	pg A2	EDR Digital Archive
2010	pg A4	EDR Digital Archive
2005	pg A6	EDR Digital Archive
2000	pg A8	EDR Digital Archive
1992	pg A10	EDR Digital Archive

FINDINGS

CROSS STREETS

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA RD 2014

5373	GLASS, JAMES
	SHINE, JERRY
6165	FAYE, RONALD L
6258	COCHRAN, TIMOTHY M
8875	SHAW, STEVEN M
9565	SANDOVAL, GERARDO
10120	HANOUM JEFF
10140	ALLSHOUSE, DEBORAH G
10160	PAZ, PEDRO J
10268	DRONET, DALE S

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA ST 2014

5883	WALTER, KERRY C
6015	VOM, STEEG
6032	HOYLE, VIRGINIA R
6115	BROOKS, JAMES
6140	ALEXANDER, BRIAN D
6370	PURSCELL, GARY G
6474	BUSH, DONALD W
6556	PHELPS, KAREN R
6675	RUCKEL, DARREL A
6678	ORESCANIN, ANDREW T
6725	MIELKE, JENNA L
16311	FREGOSO, VALENTIN
16320	OCCUPANT UNKNOWN,
16321	FERNANDEZ, STEVE A
16331	OBREGON, HELEN O
16340	VIETH, MARK C
16341	CASSO, ADAM E
16350	DORADO, NINA B
16370	MERRILL, JOSHUA
16380	RODRIGUEZ, NATALIE R
16389	DZIKOWSKI, RICHARD C
16401	VALENZUELA, SANDRA V
16410	AUSTIN, ROBERT M
16411	SILVA, DANIEL
16420	FISHER, BARBARA A
16421	BENNETT, CLIFF
16440	FRANSWAY, DAN W
16451	MARTINEZ, ABEL
16470	GUERRA, LUIS A
16477	SHUTE, EDWARD A
16480	OCCUPANT UNKNOWN,
16510	CELLO, S
16530	REYES, FIDEL R
16545	KRUEGER, DANIEL A
16550	FIELDS DON PAINTING COMPANY
	PALUBIN, JANIE
16555	OCCUPANT UNKNOWN,
16560	OCCUPANT UNKNOWN,
16565	OCCUPANT UNKNOWN,
16575	DORIO, JOEL S
16595	WILLIS, DAN
16600	PATTERSON, PAUL D
17180	ESCAMILLA, ANITA
17185	OCCUPANT UNKNOWN,
	PEREIRA, DAN I
	PIKE, MEGAN
17190	WILSON, DANIEL S

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA RD 2010

5373	GLASS, JAMES
6165	FAY, RONALD L
6258	COCHRAN, TIMOTHY M
9565	SANDOVAL, GERARDO
10120	FOX COATING
	HANOUM, JOHN
10140	ALLSHOUSE, DEBORAH G
10268	BIRD, MEL G

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA ST 2010

5883	WALTER, KERRY C
6015	VOM, STEEG
6032	BENHAM, KELLY
6115	WARD, PHIL
6370	PURSCELL, GARY G
6474	BUSH, DONALD W
6675	RUCKEL, DARREL A
6678	ORESCANIN, ANDREW T
16311	FREGOSO, VALENTIN
16320	SANCHEZ, JOSE B
16321	CARTER, SHERYL D
16331	ORTIZ, MELVIN N
16340	VIETH, MARK C
16341	OCCUPANT UNKNOWN,
16350	AUSTIN, IRIS A
16370	OCCUPANT UNKNOWN,
16380	GUTIERREZ, AMADO
16389	DZIKOWSKI, RICHARD C
16401	VALENZUELA, SANDRA K
16410	AUSTIN, ROBERT M
16411	TERAN, BARBARA T
16420	CASTILLO, RICHARD G
16421	SCHMITT, JESSICA
16440	FRANSWAY FAMILY TRUST 09
	FRANSWAY, DAN W
16451	MARTINEZ, ABEL
16470	GUERRA, LUIS A
16480	OCCUPANT UNKNOWN,
16510	JEWART, PAMELA A
16530	REYES, FIDEL R
16550	FIELDS DON PAINTING COMPANY
	OCCUPANT UNKNOWN,
16555	MONTOYA, ADRIAN A
16560	GERTZ, SHIRLEY
16565	WRIGHT, MICHAEL J
16575	ROMINES, HENRY D
16600	STATEN, LARRY V
17180	KEELER, CHAD
17185	HOLLOWAY, THELMA J
	VANALSTINE, MELBA J
17190	WILSON, DANIEL S

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA RD 2005

6258	COCHRAN, TIMOTHY M
8875	BURDETT, WILLIAM L
9565	SANDOVAL, GERARDO
10120	DIMUCCI, MARINA F
	FOX COATING
10140	ALLSHOUSE, MARTIN E
10160	BENOIT, DAVID

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA ST 2005

5883	WALTER, KERRY C
6140	ALEXANDER, BRIAN D
6370	PURSCELL, GARY G
6375	SERRATO, AUGUSTIN R
6474	BUSH DONALD WILLIAM JR
	BUSH DONALD WILLIAM JR
	BUSH, DONALD W
	BUSH, DONALD W
6556	PHELPS, DANIEL M
6678	ORESCANIN, ANDREW T
6725	DOBBINS, DONALD E
16311	FREGOSO, VALENTIN
16320	SANCHEZ, JOSE B
16321	FERNANDEZ, STEVE
16331	PORRERO, RAYMOND
16340	SANDERS, RICHARD A
16341	HERRERA, STEVEN A
16350	AUSTIN, IRIS A
16370	MERRILL, NICKIE A
16380	GUTIERREZ, JOHN
16389	DZIKOWSKI, RICHARD C
16401	VALENZUELA, SANDRA K
16410	AUSTIN, ROBERT M
16411	TERAN, BARBARA A
16420	CASTILLO, RICHARD A
16421	OCCUPANT UNKNOWN,
16440	FRANSWAY, DAN W
16461	OCCUPANT UNKNOWN,
16470	GUERRA, LUIS A
16480	CAUDILL, FREDDIE J
16510	JEWART, PAMELA A
16530	BAGULEY, MARK A
16545	KRUEGER, DANIEL J
16550	OCCUPANT UNKNOWN,
16555	FOSTER, EDWARD S
	INLAND CERTIFIED FARMERS
16560	GERTZ, JACK S
16565	FISHERING, RHONDA L
16575	ROMINES, HENRY D
16595	WILLIS, BERNARD S
16600	STEVENSON, LANCE D
17185	BAUMANNS, JASON C
	NOBIS, MARVIN D
	VANALSTINE, MELBA J
17190	WILSON, DANIEL S

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA RD 2000

10160 LEWIS, JOSEPH R

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA ST 2000

5883	M & C HAMMER CNSTR & MAINT
6140	OCCUPANT UNKNOWN,
6258	OCCUPANT UNKNOWN,
6474	OCCUPANT UNKNOWN,
16311	OCCUPANT UNKNOWN,
16320	OCCUPANT UNKNOWN,
16321	FERNANDEZ, STEVE
16331	OCCUPANT UNKNOWN,
16340	OCCUPANT UNKNOWN,
16350	OCCUPANT UNKNOWN,
16370	OCCUPANT UNKNOWN,
16389	DZIKOWSKI, RICHARD
16401	OCCUPANT UNKNOWN,
16410	ERLENWEIN, PATRICI J
16411	OCCUPANT UNKNOWN,
	QIK DRAW BELTS
16420	GUZMAN, ALBERT J
16421	OCCUPANT UNKNOWN,
16440	FRANSWAY, DAN W
16451	OCCUPANT UNKNOWN,
16477	SHUTE, EDWARD A
16510	SHIPP, THOMAS R
16530	WELCH, EDWARD
16545	KRUEGER, DANIEL J
16550	PALUBIN, JAMES J
16555	FOSTER, EDWARD S
16560	GERTZ, JACK S
16565	OCCUPANT UNKNOWN,
16575	OCCUPANT UNKNOWN,
16595	WILLIS, MARTHA R
16600	STEVENSON, RUTH R
17185	PELCHY, DIANE L
17190	WILSON, LISA R

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA LN 1995

16331	PORRERO, RAYMOND
16340	DEAKIN, DAVID B
16341	BARNARD, STEVEN A
16389	WILSON, JOHN W
16401	ROWLEY, K K
16410	PICHON, RICKI
16411	OCCUPANT UNKNOWNN
16420	GUZMAN, ALBERT J
16440	FRANSWAY, DAN W
16451	OCCUPANT UNKNOWNN
16461	OCCUPANT UNKNOWNN
16477	OCCUPANT UNKNOWNN
16480	OCCUPANT UNKNOWNN
16510	OCCUPANT UNKNOWNN
16550	OCCUPANT UNKNOWNN
16555	OCCUPANT UNKNOWNN
16560	GERTZ, JACK S
17190	WILSON, LISA R

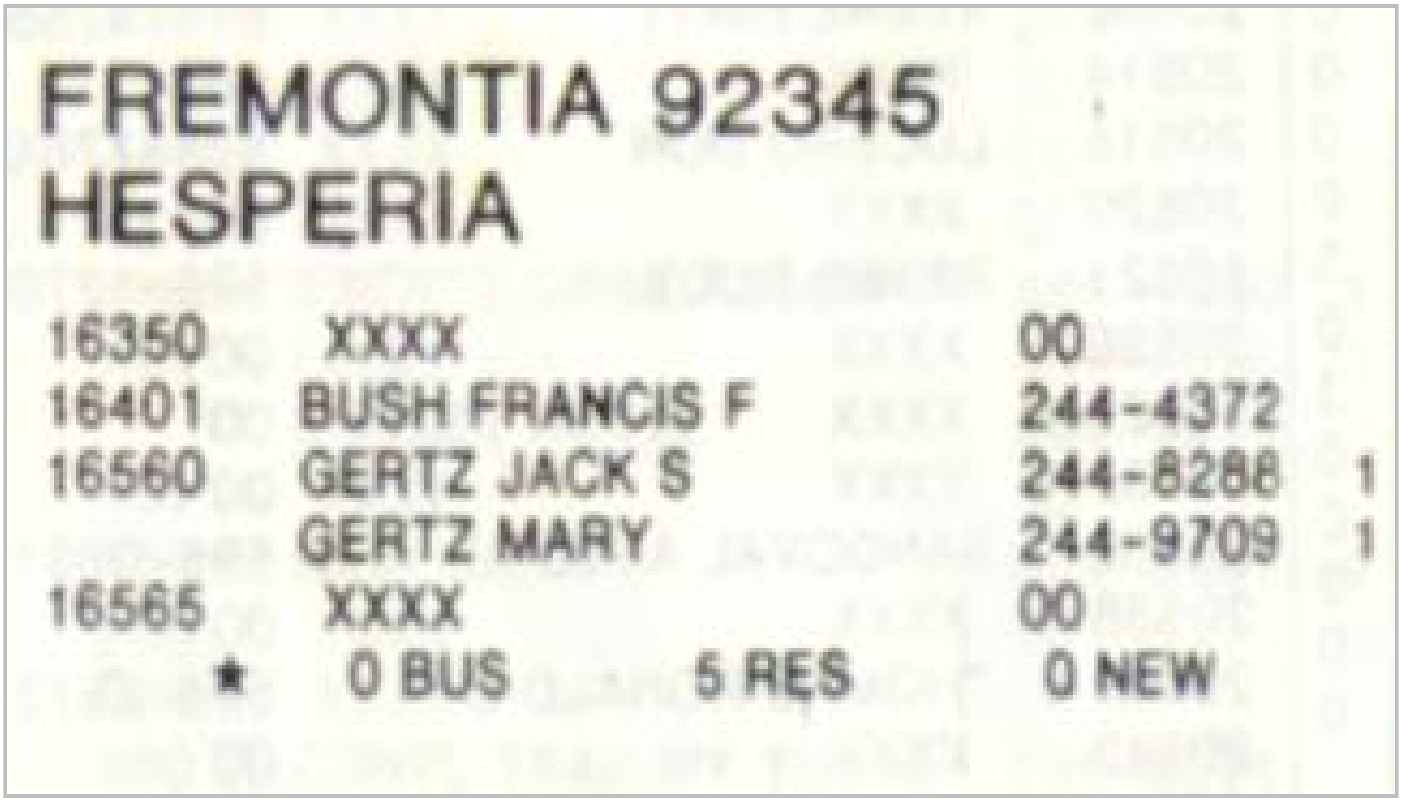
Target Street	Cross Street	Source
✓	-	EDR Digital Archive

FREMONTIA ST 1992

16340 REID, DAVID L
16401 PAPERBACK TRADERS
16440 FRANSWAY, DAN W
16560 GERTZ, JACK S
17185 THOMPSON, MARK G
17190 WILSON, LISA R

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

FREMONTIA RD 1985



FREMONTIA 92345

HESPERIA

16350	XXXX	00	
16401	BUSH FRANCIS F	244-4372	
16560	GERTZ JACK S	244-8288	1
	GERTZ MARY	244-9709	1
16565	XXXX	00	
*	0 BUS 5 RES	0 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

FREMONTIA RD 1980

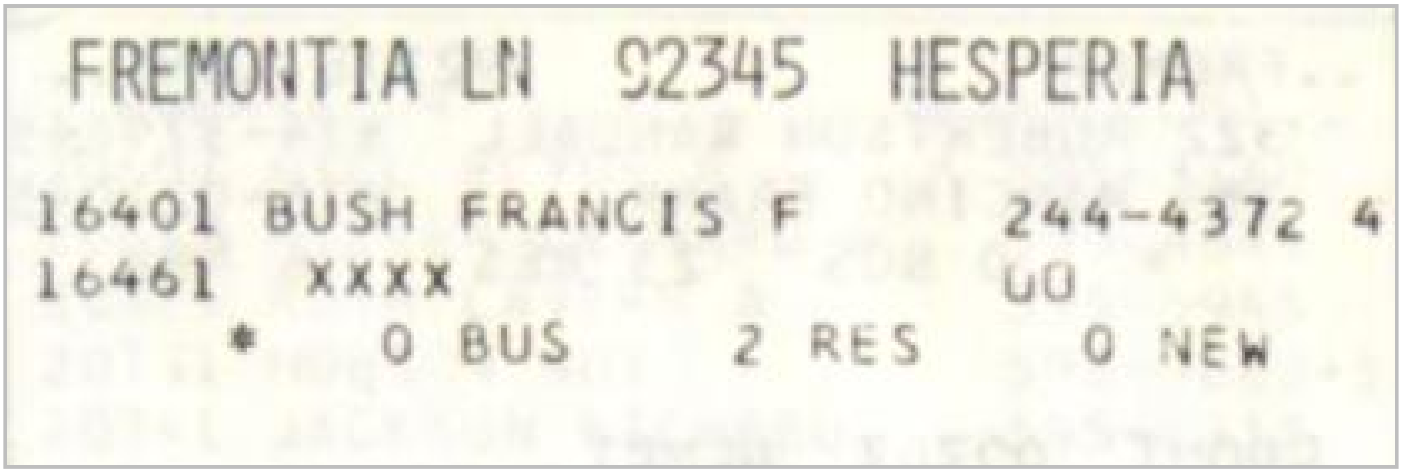


FREMONTIA LN 92345
HESPERIA

16350	XXXX	00	
16401	BUSH FRANCIS F	244-4372	4
16461	XXXX	00	
★	0 BUS 3 RES	0 NEW	

Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

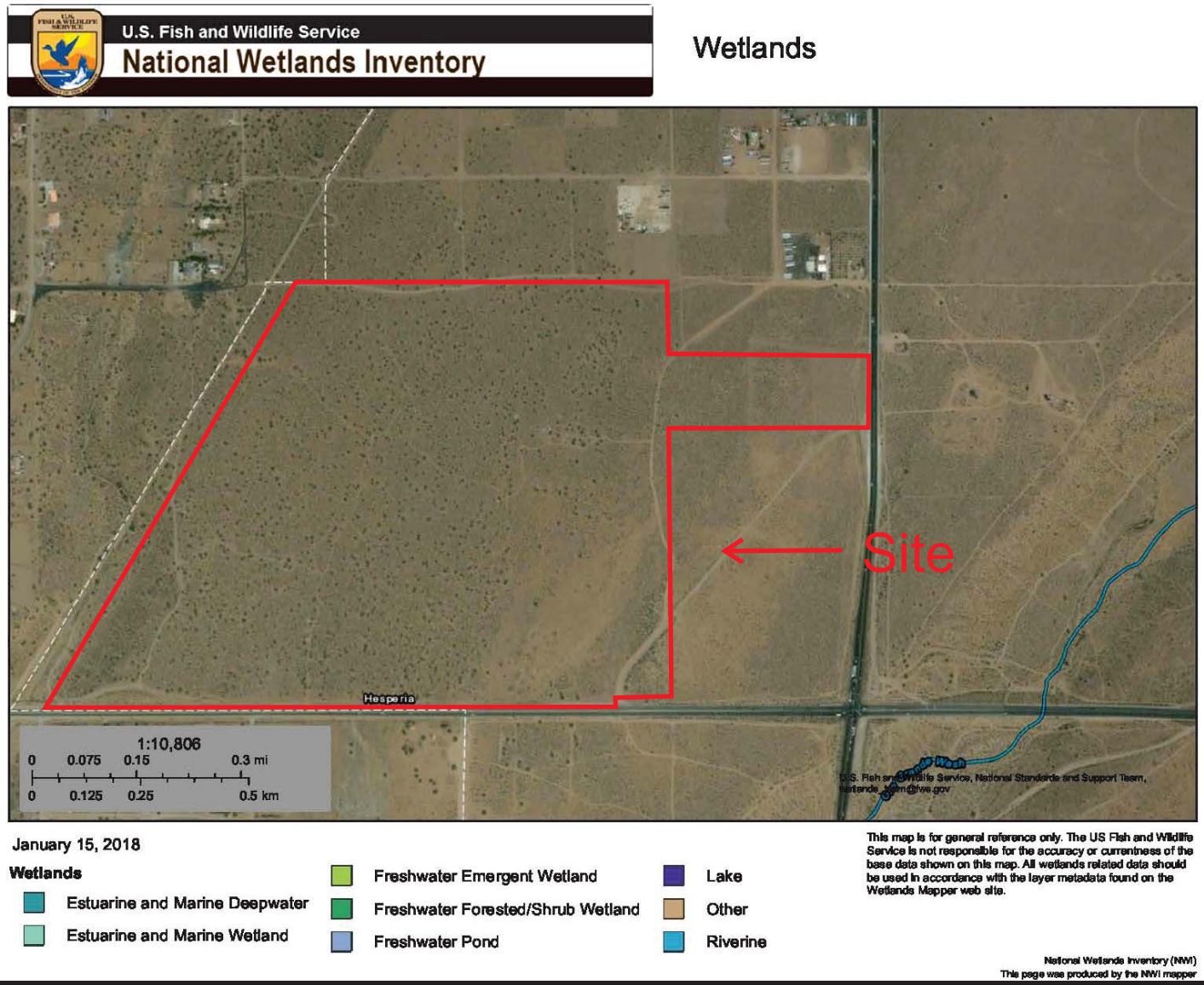
FREMONTIA RD 1975



FREMONTIA LN 92345 HESPERIA

16401 BUSH FRANCIS F 244-4372 4
16461 XXXX GO
* 0 BUS 2 RES 0 NEW

Wetlands Map

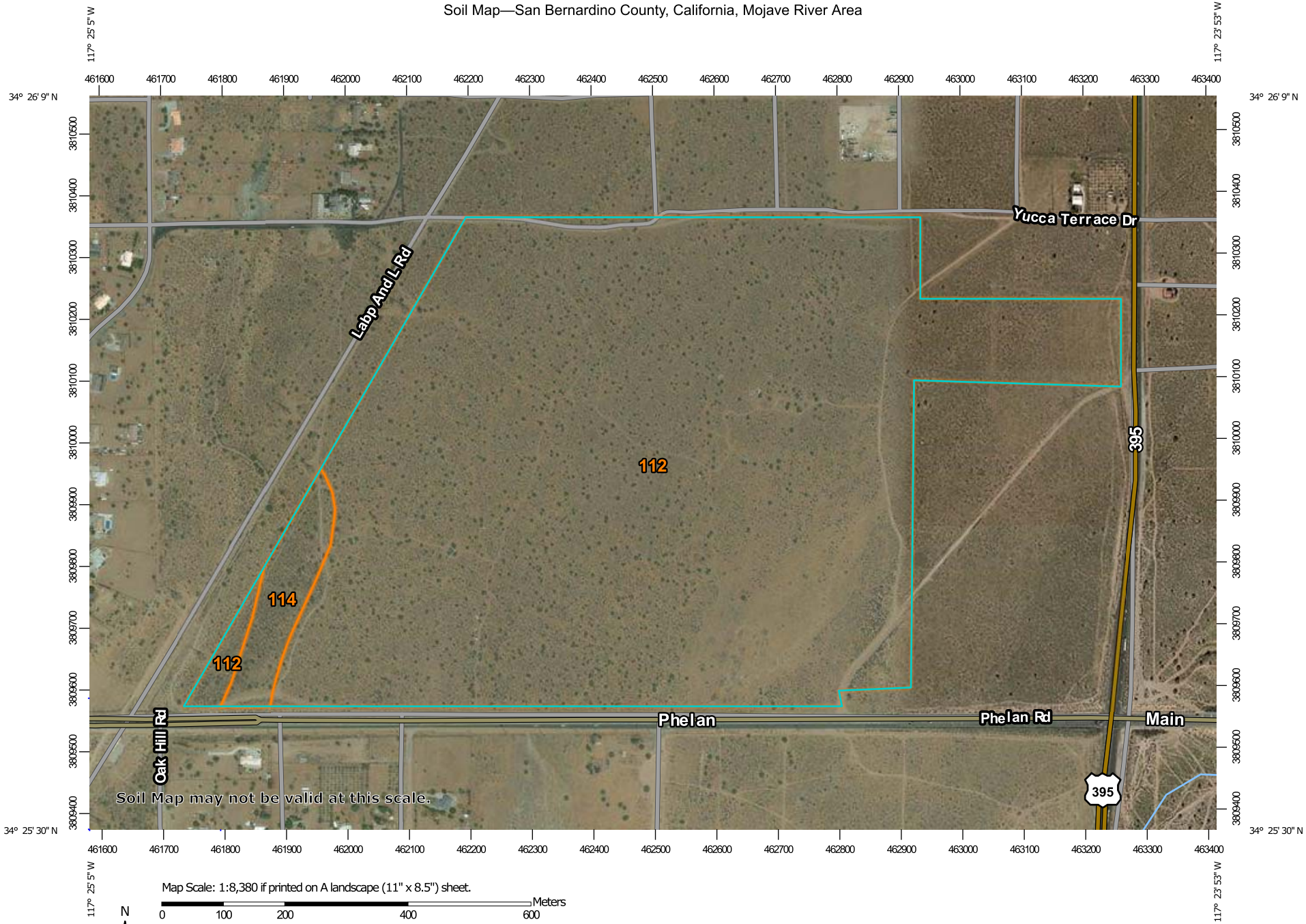


Undeveloped Land
10120 Fremontia Rd
Hesperia, CA 92344

Consolidated Consulting Group, LLC

Date: January 2018
CCG Project #: 4177

Soil Map—San Bernardino County, California, Mojave River Area



Map Scale: 1:8,380 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 9, Sep 11, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 5, 2010—Oct 24, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
112	CAJON SAND, 0 TO 2 PERCENT SLOPES	192.2	96.6%
114	CAJON SAND, 9 TO 15 PERCENT SLOPES	6.7	3.4%
Totals for Area of Interest		**199.0**	**100.0%**

San Bernardino County, California, Mojave River Area

112—CAJON SAND, 0 TO 2 PERCENT SLOPES

Map Unit Setting

National map unit symbol: hkrj
Elevation: 1,800 to 3,200 feet
Mean annual precipitation: 3 to 6 inches
Mean annual air temperature: 59 to 66 degrees F
Frost-free period: 180 to 290 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Cajon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cajon

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite sources

Typical profile

H1 - 0 to 7 inches: sand
H2 - 7 to 25 inches: sand
H3 - 25 to 45 inches: gravelly sand
H4 - 45 to 60 inches: stratified sand to loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Sandy (R030XF012CA)
Hydric soil rating: No

Minor Components

Manet

Percent of map unit: 5 percent
Landform: Playas
Hydric soil rating: Yes

Kimberlina

Percent of map unit: 5 percent

Helendale

Percent of map unit: 5 percent

Data Source Information

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 9, Sep 11, 2017

San Bernardino County, California, Mojave River Area

114—CAJON SAND, 9 TO 15 PERCENT SLOPES

Map Unit Setting

National map unit symbol: hkrl
Elevation: 1,800 to 4,000 feet
Mean annual precipitation: 3 to 6 inches
Mean annual air temperature: 59 to 66 degrees F
Frost-free period: 180 to 290 days
Farmland classification: Not prime farmland

Map Unit Composition

Cajon, slope, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cajon, Slope

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite sources

Typical profile

H1 - 0 to 6 inches: sand
H2 - 6 to 42 inches: sand
H3 - 42 to 60 inches: gravelly sand

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: Sandy (R030XF012CA)
Hydric soil rating: No

Minor Components

Arizo
Percent of map unit: 5 percent
Hydric soil rating: No

Cajon, gravelly surface
Percent of map unit: 5 percent
Hydric soil rating: No

Cajon, steep
Percent of map unit: 5 percent
Hydric soil rating: No

Data Source Information

Soil Survey Area: San Bernardino County, California, Mojave River Area
Survey Area Data: Version 9, Sep 11, 2017

REFERENCES:

American Society for Testing and Materials, Standard Practice for Phase I Environmental Site Assessments, Phase I Environmental Site Assessment Process (ASTM 1527-13)

American Society for Testing and Materials, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transaction (ASTM E2600-15).

City/County/State Offices including:

- City/County Environmental Protection Division
- City/County Fire Marshal
- City/County Planning Department
- Local/Regional Pollution Control Agency
- County Central Appraisal District
- Local/Regional Water Quality Agency

Environmental Data Resources, Inc. (EDR), Aerial Photograph Package, Prints dated; 1953, 1959, 1968, 1975, 1985, 1994, 2005, 2009, 2010 & 2012

Environmental Data Resources, Inc. (EDR), Certified Sanborn Map Report, Inquiry Number: 5157189.3, Report dated January 11, 2018

Environmental Data Resources, Inc. (EDR), The EDR-City Directory Image Report, Inquiry Number: 5157189.5, Report dated January 24, 2018

Environmental Data Resources, Inc. (EDR), The EDR Radius Map Report with GeoCheck, Inquiry Number: 5157189.2s, Report dated January 11, 2018

Groundwater Atlas of the United States – Segment 1

United States Department of Agriculture, Natural Resource Conservation Service, Soil Survey of San Bernardino County, California from website http://websoilsurvey.nrcs.usda.gov/app,

United States Department of the Interior, U.S. Geological Survey, 7.5-Minute Series Topographic Quadrangle Map (Hesperia & Baldy Mesa, CA), dated 1902, 1942, 1947, 1956, 1968, 1980, 1988, 1996 & 2012.

United States Department of Transportation, Pipeline and Hazardous Materials Safety Administration, National Pipeline Mapping System website (http://www.npms.phmsa.dot.gov/)

United States Fish & Wildlife Service, National Wetlands Inventory, Geospatial Wetlands Digital Data. (http://www.fws.gov/wetlands/Data/index.html)

7.2 Governmental Agency Records Attachments

Category	Attached	Not Applicable
7.2.1 General Public Records	**X**	
7.2.2 Mapped Database Report	**X**	
7.2.3 Regulatory Agency Records		**X**

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 3064-351-03-0000

Property Information

Property Address (Main Situs) Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Owner and Mailing Address ROSS, CARL E LIVING TRUST 5/23/91 ETAL
C/O CARL E ROSS TRUSTEE
Protected per CA. Govt. Code Sect. 6254.21
Protected per CA. Govt. Code Sect. 6254.21

Effective Date 04/22/2014

Parcel 3064351030000
Parcel Status ACTIVE
Parcel Type REAL PROPERTY
Property ID
Tax Status ASSESSED BY COUNTY
Use Code VACANT
Land Access PUBLIC PAVED
Size 25.001 ACRES AND OVER
Land Type INDUSTRIAL

District HESPERIA
Resp Group REAL PROPERTY
Resp Unit COMMERCIAL ZONE OR USE

Current Owners

Name ROSS, CARL E LIVING TRUST 5/23/91 — **Document Numbers**

R/I TENANCY IN COMMON — 20140129870
% Int 30.0000000
Type BILLED OWNER
Acquisition Date 04/11/2014
Document Date 04/11/2014
Inactive Date NONE

Name SAFARI ROSS FAMILY PROTECTION TRUST — **Document Numbers**

R/I TENANCY IN COMMON — 20140129870
% Int 35.0000000
Type OTHER OWNER
Acquisition Date 04/11/2014
Document Date 04/11/2014
Inactive Date NONE

Name	**REMINGTON ROSS FAMILY PROTECTION TR**
R/I	TENANCY IN COMMON
% Int	35.0000000
Type	OTHER OWNER
Acquisition Date	04/11/2014
Document Date	04/11/2014
Inactive Date	NONE

Document Numbers

20140129870

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	3064351030000			

Legal Description

POR W 1/2 SW 1/4 SEC 16 TP 4N R 5W LYING SELY FOL DESC PAR THAT CERTAIN STRIP LAND 450 FT WIDE SIDELINES SD STRIP BEING PARALLEL WITH AND DISTANT SELY 92.5 FT DISTANT NWLY 357.5 FT MEASURED AT R/A EACH SIDE C/L DESC 03-26-34 BK 946 PG 277 OFFICIAL RECORDS EX ST ***** 2-25-98 #98-066938 ST *****

No Legal Reason for Change Found

No Active Homeowner's Exemptions Found

Prior Roll History

Year: 2017

TRA	20119	**Land Value**	838,835
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	838,835
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**838,835**

Year: 2016

TRA	20119	**Land Value**	822,387
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	822,387
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**822,387**

Year: 2015

TRA	20119	**Land Value**	810,034
Supplement	NO	**Improvement Value**	0
Correction Date	02/09/2016	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	810,034
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**810,034**

Year: 2014

TRA	20119	**Land Value**	948,554
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	948,554
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**948,554**

Year: 2013

TRA	20119	**Land Value**	944,267
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	944,267
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**944,267**

Year: 2012

TRA	20119	**Land Value**	925,752
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	925,752
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**925,752**

Year: 2011

TRA	20119	**Land Value**	907,600
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	907,600
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**907,600**

Year: 2010

TRA	20119	**Land Value**	13,470
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	13,470
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**13,470**

Year: 2009

TRA	20119	**Land Value**	13,502
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	13,502
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**13,502**

Year: 2008

TRA	20119	**Land Value**	13,237
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	13,237
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**13,237**

Year: 2007

TRA	20119	**Land Value**	12,977
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	12,977
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**12,977**

Year: 2006

TRA	20119	**Land Value**	12,723
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	12,723
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**12,723**

Year: 2005

TRA	20119	**Land Value**	12,474
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	12,474
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**12,474**

Year: 2004

TRA	101008	**Land Value**	12,229
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	12,229
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**12,229**

Year: 2003

TRA	101008	**Land Value**	12,005
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	12,005
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**12,005**

Year: 2002

TRA	101008	**Land Value**	11,770
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	11,770
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,770**

Year: 2001

TRA	101008	**Land Value**	11,539
Supplement	NO	**Improvement Value**	0
Correction Date	08/23/2001	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	11,539
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,539**

Year: 2000

TRA	101008	**Land Value**	11,313
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	11,313
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,313**

Year: 1999

TRA	101008	**Land Value**	11,091
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	11,091
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,091**

Year: 1998

TRA	101008	**Land Value**	10,889
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	10,889
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,889**

Year: 1997

TRA	101008	**Land Value**	10,675
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	10,675
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,675**

Year: 1996

TRA	101008	**Land Value**	10,466
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064351030000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	10,466
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,466**

Parcel History

		Multi Parcel List
Event Date	04/11/2014	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	11/18/2010	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	01/01/2005	
Event Group/Type	TRA EVENT - CHANGE TRA ON SINGLE OR MULTIPLE PARCE	3064341050000 TRA-RNG
Multi Parcel	Yes	3064341070000 TRA-RNG
		3064341080000 TRA-RNG
		3064341090000 TRA-RNG
		3064341100000 TRA-RNG
		3064351030000 TRA-RNG
		3064361010000 TRA-RNG
		3064361020000 TRA-RNG
		3064371020000 TRA-RNG
		3064371030000 TRA-RNG
		3064371040000 TRA-RNG
		3064371050000 TRA-RNG
		3064371060000 TRA-RNG
		3064371070000 TRA-RNG
		3064371080000 TRA-RNG
		3064371090000 TRA-RNG
		3064371100000 TRA-RNG
		3064371110000 TRA-RNG
		3064371120000 TRA-RNG
		3064371130000 TRA-RNG
		3064371140000 TRA-RNG
		3064371150000 TRA-RNG
		3064371160000 TRA-RNG
		3064381010000 TRA-RNG
		3064381020000 TRA-RNG
		3064381030000 TRA-RNG
		3064381040000 TRA-RNG

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3064401030000 TRA-RNG
3064401040000 TRA-RNG
3064401050000 TRA-RNG
3064401060000 TRA-RNG
3064401070000 TRA-RNG
3064401080000 TRA-RNG
3071501056000 TRA-RNG
3071501020000 TRA-RNG
3071501030000 TRA-RNG
3071501040000 TRA-RNG
3071501050000 TRA-RNG
3071501080000 TRA-RNG

		Multi Parcel List
Event Date	12/28/2000	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	12/28/2000	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	12/28/2000	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	03/03/1995	
Event Group/Type	CREATE - WORKED IN OLD SYSTEM (REPAR)	3064351030000 NEW-CRE
Multi Parcel	Yes	0404055680000 OLD-CRE

		Multi Parcel List
Event Date	03/22/1989	
Event Group/Type	TRANSFER - WORKED IN OLD SYSTEM (100% OR PARTIAL)	
Multi Parcel	No	

Ownership History

Owner Name: REMINGTON ROSS FAMILY PROTECTION TR

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5/23/91

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: SAFARI ROSS FAMILY PROTECTION TRUST

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5-23-91

		Document Numbers
R/I	TRUST REVOCABLE	20100478624
% Int	100.0000000	
Type	BILLED OWNER	
Acquisition Date	11/18/2010	
Document Date	11/18/2010	
Inactive Date	04/10/2014	

Owner Name: AUSTIN JOHNSON WEST, LLC

R/I	SOLE OWNER
% Int	100.0000000
Type	BILLED OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	11/17/2010

Document Numbers

20000478499
20000478500
20000478501
20000478502

Owner Name: BALDWIN, PATRICIA H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: GOLDEN, KATHLEEN H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: HOBBS, ANNE B

R/I	SPOUSAL
% Int	50.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1973
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478496

Owner Name: HOBBS, DANIEL B

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	JOINT MAIL OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR

		Document Numbers
R/I	SPOUSAL	
% Int	50.0000000	20000478496
Type	BILLED OWNER	
Acquisition Date	01/01/1973	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, SUSAN C

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	BILLED OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR TR

		Document Numbers
R/I	TRUST REVOCABLE	
% Int	0.0000000	8910183000000
Type	BILLED OWNER	
Acquisition Date	01/01/1973	
Document Date	03/22/1989	
Inactive Date	12/27/2000	

Owner Name: HOBBS, ANNE B TR

R/I	TRUST REVOCABLE
% Int	0.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1973
Document Date	03/22/1989
Inactive Date	12/27/2000

Document Numbers
8910183000000

Supplement History

Supplement Date: 04/11/2014

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	794,167
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	948,554
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	12	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064351030000	**Construction in Progress**	0
		Net Value	**(154,387)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 04/11/2014

Roll Type	INTERIM SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	794,167
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	944,267
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	2	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064351030000	**Construction in Progress**	0
		Net Value	**(150,100)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 11/18/2010

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2010	**New Land**	907,600
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	13,470
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	04/16/2011	**Supp HOX**	0
Extract Date	08/05/2011	**Special Exem**	0
Months Prorated	7	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064351030000	**Construction in Progress**	0
		Net Value	**894,130**

Billed Owner ROSS, CARL E LIVING TRUST 5-23-91

Joint Owner

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	0
Revised IND	C	**New Imprv**	0
Corrected Date	08/23/2001	**Old Land**	0
Correction Code	570C	**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date		**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	0	**Impr Penalty**	0
Corr Status	COR	**Prior Supps**	0
Original Parcel	3064351030000	**Construction in Progress**	0
		Net Value	**0**

Billed Owner AUSTIN JOHNSON WEST, LLC

Joint Owner

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	56,000
Revised IND	Y	**New Imprv**	0
Corrected Date		**Old Land**	11,313
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date	06/09/2001	**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	6	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064351030000	**Construction in Progress**	0
		Net Value	**44,687**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

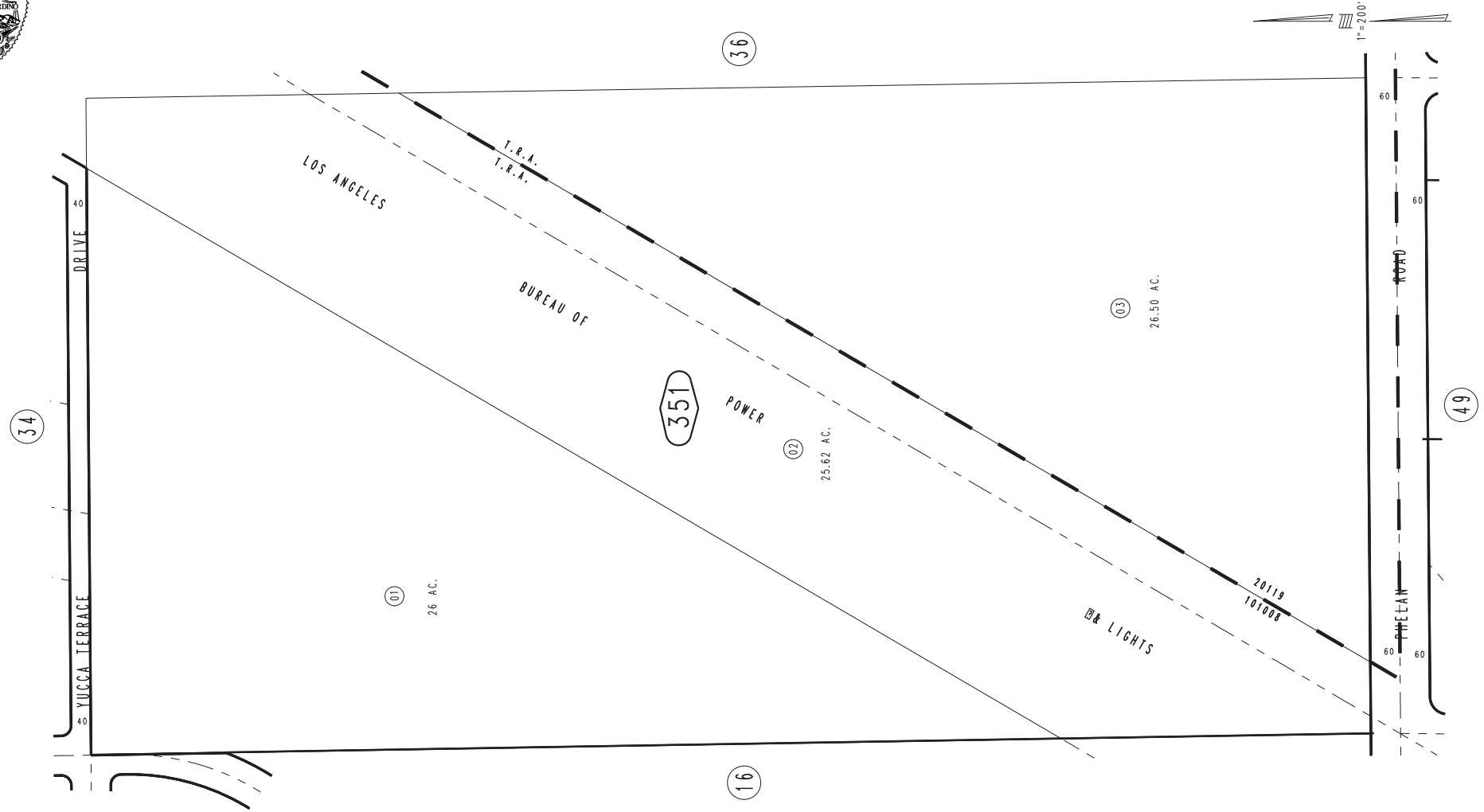


THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

W.1/2, S.W.1/4, Sec. 16, T.4N.,R.5W., S.B.M.

City of Hesperia
Snowline Joint Unified
Tax Rate Area
101008, 20119

3064 - 35



REVISED
03/03/10 LH

FEBRUARY 1995

Assessor's Map
Book 3064 Page 35
San Bernardino County

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 3064-361-01-0000

Property Information

Property Address (Main Situs)	Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Owner and Mailing Address	ROSS, CARL E LIVING TRUST 5/23/91 ETAL C/O CARL E ROSS TRUSTEE Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Effective Date	04/22/2014

Parcel	3064361010000
Parcel Status	ACTIVE
Parcel Type	REAL PROPERTY
Property ID	
Tax Status	ASSESSED BY COUNTY
Use Code	VACANT
Land Access	PUBLIC PAVED
Size	25.001 ACRES AND OVER
Land Type	INDUSTRIAL
District	HESPERIA
Resp Group	REAL PROPERTY
Resp Unit	COMMERCIAL ZONE OR USE

Current Owners

Name	**ROSS, CARL E LIVING TRUST 5/23/91**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Name	**SAFARI ROSS FAMILY PROTECTION TRUST**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Name	**REMINGTON ROSS FAMILY PROTECTION TR**
R/I	TENANCY IN COMMON
% Int	35.0000000
Type	OTHER OWNER
Acquisition Date	04/11/2014
Document Date	04/11/2014
Inactive Date	NONE

Document Numbers

20140129870

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	3064361010000			

Legal Description

E 1/2 SW 1/4 SEC 16 TP 4N R 5W EX POR LYING WITHIN BOUNDARIES THAT CERTAIN STRIP OF LAND 450 FT WIDE SIDELINES SD STRIP BEING PARALLEL WITH AND DISTANT SELY 92.5 FT DISTANT NWLY 357.5 FT MEASUREDAT R/A EACH SIDE C/L DESC 03-26-34 BK 946 PG 277 EX ST ***** 2-25-98 #98-066938 ST *****

No Legal Reason for Change Found

No Active Homeowner's Exemptions Found

Prior Roll History

Year: 2017

TRA	20119	**Land Value**	2,302,103
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,302,103
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,302,103**

Year: 2016

TRA	20119	**Land Value**	2,256,964
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,256,964
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,256,964**

Year: 2015

TRA	20119	**Land Value**	2,223,062
Supplement	NO	**Improvement Value**	0
Correction Date	02/09/2016	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,223,062
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,223,062**

Year: 2014

TRA	20119	**Land Value**	2,598,385
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,598,385
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,598,385**

Year: 2013

TRA	20119	**Land Value**	2,586,642
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,586,642
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,586,642**

Year: 2012

TRA	20119	**Land Value**	2,535,924
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,535,924
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,535,924**

Year: 2011

TRA	20119	**Land Value**	2,486,200
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,486,200
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,486,200**

Year: 2010

TRA	20119	**Land Value**	131,907
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	131,907
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**131,907**

Year: 2009

TRA	20119	**Land Value**	132,220
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	132,220
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**132,220**

Year: 2008

TRA	20119	**Land Value**	129,627
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	129,627
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**129,627**

Year: 2007

TRA	20119	**Land Value**	127,085
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	127,085
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**127,085**

Year: 2006

TRA	20119	**Land Value**	124,593
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	124,593
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**124,593**

Year: 2005

TRA	20119	**Land Value**	122,150
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	122,150
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**122,150**

Year: 2004

TRA	101008	**Land Value**	119,755
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	119,755
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**119,755**

Year: 2003

TRA	101008	**Land Value**	117,560
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	117,560
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**117,560**

Year: 2002

TRA	101008	**Land Value**	115,255
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	115,255
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**115,255**

Year: 2001

TRA	101008	**Land Value**	112,995
Supplement	NO	**Improvement Value**	0
Correction Date	08/23/2001	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	112,995
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**112,995**

Year: 2000

TRA	101008	**Land Value**	110,779
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	110,779
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**110,779**

Year: 1999

TRA	101008	**Land Value**	108,607
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	108,607
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**108,607**

Year: 1998

TRA	101008	**Land Value**	106,634
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	106,634
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**106,634**

Year: 1997

TRA	101008	**Land Value**	104,543
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	104,543
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**104,543**

Year: 1996

TRA	101008	**Land Value**	102,493
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064361010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	102,493
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**102,493**

Parcel History

Event Date	04/11/2014
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT
Multi Parcel	Yes

Multi Parcel List

3064351010000 TOT-TRF
3064351030000 TOT-TRF
3064361010000 TOT-TRF
3064391010000 TOT-TRF
3064401020000 TOT-TRF

Event Date	12/31/2010
Event Group/Type	REVIEW - PROP 8 INITIATED BY TAXPAYER
Multi Parcel	No

Multi Parcel List

Event Date	11/18/2010
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT
Multi Parcel	Yes

Multi Parcel List

3064351010000 TOT-TRF
3064351030000 TOT-TRF
3064361010000 TOT-TRF
3064391010000 TOT-TRF
3064401020000 TOT-TRF

Event Date	01/01/2005
Event Group/Type	TRA EVENT - CHANGE TRA ON SINGLE OR MULTIPLE PARCE
Multi Parcel	Yes

Multi Parcel List

3064341050000 TRA-RNG
3064341070000 TRA-RNG
3064341080000 TRA-RNG
3064341090000 TRA-RNG
3064341100000 TRA-RNG
3064351030000 TRA-RNG
3064361010000 TRA-RNG
3064361020000 TRA-RNG
3064371020000 TRA-RNG
3064371030000 TRA-RNG
3064371040000 TRA-RNG
3064371050000 TRA-RNG
3064371060000 TRA-RNG
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3064371140000 TRA-RNG
3064371150000 TRA-RNG

3064371160000 TRA-RNG
3064381010000 TRA-RNG
3064381020000 TRA-RNG
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3064381290000 TRA-RNG
3064391010000 TRA-RNG
3064401010000 TRA-RNG
3064401020000 TRA-RNG
3064401030000 TRA-RNG
3064401040000 TRA-RNG
3064401050000 TRA-RNG
3064401060000 TRA-RNG
3064401070000 TRA-RNG
3064401080000 TRA-RNG
3071501056000 TRA-RNG
3071501020000 TRA-RNG
3071501030000 TRA-RNG

		3071501040000 TRA-RNG
		3071501050000 TRA-RNG
		3071501080000 TRA-RNG
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF
Event Date	03/03/1995	**Multi Parcel List**
Event Group/Type	CREATE - WORKED IN OLD SYSTEM (REPAR)	3064361010000 NEW-CRE
Multi Parcel	Yes	0404055690000 OLD-CRE
Event Date	03/22/1989	**Multi Parcel List**
Event Group/Type	TRANSFER - WORKED IN OLD SYSTEM (100% OR PARTIAL)	
Multi Parcel	No	

Ownership History

Owner Name: REMINGTON ROSS FAMILY PROTECTION TR

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	35.0000000	20140129870
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5/23/91

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	30.0000000	20140129870
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: SAFARI ROSS FAMILY PROTECTION TRUST

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	35.0000000	20140129870
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5-23-91

		Document Numbers
R/I	TRUST REVOCABLE	
% Int	100.0000000	20100478624
Type	BILLED OWNER	
Acquisition Date	11/18/2010	
Document Date	11/18/2010	
Inactive Date	04/10/2014	

Owner Name: AUSTIN JOHNSON WEST, LLC

R/I	SOLE OWNER
% Int	100.0000000
Type	BILLED OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	11/17/2010

Document Numbers

20000478499
20000478500
20000478501
20000478502

Owner Name: BALDWIN, PATRICIA H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: GOLDEN, KATHLEEN H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: HOBBS, ANNE B

R/I	SPOUSAL
% Int	50.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1981
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478496

Owner Name: HOBBS, DANIEL B

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	JOINT MAIL OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR

		Document Numbers
R/I	SPOUSAL	
% Int	50.0000000	20000478496
Type	BILLED OWNER	
Acquisition Date	01/01/1981	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, SUSAN C

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	BILLED OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR TR

		Document Numbers
R/I	TRUST REVOCABLE	
% Int	0.0000000	8910182700029
Type	BILLED OWNER	
Acquisition Date	01/01/1981	
Document Date	03/22/1989	
Inactive Date	12/27/2000	

Owner Name: HOBBS, ANNE B TR

R/I	TRUST REVOCABLE
% Int	0.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1981
Document Date	03/22/1989
Inactive Date	12/27/2000

Document Numbers

8910182700029

Supplement History

Supplement Date: 04/11/2014

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	2,179,515
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	2,598,385
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	12	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064361010000	**Construction in Progress**	0
		Net Value	**(418,870)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 04/11/2014

Roll Type	INTERIM SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	2,179,515
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	2,586,642
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	2	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064361010000	**Construction in Progress**	0
		Net Value	**(407,127)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 11/18/2010

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2010	**New Land**	2,486,200
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	131,907
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	04/16/2011	**Supp HOX**	0
Extract Date	08/05/2011	**Special Exem**	0
Months Prorated	7	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064361010000	**Construction in Progress**	0
		Net Value	**2,354,293**
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91		
Joint Owner			

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	0
Revised IND	C	**New Imprv**	0
Corrected Date	08/23/2001	**Old Land**	0
Correction Code	570C	**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date		**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	0	**Impr Penalty**	0
Corr Status	COR	**Prior Supps**	0
Original Parcel	3064361010000	**Construction in Progress**	0
		Net Value	**0**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	153,000
Revised IND	Y	**New Imprv**	0
Corrected Date		**Old Land**	110,779
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date	06/09/2001	**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	6	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064361010000	**Construction in Progress**	0
		Net Value	**42,221**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

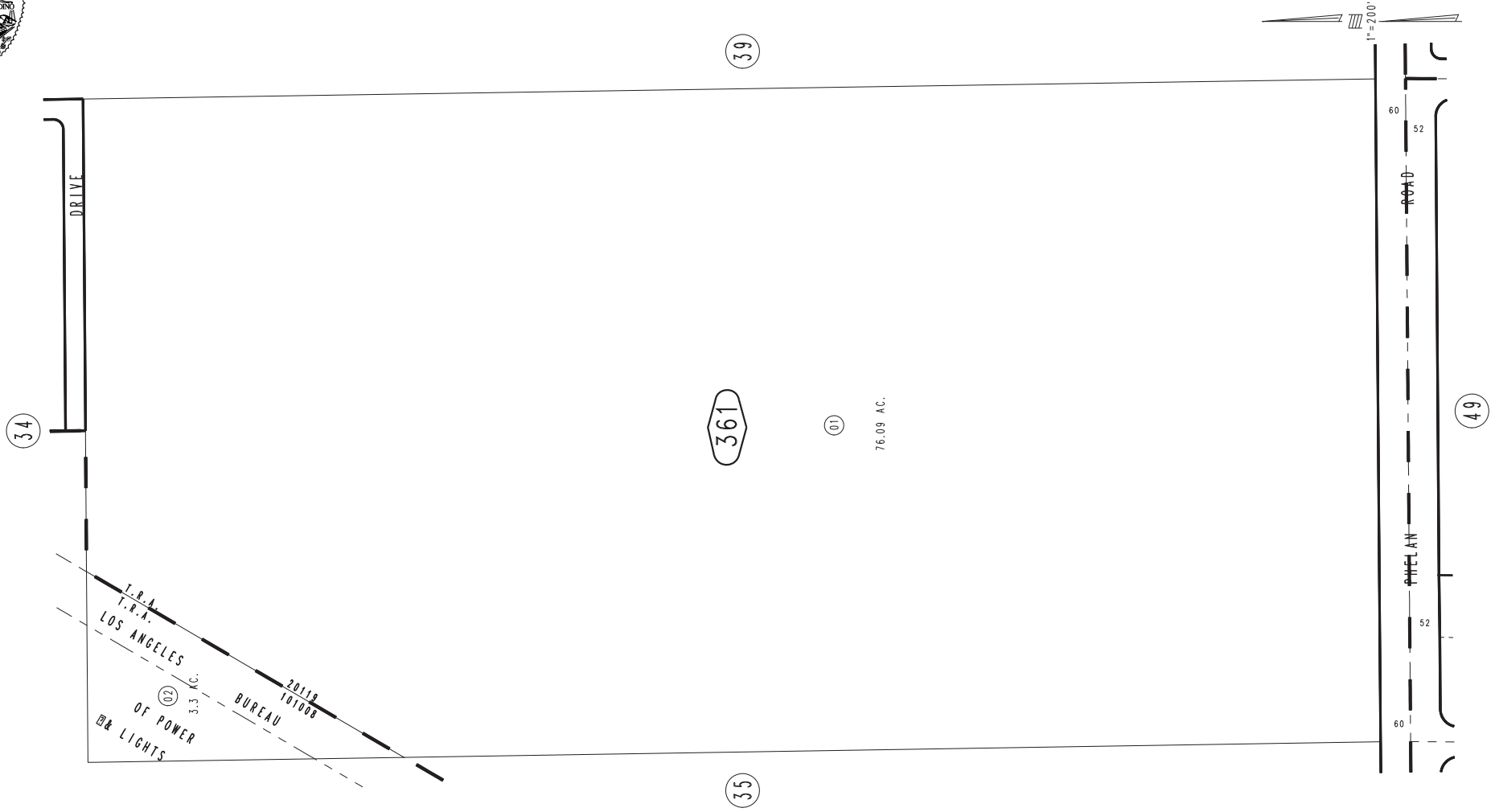


THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

E.1/2, S.W.1/4, Sec. 16, T.4N.,R.5W., S.B.M.

City of Hesperia
Snowline Joint Unified
Tax Rate Area
101008, 20119

3064 - 36



FEBRUARY 1995

REVISED
03/03/10 LH

Assessor's Map
Book 3064 Page 36
San Bernardino County

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 3064-391-01-0000

Property Information

Property Address (Main Situs)	Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Owner and Mailing Address	ROSS, CARL E LIVING TRUST 5/23/91 ETAL C/O CARL E ROSS TRUSTEE Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Effective Date	04/22/2014

Parcel	3064391010000
Parcel Status	ACTIVE
Parcel Type	REAL PROPERTY
Property ID	
Tax Status	ASSESSED BY COUNTY
Use Code	VACANT
Land Access	PUBLIC PAVED
Size	25.001 ACRES AND OVER
Land Type	COMMERCIAL
District	HESPERIA
Resp Group	REAL PROPERTY
Resp Unit	COMMERCIAL ZONE OR USE

Current Owners

Name	**ROSS, CARL E LIVING TRUST 5/23/91**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	
Name	**SAFARI ROSS FAMILY PROTECTION TRUST**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Name	**REMINGTON ROSS FAMILY PROTECTION TR**
R/I	TENANCY IN COMMON
% Int	35.0000000
Type	OTHER OWNER
Acquisition Date	04/11/2014
Document Date	04/11/2014
Inactive Date	NONE

Document Numbers

20140129870

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	3064391010000			

Legal Description

W 1/2 SE 1/4 SEC 16 TP 4N R 5W EX ST AND ADDL EX ST

Legal Reason for Change

Legal Reason for Change	Document Number	Date
DEED TO STATE FOR HIGHWAY OR FREEWAY	19990152825	04/12/1999
STREET DEED	19980066938	02/25/1998

No Active Homeowner's Exemptions Found

Prior Roll History

Year: 2017

TRA	20119	**Land Value**	2,321,179
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,321,179
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,321,179**

Year: 2016

TRA	20119	**Land Value**	2,275,666
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,275,666
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,275,666**

Year: 2015

TRA	20119	**Land Value**	2,241,483
Supplement	NO	**Improvement Value**	0
Correction Date	02/09/2016	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	2,241,483
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,241,483**

Year: 2014

TRA	20119	**Land Value**	2,658,585
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,658,585
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,658,585**

Year: 2013

TRA	20119	**Land Value**	2,646,570
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,646,570
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,646,570**

Year: 2012

TRA	20119	**Land Value**	2,594,676
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,594,676
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,594,676**

Year: 2011

TRA	20119	**Land Value**	2,543,800
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	2,543,800
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**2,543,800**

Year: 2010

TRA	20119	**Land Value**	45,540
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	45,540
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**45,540**

Year: 2009

TRA	20119	**Land Value**	45,648
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	45,648
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**45,648**

Year: 2008

TRA	20119	**Land Value**	44,753
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	44,753
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**44,753**

Year: 2007

TRA	20119	**Land Value**	43,875
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	43,875
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**43,875**

Year: 2006

TRA	20119	**Land Value**	43,015
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	43,015
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**43,015**

Year: 2005

TRA	20119	**Land Value**	42,172
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	42,172
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**42,172**

Year: 2004

TRA	101008	**Land Value**	41,345
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	41,345
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**41,345**

Year: 2003

TRA	101008	**Land Value**	40,587
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	40,587
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**40,587**

Year: 2002

TRA	101008	**Land Value**	39,791
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	39,791
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**39,791**

Year: 2001

TRA	101008	**Land Value**	39,011
Supplement	NO	**Improvement Value**	0
Correction Date	08/23/2001	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	39,011
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**39,011**

Year: 2000

TRA	101008	**Land Value**	38,246
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	38,246
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**38,246**

Year: 1999

TRA	101008	**Land Value**	37,496
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	37,496
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**37,496**

Year: 1998

TRA	101008	**Land Value**	36,815
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	36,815
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**36,815**

Year: 1997

TRA	101008	**Land Value**	36,093
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	36,093
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**36,093**

Year: 1996

TRA	101008	**Land Value**	35,385
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064391010000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	35,385
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**35,385**

Parcel History

Event Date	04/11/2014
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT
Multi Parcel	Yes

Multi Parcel List

3064351010000 TOT-TRF
3064351030000 TOT-TRF
3064361010000 TOT-TRF
3064391010000 TOT-TRF
3064401020000 TOT-TRF

Event Date	12/31/2010
Event Group/Type	REVIEW - PROP 8 INITIATED BY TAXPAYER
Multi Parcel	No

Multi Parcel List

Event Date	11/18/2010
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT
Multi Parcel	Yes

Multi Parcel List

3064351010000 TOT-TRF
3064351030000 TOT-TRF
3064361010000 TOT-TRF
3064391010000 TOT-TRF
3064401020000 TOT-TRF

Event Date	01/01/2005
Event Group/Type	TRA EVENT - CHANGE TRA ON SINGLE OR MULTIPLE PARCE
Multi Parcel	Yes

Multi Parcel List

3064341050000 TRA-RNG
3064341070000 TRA-RNG
3064341080000 TRA-RNG
3064341090000 TRA-RNG
3064341100000 TRA-RNG
3064351030000 TRA-RNG
3064361010000 TRA-RNG
3064361020000 TRA-RNG
3064371020000 TRA-RNG
3064371030000 TRA-RNG
3064371040000 TRA-RNG
3064371050000 TRA-RNG
3064371060000 TRA-RNG
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3064371150000 TRA-RNG

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3064401050000 TRA-RNG
3064401060000 TRA-RNG
3064401070000 TRA-RNG
3064401080000 TRA-RNG
3071501056000 TRA-RNG
3071501020000 TRA-RNG
3071501030000 TRA-RNG

		3071501040000 TRA-RNG 3071501050000 TRA-RNG 3071501080000 TRA-RNG
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	04/12/1999	**Multi Parcel List**
Event Group/Type	ADJUST VALUE - STREET DEDICATION OR VACATION	
Multi Parcel	No	
Event Date	03/03/1995	**Multi Parcel List**
Event Group/Type	CREATE - WORKED IN OLD SYSTEM (REPAR)	3064391010000 NEW-CRE 0404055700000 OLD-CRE
Multi Parcel	Yes	
Event Date	03/22/1989	**Multi Parcel List**
Event Group/Type	TRANSFER - WORKED IN OLD SYSTEM (100% OR PARTIAL)	
Multi Parcel	No	

Ownership History

Owner Name: REMINGTON ROSS FAMILY PROTECTION TR

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5/23/91

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: SAFARI ROSS FAMILY PROTECTION TRUST

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5-23-91

		Document Numbers
R/I	TRUST REVOCABLE	20100478624
% Int	100.0000000	
Type	BILLED OWNER	
Acquisition Date	11/18/2010	
Document Date	11/18/2010	
Inactive Date	04/10/2014	

Owner Name: AUSTIN JOHNSON WEST, LLC

R/I	SOLE OWNER
% Int	100.0000000
Type	BILLED OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	11/17/2010

Document Numbers

20000478499
20000478500
20000478501
20000478502

Owner Name: BALDWIN, PATRICIA H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: GOLDEN, KATHLEEN H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: HOBBS, ANNE B

R/I	SPOUSAL
% Int	50.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1975
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478496

Owner Name: HOBBS, DANIEL B

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	JOINT MAIL OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR

		Document Numbers
R/I	SPOUSAL	
% Int	50.0000000	20000478496
Type	BILLED OWNER	
Acquisition Date	01/01/1975	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, SUSAN C

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	BILLED OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR TR

		Document Numbers
R/I	TRUST REVOCABLE	
% Int	0.0000000	8910182800000
Type	BILLED OWNER	
Acquisition Date	01/01/1975	
Document Date	03/22/1989	
Inactive Date	12/27/2000	

Owner Name: HOBBS, ANNE B TR

R/I	TRUST REVOCABLE
% Int	0.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1975
Document Date	03/22/1989
Inactive Date	12/27/2000

Document Numbers
8910182800000

Supplement History

Supplement Date: 04/11/2014

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	2,197,575
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	2,658,585
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	12	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064391010000	**Construction in Progress**	0
		Net Value	**(461,010)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 04/11/2014

Roll Type	INTERIM SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	2,197,575
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	2,646,570
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	2	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064391010000	**Construction in Progress**	0
		Net Value	**(448,995)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 11/18/2010

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2010	**New Land**	2,543,800
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	45,540
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	04/16/2011	**Supp HOX**	0
Extract Date	08/05/2011	**Special Exem**	0
Months Prorated	7	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064391010000	**Construction in Progress**	0
		Net Value	**2,498,260**
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91		
Joint Owner			

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	0
Revised IND	C	**New Imprv**	0
Corrected Date	08/23/2001	**Old Land**	0
Correction Code	570C	**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date		**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	0	**Impr Penalty**	0
Corr Status	COR	**Prior Supps**	0
Original Parcel	3064391010000	**Construction in Progress**	0
		Net Value	**0**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	157,000
Revised IND	Y	**New Imprv**	0
Corrected Date		**Old Land**	38,246
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date	06/09/2001	**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	6	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064391010000	**Construction in Progress**	0
		Net Value	**118,754**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

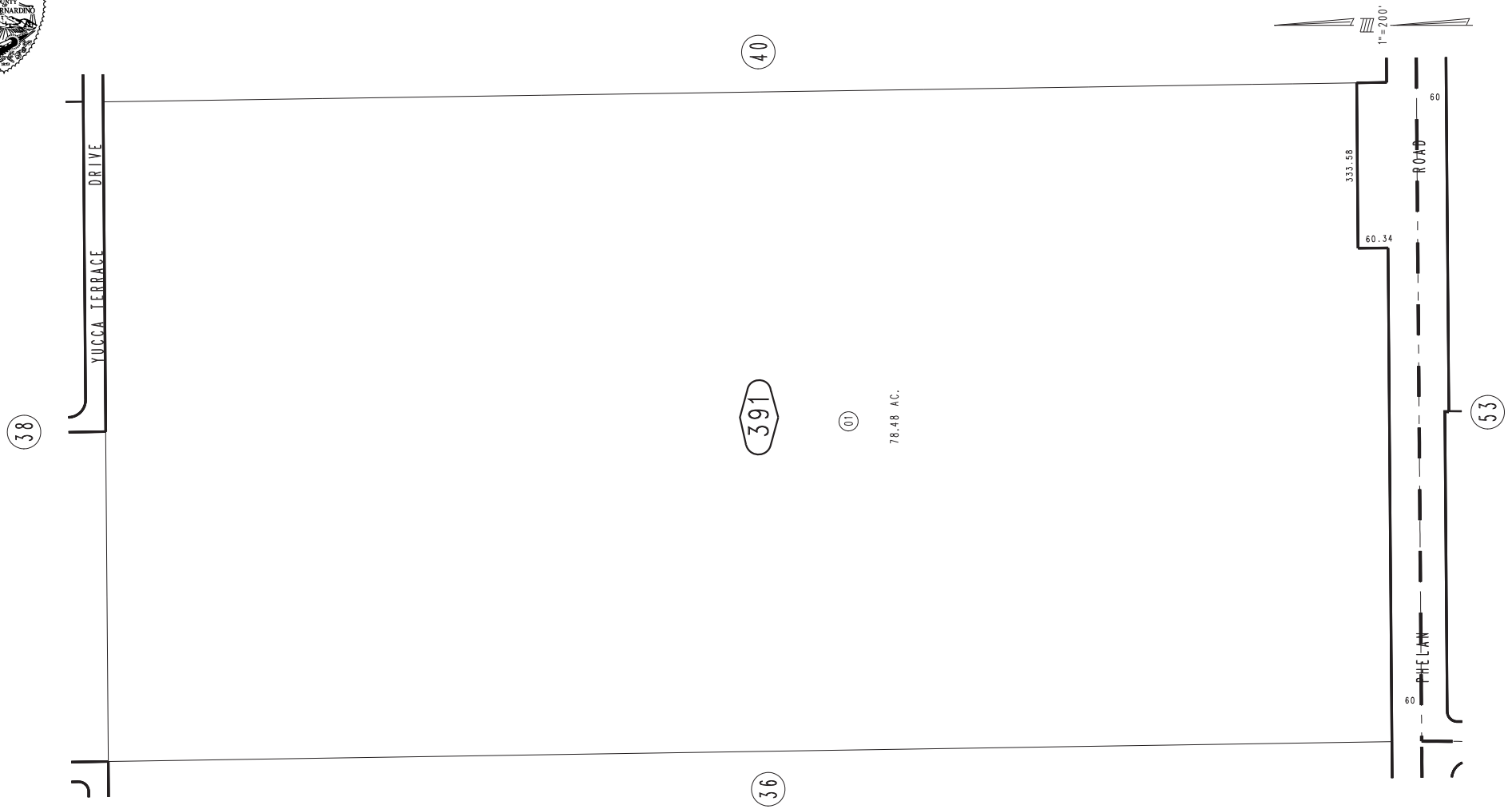


THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

W.1/2, S.E.1/4, Sec. 16, T.4N.,R.5W., S.B.M.

City of Hesperia
Tax Rate Area
20119

3064 - 39



FEBRUARY 1995

Assessor's Map
Book 3064 Page 39
San Bernardino County

REVISED
03/03/10 LH

Property Information Management System

San Bernardino County

Office of the Assessor

PIMS PACKAGE REPORT FOR PARCEL 3064-401-02-0000

Property Information

Property Address (Main Situs)	Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Owner and Mailing Address	ROSS, CARL E LIVING TRUST 5/23/91 ETAL C/O CARL E ROSS TRUSTEE Protected per CA. Govt. Code Sect. 6254.21 Protected per CA. Govt. Code Sect. 6254.21
Effective Date	04/22/2014

Parcel	3064401020000
Parcel Status	ACTIVE
Parcel Type	REAL PROPERTY
Property ID	
Tax Status	ASSESSED BY COUNTY
Use Code	VACANT
Land Access	PUBLIC PAVED
Size	7.001 TO 14.000 ACRES
Land Type	COMMERCIAL
District	HESPERIA
Resp Group	REAL PROPERTY
Resp Unit	COMMERCIAL ZONE OR USE

Current Owners

Name	**ROSS, CARL E LIVING TRUST 5/23/91**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Name	**SAFARI ROSS FAMILY PROTECTION TRUST**	**Document Numbers**
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Name	**REMINGTON ROSS FAMILY PROTECTION TR**
R/I	TENANCY IN COMMON
% Int	35.0000000
Type	OTHER OWNER
Acquisition Date	04/11/2014
Document Date	04/11/2014
Inactive Date	NONE

Document Numbers

20140129870

Legal Parcel Map

Parcel Map	Parcel Nbr	Unit	Book	Page
	3064401020000			

Legal Description

S 1/2 N 2/3 NE 1/4 SE 1/4 SEC 16 TP 4N R 5W

No Legal Reason for Change Found

No Active Homeowner's Exemptions Found

Prior Roll History

Year: 2017

TRA	20119	**Land Value**	390,534
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	390,534
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**390,534**

Year: 2016

TRA	20119	**Land Value**	382,876
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	382,876
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**382,876**

Year: 2015

TRA	20119	**Land Value**	377,125
Supplement	NO	**Improvement Value**	0
Correction Date	02/09/2016	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91	**Total Penalties**	0
Joint Owner		**Total Value**	377,125
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**377,125**

Year: 2014

TRA	20119	**Land Value**	441,460
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	441,460
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**441,460**

Year: 2013

TRA	20119	**Land Value**	439,465
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	439,465
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**439,465**

Year: 2012

TRA	20119	**Land Value**	430,848
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	430,848
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**430,848**

Year: 2011

TRA	20119	**Land Value**	422,400
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	ROSS, CARL E LIVING TRUST 5-23-91	**Total Penalties**	0
Joint Owner		**Total Value**	422,400
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**422,400**

Year: 2010

TRA	20119	**Land Value**	11,194
Supplement	YES	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	11,194
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,194**

Year: 2009

TRA	20119	**Land Value**	11,221
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	11,221
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,221**

Year: 2008

TRA	20119	**Land Value**	11,001
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	11,001
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**11,001**

Year: 2007

TRA	20119	**Land Value**	10,785
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	10,785
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,785**

Year: 2006

TRA	20119	**Land Value**	10,574
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	10,574
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,574**

Year: 2005

TRA	20119	**Land Value**	10,367
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	10,367
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,367**

Year: 2004

TRA	101008	**Land Value**	10,164
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	10,164
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**10,164**

Year: 2003

TRA	101008	**Land Value**	9,978
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	9,978
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,978**

Year: 2002

TRA	101008	**Land Value**	9,782
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	9,782
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,782**

Year: 2001

TRA	101008	**Land Value**	9,590
Supplement	NO	**Improvement Value**	0
Correction Date	08/23/2001	**Improvement Penalty**	0
Correction Code	570D	**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	AUSTIN JOHNSON WEST, LLC	**Total Penalties**	0
Joint Owner		**Total Value**	9,590
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,590**

Year: 2000

TRA	101008	**Land Value**	9,402
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	9,402
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,402**

Year: 1999

TRA	101008	**Land Value**	9,218
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	9,218
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,218**

Year: 1998

TRA	101008	**Land Value**	9,051
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	9,051
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**9,051**

Year: 1997

TRA	101008	**Land Value**	8,874
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	8,874
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**8,874**

Year: 1996

TRA	101008	**Land Value**	8,700
Supplement	NO	**Improvement Value**	0
Correction Date		**Improvement Penalty**	0
Correction Code		**Pers Prop Value**	0
Original Parcel	3064401020000	**Pers Prop Penalty**	0
Billed Owner	HOBBS, DELBERT N JR TR	**Total Penalties**	0
Joint Owner	HOBBS, ANNE B TR	**Total Value**	8,700
		HOX Exemptions	0
		Special Exemptions	0
		Net Value	**8,700**

Parcel History

		Multi Parcel List
Event Date	04/11/2014	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	12/31/2010	
Event Group/Type	REVIEW - PROP 8 INITIATED BY TAXPAYER	
Multi Parcel	No	

		Multi Parcel List
Event Date	11/18/2010	
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF
Multi Parcel	Yes	3064351030000 TOT-TRF
		3064361010000 TOT-TRF
		3064391010000 TOT-TRF
		3064401020000 TOT-TRF

		Multi Parcel List
Event Date	01/01/2005	
Event Group/Type	TRA EVENT - CHANGE TRA ON SINGLE OR MULTIPLE PARCE	3064341050000 TRA-RNG
Multi Parcel	Yes	3064341070000 TRA-RNG
		3064341080000 TRA-RNG
		3064341090000 TRA-RNG
		3064341100000 TRA-RNG
		3064351030000 TRA-RNG
		3064361010000 TRA-RNG
		3064361020000 TRA-RNG
		3064371020000 TRA-RNG
		3064371030000 TRA-RNG
		3064371040000 TRA-RNG
		3064371050000 TRA-RNG
		3064371060000 TRA-RNG
		3064371070000 TRA-RNG
		3064371080000 TRA-RNG
		3064371090000 TRA-RNG
		3064371100000 TRA-RNG
		3064371110000 TRA-RNG
		3064371120000 TRA-RNG
		3064371130000 TRA-RNG
		3064371140000 TRA-RNG
		3064371150000 TRA-RNG

3064371160000 TRA-RNG
3064381010000 TRA-RNG
3064381020000 TRA-RNG
3064381030000 TRA-RNG
3064381040000 TRA-RNG
3064381050000 TRA-RNG
3064381060000 TRA-RNG
3064381070000 TRA-RNG
3064381080000 TRA-RNG
3064381090000 TRA-RNG
3064381100000 TRA-RNG
3064381110000 TRA-RNG
3064381120000 TRA-RNG
3064381130000 TRA-RNG
3064381140000 TRA-RNG
3064381150000 TRA-RNG
3064381160000 TRA-RNG
3064381170000 TRA-RNG
3064381180000 TRA-RNG
3064381190000 TRA-RNG
3064381200000 TRA-RNG
3064381210000 TRA-RNG
3064381220000 TRA-RNG
3064381230000 TRA-RNG
3064381240000 TRA-RNG
3064381250000 TRA-RNG
3064381260000 TRA-RNG
3064381270000 TRA-RNG
3064381280000 TRA-RNG
3064381290000 TRA-RNG
3064391010000 TRA-RNG
3064401010000 TRA-RNG
3064401020000 TRA-RNG
3064401030000 TRA-RNG
3064401040000 TRA-RNG
3064401050000 TRA-RNG
3064401060000 TRA-RNG
3064401070000 TRA-RNG
3064401080000 TRA-RNG
3071501056000 TRA-RNG
3071501020000 TRA-RNG
3071501030000 TRA-RNG

		3071501040000 TRA-RNG 3071501050000 TRA-RNG 3071501080000 TRA-RNG
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	12/28/2000	**Multi Parcel List**
Event Group/Type	TRANSFER - 100% PER RECORDED DOCUMENT	3064351010000 TOT-TRF 3064351030000 TOT-TRF 3064361010000 TOT-TRF 3064391010000 TOT-TRF 3064401020000 TOT-TRF
Multi Parcel	Yes	
Event Date	03/03/1995	**Multi Parcel List**
Event Group/Type	CREATE - WORKED IN OLD SYSTEM (REPAR)	3064401020000 NEW-CRE 0404055720000 OLD-CRE
Multi Parcel	Yes	
Event Date	03/22/1989	**Multi Parcel List**
Event Group/Type	TRANSFER - WORKED IN OLD SYSTEM (100% OR PARTIAL)	
Multi Parcel	No	

Ownership History

Owner Name: REMINGTON ROSS FAMILY PROTECTION TR

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5/23/91

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	30.0000000	
Type	BILLED OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: SAFARI ROSS FAMILY PROTECTION TRUST

		Document Numbers
R/I	TENANCY IN COMMON	20140129870
% Int	35.0000000	
Type	OTHER OWNER	
Acquisition Date	04/11/2014	
Document Date	04/11/2014	
Inactive Date	NONE	

Owner Name: ROSS, CARL E LIVING TRUST 5-23-91

		Document Numbers
R/I	TRUST REVOCABLE	20100478624
% Int	100.0000000	
Type	BILLED OWNER	
Acquisition Date	11/18/2010	
Document Date	11/18/2010	
Inactive Date	04/10/2014	

Owner Name: AUSTIN JOHNSON WEST, LLC

R/I	SOLE OWNER
% Int	100.0000000
Type	BILLED OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	11/17/2010

Document Numbers

20000478499
20000478500
20000478501
20000478502

Owner Name: BALDWIN, PATRICIA H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: GOLDEN, KATHLEEN H

R/I	TENANCY IN COMMON
% Int	25.0000000
Type	OTHER OWNER
Acquisition Date	12/28/2000
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478497

Owner Name: HOBBS, ANNE B

R/I	SPOUSAL
% Int	50.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/01/1973
Document Date	12/28/2000
Inactive Date	12/27/2000

Document Numbers

20000478496

Owner Name: HOBBS, DANIEL B

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	JOINT MAIL OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR

		Document Numbers
R/I	SPOUSAL	
% Int	50.0000000	20000478496
Type	BILLED OWNER	
Acquisition Date	01/01/1973	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, SUSAN C

		Document Numbers
R/I	TENANCY IN COMMON	
% Int	25.0000000	20000478497
Type	BILLED OWNER	
Acquisition Date	12/28/2000	
Document Date	12/28/2000	
Inactive Date	12/27/2000	

Owner Name: HOBBS, DELBERT N JR TR

		Document Numbers
R/I	TRUST REVOCABLE	
% Int	0.0000000	8910182600000
Type	BILLED OWNER	
Acquisition Date	01/01/1973	
Document Date	03/22/1989	
Inactive Date	12/27/2000	

Owner Name: HOBBS, ANNE B TR

R/I	TRUST REVOCABLE
% Int	0.0000000
Type	JOINT MAIL OWNER
Acquisition Date	01/10/1973
Document Date	03/22/1989
Inactive Date	12/27/2000

Document Numbers

8910182600000

Supplement History

Supplement Date: 04/11/2014

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	369,738
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	441,460
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	12	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064401020000	**Construction in Progress**	0
		Net Value	**(71,722)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 04/11/2014

Roll Type	INTERIM SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2014	**New Land**	369,738
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	439,465
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	02/12/2016	**Supp HOX**	0
Extract Date	05/06/2016	**Special Exem**	0
Months Prorated	2	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064401020000	**Construction in Progress**	0
		Net Value	**(69,727)**
Billed Owner	ROSS, CARL E LIVING TRUST 5/23/91		
Joint Owner			

Supplement Date: 11/18/2010

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2010	**New Land**	422,400
Revised IND		**New Imprv**	0
Corrected Date		**Old Land**	11,194
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	20119	**Old HOX**	0
NOPIC Date	04/16/2011	**Supp HOX**	0
Extract Date	08/05/2011	**Special Exem**	0
Months Prorated	7	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064401020000	**Construction in Progress**	0
		Net Value	**411,206**

Billed Owner ROSS, CARL E LIVING TRUST 5-23-91

Joint Owner

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	0
Revised IND	C	**New Imprv**	0
Corrected Date	08/23/2001	**Old Land**	0
Correction Code	570C	**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date		**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	0	**Impr Penalty**	0
Corr Status	COR	**Prior Supps**	0
Original Parcel	3064401020000	**Construction in Progress**	0
		Net Value	**0**

Billed Owner AUSTIN JOHNSON WEST, LLC

Joint Owner

Supplement Date: 12/28/2000

Roll Type	REGULAR SUPPLEMENT	**Supp Type**	OWNERSHIP TRANSFER
Supp Year	2000	**New Land**	26,000
Revised IND	Y	**New Imprv**	0
Corrected Date		**Old Land**	9,402
Correction Code		**Old Imprv**	0
Legal Status	SECURED	**New HOX**	0
TRA	101008	**Old HOX**	0
NOPIC Date	06/09/2001	**Supp HOX**	0
Extract Date	08/04/2001	**Special Exem**	0
Months Prorated	6	**Impr Penalty**	0
Corr Status		**Prior Supps**	0
Original Parcel	3064401020000	**Construction in Progress**	0
		Net Value	**16,598**
Billed Owner	AUSTIN JOHNSON WEST, LLC		
Joint Owner			

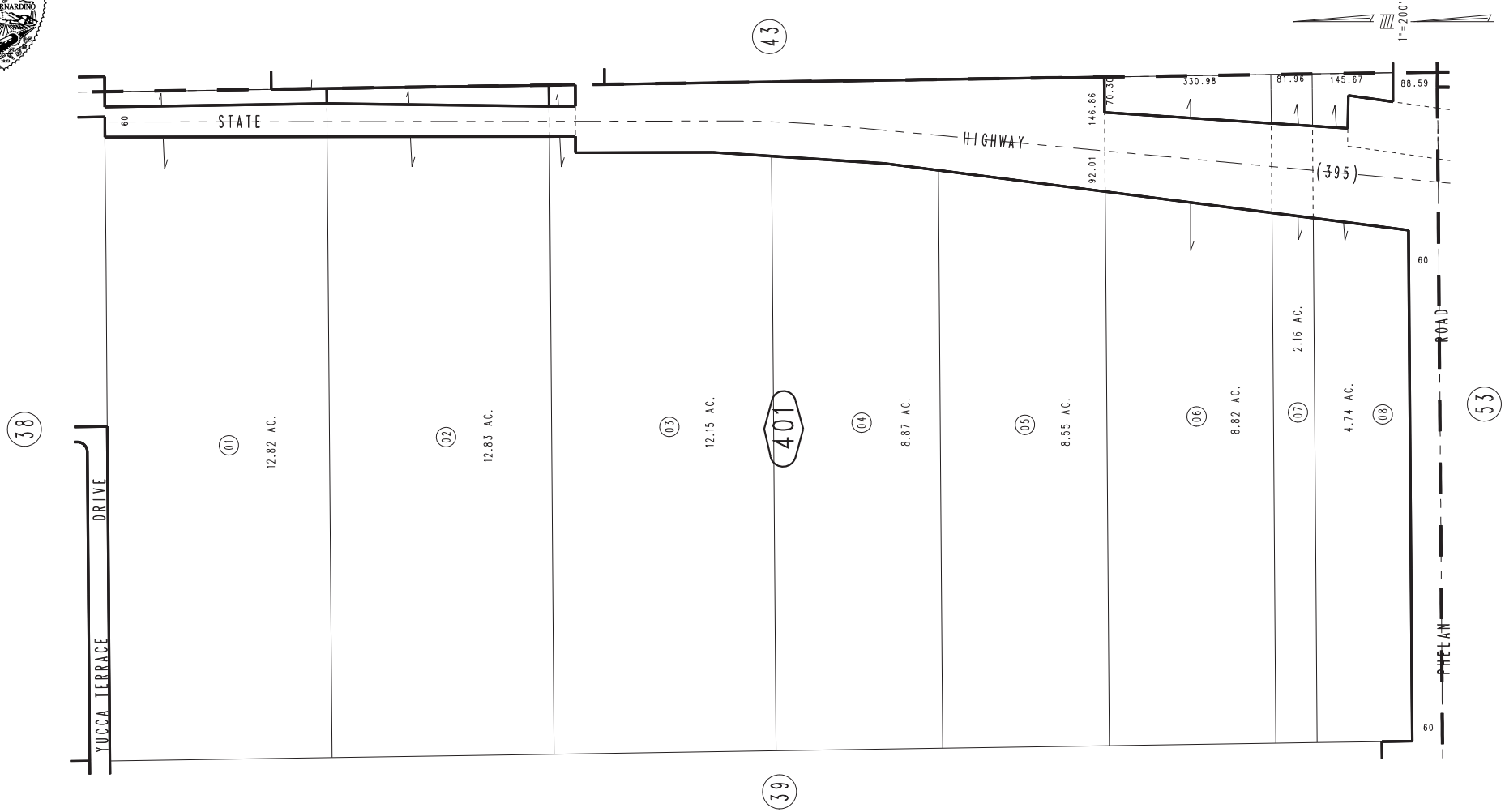


THIS MAP IS FOR THE PURPOSE OF AD VALOREM TAXATION ONLY.

E.1/2, S.E.1/4, Sec. 16, T.4N.,R.5W., S.B.M.

City of Hesperia
Tax Rate Area
20119

3064 - 40



FEBRUARY 1995

Assessor's Map
Book 3064 Page 40
San Bernardino County

REVISED
10/06/09 KC
03/03/10 LH

Raw Land
10120 Fremontia Rd
Hesperia, CA 92344

Inquiry Number: 5157189.2s
January 11, 2018

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

10120 FREMONTIA RD
HESPERIA, CA 92344

COORDINATES

Latitude (North):	34.4286620 - 34° 25' 43.18''
Longitude (West):	117.4138220 - 117° 24' 49.75''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	461976.5
UTM Y (Meters):	3809568.8
Elevation:	3588 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5630603 BALDY MESA, CA
Version Date:	2012
East Map:	5620406 HESPERIA, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140527
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
10120 FREMONTIA RD
HESPERIA, CA 92344

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
1	ACACIA ROAD WASTE TI	12227 ACACIA RD	RGA LF	Lower	312, 0.059, ENE
2	INTERSTATE DISTRIBUT	US 395 & MAIN ST	HAZNET	Lower	1113, 0.211, East
3	ROBERT BANDRINGA	9553 LOS BANOS AVE	HAZNET	Higher	1202, 0.228, SE
4	MIKE SCHEXNYDER	9940 BELLFLOWER ST	HAZNET	Higher	1214, 0.230, WNW
5	FRONTIER CALIFORNIA,	10167 HWY 395	San Bern. Co. Permit	Lower	1227, 0.232, ENE
6		N/B US395 100 FEET N	CHMIRS	Lower	1338, 0.253, ESE
7		11042 WHITE FOX TRAI	CHMIRS	Higher	2359, 0.447, WNW

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System
US ENG CONTROLS ---------- Engineering Controls Sites List

US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ---------- EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

LUST ---------- Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land
SLIC ---------- Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST ---------- Underground Storage Tank Listing
UST ---------- Active UST Facilities
AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP ---------- Voluntary Cleanup Program Properties
INDIAN VCP ---------- Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS ---------- Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---------- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT ---------- Waste Management Unit Database
HAULERS ---------- Registered Waste Tire Haulers Listing
INDIAN ODI ---------- Report on the Status of Open Dumps on Indian Lands
ODI ---------- Open Dump Inventory
DEBRIS REGION 9 ---------- Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS ---------- Open Dumps on Indian Land

EXECUTIVE SUMMARY

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ---- Delisted National Clandestine Laboratory Register
HIST Cal-Sites ---- Historical Calsites Database
SCH ---- School Property Evaluation Program
Toxic Pits ---- Toxic Pits Cleanup Act Sites

Local Lists of Registered Storage Tanks

SWEEPS UST ---- SWEEPS UST Listing
CA FID UST ---- Facility Inventory Database

Local Land Records

LIENS 2 ---- CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System
LDS ---- Land Disposal Sites Listing
MCS ---- Military Cleanup Sites Listing

Other Ascertainable Records

RCRA NonGen / NLR ---- RCRA - Non Generators / No Longer Regulated
FUDS ---- Formerly Used Defense Sites
ROD ---- Records Of Decision
COAL ASH DOE ---- Steam-Electric Plant Operation Data
COAL ASH EPA ---- Coal Combustion Residues Surface Impoundments List
DOT OPS ---- Incident and Accident Data
CONSENT ---- Superfund (CERCLA) Consent Decrees
INDIAN RESERV ---- Indian Reservations
FUSRAP ---- Formerly Utilized Sites Remedial Action Program
UMTRA ---- Uranium Mill Tailings Sites
LEAD SMELTERS ---- Lead Smelter Sites
ABANDONED MINES ---- Abandoned Mines
UXO ---- Unexploded Ordnance Sites
DOCKET HWC ---- Hazardous Waste Compliance Docket Listing
ECHO ---- Enforcement & Compliance History Information
FUELS PROGRAM ---- EPA Fuels Program Registered Listing
CA BOND EXP. PLAN ---- Bond Expenditure Plan
DRYCLEANERS ---- Cleaner Facilities
EMI ---- Emissions Inventory Data
ENF ---- Enforcement Action Listing
ICE ---- ICE
HIST CORTESE ---- Hazardous Waste & Substance Site List
HWP ---- EnviroStor Permitted Facilities Listing
HWT ---- Registered Hazardous Waste Transporter Database
MINES ---- Mines Site Location Listing
MWMP ---- Medical Waste Management Program Listing
PEST LIC ---- Pesticide Regulation Licenses Listing
PROC ---- Certified Processors Database
Notify 65 ---- Proposition 65 Records
UIC ---- UIC Listing

WASTEWATER PITS Oil Wastewater Pits Listing
WDS Waste Discharge System
WIP Well Investigation Program Case List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants
EDR Hist Auto EDR Exclusive Historical Auto Stations
EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Records of Emergency Release Reports

CHMIRS: The California Hazardous Material Incident Report System contains information on reported hazardous material incidents, i.e., accidental releases or spills. The source is the California Office of Emergency Services.

A review of the CHMIRS list, as provided by EDR, and dated 05/09/2017 has revealed that there are 2 CHMIRS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported OES Incident Number: 12-2797	11042 WHITE FOX TRAI	WNW 1/4 - 1/2 (0.447 mi.)	7	12

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported OES Incident Number: 090087	N/B US395 100 FEET N	ESE 1/4 - 1/2 (0.253 mi.)	6	11

EXECUTIVE SUMMARY

Date Completed: 29-MAR-90

Other Ascertainable Records

HAZNET: The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests & continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, & disposal method. The source is the Department of Toxic Substance Control is the agency. This database begins with calendar year 1993.

A review of the HAZNET list, as provided by EDR, and dated 12/31/2016 has revealed that there are 3 HAZNET sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ROBERT BANDRINGA GEPAID: CLU970018519	9553 LOS BANOS AVE	SE 1/8 - 1/4 (0.228 mi.)	3	9
MIKE SCHEXNYDER GEPAID: CAC002653999	9940 BELLFLOWER ST	WNW 1/8 - 1/4 (0.230 mi.)	4	10

Lower Elevation	Address	Direction / Distance	Map ID	Page
INTERSTATE DISTRIBUT GEPAID: CAC002187769	US 395 & MAIN ST	E 1/8 - 1/4 (0.211 mi.)	2	8

San Bern. Co. Permit: San Bernardino County Fire Department Hazardous Materials Division.

A review of the San Bern. Co. Permit list, as provided by EDR, and dated 08/31/2017 has revealed that there is 1 San Bern. Co. Permit site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
FRONTIER CALIFORNIA, Facility Status: ACTIVE Facility Id: FA0007062	10167 HWY 395	ENE 1/8 - 1/4 (0.232 mi.)	5	10

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

A review of the RGA LF list, as provided by EDR, has revealed that there is 1 RGA LF site within

approximately 0.75 miles of the target property.

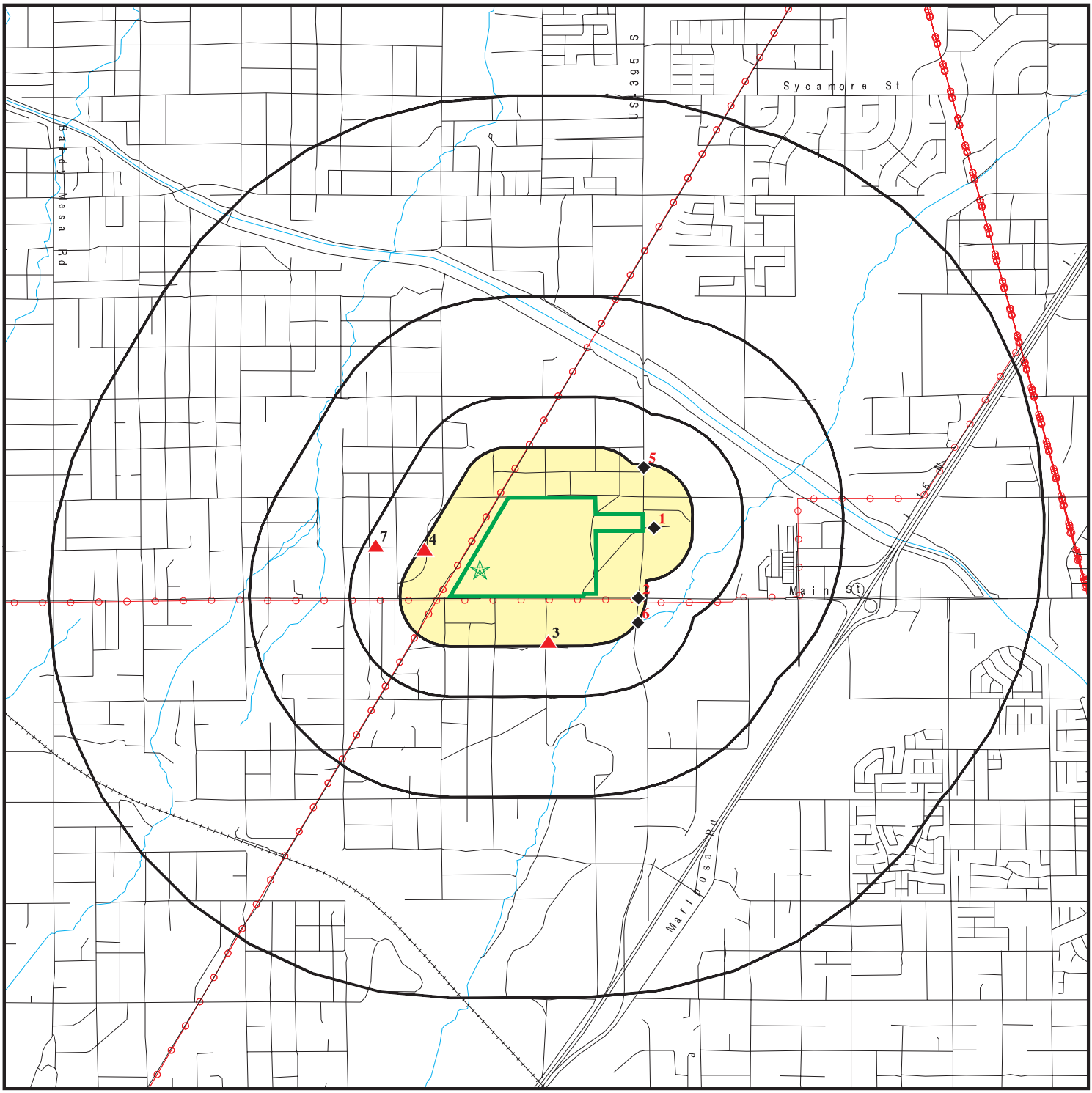
Lower Elevation	Address	Direction / Distance	Map ID	Page
ACACIA ROAD WASTE TI	12227 ACACIA RD	ENE 0 - 1/8 (0.059 mi.)	1	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
CAJON DERAILMENT	SEMS
HAYWARD LUMBER	LUST

OVERVIEW MAP - 5157189.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

Upgradient Area

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Raw Land	CLIENT:	Consolidated Consulting Group
ADDRESS:	10120 Fremontia Rd Hesperia CA 92344	CONTACT:	Trevor Jackson
LAT/LONG:	34.428662 / 117.413822	INQUIRY #:	5157189.2s
		DATE:	January 11, 2018 4:33 pm

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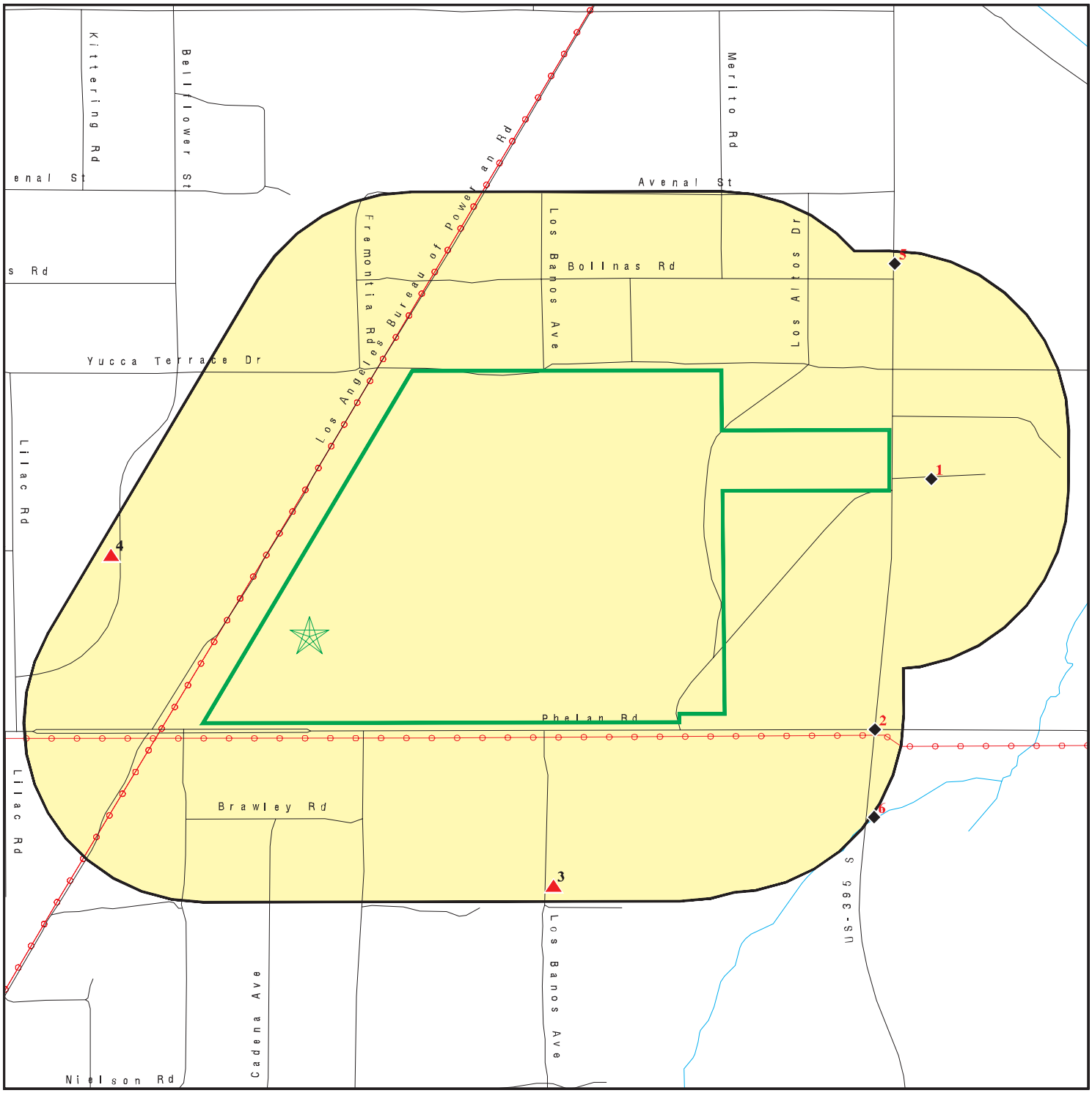
DETAIL MAP - 5157189.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Indian Reservations BIA
- Power transmission lines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

0 1/8 1/4 1/2 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Raw Land	CLIENT: Consolidated Consulting Group
ADDRESS: 10120 Fremontia Rd Hesperia CA 92344	CONTACT: Trevor Jackson
LAT/LONG: 34.428662 / 117.413822	INQUIRY #: 5157189.2s DATE: January 11, 2018 4:35 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.250		0	0	0	0	0	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	0.750		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.750		0	0	0	0	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.750		0	0	0	0	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.250		0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.750		0	0	0	0	NR	0
Federal RCRA generators list								
RCRA-LQG	0.500		0	0	0	NR	NR	0
RCRA-SQG	0.500		0	0	0	NR	NR	0
RCRA-CESQG	0.500		0	0	0	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.750		0	0	0	0	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.500		0	0	0	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.250		0	0	0	0	0	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.250		0	0	0	0	0	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.750		0	0	0	0	NR	0
State and tribal leaking storage tank lists								
LUST	0.750		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	1.250		0	0	0	0	0	0
SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.500		0	0	0	NR	NR	0
AST	0.500		0	0	0	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.750		0	0	0	0	NR	0
INDIAN VCP	0.750		0	0	0	0	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.500		0	0	0	NR	NR	0
CHMIRS	0.500		0	0	2	NR	NR	2
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FUDS	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.250		0	0	0	0	0	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
ABANDONED MINES	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
ENF	0.500		0	0	0	NR	NR	0
HAZNET	0.500		0	3	0	NR	NR	3
ICE	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
San Bern. Co. Permit	0.250		0	1	NR	NR	NR	1
PEST LIC	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.250		0	0	NR	NR	NR	0
EDR Hist Cleaner	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.750		1	0	0	0	NR	1
RGA LUST	0.750		0	0	0	0	NR	0
- Totals --		0	1	4	2	0	0	7

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
ENE
< 1/8
0.059 mi.
312 ft.

ACACIA ROAD WASTE TIRE PILE — **RGA LF** — **S114724492**
12227 ACACIA RD — **N/A**
HESPERIA, CA

Relative:
Lower

Actual:
3533 ft.

RGA LF:

1998	ACACIA ROAD WASTE TIRE PILE	12227 ACACIA RD
1997	ACACIA ROAD WASTE TIRE PILE	12227 ACACIA RD
1996	ACACIA ROAD WASTE TIRE PILE	12227 ACACIA RD

2
East
1/8-1/4
0.211 mi.
1113 ft.

INTERSTATE DISTRIBUTION CO — **HAZNET** — **S112901977**
US 395 & MAIN ST — **N/A**
HESPERIA, CA 92345

Relative:
Lower

Actual:
3566 ft.

HAZNET:

envid:	S112901977
Year:	2007
GEPAID:	CAC002187769
Contact:	HASIB RASOR
Telephone:	8004268560
Mailing Name:	Not reported
Mailing Address:	PO BOX 45999
Mailing City,St,Zip:	TACOMA, WA 98448
Gen County:	Not reported
TSD EPA ID:	CAD028409019
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	1.4
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	San Bernardino

envid:	S112901977
Year:	2007
GEPAID:	CAC002187769
Contact:	HASIB RASOR
Telephone:	8004268560
Mailing Name:	Not reported
Mailing Address:	PO BOX 45999
Mailing City,St,Zip:	TACOMA, WA 98448
Gen County:	Not reported
TSD EPA ID:	CAD028409019
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.13
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	San Bernardino

3
SE
1/8-1/4
0.228 mi.
1202 ft.

ROBERT BANDRINGA
9553 LOS BANOS AVE
HESPERIA, CA 92345

HAZNET **S113182614**
N/A

Relative:
Higher

Actual:
3602 ft.

HAZNET:

envid:	S113182614
Year:	1997
GEPAID:	CLU970018519
Contact:	Not reported
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	PO BOX 806
Mailing City,St,Zip:	SACRAMENTO, CA 958120806
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported
Waste Category:	Liquids with pH <= 2
Disposal Method:	Transfer Station
Tons:	.0100
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	San Bernardino

envid:	S113182614
Year:	1997
GEPAID:	CLU970018519
Contact:	Not reported
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	PO BOX 806
Mailing City,St,Zip:	SACRAMENTO, CA 958120806
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Transfer Station
Tons:	.1500
Cat Decode:	Not reported
Method Decode:	Not reported
Facility County:	San Bernardino

envid:	S113182614
Year:	1997
GEPAID:	CLU970018519
Contact:	Not reported
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	PO BOX 806
Mailing City,St,Zip:	SACRAMENTO, CA 958120806
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported
Waste Category:	Other inorganic solid waste
Disposal Method:	Transfer Station
Tons:	.0300
Cat Decode:	Not reported
Method Decode:	Not reported

ROBERT BANDRINGA (Continued) **S113182614**

Facility County: San Bernardino

envid: S113182614
Year: 1997
GEPAID: CLU970018519
Contact: Not reported
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: PO BOX 806
Mailing City,St,Zip: SACRAMENTO, CA 958120806
Gen County: Not reported
TSD EPA ID: CAD008302903
TSD County: Not reported
Waste Category: Unspecified organic liquid mixture
Disposal Method: Recycler
Tons: .0100
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

4
WNW
1/8-1/4
0.230 mi.
1214 ft.

Relative:
Higher

Actual:
3592 ft.

MIKE SCHEXNYDER **HAZNET** **S112981890**
9940 BELLFLOWER ST **N/A**
OAK HILLS, CA 92344

HAZNET:
envid: S112981890
Year: 2011
GEPAID: CAC002653999
Contact: MIKE SCHEXNYDER
Telephone: 7605590452
Mailing Name: Not reported
Mailing Address: 9940 BELLFLOWER ST
Mailing City,St,Zip: OAK HILLS, CA 92344
Gen County: Not reported
TSD EPA ID: CAD982444481
TSD County: Not reported
Waste Category: Other organic solids
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 4.4
Cat Decode: Not reported
Method Decode: Not reported
Facility County: San Bernardino

5
ENE
1/8-1/4
0.232 mi.
1227 ft.

Relative:
Lower

Actual:
3510 ft.

FRONTIER CALIFORNIA, INC.: HESPERIA RCC0 **San Bern. Co. Permit** **S104771895**
10167 HWY 395 **N/A**
HESPERIA, CA 92344

San Bern. Co. Permit:
Region: SAN BERNARDINO
Facility ID: FA0007062
Owner: Frontier California Inc.

FRONTIER CALIFORNIA, INC.: HESPERIA RCC0 (Continued) **S104771895**

Permit Number: PT0004770
Permit Category: HAZARDOUS MATERIALS 1-3 CHEMICALS SPECIAL
Facility Status: ACTIVE
Expiration Date: 05/31/2018

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6 **CHMIRS** **S100221039**
ESE **N/B US395 100 FEET NORTH MAIN STREET** **N/A**
1/4-1/2 **UNINC, CA**
0.253 mi.
1338 ft.

Relative:
Lower

Actual:
3521 ft.

CHMIRS:

OES Incident Number:	090087
OES notification:	Not reported
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**29-MAR-90**
Property Use:	961
Agency Id Number:	66
Agency Incident Number:	90-065
Time Notified:	1520
Time Completed:	1620
Surrounding Area:	099
Estimated Temperature:	Not reported
Property Management:	S
More Than Two Substances Involved?:	N
Resp Agncy Personel # Of Decontaminated:	0
Responding Agency Personel # Of Injuries:	0
Responding Agency Personel # Of Fatalities:	0
Others Number Of Decontaminated:	0
Others Number Of Injuries:	0
Others Number Of Fatalities:	0
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	L. ACEVEDO #8721
Report Date:	11-APR-90
Facility Telephone:	916 327-3310
Waterway Involved:	Not reported
Waterway:	Not reported
Spill Site:	Not reported
Cleanup By:	Not reported
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Not reported
Other:	Not reported
Date/Time:	Not reported
Year:	88-92
Agency:	Not reported
Incident Date:	29-MAR-90
Admin Agency:	Not reported
Amount:	Not reported
Contained:	Not reported
Site Type:	Not reported

(Continued) **S100221039**

E Date:	29-MAY-91
Substance:	Not reported
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	N
Description:	Not reported

7
WNW
1/4-1/2
0.447 mi.
2359 ft.

Relative:
Higher

Actual:
3590 ft.

11042 WHITE FOX TRAIL, OAK HILLS, CA
HESPERIA, CA 92344

CHMIRS **S112828202**
N/A

CHMIRS:

OES Incident Number:	12-2797
OES notification:	05/10/2012
OES Date:	Not reported
OES Time:	Not reported
Date Completed:	**Not reported**
Property Use:	Not reported
Agency Id Number:	Not reported
Agency Incident Number:	Not reported
Time Notified:	Not reported
Time Completed:	Not reported
Surrounding Area:	Not reported
Estimated Temperature:	Not reported
Property Management:	Not reported
More Than Two Substances Involved?:	Not reported
Resp Agncy Personel # Of Decontaminated:	Not reported
Responding Agency Personel # Of Injuries:	Not reported
Responding Agency Personel # Of Fatalities:	Not reported
Others Number Of Decontaminated:	Not reported
Others Number Of Injuries:	Not reported
Others Number Of Fatalities:	Not reported
Vehicle Make/year:	Not reported
Vehicle License Number:	Not reported
Vehicle State:	Not reported
Vehicle Id Number:	Not reported
CA DOT PUC/ICC Number:	Not reported
Company Name:	Not reported
Reporting Officer Name/ID:	Not reported
Report Date:	Not reported
Facility Telephone:	Not reported
Waterway Involved:	No
Waterway:	Not reported

(Continued) **S112828202**

Spill Site:	Residence
Cleanup By:	Reporting Party
Containment:	Not reported
What Happened:	Not reported
Type:	Not reported
Measure:	Gal(s)
Other:	Not reported
Date/Time:	1430
Year:	2012
Agency:	So Cal Edison
Incident Date:	5/8/2012
Admin Agency:	San Bernardino County Fire Department
Amount:	Not reported
Contained:	Yes
Site Type:	Not reported
E Date:	Not reported
Substance:	Mineral Oil, Non PCB
Quantity Released:	1
Unknown:	Not reported
Substance #2:	Not reported
Substance #3:	Not reported
Evacuations:	Not reported
Number of Injuries:	Not reported
Number of Fatalities:	Not reported
#1 Pipeline:	Not reported
#2 Pipeline:	Not reported
#3 Pipeline:	Not reported
#1 Vessel >= 300 Tons:	Not reported
#2 Vessel >= 300 Tons:	Not reported
#3 Vessel >= 300 Tons:	Not reported
Evacs:	Not reported
Injuries:	Not reported
Fatals:	Not reported
Comments:	Not reported
Description:	RP states that a car struck a pad mounted transformer resultingin the release of less than 1 gallon of mineral oil onto the concrete pad. The relesae is contained and cleanup is complete. The transofmer has been replaced. No waterways have been impacted.

Count: 2 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HESPERIA	S102431259	HAYWARD LUMBER	931 MAIN ST	92345	LUST
SOUTH OF VICTORVILLE	1001115045	CAJON DERAILMENT	MILEPOST 66.9 SOUTH MAIN TRACK	92392	SEMS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/11/2017
Date Data Arrived at EDR: 12/22/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/21/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 77

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/28/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 70

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/22/2017
Date Data Arrived at EDR: 06/13/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 94

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/08/2017
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 08/10/2017
Date Data Arrived at EDR: 08/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/27/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 08/10/2017
Date Data Arrived at EDR: 08/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/27/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/18/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/31/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/31/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/13/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 23

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/14/2017
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27
Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 58
Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 31
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/07/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 58
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35
Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36
Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 57
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/26/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/24/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 134

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 05/02/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/01/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/13/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 10/14/2016
Date Data Arrived at EDR: 01/27/2017
Date Made Active in Reports: 05/05/2017
Number of Days to Update: 98

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/14/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 71

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/25/2017
Date Data Arrived at EDR: 07/27/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 78

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/31/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/20/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/21/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 49
Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 08/21/2017
Date Data Arrived at EDR: 09/20/2017
Date Made Active in Reports: 12/08/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 11/06/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: No Update Planned

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/30/2017
Date Data Arrived at EDR: 05/31/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 76
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/09/2017
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 10/30/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/20/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 11/03/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 07/13/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 30

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/28/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/30/2017
Date Data Arrived at EDR: 10/31/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 45

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 10/31/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 11/27/2017
Date Data Arrived at EDR: 11/29/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 19

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/28/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: Annually

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/21/2017
Date Data Arrived at EDR: 09/21/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 22

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 05/09/2017
Date Data Arrived at EDR: 07/26/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 57

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 10/27/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 58

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 58

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/13/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 10

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/22/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/11/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: N/A

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 8

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Annually

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/05/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/08/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 10/31/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2017
Date Data Arrived at EDR: 08/03/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 78

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/20/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 12/23/2016
Date Data Arrived at EDR: 12/27/2016
Date Made Active in Reports: 02/17/2017
Number of Days to Update: 52

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 11/02/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/22/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 10/10/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/25/2017
Date Data Arrived at EDR: 09/26/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 24

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 10/20/2017
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 12/05/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 02/13/2017
Date Data Arrived at EDR: 02/15/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 261

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/21/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: Varies

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 10/25/2016
Date Data Arrived at EDR: 06/02/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 133

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/17/2017
Date Data Arrived at EDR: 08/17/2017
Date Made Active in Reports: 09/15/2017
Number of Days to Update: 29

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/20/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 08/08/2017
Date Made Active in Reports: 10/16/2017
Number of Days to Update: 69

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/30/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 03/21/2017
Date Made Active in Reports: 08/15/2017
Number of Days to Update: 147

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/22/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 34

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 97

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/08/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/20/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/20/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 12/27/2017
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/20/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/10/2017
Date Data Arrived at EDR: 10/10/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 7

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/09/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 11/01/2017
Number of Days to Update: 50
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/01/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 63
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/05/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Varies

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 09/05/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 63
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/05/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 10/18/2017
Number of Days to Update: 36
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 06/16/2017
Date Data Arrived at EDR: 06/20/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 119
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: No Update Planned

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 09/11/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 94
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/12/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water board?s review found that more than one-third of the region?s active disposal pits are operating without permission.

Date of Government Version: 04/15/2015
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/23/2015
Number of Days to Update: 67

Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 10/13/2017
Next Scheduled EDR Contact: 01/22/2018
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/14/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Quarterly

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/19/2017
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 09/22/2017
Date Data Arrived at EDR: 09/22/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 18

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

Underground Tanks
Underground storage tank sites located in Alameda county.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/24/2047
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 08/17/2017
Date Data Arrived at EDR: 08/22/2017
Date Made Active in Reports: 10/25/2017
Number of Days to Update: 64

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 10/30/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Semi-Annually

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/20/2017
Number of Days to Update: 43

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 5

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/16/2017
Date Data Arrived at EDR: 10/17/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 51

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 10/17/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 04/21/2017
Date Made Active in Reports: 10/09/2017
Number of Days to Update: 171
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 31
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 11/14/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/10/2018
Next Scheduled EDR Contact: 04/30/2018
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017
Date Data Arrived at EDR: 03/10/2017
Date Made Active in Reports: 05/03/2017
Number of Days to Update: 54
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/11/2017
Date Data Arrived at EDR: 07/14/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 69
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Semi-Annually

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/28/2017
Date Data Arrived at EDR: 10/05/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 34
Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Semi-Annually

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/21/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 11/22/2017
Date Data Arrived at EDR: 11/27/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 22
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/21/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: No Update Planned

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/09/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 28
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/06/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/09/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 36
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/06/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/07/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 09/05/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 63
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/30/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/11/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 28
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/15/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/12/2017
Date Data Arrived at EDR: 10/12/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 27
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/15/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 10/03/2017
Date Made Active in Reports: 10/06/2017
Number of Days to Update: 3
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/02/2017
Date Data Arrived at EDR: 10/03/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 44
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/03/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/31/2017
Date Data Arrived at EDR: 09/19/2017
Date Made Active in Reports: 11/16/2017
Number of Days to Update: 58
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 11/06/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/05/2017
Date Data Arrived at EDR: 09/06/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 63

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/05/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2015
Date Data Arrived at EDR: 11/07/2015
Date Made Active in Reports: 01/04/2016
Number of Days to Update: 58

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Varies

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/29/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/02/2017
Date Data Arrived at EDR: 11/07/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 42

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 10/03/2017
Date Data Arrived at EDR: 10/06/2017
Date Made Active in Reports: 10/10/2017
Number of Days to Update: 4

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/13/2017
Next Scheduled EDR Contact: 04/02/2018
Data Release Frequency: Semi-Annually

SAN MATEO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 09/15/2017
Date Data Arrived at EDR: 09/19/2017
Date Made Active in Reports: 10/17/2017
Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/06/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 09/15/2017
Date Data Arrived at EDR: 09/19/2017
Date Made Active in Reports: 11/09/2017
Number of Days to Update: 51

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/06/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Semi-Annually

SANTA CLARA COUNTY:

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/21/2017
Next Scheduled EDR Contact: 03/12/2018
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/01/2017
Date Data Arrived at EDR: 11/03/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/19/2018
Data Release Frequency: Annually

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 09/27/2017
Date Made Active in Reports: 11/10/2017
Number of Days to Update: 44

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/08/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Quarterly

Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 09/27/2017
Date Made Active in Reports: 11/08/2017
Number of Days to Update: 42

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/08/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Quarterly

SONOMA COUNTY:

Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/03/2017
Date Data Arrived at EDR: 10/06/2017
Date Made Active in Reports: 11/10/2017
Number of Days to Update: 35

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/04/2018
Next Scheduled EDR Contact: 04/09/2018
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 12/01/2017
Date Data Arrived at EDR: 12/04/2017
Date Made Active in Reports: 12/19/2017
Number of Days to Update: 15

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 12/01/2017
Next Scheduled EDR Contact: 03/19/2018
Data Release Frequency: Semi-Annually

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 10/25/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 43

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/26/2017
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/08/2017
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/26/2017
Date Data Arrived at EDR: 10/25/2017
Date Made Active in Reports: 12/07/2017
Number of Days to Update: 43

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 10/23/2017
Next Scheduled EDR Contact: 02/05/2018
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/28/2017
Date Data Arrived at EDR: 09/12/2017
Date Made Active in Reports: 09/21/2017
Number of Days to Update: 9

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/11/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 09/27/2017
Date Data Arrived at EDR: 10/02/2017
Date Made Active in Reports: 11/14/2017
Number of Days to Update: 43

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 01/02/2018
Next Scheduled EDR Contact: 04/16/2018
Data Release Frequency: Annually

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/11/2017
Date Data Arrived at EDR: 11/14/2017
Date Made Active in Reports: 12/18/2017
Number of Days to Update: 34

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/14/2017
Next Scheduled EDR Contact: 02/26/2018
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/11/2017
Date Made Active in Reports: 07/27/2017
Number of Days to Update: 107

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/05/2018
Next Scheduled EDR Contact: 04/23/2018
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/01/2017
Date Data Arrived at EDR: 11/01/2017
Date Made Active in Reports: 11/13/2017
Number of Days to Update: 12

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/01/2017
Next Scheduled EDR Contact: 02/12/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/16/2017
Next Scheduled EDR Contact: 01/29/2018
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/19/2015
Date Made Active in Reports: 07/15/2015
Number of Days to Update: 26

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/16/2017
Next Scheduled EDR Contact: 03/05/2018
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 04/13/2017
Date Made Active in Reports: 07/14/2017
Number of Days to Update: 92

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/11/2017
Next Scheduled EDR Contact: 03/26/2018
Data Release Frequency: Annually

Oil/Gas Pipelines

Source: PennWell Corporation

Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation

This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

RAW LAND
10120 FREMONTIA RD
HESPERIA, CA 92344

TARGET PROPERTY COORDINATES

Latitude (North):	34.428662 - 34° 25' 43.18''
Longitude (West):	117.413822 - 117° 24' 49.76''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	461976.5
UTM Y (Meters):	3809568.8
Elevation:	3588 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5630603 BALDY MESA, CA
Version Date:	2012
East Map:	5620406 HESPERIA, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

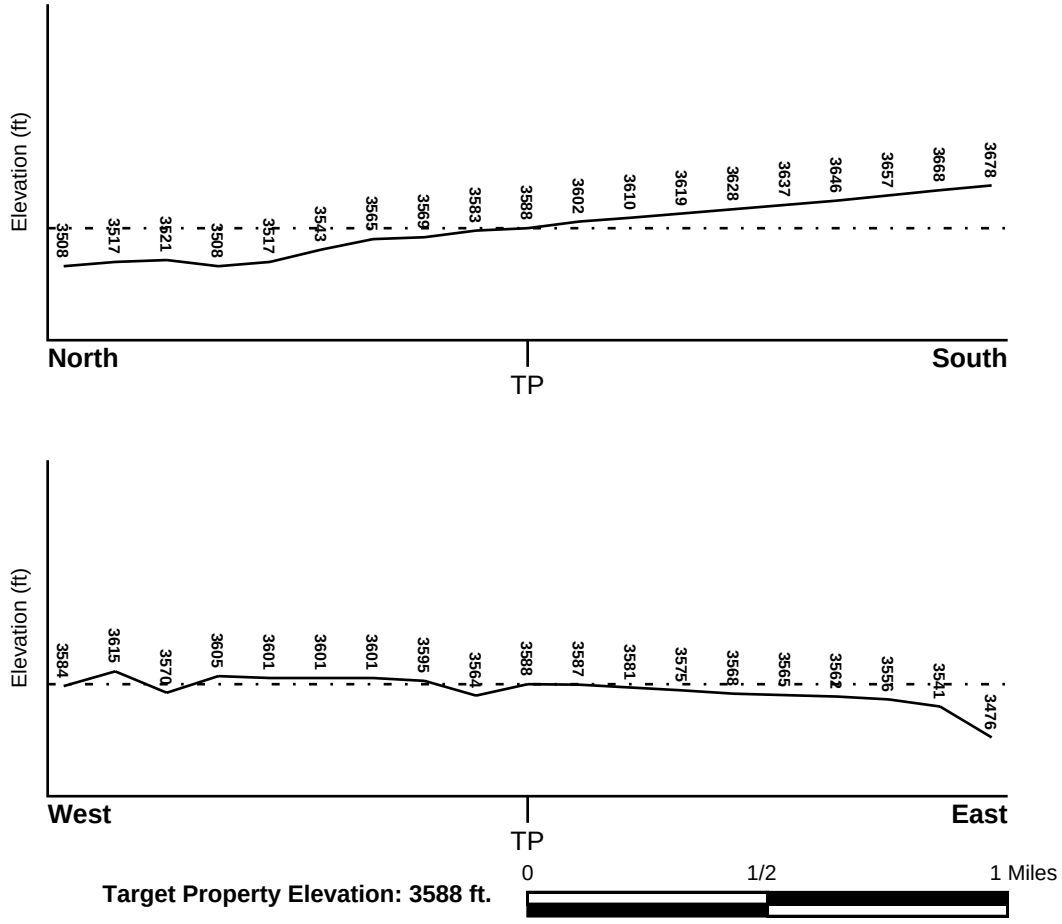
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 3588 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06071C6475F	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
Not Reported	

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

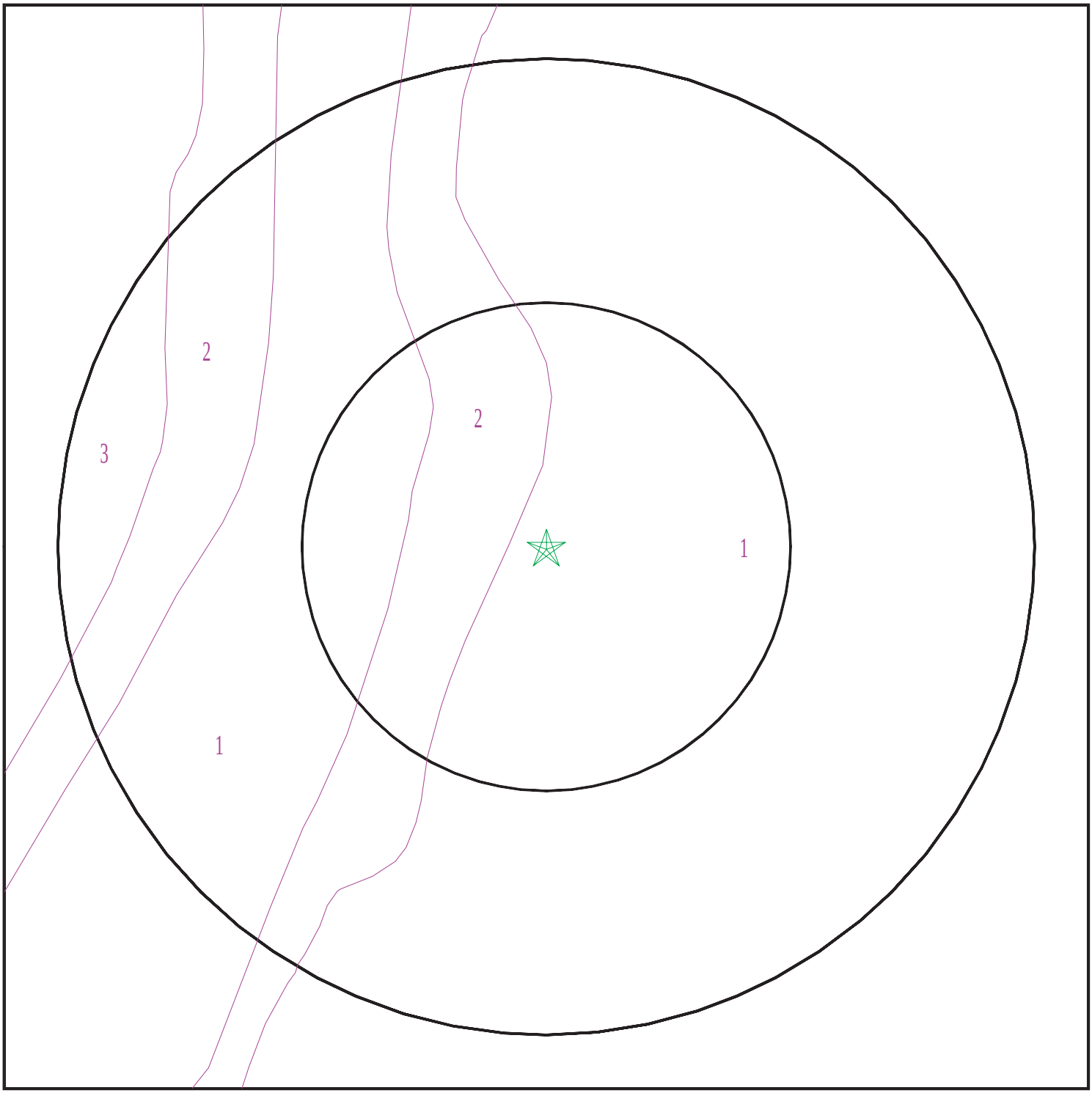
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5157189.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Raw Land	CLIENT:	Consolidated Consulting Group
ADDRESS:	10120 Fremontia Rd Hesperia CA 92344	CONTACT:	Trevor Jackson
LAT/LONG:	34.428662 / 117.413822	INQUIRY #:	5157189.2s
		DATE:	January 11, 2018 4:36 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: CAJON

Soil Surface Texture:
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	7 inches	25 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	25 inches	44 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
4	44 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 2

Soil Component Name: CAJON

Soil Surface Texture:
Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
2	5 inches	42 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4
3	42 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

Soil Map ID: 3

Soil Component Name: BRYMAN

Soil Surface Texture:

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.4
2	9 inches	38 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: 8.4 Min: 7.4

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	38 inches	59 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 7.4

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	USGS40000143883	1/2 - 1 Mile SE
A3	USGS40000143884	1/2 - 1 Mile SE
A4	USGS40000143885	1/2 - 1 Mile SE
A5	USGS40000143880	1/2 - 1 Mile SE
A6	USGS40000143881	1/2 - 1 Mile SE
A7	USGS40000143882	1/2 - 1 Mile SE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

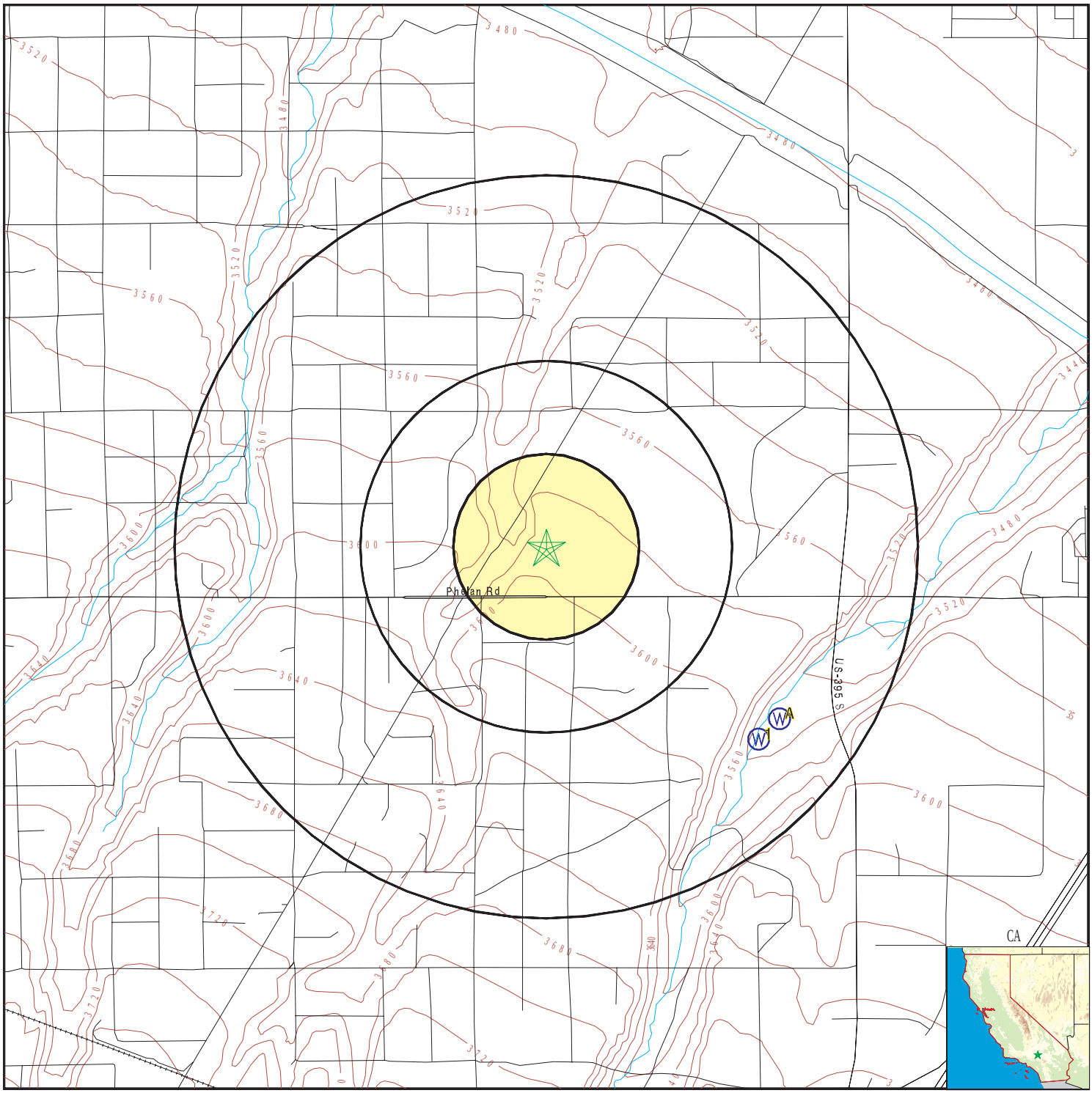
MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CADW60000017985	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 5157189.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	Raw Land	CLIENT:	Consolidated Consulting Group
ADDRESS:	10120 Fremontia Rd Hesperia CA 92344	CONTACT:	Trevor Jackson
		INQUIRY #:	5157189.2s
LAT/LONG:	34.428662 / 117.413822	DATE:	January 11, 2018 4:36 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SE
1/2 - 1 Mile
Lower

CA WELLS **CADW60000017985**

Objectid:	17985
Latitude:	34.421148
Longitude:	-117.403812
Site code:	344219N1174037W001
State well numbe:	04N05W21H001S
Local well name:	'MOGW'
Well use id:	1
Well use descrip:	Observation
County id:	36
County name:	San Bernardino
Basin code:	'6-42'
Basin desc:	Upper Mojave River Valley
Dwr region id:	80238
Dwr region:	Southern Region Office
Site id:	CADW60000017985

A2
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000143883**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240708		
Monloc name:	004N005W21H008SLYS@65		
Monloc type:	Well: Test hole not completed as a well		
Monloc desc:	LYSIMETER AT 65 FT		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	65
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A3
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000143884**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240710		
Monloc name:	004N005W21H010SLYS@43		
Monloc type:	Well: Test hole not completed as a well		
Monloc desc:	LYSIMETER@43 LOWPRESS PV=YELL SHORT,S=WHT,43=ORG		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	43
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A4
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000143885**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240712		
Monloc name:	004N005W21H012SLYS@22		
Monloc type:	Well: Test hole not completed as a well		
Monloc desc:	LYSIMETER@22 LOWPRESS PV=YELL,S=WHITE,22'=BLACK		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	22
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A5 **SE** **1/2 - 1 Mile** **Lower**	**FED USGS**	**USGS40000143880**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240701		
Monloc name:	004N005W21H001S		
Monloc type:	Well		
Monloc desc:	NEUTRON ACCESS PIPE TOP 100FT. STILL A WELL W/ WLS		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	670
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 53

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
2004-03-18	650.82		2002-09-11	650.02	
2002-03-21	649.79		2002-01-29	649.61	
2001-11-05	649.67		2001-08-27	649.58	
2001-08-01	649.72		2001-07-02	649.58	
2000-04-26	649.27		1999-09-23	648.98	
1999-08-26	648.80		1999-06-09	648.73	
1999-04-29	648.46		1999-02-13	648.88	
1999-01-07	648.49		1998-10-20	648.66	
1998-09-11	648.41		1998-07-29	648.46	
1998-04-23	648.45		1998-01-28	648.31	
1998-01-07	648.33		1997-12-17	648.31	
1997-11-20	648.37		1997-08-12	648.22	
1997-07-15	648.37		1997-06-11	648.17	
1997-05-14	648.19		1997-04-09	647.99	
1997-02-26	647.73		1997-02-20	648.06	
1997-01-09	647.81		1996-11-13	648.13	
1996-10-23	647.87		1996-10-04	648.08	
1996-09-18	648.15		1996-08-19	647.91	
1996-06-12	647.81		1996-05-29	647.75	
1996-05-14	647.79		1996-04-02	647.72	
1996-03-13	647.45		1996-02-20	647.55	
1996-01-17	647.44		1995-11-30	647.73	
1995-10-25	647.74		1995-10-12	647.75	
1995-09-12	647.80		1995-08-24	647.70	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1995-06-08	647.44		1995-05-26	647.50	
1995-05-03	647.51		1995-04-21	647.69	
1995-04-12	647.84				

A6
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000143881**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240705		
Monloc name:	004N005W21H005SLYS@140		
Monloc type:	Well: Test hole not completed as a well		
Monloc desc:	LYSIMETER@140 HIGH PRESSURE(PV=YELL;S=WHITE,NO IND		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	140
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

A7
SE
1/2 - 1 Mile
Lower

FED USGS **USGS40000143882**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-342519117240706		
Monloc name:	004N005W21H006SLYS@92		
Monloc type:	Well: Test hole not completed as a well		
Monloc desc:	LYSIMETER@92' HIGH PRESS CPV=YELL,S=WHITE,92' RED		
Huc code:	18090208	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	34.4219433
Longitude:	-117.4028253	Sourcemap scale:	24000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	3530
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Basin and Range basin-fill aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19950122	Welldepth:	92
Welldepth units:	ft	Wellholedepth:	700
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92344		

Federal EPA Radon Zone for SAN BERNARDINO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92344

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.600 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish & Game
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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7.3 Interview Record Attachments – Records of Communication

Record of Communication

Property Name	Raw Land
Street Address	10120 Fremontia Road Hesperia, San Bernardino County, California 92344

Assessor's Office	
Account #	See attached property information
Legal Description	
Current Owners	
Comments:	

Zoning Department	
Contact Method:	☐ Telephone ☒ Online Open Records Request/Email ☒ Online Research Website: https://www.cityofhesperia.us/
Contact Name/ Email Address:	Ms. Coleen Godfrey – Community Development Supervisor cgodfrey@cityofhesperia.us
Phone:	N/A
Zoning Designation	Administrative/Professional Office (AP)
Outstanding Zoning Violations	☐ Yes ☐ No ☒ Response Pending ☒ Not Applicable
Acceptable Use	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
What is the required Parking Ratio	N/A
Comments:	ORR submitted 1/11/18, response pending…

Building Department	
Contact Method:	☐ Telephone ☒ Online Open Records Request/Email ☐ Online Research
Contact Name/ Email Address:	Ms. Coleen Godfrey – Community Development Supervisor cgodfrey@cityofhesperia.us
Phone:	N/A
Construction Year:	N/A
Building(s) have a valid Certificate of Occupancy?	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Open Permits or Outstanding Violations	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Demolition Permits:	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Permits for AST/UST:	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Permits for Septic Systems:	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Comments:	None

Fire Dept.	
Contact Method:	☐ Telephone ☒ Online Open Records Request/Email ☐ Online Research
Contact Name/ Email Address:	Ms. Coleen Godfrey – Community Development Supervisor cgodfrey@cityofhesperia.us
Phone:	N/A
Records of ASTs/USTs	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Records of Hazardous Materials	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Records of Spills	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Department Inspector Name:	N/A
Date of Last Inspection	N/A
Outstanding Code Violations	☐ Yes ☐ No ☐ Response Pending ☒ Not Applicable
Comments:	ORR submitted 1/11/18, response pending…

Envt'l Services Dept.	
Contact Method:	☐ Telephone ☒ Online Open Records Request/Email ☐ Online Research
Contact Name/ Email Address:	ORR submitted 1/11/18, response pending…
Phone:	ORR submitted 1/11/18, response pending…
Records of Water Wells	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Records of AST/UST	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Record of Septic Systems	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Records of Spills	☐ Yes ☐ No ☒ Response Pending ☐ Not Applicable
Comments:	ORR submitted 1/11/18, response pending…

Water Dept.	
Contact Method:	☐ Telephone ☐ Online Open Records Request/Email ☐ Online Research Website:
Contact Name/ Email Address:	N/A
Phone:	N/A
Water Supply Source	☐ Surface ☐ Groundwater
Within EPA guidelines?	☐ Yes ☐ No
Comments:	Subject property is undeveloped, no potable water connections

Electric Utility	
Contact Method:	☐ Telephone ☐ Online Open Records Request/Email ☐ Online Research Website:
Contact Name/ Email Address:	N/A
Phone:	N/A
PCB Content of On-site Transformers:	☐ PCB ☐ Non-PCB ☐ Unknown
Records of Spills:	☐ Yes ☐ None recorded ☐ Unknown
Corp. Policy for Spills	☐ Standard EPA cleanup guidelines ☐ Other:
Comments:	Subject property is undeveloped, no on-site transformers

7.4 Site Reconnaissance & Investigation

Category	Attached	Not Applicable
7.4.1 Reporting/Notification Forms		**X**
7.4.2 Permits		**X**
7.4.3 Asbestos Survey Results		**X**
7.4.4 Lead-Based Paint Survey Results		**X**
7.4.5 Radon Survey Results		**X**
7.4.6 Lead in Drinking Water Survey Results		**X**
7.4.7 UST Test		**X**
7.4.8 Correction Action Plans		**X**
7.4.9 Reference Documents		**X**
7.4.10 Other Information (prior ESAs)		**X**

7.5 Certifications

Category	Attached	Not Applicable
7.5.1 Certification/Qualifications	**X**	
7.5.2 Sampling/Testing Certifications		**X**

Ross P. MacNames

Education	B.S. Bioenvironmental Sciences, Texas A&M University, College Station, Texas 2014
Registrations	AHERA Accredited Asbestos Building Inspector, 2017-Current 38-Hour USACE Wetland Delineation and Management, 2017 EPA Method 9 Visible Emissions Observer, 2016
Experience	3 Years
Areas of Specialization	Environmental Site Assessments Property Condition Assessments Phase II Subsurface Investigations & Site Remediation Quarterly Groundwater Monitoring Asbestos/Radon Surveys Wetlands Determinations Regulatory Compliance Audits Zoning Analytical Reports Project Coordination Interface with State and Local Government

Richard A. Mosman

Education	B.S. Agronomy, Texas A&M University, 1978 Post Graduate Studies – Environmental Policy, University of North Texas
Registrations	Loss Prevention Systems (LPS), Current RCRA Hazardous Waste and Non-Hazardous Waste, Current 40 hour Hazardous Waste Site Training (OSHA 29 CFR 1910.120), Current American Red Cross Adult CPR, AED and Basic First Aid, Current 38-Hour USACE Wetland Delineation and Management, 2001
Experience	22 Years
Areas of Specialization	Phase I Environmental Site Assessments (ESAs) Environmental Subsurface Assessments and Remediation Wetlands Determinations Management and Peer Review of Due Diligence Projects Spill Prevention, Control and Countermeasures (SPCC) and Stormwater Pollution Prevention Plans (SWP3) Vapor Intrusion Assessments State Petroleum Storage Tank, Voluntary Cleanup and Innocent Owner Programs Management of Asbestos and Lead Paint Surveys and Abatement Projects

Appendix I-1

Preliminary Water Quality Management Plan

MOJAVE RIVER WATERSHED

Preliminary Water Quality Management Plan

For:

HESPERIA COMMERCE II

WHERE APPLICABLE, INSERT GRADING PERMIT NO., BUILDING PERMIT NO., TRACT NUMBER, LAND DEVELOPMENT FILE NO., CUP, SUP AND/OR APN (SPECIFY LOT NUMBERS IF SITE IS A PORTION OF A TRACT)

Prepared for:

Covington Group, Inc.

14180 Dallas Pkwy Suite 730

Dallas, TX 75254

(949) 514-0274

Prepared by:

WestLAND Group, Inc.

4150 Concours, Suite 100

Ontario, CA 91764

(909) 989-9789

Job Number: 2019-185

Submittal Date: 11-13-2019

Revision No. and Date: 12-15-2021

Revision No. and Date: Insert No and Current Revision Date

Revision No. and Date: Insert No and Current Revision Date

Final Approval Date:_____

Project Owner's Certification

This Mojave River Watershed Water Quality Management Plan (WQMP) has been prepared for **Covington Group, Inc.** by **Westland Group, Inc**. The WQMP is intended to comply with the requirements of the **City of Hesperia** and the Phase II Small MS4 General Permit for the Mojave River Watershed. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the Phase II Small MS4 Permit and the intent of San Bernardino County (unincorporated areas of Phelan, Oak Hills, Spring Valley Lake and Victorville) and the incorporated cities of Hesperia and Victorville and the Town of Apple Valley. Once the undersigned transfers its interest in the property, its successors in interest and the city/county/town shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):	Parcel Map No.	Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			

Owner's Signature			
Owner Name: Dana Whitmer			
Title	Project Manager		
Company	Covington Group, Inc.		
Address	14180 Dallas Pkwy Suite 730, Dallas, TX 75254		
Email	dwhitmer@covingtongroupinc.com		
Telephone #	(949) 514-0274		
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):	Parcel Map No. N/A	Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of the California State Water Resources Control Board Order No. 2013-0001-DWQ.

Engineer: Glenn Chung		PE Stamp Below
Title	Executive Vice President/Principal	
Company	Westland Group, Inc.	
Address	4150 Concours, Suite 100, Ontario, CA 91764	
Email	gchung@westlandgroup.net	
Telephone #	(909) 989-9789	
Signature		
Date		

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  a. Pre Developed Condition
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E. Appendix E - Basin Summary
F. Appendix F- Reference Documents

Section I – Introduction

This WQMP template has been prepared specifically for the Phase II Small MS4 General Permit in the Mojave River Watershed. This location is within the jurisdiction of the Lahontan Regional Water Quality Control Board (LRWQCB). This document should not be confused with the WQMP template for the Santa Ana Phase I area of San Bernardino County.

WQMP preparers must refer to the MS4 Permit for the Mojave Watershed WQMP template and Technical Guidance (TGD) document found at: http://cms.sbcounty.gov/dpw/Land/NPDES.aspx to find pertinent arid region and Mojave River Watershed specific references and requirements.

Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	Hesperia Commerce Center II				
Project Owner Contact Name:	Dana Whitmer				
Mailing Address:	14180 Dallas Pkwy Suite 730, Dallas, TX 75254	E-mail Address:	dwhitmer@covingtongroupinc.com	Telephone:	(949) 514-0274
Permit/Application Number(s):		Tract/Parcel Map Number(s):	Parcel Map No. N/A		
Additional Information/ Comments:					
Description of Project:	The project site is currently located Northwest of the intersection of Highway 395 and Phelan Road, South of Yucca Terrace Drive. There are no erosive site conditions with a relatively flat topography. The project is currently vacant and undeveloped with the topography displays a drainage pattern via surface flow to the northeast. The proposed site will be considered an industrial development. The flows shall be collected through the nearest catch basin which is conveyed to infiltration/detention basins via a storm drain system. The storm drain system was designed to efficiently direct flow into infiltration/detention basins. Buildings 1 and 2 will share the same storm drain system, and runoff will be directed into either the underground CMP basin located between the two buildings or the above ground infiltration basin located towards the east of the site. The project proposes to construct a total of 3 buildings that will be used for industrial and commercial purposes. Each building will have its own dedicated parking areas and truck docking areas. In addition, for water quality each building proposes to share the same storm drain system that will use a combination of an above ground infiltration basin and underground CMP infiltration basin to treat the stormwater runoff. To prevent erosion in the downstream conditions, the project proposes to retain the entire runoff volume for up to a 100-year storm event. Part of the project will include offsite improvements that include street improvement along the frontage of the project on Yucca Terrace, along Phelan road and a portion of the Highway 395 within the project site limits.				

Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	Not Applicable

Section 2 Project Description

2.1 Project Information

The WQMP shall provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

2.1.1 Project Sizing Categorization

If the Project is greater than 5,000 square feet, and not on the excluded list as found on Section 1.4 of the TGD, the Project is a Regulated Development Project.

If the Project is creating and/or replacing greater than 2,500 square feet but less than 5,000 square feet of impervious surface area, then it is considered a Site Design Only project. This criterion is applicable to all development types including detached single family homes that create and/or replace greater than 2,500 square feet of impervious area and are not part of a larger plan of development.

Form 2.1-1 Description of Proposed Project

1 Regulated Development Project Category (Select all that apply):

☒ #1 New development involving the creation of 5,000 ft^2 or more of impervious surface collectively over entire site	☐ #2 Significant re-development involving the addition or replacement of 5,000 ft^2 or more of impervious surface on an already developed site	☐ #3 Road Project – any road, sidewalk, or bicycle lane project that creates greater than 5,000 square feet of contiguous impervious surface	☐ #4 LUPs – linear underground/overhead projects that has a discrete location with 5,000 sq. ft. or more new constructed impervious surface

☐ Site Design Only (Project Total Square Feet > 2,500 but < 5,000 sq.ft.) *Will require source control Site Design Measures. Use the "PCMP" Template. Do not use this WQMP Template.*

2 Project Area (ft2):	8,442,779	**3** Number of Dwelling Units:		**4** SIC Code:	1541

5 Is Project going to be phased? Yes ☐ No ☒ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

Maintenance of the WQMP facilities will be the sole responsibility of the property owner:

Covington Group, Inc.
14180 Dallas Pkwy Suite 730
Dallas, TX 75254
Contact: Dana Whitmer
Phone: (949) 514-0274

The owner may choose to contract the appropriate employers for the maintenance of stormwater to whom will provide the proper equipment if the current owners to not have the proper equipment and/or knowledge to do so.

Any future property owner(s) whom will succeed Hesperia Commerce Center 1 as the entity responsible for long term maintenance.

No infrastructure will be transferred to a public agency after completion. Refer to Section 5 of this WQMP report for detailed maintenance activities.

2.3 Potential Stormwater Pollutants

Best Management Practices (BMP) measures for pollutant generating activities and sources shall be designed consistent with recommendations from the CASQA Stormwater BMP Handbook for New Development and Redevelopment (or an equivalent manual). Pollutant generating activities must be considered when determining the overall pollutants of concern for the Project as presented in Form 2.3-1.

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-2 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern

Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	Wild Bird and Pet Waste, Garbage
Nutrients - Phosphorous	E ☒	N ☐	Fertilizers, Food Waste, & Garbage
Nutrients - Nitrogen	E ☒	N ☐	Fertilizer & Waste
Noxious Aquatic Plants	E ☐	N ☐	The proposed development does not include any areas where water will be standing long enough to allow the growth of aquatic plants.
Sediment	E ☒	N ☐	Driveways, Rooftops, Sidewalks, Paved areas & landscape
Metals	E ☒	N ☐	Cars, Trucks & Parking Areas
Oil and Grease	E ☒	N ☐	Leaking Vehicles & Parking Areas
Trash/Debris	E ☒	N ☐	Poorly managed Trash Container & Parking area
Pesticides / Herbicides	E ☒	N ☐	Landscape Area
Organic Compounds	E ☒	N ☐	Cars & Trucks
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	

Section 3 Site and Watershed Description

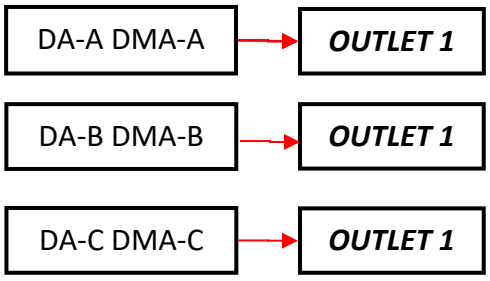
Describe the project site conditions that will facilitate the selection of BMPs through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed Drainage Management Areas (DMAs)) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet. A map presenting the DMAs must be included as an appendix to the WQMP document.***

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34°25'50.63"N	Longitude 117°24'29.78"W	Thomas Bros Map page

1 San Bernardino County climatic region: ☒ Desert

2 Does the site have more than one drainage area (DA): Yes☒ No☐ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Conveyance	N/A
DMA- A to Outlet 1	*Runoff sheet flows into the nearest catch basin which is then routed into a combination of an "**Above Ground Basin and Underground Infiltration Basin**".*
DMA-B to Outlet 1	*Runoff sheet flows into the nearest catch basin which is then routed into a combination of an "**Above Ground Basin and Underground Infiltration Basin**"*
DMA-C to Outlet 1	*Runoff sheet flows into the nearest catch basin which is then routed into a combination of an "**Above Ground Basin and Underground Infiltration Basin**"*

Form 3-2 Existing Hydrologic Characteristics for Drainage Areas

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA-A	DMA-B	DMA-C	
1 DMA drainage area (ft^2)	2,306,584	3,162,211	2,426,758	
2 Existing site impervious area (ft^2)	0	0	0	
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*	AMC I	AMC I	AMC I	
4 Hydrologic soil group *Refer to County Hydrology Manual Addendum for Arid Regions – http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_addendum.pdf*	A	A	A	
5 Longest flowpath length (ft)	1,111	1,733	1,802	
6 Longest flowpath slope (ft/ft)	0.01	0.01	0.01	
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Chaparral	Chaparral	Chaparral	
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50%* ***Attach photos of site to support rating***	Poor	Poor	Poor	

Form 3-3 Watershed Description for Drainage Area

Receiving waters Refer to SWRCB site: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml	Mojave River (Mojave Forks Reservoir outlet to Upper Narrows) Oro Grande Owner: SBCFCD
Applicable TMDLs *http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml*	Boron, Chloride, Dissolved oxygen saturation, Nitrate, Nitrite, Dissolved Oxygen, Total Kjeldahl Nitrogen, Total Dissolved Solids, Water Temperature, Sulfates, Specific Conductance, Phosphorus, Phosphate, pH,
303(d) listed impairments *http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml*	Fluoride
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool –* *http://sbcounty.permitrack.com/WAP*	Not Applicable
Hydromodification Assessment	☐ Yes *Complete Hydromodification Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-9 in submittal* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMPs and Site Design BMP Measures

The information and data in this section are required for both Regulated Development and Site Design Only Projects. Source Control BMPs and Site Design BMP Measures are the basis of site-specific pollution management.

4.1.1 Source Control BMPs

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

The identified list of source control BMPs correspond to the CASQA Stormwater BMP Handbook for New Development and Redevelopment.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	The current owner/developer and future owners and their POA shall be familiar with the contents of this WQMP and County & City ordinances and brochures and furnish copies of these documents to all future property owners.
N2	Activity Restrictions	☒	☐	Property owners and their tenants or occupants shall not be allowed to discharge chemicals, chemical residues, wastewater or other prohibited discharges listed in the City stormwater Ordinance, to the outside, paved areas of the site; or store chemicals or other pollutant sources in a non-spill contained or covered facilities as stipulated in the CC&Rs.
N3	Landscape Management BMPs	☒	☐	The POA and their landscape maintenance contractor shall inspect the irrigation system plant health and erosion problems after each landscape procedure and shall report all repairs and problems to the POA. All routine landscaping maintenance.
N4	BMP Maintenance	☒	☐	The POA shall inspect for standing water in the water retention/infiltration basins, 48 hours after storm events. BMP maintenance shall be performed per the schedule in Form 5-1, as needed to restore free drainage.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	The POA will file appropriate hazardous material disclosures, if any storage is conducted, and must comply with all Title 22 CCR, Chapter 29 regulations.
N6	Local Water Quality Ordinances	☐	☒	The POA shall ensure that all maintenance activities at the site comply with the City of Ontario's Stormwater Ordinance, through the implementation of BMPs.
N7	Spill Contingency Plan	☒	☐	Building operators shall prepare specific plans based on materials on site for the cleanup of spills. Plans shall mandate stock piling of cleanup materials, notification of agencies, disposal, documentation, etc.
N8	Underground Storage Tank Compliance	☐	☒	There are no underground storage tanks at this site.
N9	Hazardous Materials Disclosure Compliance	☐	☒	The current owner and the future POA shall prohibit the storage of hazardous materials.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☒	☐	The current owners or the future POA shall require all fire code requirements to be implemented at this project site.
N11	Litter/Debris Control Program	☒	☐	The property owners, POA and their contractor shall pick up litter and sweep and clean the existing trash enclosure weekly. The trash enclosure is designed to divert all flows around the dumpsters and shall be roofed. The HOA shall contract with a refuse company to have the dumpsters emptied on a weekly basis, at a minimum.
N12	Employee Training	☒	☐	The POA shall require all maintenance contractors to train their employees in stormwater BMP implementation.
N13	Housekeeping of Loading Docks	☒	☐	Dock areas shall be swept regularly with litter control and cleanup procedures eliminating the use of water.
N14	Catch Basin Inspection Program	☒	☐	The on-site catch basins shall be inspected monthly during the rainy season (October-May) and before and after each storm to ensure proper operation. The HOA shall contract with a qualified landscape contractor to inspect and clean out accumulation of trash, litter and sediment and check for evidence of illegal dumping of waste materials into on-site drains.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	The paved areas and common open areas of the project site shall be swept and cleaned weekly by the POA's contractor
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	This development is not part of a Public Agency Project.
N17	Comply with all other applicable NPDES permits	☒	☐	The developer of this site shall comply with all BMP implementation requirements of the City of Ontario for Stormwater discharges during construction of this project and shall file for a permit coverage under the Statewide General Construction Stormwater Permit, prior to beginning construction/grading activities at this site. Following occupancy, owners, tenants, and POA shall comply with SB County MS4 Permit requirements, enforced by the City of Ontario.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	A painted message "No Dumping-Drains to River" shall be placed on each catch basin by developer. The message shall be inspected annually & repainted as necessary by the POA.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	This development does not include the storage of materials outdoors.
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	Stormwater flows are diverted away from the trash enclosure. All dumpsters shall have working lids which shall be kept closed, at all times. Trash enclosure shall comply with CASQA SD-32 and shall have doors and a solid roof.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	The irrigation system will include devices to prevent low head drainage, overspray and run off through the use of pressure regulating devices, check valves, rain shutoff valves, flow sensors, pressure drop sensors, proper spacing, low precipitation emission devices and ET or weather-based controllers. Landscape and irrigation shall be consistent with the State Model Water Efficient landscape Ordinance and the City of Ontario landscape Development Standards. Plants installed will be arranged according to similar hydrozones and meet the required water budget for the site. Shade trees shall be used to intercept rainwater and reduce heat gain on paving.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	All landscaped areas shall comply with depressed grading requirements by finish grading to a minimum of 1" below pavement grades or top-of-curb.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☐	☐	All slopes shall be hard lined, rip-rapped or vegetated to provide erosion protection and prevent sediment transport
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	Unloading of truck trailers at docks will occur under cover of the building. It is not feasible to cover the entire loading area as it would be cost prohibitive. Project will incorporate dock high rollup doors and sweeping activities at the outside of the building.
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	Maintenance bays are not proposed as a part of this development, and no maintenance activities will be allowed on site.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	Vehicle wash areas are not provided as part of this development.
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	Outdoor processing is not associated with the proposed development.
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	Outdoor equipment is not associated with the proposed development.
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	Fueling areas are not included as part of this development.
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☒	☐	No hillsides will require re-vegetation as part of the proposed development.
S14	Wash water control for food preparation areas	☐	☒	The proposed development does not include food preparation areas.
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	The proposed development does not include community car wash areas

4.1.2 Site Design BMPs

As part of the planning phase of a project, the site design practices associated with new LID requirements in the Phase II Small MS4 Permit must be considered. Site design BMP measures can result in smaller Design Capture Volume (DCV) to be managed by both LID and hydromodification control BMPs by reducing runoff generation.

As is stated in the Permit, it is necessary to evaluate site conditions such as soil type(s), existing vegetation and flow paths will influence the overall site design.

Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: Impervious areas will be minimized to the maximum extent practicable. The proposed development requires large areas for loading docks and building foot prints.
Maximize natural infiltration capacity; Including improvement and maintenance of soil: Yes ☒ No ☐ Explanation: All pervious areas will be below adjacent impervious areas to maximize natural infiltration, and the project site utilizes subsurface infiltration basins.
Preserve existing drainage patterns and time of concentration: Yes ☐ No ☒ Explanation: Post-development has different travel distance, surface roughness and time concentration from the existing condition.
Disconnect impervious areas. Including rerouting of rooftop drainage pipes to drain stormwater to storage or infiltration BMPs instead of to storm drain: Yes ☒ No ☐ Explanation: Most areas are run through landscape areas prior to entering the storm drain system. Roof area will be conveyed through adjacent landscaping, where feasible.
Use of Porous Pavement.: Yes ☐ No ☐ Explanation: Any areas that are disturbed will be stabilized prior to project completion.
Protect existing vegetation and sensitive areas: Yes ☒ No ☐ Explanation: Native vegetation has been mostly removed by agricultural activities, and the existing undeveloped area will not be preserved.
Re-vegetate disturbed areas. Including planting and preservation of drought tolerant vegetation. : Yes ☒ No ☐ Explanation: Any areas that are disturbed will be stabilized prior to project completion.

Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Landscaping areas will be staked off after rough grading has been completed to prevent excessive compaction, the areas in which the subsurface basins are to be constructed will minimize compaction.
Utilize naturalized/rock-lined drainage swales in place of underground piping or imperviously lined swales: Yes ☐ No ☒ Explanation: The project does not incorporate naturalized/ rock-lined drainage swales in place of underground piping.
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: Landscaping areas will be staked off after rough grading has been completed to prevent excessive compaction.
Use of Rain Barrels and Cisterns, Including the use of on-site water collection systems.: Yes ☐ No ☒ Explanation: The project does not incorporate rain barrels and cisterns.
Stream Setbacks. Includes a specified distance from an adjacent steam: Yes ☐ No ☒ Explanation: There are no adjacent to the property.

It is noted that, in the Phase II Small MS4 Permit, site design elements for green roofs and vegetative swales are required. Due to the local climatology in the Mojave River Watershed, proactive measures are taken to maximize the amount of drought tolerant vegetation. It is not practical in this region to have green roofs or vegetative swales. As part of site design the project proponent should utilize locally recommended vegetation types for landscaping. Typical landscaping recommendations are found in following local references:

San Bernardino County Special Districts:

Guide to High Desert Landscaping -
http://www.specialdistricts.org/Modules/ShowDocument.aspx?documentid=795

Recommended High-Desert Plants -
http://www.specialdistricts.org/modules/showdocument.aspx?documentid=553

Mojave Water Agency:

Desert Ranch: http://www.mojavewater.org/files/desertranchgardenprototype.pdf

Summertree: http://www.mojavewater.org/files/Summertree-Native-Plant-Brochure.pdf

Thornless Garden: http://www.mojavewater.org/files/thornlessgardenprototype.pdf

Mediterranean Garden: http://www.mojavewater.org/files/mediterraneangardenprototype.pdf

Lush and Efficient Garden: http://www.mojavewater.org/files/lushandefficientgardenprototype.pdf

Alliance for Water Awareness and Conservation (AWAC) outdoor tips – http://hdawac.org/save-outdoors.html

4.2 Treatment BMPs

After implementation and design of both Source Control BMPs and Site Design BMP measures, any remaining runoff from impervious DMAs must be directed to one or more on-site, treatment BMPs (LID or biotreatment) designed to infiltrate, evaportranspire, and/or bioretain the amount of runoff specified in Permit Section E.12.e (ii)(c) Numeric Sizing Criteria for Storm Water Retention and Treatment.

4.2.1 Project Specific Hydrology Characterization

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in Section E.12.e.ii.c and Section E.12.f of the Phase II Small MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection from hydromodification.

If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.

It is noted that in the Phase II Small MS4 Permit jurisdictions, the LID BMP Design Capture Volume criteria is based on the 2-year rain event. The hydromodification performance criterion is based on the 10-year rain event.

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), San Bernardino County requires use of the P_6 method (Form 4.2-1) For pre- and post-development hydrologic calculation, San Bernardino County requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for hydromodification performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (Entire Site)		
1 Project area DA-A DMA A (ft^2): 8,442,779	**2** Imperviousness after applying preventative site design practices (Imp%): 90%	**3** Runoff Coefficient (Rc): 0.73 *$R_c = 0.858(Imp\%)^{\wedge 3}-0.78(Imp\%)^{\wedge 2}+0.774(Imp\%)+0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.448 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.554 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 558,982 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

4.3 BMP Selection and Sizing

Complete the following forms for each project site DA to document that the proposed treatment (LID/Bioretention) BMPs conform to the project DCV developed to meet performance criteria specified in the Phase II Small MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the Phase II Small MS4 Permit (see Section 5.3 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design Measures (Form 4.3-2)
- Retention and Infiltration BMPs (Form 4.3-3) or
- Biotreatment BMPs (Form 4.3-4).

> Please note that the selected BMPs may also be used as dual purpose for on-site, hydromodification mitigation and management.

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Form 4.3-2 to determine the feasibility of applicable Site Design BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable Site Design BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of site design, retention and/or infiltration BMPs is unable to mitigate the entire DCV, then the remainder of the volume-based performance criteria that cannot be achieved with site design, retention and/or infiltration BMPs must be managed through biotreatment BMPs. If biotreatment BMPs are used, then they must be sized to provide equivalent effectiveness based on Template Section 4.3.4.

4.3.1 Exceptions to Requirements for Bioretention Facilities

Contingent on a demonstration that use of bioretention or a facility of equivalent effectiveness is infeasible, other types of biotreatment or media filters (such as tree-box-type biofilters or in-vault media filters) may be used for the following categories of Regulated Projects:

1) Projects creating or replacing an acre or less of impervious area, and located in a designated pedestrian-oriented commercial district (i.e., smart growth projects), and having at least 85% of the entire project site covered by permanent structures;

2) Facilities receiving runoff solely from existing (pre-project) impervious areas; and

3) Historic sites, structures or landscapes that cannot alter their original configuration in order to maintain their historic integrity.

Form 4.3-1 Infiltration BMP Feasibility (DA-A)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than ten feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Selection and Evaluation of Biotreatment BMP.
If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Site Design BMP.
If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Site Design BMPs.

4.3.2 Site Design BMP

Section E.12.e. of the Small Phase II MS4 Permit emphasizes the use of LID preventative measures; and the use of Site Design Measures reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable Site Design Measures shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of Site Design BMPs. If a project cannot feasibly meet BMP sizing requirements or cannot fully address hydromodification, feasibility of all applicable Site Design BMPs must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Refer to Section 5.4 in the TGD for more detailed guidance.

Form 4.3-2 Site Design BMPs (DA 1)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):	$V_{retention}$ *=Sum of Item 4 for all BMPs*		
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft) (min. 0.5 ft.)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft) (min. 1 ft.)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):	$V_{retention}$ *=Sum of Item 12 for all BMPs*		

Form 4.3-2 cont. Site Design BMPs (DA 1)

14 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 14-18. If no, proceed to Item 19*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Number of Street Trees			
16 Average canopy cover over impervious area (ft^2)			
17 Runoff volume retention from street trees (ft^3) $V_{retention}$ *= Item 15 * Item 16 * (0.05/12) assume runoff retention of 0.05 inches*			
18 Runoff volume retention from street tree BMPs (ft^3): 0 $V_{retention}$ *= Sum of Item 17 for all BMPs*			
19 Total Retention Volume from Site Design BMPs: 0 *Sum of Items 5, 13 and 18*			

4.3.3 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix C of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

4.3.3.1 Allowed Variations for Special Site Conditions

The bioretention system design parameters of this Section may be adjusted for the following special site conditions:

1) Facilities located within 10 feet of structures or other potential geotechnical hazards established by the geotechnical expert for the project may incorporate an impervious cutoff wall between the bioretention facility and the structure or other geotechnical hazard.

2) Facilities with documented high concentrations of pollutants in underlying soil or groundwater, facilities located where infiltration could contribute to a geotechnical hazard, and facilities located on elevated plazas or other structures may incorporate an impervious liner and may locate the underdrain discharge at the bottom of the subsurface drainage/storage layer (this configuration is commonly known as a “flow-through planter”).

3) Facilities located in areas of high groundwater, highly infiltrative soils or where connection of underdrain to a surface drain or to a subsurface storm drain are infeasible, may omit the underdrain.

4) Facilities serving high-risk areas such as fueling stations, truck stops, auto repairs, and heavy industrial sites may be required to provide adequate pretreatment to address pollutants of concern unless these high-risk areas are isolated from storm water runoff or bioretention areas with no chance of spill migration.

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design BMP (ft^3): 540,672 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item19*

BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA -A DMA A BMP Type Infiltration/Detention Basin	DA-B DMA B BMP Type Infiltration/Detention Basin	DA-C DMA C BMP Type Infiltration/Detention Basin
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix C of the TGD for WQMP for minimum requirements for assessment methods*	17		
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	5		
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	3.4		
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48		
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*			
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	13.6		
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	133,056		
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	4		
10 Amended soil porosity	0.35		
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	1		
12 Gravel porosity	0.40		
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3		
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	792,000		
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	3,417,377		

16 Total Retention Volume from LID Infiltration BMPs: 2,223,559 *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*

17 Fraction of DCV achieved with infiltration BMP: 767% *Retention% = Item 16 / Form 4.2-1 Item 7*

18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐

If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-4 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV. Biotreatment computations are included as follows:

- Use Form 4.3-5 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-6 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-7 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-4 Selection and Evaluation of Biotreatment BMP (DA 1)

1 Remaining LID DCV not met by site design , or infiltration, BMP for potential biotreatment (ft^3): 0 *Form 4.2-1 Item 7 - Form 4.3-2 Item 19 – Form 4.3-3 Item 16*	List pollutants of concern *Copy from Form 2.3-1.* Pathogen, Phosphorous, Nitrogen, Sediment, Metals, Oil Grease, Trash/Debris, Pesticides/ Herbicides, Organic Compounds	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-5 and 4.3-6 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-7 to compute treated flow*
	☐ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): *Form 4.3-5 Item 15 + Form 4.3-6 Item 13*	**4** Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): *Item 1 – Item 3*	**5** Remaining fraction of LID DCV for sizing flow based biotreatment BMP: % *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): 0 *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

4.3.5 Conformance Summary

Complete Form 4.3-8 to demonstrate how on-site LID DCV is met with proposed site design, infiltration, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-8 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): 558,982 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design BMP (ft^3): 0 *Copy Item18 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 4,285,670 *Copy Item 16 in Form 4.3-3*

4 On-site biotreatment with volume based biotreatment BMP (ft^3): 0 *Copy Item 3 in Form 4.3-4*

5 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-4*

6 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design or infiltration BMP: Yes ☒ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☒
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible; therefore biotreatment BMP provides biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

7 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of Site Design, retention and infiltration, , and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes if Form 4.3-4 Item 7is checked yes, Form 4.3-4 Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*

- Facilities, or a combination of facilities, of a different design than in Section E.12.e.(ii)(f) may be permitted if all of the following Phase II Small MS4 General Permit 2013-0001-DWQ 55 February 5, 2013 measures of equivalent effectiveness are demonstrated:
  1) Equal or greater amount of runoff infiltrated or evapotranspired; ☐
  2) Equal or lower pollutant concentrations in runoff that is discharged after biotreatment; ☐
  3) Equal or greater protection against shock loadings and spills; ☐
  4) Equal or greater accessibility and ease of inspection and maintenance. ☐

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after Site Design BMPs are implemented, needed to address hydromodification, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential hydromodification. Describe the proposed hydromodification treatment control BMP. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Use Form 4.3-10 to compute the remaining runoff volume retention, after Site Design BMPs are implemented,

Form 4.3-10 Hydromodification Control BMPs (DA 1)

1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

Since the project proposes to retain the entire runoff volume onsite for up to a 100-year storm, hydromodification will not be a concern.

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance.

Alternative Designs — Facilities, or a combination of facilities, of a different design than in Permit Section E.12.e.(ii)(f) may be permitted if all of the following measures of equivalent effectiveness are demonstrated:

1) Equal or greater amount of runoff infiltrated or evapotranspired;

2) Equal or lower pollutant concentrations in runoff that is discharged after biotreatment;

3) Equal or greater protection against shock loadings and spills;

4) Equal or greater accessibility and ease of inspection and maintenance.

The Project Proponent will need to obtain written approval for an alternative design from the Lahontan Regional Water Board Executive Officer (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMPs included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and a Maintenance Agreement. The Maintenance Agreement must also be attached to the WQMP.

Note that at time of Project construction completion, the Maintenance Agreement must be completed, signed, notarized and submitted to the County Stormwater Department

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Underground Infiltration System	Property Owner	Regular inspections of system to observe sediment build up and infiltration capacity. Cleaning of accumulated trash, debris, and sediment as determined by inspections. Cleaning is recommended during dry weather. See manufacturer recommendations for additional maintenance activities.	Monthly and within 48 hours following a significant storm event to verify there is no standing water in the chambers.
Onsite storm drain catch basins and piping	Property Owner	Onsite catch basins shall be inspected quarterly for debris buildup and evidence of illegal dumping and shall be cleaned whenever debris/sediment accumulates. Removal can be accomplished by vac-truck or other equally effective method.	Quarterly
Hydrodynamic Separator	Property Owner	Visual inspection and debris removed quarterly per manufactures recommendations	Quarterly
Above ground infiltration/ detention Basins	Property Owner	Inspections and maintenance by owners contracted maintenance staff to ensure that water infiltrates into the subsurface completely in 48 hours or less. Visual inspection, landscape maintenance, debris removal and erosion damage repair.	Monthly and within 48 hours following a significant storm event to verify there is no standing water in the chambers.
Landscape Maintenance	Property Owner	Maintain landscape area vegetation, slope protection and grades, adjacent to hardscape and prevent discharges of landscape maintenance waste into storm drains.	Weekly
Litter Control	Property Owner	Maintain roofed waste collection areas and vacuum-sweep drive aisles and parking areas to remove potential stormwater contamination before anticipated storm events.	Weekly/Monthly

Anti-Dumping Stenciling & Signage	Property Owner	Visual inspection and replacement of damaged or illegible stenciling and signage over on-site catch basins	Annually
Irrigation System	Property Owner	Check and repair the irrigation system. Verify there are no leaks or runoff from landscaped areas. Adjust irrigation heads and system run times as necessary to percent overwater of vegetation, overspray or run-off from landscape areas and to ensure the health and aesthetic quality of the landscape.	Weekly
Loading Docks	Property Owner	Sweep and clear debris from dock areas to remove potential stormwater contaminates prior to anticipated storms.	Weekly
Catch Basin Filter Inserts	Property Owner	Visual inspect filter for debris buildup. Removal can be accomplished by vac-truck or other equally effective method. See manufacturer recommendations for additional maintenance activities.	Quarterly and within 48 hours following a significant storm event to verify there is no standing water in the chambers

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C,C&R's & Lease Agreements

Appendix A – Rational Method

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA A
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 1.100 to Point/Station 1.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 29.500(Ft.)
Top (of initial area) elevation = 3602.010(Ft.)
Bottom (of initial area) elevation = 3583.280(Ft.)
Difference in elevation = 18.730(Ft.)
Slope = 0.63492 s(%)= 63.49
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 2.226 min.
Rainfall intensity = 12.942(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.842
Subarea runoff = 6.644(CFS)
Total initial stream area = 0.610(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 0.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YERA STORM AREA B
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 2.100 to Point/Station 2.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 328.190(Ft.)
Top (of initial area) elevation = 3597.780(Ft.)
Bottom (of initial area) elevation = 3563.100(Ft.)
Difference in elevation = 34.680(Ft.)
Slope = 0.10567 s(%)= 10.57
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.353 min.
Rainfall intensity = 5.129(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.753
Subarea runoff = 29.028(CFS)
Total initial stream area = 7.520(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 7.52 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 UNDUSTRIAL PARK
100 YEAR STORM AREA C
PRE-DEVELPED CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 3.100 to Point/Station 3.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 507.480(Ft.)
Top (of initial area) elevation = 3603.260(Ft.)
Bottom (of initial area) elevation = 3593.310(Ft.)
Difference in elevation = 9.950(Ft.)
Slope = 0.01961 s(%)= 1.96
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 13.927 min.
Rainfall intensity = 3.586(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.689
Subarea runoff = 22.021(CFS)
Total initial stream area = 8.910(Ac.)

```
      Pervious area fraction = 1.000
      Initial area Fm value =    0.840(In/Hr)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
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      Process from Point/Station        3.200 to Point/Station
3.300
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.290(Ft.), Average velocity =   1.770(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.32
            2             50.00              0.15
            3            100.00              0.12
            4            150.00              0.00
            5            200.00              0.53
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     46.072(CFS)
        '     '    flow top width =    168.394(Ft.)
        '     '    velocity=    1.770(Ft/s)
        '     '    area =     26.023(Sq.Ft)
        '     '    Froude number =     0.794

      Upstream point elevation =  3593.310(Ft.)
      Downstream point elevation =  3570.490(Ft.)
      Flow length =  1481.380(Ft.)
      Travel time  =   13.95 min.
      Time of concentration =   27.87 min.
      Depth of flow =   0.290(Ft.)
      Average velocity =   1.770(Ft/s)
      Total irregular channel flow =    46.072(CFS)
      Irregular channel normal depth above invert elev. =   0.290(Ft.)
      Average velocity of channel(s) =   1.770(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.206(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.557
      Subarea runoff =     48.042(CFS) for   48.060(Ac.)
      Total runoff =     70.062(CFS)
      Effective area this stream =       56.97(Ac.)
      Total Study Area (Main Stream No. 1) =       56.97(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.338(Ft.), Average velocity =   2.030(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

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      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.300 to Point/Station
3.400
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.382(Ft.), Average velocity =   2.085(Ft/s)
      !!Warning: Water is above left or right bank elevations
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.30
            2             50.00              0.24
            3            100.00              0.21
            4            150.00              0.00
            5            200.00              0.37
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     77.316(CFS)
        '     '    flow top width =    200.000(Ft.)
        '     '    velocity=    2.085(Ft/s)
        '     '    area =     37.086(Sq.Ft)
        '     '    Froude number =     0.853

      Upstream point elevation =  3570.490(Ft.)
      Downstream point elevation =  3554.780(Ft.)
      Flow length =   937.750(Ft.)
      Travel time  =    7.50 min.
      Time of concentration =   35.37 min.
      Depth of flow =   0.382(Ft.)
      Average velocity =   2.085(Ft/s)
      Total irregular channel flow =    77.316(CFS)
      Irregular channel normal depth above invert elev. =   0.382(Ft.)
      Average velocity of channel(s) =   2.085(Ft/s)
      !!Warning: Water is above left or right bank elevations
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      1.867(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.495
      Subarea runoff =     14.422(CFS) for   34.380(Ac.)
      Total runoff =     84.484(CFS)
      Effective area this stream =       91.35(Ac.)
      Total Study Area (Main Stream No. 1) =       91.35(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.392(Ft.), Average velocity =   2.160(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

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      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.400 to Point/Station
3.500
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.114(Ft.), Average velocity =   7.418(Ft/s)
      !!Warning: Water is above left or right bank elevations
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.09
            2             50.00              0.00
            3            100.00              0.00
            4            150.00              0.11
            5            200.00              0.30
      Manning's 'N' friction factor =   0.005
      ------------------------------------------------------------------
      Sub-Channel flow  =     89.360(CFS)
        '     '    flow top width =    151.129(Ft.)
        '     '    velocity=    7.418(Ft/s)
        '     '    area =     12.046(Sq.Ft)
        '     '    Froude number =     4.631

      Upstream point elevation =  3554.780(Ft.)
      Downstream point elevation =  3538.070(Ft.)
      Flow length =   920.000(Ft.)
      Travel time  =    2.07 min.
      Time of concentration =   37.44 min.
      Depth of flow =   0.114(Ft.)
      Average velocity =   7.418(Ft/s)
      Total irregular channel flow =    89.360(CFS)
      Irregular channel normal depth above invert elev. =   0.114(Ft.)
      Average velocity of channel(s) =   7.418(Ft/s)
      !!Warning: Water is above left or right bank elevations
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      1.795(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.479
      Subarea runoff =      9.690(CFS) for   18.240(Ac.)
      Total runoff =     94.174(CFS)
      Effective area this stream =      109.59(Ac.)
      Total Study Area (Main Stream No. 1) =      109.59(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.117(Ft.), Average velocity =   7.561(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

End of computations, Total Study Area = 109.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 UNDUSTRIAL PARK
100 YEAR STORM AREA D
PRE-DEVELPED CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 4.100 to Point/Station 4.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 608.720(Ft.)
Top (of initial area) elevation = 3587.080(Ft.)
Bottom (of initial area) elevation = 3575.990(Ft.)
Difference in elevation = 11.090(Ft.)
Slope = 0.01822 s(%)= 1.82
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.199 min.
Rainfall intensity = 3.373(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.676
Subarea runoff = 21.271(CFS)
Total initial stream area = 9.330(Ac.)

```
      Pervious area fraction = 1.000
      Initial area Fm value =    0.840(In/Hr)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        4.200 to Point/Station
4.300
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.459(Ft.), Average velocity =   2.497(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.60
            2             50.00              0.00
            3            100.00              0.90
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     36.593(CFS)
        '     '    flow top width =     63.802(Ft.)
        '     '    velocity=    2.497(Ft/s)
        '     '    area =     14.655(Sq.Ft)
        '     '    Froude number =     0.918

      Upstream point elevation =  3575.990(Ft.)
      Downstream point elevation =  3553.220(Ft.)
      Flow length =  1260.180(Ft.)
      Travel time  =    8.41 min.
      Time of concentration =   23.61 min.
      Depth of flow =   0.459(Ft.)
      Average velocity =   2.497(Ft/s)
      Total irregular channel flow =    36.593(CFS)
      Irregular channel normal depth above invert elev. =   0.459(Ft.)
      Average velocity of channel(s) =   2.497(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.478(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.595
      Subarea runoff =     30.555(CFS) for   25.820(Ac.)
      Total runoff =     51.826(CFS)
      Effective area this stream =       35.15(Ac.)
      Total Study Area (Main Stream No. 1) =       35.15(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.523(Ft.), Average velocity =   2.724(Ft/s)


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++++
      Process from Point/Station        4.300 to Point/Station
4.400
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.353(Ft.), Average velocity =   2.872(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.70
            2             50.00              0.01
            3            100.00              0.00
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     62.283(CFS)
        '     '    flow top width =     74.880(Ft.)
        '     '    velocity=    2.872(Ft/s)
        '     '    area =     21.689(Sq.Ft)
        '     '    Froude number =     0.940

      Upstream point elevation =  3553.220(Ft.)
      Downstream point elevation =  3545.730(Ft.)
      Flow length =   427.050(Ft.)
      Travel time  =    2.48 min.
      Time of concentration =   26.09 min.
      Depth of flow =   0.353(Ft.)
      Average velocity =   2.872(Ft/s)
      Total irregular channel flow =    62.283(CFS)
      Irregular channel normal depth above invert elev. =   0.353(Ft.)
      Average velocity of channel(s) =   2.872(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.311(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.573
      Subarea runoff =     20.843(CFS) for   19.740(Ac.)
      Total runoff =     72.668(CFS)
      Effective area this stream =       54.89(Ac.)
      Total Study Area (Main Stream No. 1) =       54.89(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.385(Ft.), Average velocity =   3.018(Ft/s)
      End of computations, Total Study Area =           54.89 (Ac.)
      The following figures may
      be used for a unit hydrograph study of the same area.
      Note: These figures do not consider reduced effective area
      effects caused by confluences in the rational equation.

      Area averaged pervious area fraction(Ap) = 1.000
      Area averaged SCS curve number =  67.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA E
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 5.100 to Point/Station 5.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 876.580(Ft.)
Top (of initial area) elevation = 3572.190(Ft.)
Bottom (of initial area) elevation = 3556.360(Ft.)
Difference in elevation = 15.830(Ft.)
Slope = 0.01806 s(%)= 1.81
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 17.617 min.
Rainfall intensity = 3.042(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.652
Subarea runoff = 17.123(CFS)
Total initial stream area = 8.640(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 8.64 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA F
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 6.100 to Point/Station 6.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 731.120(Ft.)
Top (of initial area) elevation = 3542.520(Ft.)
Bottom (of initial area) elevation = 3529.540(Ft.)
Difference in elevation = 12.980(Ft.)
Slope = 0.01775 s(%)= 1.78
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 16.440 min.
Rainfall intensity = 3.193(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.663
Subarea runoff = 14.230(CFS)
Total initial stream area = 6.720(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 6.72 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA A

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 1.100 to Point/Station 1.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 509.000(Ft.)
Top (of initial area) elevation = 3583.000(Ft.)
Bottom (of initial area) elevation = 3565.240(Ft.)
Difference in elevation = 17.760(Ft.)
Slope = 0.03489 s(%)= 3.49
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.195 min.
Rainfall intensity = 5.694(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
Subarea runoff = 33.859(CFS)
Total initial stream area = 6.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 6.70 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA B

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 2.100 to Point/Station 2.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 670.940(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3570.190(Ft.)
Difference in elevation = 4.810(Ft.)
Slope = 0.00717 s(%)= 0.72
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.027 min.
Rainfall intensity = 4.223(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.883
Subarea runoff = 39.982(CFS)
Total initial stream area = 10.720(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 10.72 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA C

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 3.100 to Point/Station 3.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 1594.500(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3562.280(Ft.)
Difference in elevation = 12.720(Ft.)
Slope = 0.00798 s(%)= 0.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.260 min.
Rainfall intensity = 3.364(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.879
Subarea runoff = 73.768(CFS)
Total initial stream area = 24.950(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 24.95 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA D

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 4.100 to Point/Station 4.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 400.510(Ft.)
Top (of initial area) elevation = 3565.170(Ft.)
Bottom (of initial area) elevation = 3563.500(Ft.)
Difference in elevation = 1.670(Ft.)
Slope = 0.00417 s(%)= 0.42
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.998 min.
Rainfall intensity = 4.522(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884
Subarea runoff = 19.797(CFS)
Total initial stream area = 4.950(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 4.95 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA E

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 5.100 to Point/Station 5.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 791.130(Ft.)
Top (of initial area) elevation = 3566.750(Ft.)
Bottom (of initial area) elevation = 3554.420(Ft.)
Difference in elevation = 12.330(Ft.)
Slope = 0.01559 s(%)= 1.56
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.084 min.
Rainfall intensity = 4.495(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884
Subarea runoff = 40.864(CFS)
Total initial stream area = 10.280(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 10.28 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA F

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 6.100 to Point/Station 6.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 837.170(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3569.840(Ft.)
Difference in elevation = 5.160(Ft.)
Slope = 0.00616 s(%)= 0.62
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.417 min.
Rainfall intensity = 3.886(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff = 100.568(CFS)
Total initial stream area = 29.350(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 29.35 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA G

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 7.100 to Point/Station 7.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 1149.380(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3562.280(Ft.)
Difference in elevation = 12.720(Ft.)
Slope = 0.01107 s(%)= 1.11
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.539 min.
Rainfall intensity = 3.859(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff = 177.217(CFS)
Total initial stream area = 52.080(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 52.08 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA H

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 8.100 to Point/Station 8.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 254.630(Ft.)
Top (of initial area) elevation = 3571.000(Ft.)
Bottom (of initial area) elevation = 3563.960(Ft.)
Difference in elevation = 7.040(Ft.)
Slope = 0.02765 s(%)= 2.76
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.714 min.
Rainfall intensity = 6.691(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.889
Subarea runoff = 73.136(CFS)
Total initial stream area = 12.290(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 12.29 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA I

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 9.100 to Point/Station 9.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 745.180(Ft.)
Top (of initial area) elevation = 3566.750(Ft.)
Bottom (of initial area) elevation = 3554.560(Ft.)
Difference in elevation = 12.190(Ft.)
Slope = 0.01636 s(%)= 1.64
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.751 min.
Rainfall intensity = 4.602(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff = 111.475(CFS)
Total initial stream area = 27.380(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 27.38 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA J

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 10.100 to Point/Station 10.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 362.230(Ft.)
Top (of initial area) elevation = 3560.350(Ft.)
Bottom (of initial area) elevation = 3534.370(Ft.)
Difference in elevation = 25.980(Ft.)
Slope = 0.07172 s(%)= 7.17
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.437 min.
Rainfall intensity = 6.927(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.890
Subarea runoff = 15.718(CFS)
Total initial stream area = 2.550(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 2.55 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

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Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA K

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 11.100 to Point/Station 11.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 449.180(Ft.)
Top (of initial area) elevation = 3533.400(Ft.)
Bottom (of initial area) elevation = 3527.900(Ft.)
Difference in elevation = 5.500(Ft.)
Slope = 0.01224 s(%)= 1.22
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.438 min.
Rainfall intensity = 5.092(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff = 56.722(CFS)
Total initial stream area = 12.570(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 12.57 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

Appendix B – Unit Hydrograph

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA A
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
0.61	1	0.77
Rainfall data for year 2		
0.61	6	1.08
Rainfall data for year 2		
0.61	24	2.03
Rainfall data for year 100		
0.61	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            0.61           6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            0.61          24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          0.61      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.61   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.083 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       0.61(Ac.)
Catchment Lag time =   0.066 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 251.0040
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       0.61(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.048(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 3.69 (CFS))	
1	50.190	1.851
2	92.180	1.549
3	98.599	0.237
4	100.000	0.052

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7536	0.1415
2	0.9278	0.0767
3	1.0478	0.0558
4	1.1422	0.0449
5	1.2213	0.0380
6	1.2900	0.0332
7	1.3867	0.0474
8	1.4764	0.0440
9	1.5603	0.0413
10	1.6393	0.0390
11	1.7143	0.0370
12	1.7857	0.0353
13	1.8541	0.0338
14	1.9197	0.0325
15	1.9828	0.0313
16	2.0438	0.0302
17	2.1028	0.0292
18	2.1599	0.0284
19	2.2154	0.0275
20	2.2694	0.0268
21	2.3219	0.0261
22	2.3731	0.0255
23	2.4232	0.0249
24	2.4720	0.0243
25	2.5198	0.0238
26	2.5666	0.0233
27	2.6125	0.0228
28	2.6574	0.0224
29	2.7016	0.0220
30	2.7449	0.0216
31	2.7874	0.0212
32	2.8292	0.0208
33	2.8704	0.0205

34	2.9109	0.0202
35	2.9507	0.0199
36	2.9900	0.0196
37	3.0342	0.0220
38	3.0778	0.0217
39	3.1209	0.0215
40	3.1635	0.0212
41	3.2056	0.0210
42	3.2472	0.0208
43	3.2884	0.0205
44	3.3291	0.0203
45	3.3694	0.0201
46	3.4092	0.0199
47	3.4487	0.0197
48	3.4878	0.0195
49	3.5265	0.0193
50	3.5649	0.0191
51	3.6028	0.0190
52	3.6405	0.0188
53	3.6778	0.0186
54	3.7148	0.0185
55	3.7515	0.0183
56	3.7878	0.0181
57	3.8239	0.0180
58	3.8596	0.0178
59	3.8951	0.0177
60	3.9303	0.0176
61	3.9653	0.0174
62	3.9999	0.0173
63	4.0343	0.0172
64	4.0685	0.0170
65	4.1024	0.0169
66	4.1361	0.0168
67	4.1695	0.0167
68	4.2027	0.0166
69	4.2357	0.0165
70	4.2684	0.0163
71	4.3009	0.0162
72	4.3333	0.0161
73	4.3654	0.0160
74	4.3973	0.0159
75	4.4290	0.0158
76	4.4605	0.0157
77	4.4918	0.0156
78	4.5230	0.0155
79	4.5539	0.0155
80	4.5847	0.0154
81	4.6153	0.0153
82	4.6457	0.0152
83	4.6759	0.0151
84	4.7060	0.0150

85	4.7359	0.0149
86	4.7657	0.0149
87	4.7952	0.0148
88	4.8247	0.0147
89	4.8539	0.0146
90	4.8831	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9981	0.0142
95	5.0265	0.0142
96	5.0547	0.0141
97	5.0828	0.0140
98	5.1108	0.0140
99	5.1387	0.0139
100	5.1664	0.0138
101	5.1940	0.0138
102	5.2214	0.0137
103	5.2488	0.0137
104	5.2760	0.0136
105	5.3031	0.0135
106	5.3301	0.0135
107	5.3569	0.0134
108	5.3837	0.0134
109	5.4103	0.0133
110	5.4368	0.0132
111	5.4632	0.0132
112	5.4895	0.0131
113	5.5157	0.0131
114	5.5418	0.0130
115	5.5677	0.0130
116	5.5936	0.0129
117	5.6194	0.0129
118	5.6450	0.0128
119	5.6706	0.0128
120	5.6960	0.0127
121	5.7214	0.0127
122	5.7467	0.0126
123	5.7718	0.0126
124	5.7969	0.0125
125	5.8219	0.0125
126	5.8468	0.0124
127	5.8716	0.0124
128	5.8963	0.0123
129	5.9209	0.0123
130	5.9454	0.0123
131	5.9698	0.0122
132	5.9942	0.0122
133	6.0185	0.0121
134	6.0426	0.0121
135	6.0667	0.0120

136	6.0908	0.0120
137	6.1147	0.0120
138	6.1385	0.0119
139	6.1623	0.0119
140	6.1860	0.0118
141	6.2096	0.0118
142	6.2332	0.0118
143	6.2566	0.0117
144	6.2800	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163

38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0599	0.0263	0.0336
87	0.0632	0.0277	0.0354
88	0.0669	0.0294	0.0375

89	0.0714	0.0314	0.0401
90	0.0769	0.0338	0.0432
91	0.0839	0.0368	0.0470
92	0.0930	0.0408	0.0522
93	0.0687	0.0302	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2390	0.0755	0.1635
97	0.6888	0.0755	0.6133
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0432
101	0.0670	0.0294	0.0376
102	0.0600	0.0263	0.0336
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139

140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

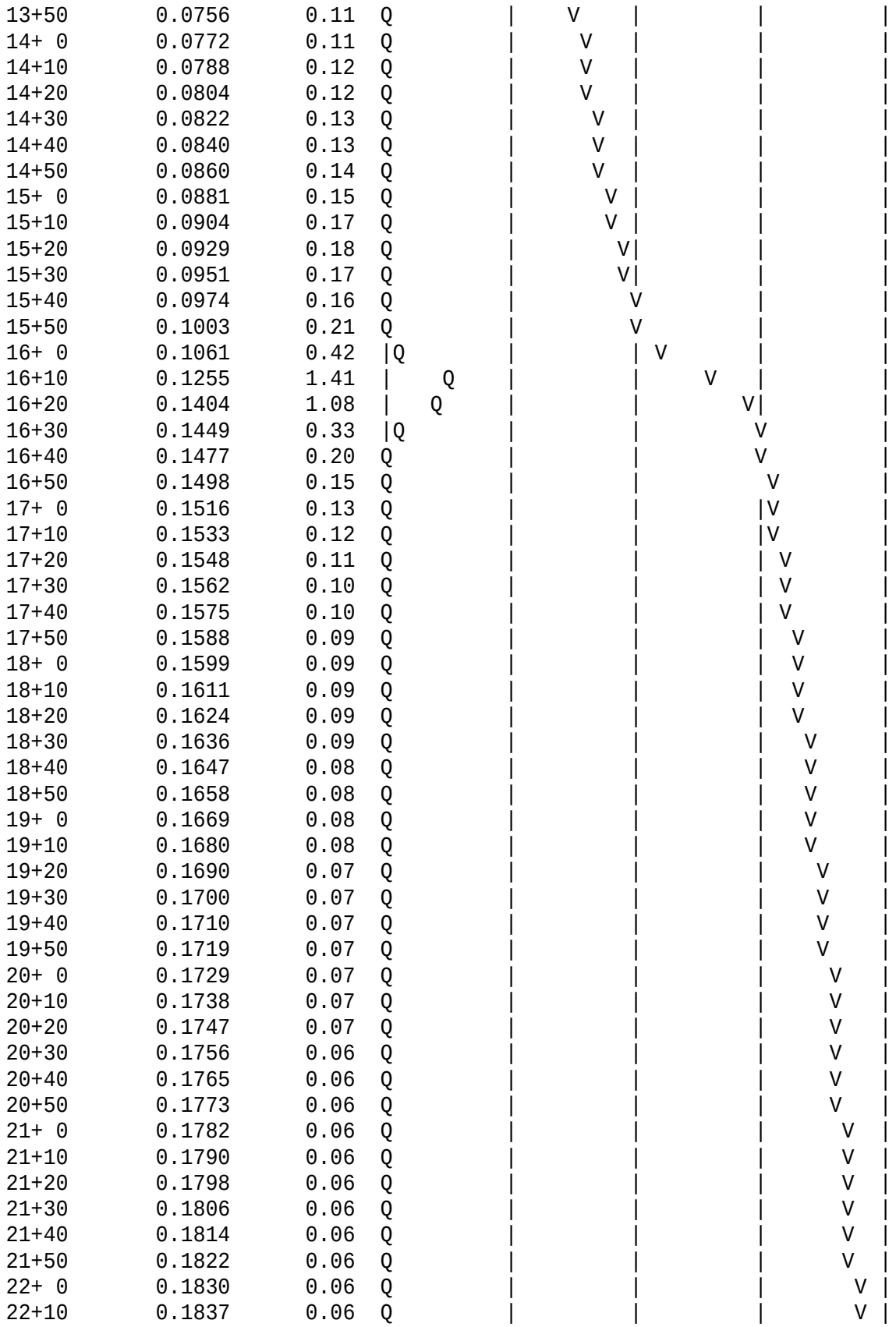
Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 1.41(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+10	0.0003	0.02	Q | | | |
0+20	0.0010	0.04	Q | | | |
0+30	0.0016	0.05	Q | | | |
0+40	0.0023	0.05	Q | | | |
0+50	0.0030	0.05	Q | | | |
1+ 0	0.0036	0.05	Q | | | |
1+10	0.0043	0.05	Q | | | |
1+20	0.0050	0.05	QV | | | |
1+30	0.0057	0.05	QV | | | |
1+40	0.0064	0.05	QV | | | |
1+50	0.0071	0.05	QV | | | |
2+ 0	0.0078	0.05	QV | | | |
2+10	0.0085	0.05	QV | | | |
2+20	0.0092	0.05	QV | | | |
2+30	0.0099	0.05	Q V | | | |
2+40	0.0107	0.05	Q V | | | |
2+50	0.0114	0.05	Q V | | | |
3+ 0	0.0121	0.05	Q V | | | |
3+10	0.0128	0.05	Q V | | | |
3+20	0.0136	0.05	Q V | | | |
3+30	0.0143	0.05	Q V | | | |
3+40	0.0151	0.05	Q V | | | |
3+50	0.0158	0.05	Q V | | | |
4+ 0	0.0166	0.05	Q V | | | |
4+10	0.0173	0.06	Q V | | | |
4+20	0.0181	0.06	Q V | | | |
4+30	0.0189	0.06	Q V | | | |
4+40	0.0196	0.06	Q V | | | |
4+50	0.0204	0.06	Q V | | | |
5+ 0	0.0212	0.06	Q V | | | |
5+10	0.0220	0.06	Q V | | | |

```
 5+20       0.0228      0.06  Q   V     |          |          |          |
 5+30       0.0236      0.06  Q   V     |          |          |          |
 5+40       0.0244      0.06  Q    V    |          |          |          |
 5+50       0.0252      0.06  Q    V    |          |          |          |
 6+ 0       0.0260      0.06  Q    V    |          |          |          |
 6+10       0.0268      0.06  Q    V    |          |          |          |
 6+20       0.0277      0.06  Q    V    |          |          |          |
 6+30       0.0285      0.06  Q    V    |          |          |          |
 6+40       0.0294      0.06  Q     V   |          |          |          |
 6+50       0.0302      0.06  Q     V   |          |          |          |
 7+ 0       0.0311      0.06  Q     V   |          |          |          |
 7+10       0.0319      0.06  Q     V   |          |          |          |
 7+20       0.0328      0.06  Q     V   |          |          |          |
 7+30       0.0337      0.06  Q      V  |          |          |          |
 7+40       0.0346      0.06  Q      V  |          |          |          |
 7+50       0.0355      0.07  Q      V  |          |          |          |
 8+ 0       0.0364      0.07  Q      V  |          |          |          |
 8+10       0.0373      0.07  Q      V  |          |          |          |
 8+20       0.0382      0.07  Q      V  |          |          |          |
 8+30       0.0392      0.07  Q       V |          |          |          |
 8+40       0.0401      0.07  Q       V |          |          |          |
 8+50       0.0411      0.07  Q       V |          |          |          |
 9+ 0       0.0420      0.07  Q       V |          |          |          |
 9+10       0.0430      0.07  Q       V |          |          |          |
 9+20       0.0440      0.07  Q        V|          |          |          |
 9+30       0.0450      0.07  Q        V|          |          |          |
 9+40       0.0460      0.07  Q        V|          |          |          |
 9+50       0.0470      0.07  Q        V|          |          |          |
10+ 0       0.0481      0.07  Q         V          |          |          |
10+10       0.0491      0.08  Q         V          |          |          |
10+20       0.0502      0.08  Q         V          |          |          |
10+30       0.0512      0.08  Q         V          |          |          |
10+40       0.0523      0.08  Q         V          |          |          |
10+50       0.0534      0.08  Q         |V         |          |          |
11+ 0       0.0545      0.08  Q         |V         |          |          |
11+10       0.0557      0.08  Q         |V         |          |          |
11+20       0.0568      0.08  Q         |V         |          |          |
11+30       0.0580      0.09  Q         | V        |          |          |
11+40       0.0592      0.09  Q         | V        |          |          |
11+50       0.0604      0.09  Q         | V        |          |          |
12+ 0       0.0617      0.09  Q         | V        |          |          |
12+10       0.0628      0.09  Q         |  V       |          |          |
12+20       0.0640      0.08  Q         |  V       |          |          |
12+30       0.0651      0.08  Q         |  V       |          |          |
12+40       0.0663      0.09  Q         |  V       |          |          |
12+50       0.0675      0.09  Q         |   V      |          |          |
13+ 0       0.0688      0.09  Q         |   V      |          |          |
13+10       0.0701      0.09  Q         |   V      |          |          |
13+20       0.0714      0.10  Q         |   V      |          |          |
13+30       0.0728      0.10  Q         |    V     |          |          |
13+40       0.0742      0.10  Q         |    V     |          |          |
```


13+50 0.0756 0.11 Q | V | | |
14+ 0 0.0772 0.11 Q | V | | |
14+10 0.0788 0.12 Q | V | | |
14+20 0.0804 0.12 Q | V | | |
14+30 0.0822 0.13 Q | V | | |
14+40 0.0840 0.13 Q | V | | |
14+50 0.0860 0.14 Q | V | | |
15+ 0 0.0881 0.15 Q | V | | |
15+10 0.0904 0.17 Q | V | | |
15+20 0.0929 0.18 Q | V| | |
15+30 0.0951 0.17 Q | V| | |
15+40 0.0974 0.16 Q | V | |
15+50 0.1003 0.21 Q | V | |
16+ 0 0.1061 0.42 |Q | | V | |
16+10 0.1255 1.41 | Q | | V | |
16+20 0.1404 1.08 | Q | | V| |
16+30 0.1449 0.33 |Q | | V |
16+40 0.1477 0.20 Q | | V |
16+50 0.1498 0.15 Q | | V |
17+ 0 0.1516 0.13 Q | | |V |
17+10 0.1533 0.12 Q | | |V |
17+20 0.1548 0.11 Q | | | V |
17+30 0.1562 0.10 Q | | | V |
17+40 0.1575 0.10 Q | | | V |
17+50 0.1588 0.09 Q | | | V |
18+ 0 0.1599 0.09 Q | | | V |
18+10 0.1611 0.09 Q | | | V |
18+20 0.1624 0.09 Q | | | V |
18+30 0.1636 0.09 Q | | | V |
18+40 0.1647 0.08 Q | | | V |
18+50 0.1658 0.08 Q | | | V |
19+ 0 0.1669 0.08 Q | | | V |
19+10 0.1680 0.08 Q | | | V |
19+20 0.1690 0.07 Q | | | V |
19+30 0.1700 0.07 Q | | | V |
19+40 0.1710 0.07 Q | | | V |
19+50 0.1719 0.07 Q | | | V |
20+ 0 0.1729 0.07 Q | | | V |
20+10 0.1738 0.07 Q | | | V |
20+20 0.1747 0.07 Q | | | V |
20+30 0.1756 0.06 Q | | | V |
20+40 0.1765 0.06 Q | | | V |
20+50 0.1773 0.06 Q | | | V |
21+ 0 0.1782 0.06 Q | | | V |
21+10 0.1790 0.06 Q | | | V |
21+20 0.1798 0.06 Q | | | V |
21+30 0.1806 0.06 Q | | | V |
21+40 0.1814 0.06 Q | | | V |
21+50 0.1822 0.06 Q | | | V |
22+ 0 0.1830 0.06 Q | | | V |
22+10 0.1837 0.06 Q | | | V |

```
   22+20       0.1845      0.05  Q         |          |          |       V |
   22+30       0.1852      0.05  Q         |          |          |       V |
   22+40       0.1860      0.05  Q         |          |          |       V |
   22+50       0.1867      0.05  Q         |          |          |       V |
   23+ 0       0.1874      0.05  Q         |          |          |        V|
   23+10       0.1881      0.05  Q         |          |          |        V|
   23+20       0.1888      0.05  Q         |          |          |        V|
   23+30       0.1895      0.05  Q         |          |          |        V|
   23+40       0.1902      0.05  Q         |          |          |        V|
   23+50       0.1909      0.05  Q         |          |          |        V|
   24+ 0       0.1916      0.05  Q         |          |          |        V|
   24+10       0.1919      0.02  Q         |          |          |        V|
   24+20       0.1920      0.00  Q         |          |          |        V|
   24+30       0.1920      0.00  Q         |          |          |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDTION FOR AREA B
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
7.52	1	0.77
Rainfall data for year 2		
7.52	6	1.08
Rainfall data for year 2		
7.52	24	2.03
Rainfall data for year 100		
7.52	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
             7.52            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
             7.52           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          7.52      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     7.52   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.139 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       7.52(Ac.)
Catchment Lag time =   0.111 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 149.6648
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       7.52(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 45.47 (CFS))	
1	31.597	14.368
2	80.545	22.258
3	92.529	5.449
4	97.196	2.122
5	99.137	0.883
6	100.000	0.392

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7533	0.1414
2	0.9275	0.0767
3	1.0474	0.0558
4	1.1419	0.0448
5	1.2209	0.0380
6	1.2895	0.0332
7	1.3863	0.0474
8	1.4760	0.0440
9	1.5599	0.0413
10	1.6390	0.0390
11	1.7140	0.0370
12	1.7855	0.0353
13	1.8538	0.0338
14	1.9195	0.0325
15	1.9827	0.0313
16	2.0436	0.0302
17	2.1026	0.0293
18	2.1598	0.0284
19	2.2153	0.0275
20	2.2693	0.0268
21	2.3218	0.0261
22	2.3731	0.0255
23	2.4231	0.0249
24	2.4720	0.0243
25	2.5198	0.0238
26	2.5666	0.0233
27	2.6124	0.0228
28	2.6574	0.0224
29	2.7015	0.0220
30	2.7448	0.0216
31	2.7873	0.0212

32	2.8292	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9507	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2055	0.0210
42	3.2471	0.0208
43	3.2883	0.0205
44	3.3290	0.0203
45	3.3693	0.0201
46	3.4092	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5648	0.0191
51	3.6028	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7514	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8596	0.0178
59	3.8951	0.0177
60	3.9303	0.0176
61	3.9652	0.0174
62	3.9999	0.0173
63	4.0343	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1360	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2356	0.0165
70	4.2683	0.0163
71	4.3009	0.0162
72	4.3332	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4918	0.0156
78	4.5229	0.0155
79	4.5539	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152

83	4.6759	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7656	0.0149
87	4.7952	0.0148
88	4.8246	0.0147
89	4.8539	0.0146
90	4.8830	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9980	0.0142
95	5.0264	0.0142
96	5.0546	0.0141
97	5.0828	0.0140
98	5.1107	0.0140
99	5.1386	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2214	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3569	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4632	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5677	0.0130
116	5.5935	0.0129
117	5.6193	0.0129
118	5.6450	0.0128
119	5.6705	0.0128
120	5.6960	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7718	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123
129	5.9208	0.0123
130	5.9453	0.0123
131	5.9698	0.0122
132	5.9941	0.0122
133	6.0184	0.0121

134	6.0426	0.0121
135	6.0667	0.0120
136	6.0907	0.0120
137	6.1146	0.0120
138	6.1385	0.0119
139	6.1623	0.0119
140	6.1859	0.0118
141	6.2096	0.0118
142	6.2331	0.0118
143	6.2566	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161

36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336

87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0930	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2389	0.0755	0.1634
97	0.6886	0.0755	0.6131
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0670	0.0294	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142

138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 15.44(CFS)

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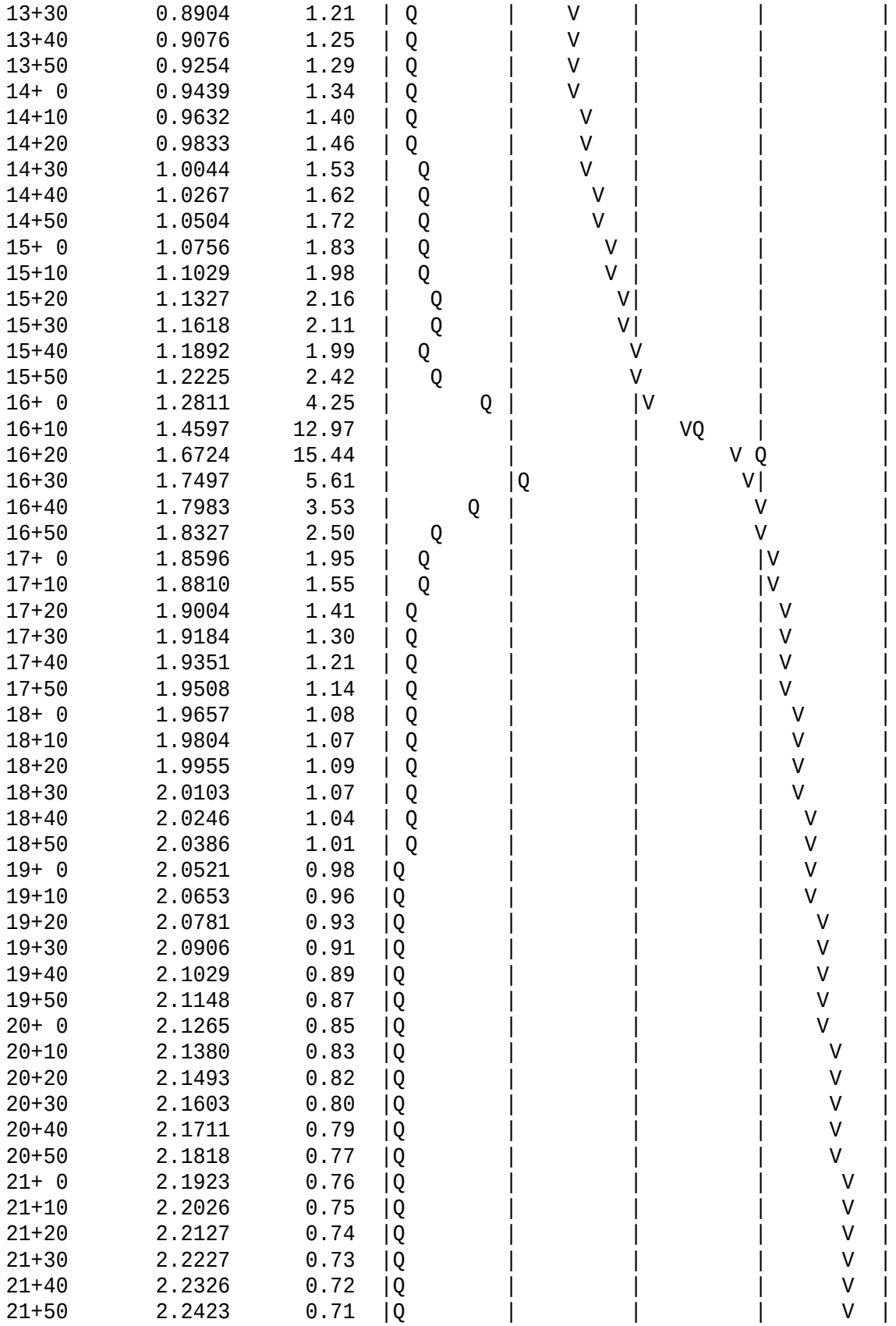
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+10	0.0026	0.19	Q				
0+20	0.0092	0.48	Q				
0+30	0.0169	0.56	VQ				
0+40	0.0249	0.59	VQ				
0+50	0.0332	0.60	VQ				
1+ 0	0.0416	0.61	VQ				
1+10	0.0500	0.61	VQ				
1+20	0.0585	0.61	VQ				
1+30	0.0670	0.62	|Q				
1+40	0.0755	0.62	|Q				
1+50	0.0841	0.62	|Q				
2+ 0	0.0928	0.63	|Q				
2+10	0.1015	0.63	|Q				
2+20	0.1102	0.63	|Q				
2+30	0.1190	0.64	|QV				
2+40	0.1279	0.64	|QV				
2+50	0.1367	0.65	|QV				
3+ 0	0.1457	0.65	|QV				
3+10	0.1547	0.65	|QV				
3+20	0.1637	0.66	|QV				
3+30	0.1728	0.66	|QV				
3+40	0.1820	0.67	|Q V				
3+50	0.1912	0.67	|Q V				
4+ 0	0.2005	0.67	|Q V				
4+10	0.2098	0.68	|Q V				
4+20	0.2192	0.68	|Q V				
4+30	0.2287	0.69	|Q V				
4+40	0.2382	0.69	|Q V				
4+50	0.2478	0.70	|Q V				

5+ 0	0.2574	0.70	|Q V |	|	|	|
5+10	0.2671	0.71	|Q V |	|	|	|
5+20	0.2769	0.71	|Q V |	|	|	|
5+30	0.2868	0.72	|Q V |	|	|	|
5+40	0.2967	0.72	|Q V |	|	|	|
5+50	0.3067	0.73	|Q V |	|	|	|
6+ 0	0.3168	0.73	|Q V |	|	|	|
6+10	0.3269	0.74	|Q V |	|	|	|
6+20	0.3372	0.74	|Q V |	|	|	|
6+30	0.3475	0.75	|Q V |	|	|	|
6+40	0.3579	0.75	|Q V |	|	|	|
6+50	0.3683	0.76	|Q V |	|	|	|
7+ 0	0.3789	0.77	|Q V |	|	|	|
7+10	0.3896	0.77	|Q V |	|	|	|
7+20	0.4003	0.78	|Q V |	|	|	|
7+30	0.4112	0.79	|Q V |	|	|	|
7+40	0.4221	0.79	|Q V |	|	|	|
7+50	0.4331	0.80	|Q V |	|	|	|
8+ 0	0.4443	0.81	|Q V |	|	|	|
8+10	0.4555	0.82	|Q V |	|	|	|
8+20	0.4669	0.82	|Q V |	|	|	|
8+30	0.4783	0.83	|Q V |	|	|	|
8+40	0.4899	0.84	|Q V |	|	|	|
8+50	0.5016	0.85	|Q V |	|	|	|
9+ 0	0.5135	0.86	|Q V |	|	|	|
9+10	0.5254	0.87	|Q V |	|	|	|
9+20	0.5375	0.88	|Q V|	|	|	|
9+30	0.5497	0.89	|Q V|	|	|	|
9+40	0.5621	0.90	|Q V|	|	|	|
9+50	0.5746	0.91	|Q V|	|	|	|
10+ 0	0.5873	0.92	|Q V|	|	|	|
10+10	0.6001	0.93	|Q V |	|	|	|
10+20	0.6131	0.94	|Q V |	|	|	|
10+30	0.6263	0.96	|Q V |	|	|	|
10+40	0.6396	0.97	|Q V |	|	|	|
10+50	0.6532	0.98	|Q V |	|	|	|
11+ 0	0.6669	1.00	|Q |V |	|	|	|
11+10	0.6809	1.01	| Q |V |	|	|	|
11+20	0.6950	1.03	| Q |V |	|	|	|
11+30	0.7094	1.04	| Q |V |	|	|	|
11+40	0.7240	1.06	| Q | V |	|	|	|
11+50	0.7389	1.08	| Q | V |	|	|	|
12+ 0	0.7541	1.10	| Q | V |	|	|	|
12+10	0.7689	1.08	| Q | V |	|	|	|
12+20	0.7831	1.03	| Q | V |	|	|	|
12+30	0.7973	1.04	| Q | V |	|	|	|
12+40	0.8119	1.05	| Q | V |	|	|	|
12+50	0.8267	1.08	| Q | V |	|	|	|
13+ 0	0.8419	1.11	| Q | V |	|	|	|
13+10	0.8576	1.14	| Q | V |	|	|	|
13+20	0.8737	1.17	| Q | V |	|	|	|



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   22+ 0       2.2519      0.70  |Q        |         |         |       V |
   22+10       2.2614      0.69  |Q        |         |         |       V |
   22+20       2.2707      0.68  |Q        |         |         |       V |
   22+30       2.2799      0.67  |Q        |         |         |       V |
   22+40       2.2890      0.66  |Q        |         |         |       V |
   22+50       2.2980      0.65  |Q        |         |         |       V |
   23+ 0       2.3069      0.65  |Q        |         |         |       V |
   23+10       2.3157      0.64  |Q        |         |         |        V|
   23+20       2.3244      0.63  |Q        |         |         |        V|
   23+30       2.3330      0.62  |Q        |         |         |        V|
   23+40       2.3415      0.62  |Q        |         |         |        V|
   23+50       2.3499      0.61  |Q        |         |         |        V|
   24+ 0       2.3583      0.61  |Q        |         |         |        V|
   24+10       2.3639      0.41  Q         |         |         |        V|
   24+20       2.3655      0.12  Q         |         |         |        V|
   24+30       2.3662      0.04  Q         |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA C
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
109.59	1	0.77
Rainfall data for year 2		
109.59	6	1.08
Rainfall data for year 2		
109.59	24	2.03
Rainfall data for year 100		
109.59	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
          109.59            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
          109.59           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0        109.59      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
   109.59   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.624 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     109.59(Ac.)
Catchment Lag time =   0.499 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 33.3868
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of     109.59(Ac.) (Ref: fig. E-4)

5-minute factor = 0.995     Adjusted rainfall =  0.609(In)
30-minute factor = 0.995    Adjusted rainfall =  1.042(In)
1-hour factor = 0.995       Adjusted rainfall =  1.283(In)
3-hour factor = 0.999       Adjusted rainfall =  2.159(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.989(In)
24-hour factor = 1.000 Adjusted rainfall = 6.279(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 662.68 (CFS))	
1	2.076	13.757
2	11.935	65.335
3	37.859	171.790
4	57.783	132.032
5	68.437	70.605
6	75.475	46.638
7	80.519	33.421
8	84.291	24.997
9	87.388	20.524
10	89.726	15.492
11	91.596	12.392
12	93.190	10.565
13	94.489	8.610
14	95.588	7.282
15	96.487	5.954
16	97.215	4.825
17	97.779	3.737
18	98.143	2.411
19	98.512	2.446
20	98.913	2.655
21	99.313	2.654
22	99.611	1.977
23	99.820	1.383
24	100.000	1.193

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7497	0.1408
2	0.9230	0.0763
3	1.0424	0.0555
4	1.1364	0.0446
5	1.2151	0.0378
6	1.2834	0.0331
7	1.3805	0.0476
8	1.4706	0.0442
9	1.5549	0.0415
10	1.6344	0.0392
11	1.7098	0.0372
12	1.7816	0.0355
13	1.8504	0.0340

14	1.9165	0.0327
15	1.9801	0.0315
16	2.0415	0.0304
17	2.1009	0.0295
18	2.1585	0.0286
19	2.2140	0.0276
20	2.2680	0.0268
21	2.3206	0.0261
22	2.3718	0.0255
23	2.4219	0.0249
24	2.4707	0.0243
25	2.5186	0.0238
26	2.5654	0.0233
27	2.6113	0.0228
28	2.6562	0.0224
29	2.7004	0.0220
30	2.7437	0.0216
31	2.7863	0.0212
32	2.8281	0.0208
33	2.8693	0.0205
34	2.9098	0.0202
35	2.9497	0.0199
36	2.9890	0.0196
37	3.0332	0.0220
38	3.0768	0.0217
39	3.1199	0.0215
40	3.1624	0.0212
41	3.2045	0.0210
42	3.2462	0.0208
43	3.2873	0.0205
44	3.3280	0.0203
45	3.3683	0.0201
46	3.4082	0.0199
47	3.4477	0.0197
48	3.4868	0.0195
49	3.5255	0.0193
50	3.5638	0.0191
51	3.6018	0.0190
52	3.6394	0.0188
53	3.6768	0.0186
54	3.7137	0.0185
55	3.7504	0.0183
56	3.7868	0.0181
57	3.8228	0.0180
58	3.8586	0.0178
59	3.8941	0.0177
60	3.9293	0.0176
61	3.9642	0.0174
62	3.9989	0.0173
63	4.0333	0.0172
64	4.0674	0.0170

65	4.1013	0.0169
66	4.1350	0.0168
67	4.1684	0.0167
68	4.2016	0.0166
69	4.2346	0.0165
70	4.2674	0.0163
71	4.2999	0.0162
72	4.3322	0.0161
73	4.3643	0.0160
74	4.3963	0.0159
75	4.4280	0.0158
76	4.4595	0.0157
77	4.4908	0.0156
78	4.5219	0.0155
79	4.5529	0.0155
80	4.5837	0.0154
81	4.6143	0.0153
82	4.6447	0.0152
83	4.6749	0.0151
84	4.7050	0.0150
85	4.7349	0.0149
86	4.7646	0.0149
87	4.7942	0.0148
88	4.8237	0.0147
89	4.8529	0.0146
90	4.8821	0.0145
91	4.9110	0.0145
92	4.9398	0.0144
93	4.9685	0.0143
94	4.9971	0.0143
95	5.0255	0.0142
96	5.0537	0.0141
97	5.0818	0.0140
98	5.1098	0.0140
99	5.1377	0.0139
100	5.1654	0.0138
101	5.1930	0.0138
102	5.2205	0.0137
103	5.2478	0.0137
104	5.2750	0.0136
105	5.3021	0.0135
106	5.3291	0.0135
107	5.3560	0.0134
108	5.3827	0.0134
109	5.4093	0.0133
110	5.4359	0.0132
111	5.4623	0.0132
112	5.4886	0.0131
113	5.5147	0.0131
114	5.5408	0.0130
115	5.5668	0.0130

116	5.5927	0.0129	
117	5.6184	0.0129	
118	5.6441	0.0128	
119	5.6696	0.0128	
120	5.6951	0.0127	
121	5.7205	0.0127	
122	5.7457	0.0126	
123	5.7709	0.0126	
124	5.7960	0.0125	
125	5.8210	0.0125	
126	5.8459	0.0124	
127	5.8707	0.0124	
128	5.8954	0.0123	
129	5.9200	0.0123	
130	5.9445	0.0123	
131	5.9689	0.0122	
132	5.9933	0.0122	
133	6.0176	0.0121	
134	6.0418	0.0121	
135	6.0659	0.0120	
136	6.0899	0.0120	
137	6.1138	0.0120	
138	6.1377	0.0119	
139	6.1614	0.0119	
140	6.1851	0.0118	
141	6.2088	0.0118	
142	6.2323	0.0118	
143	6.2558	0.0117	
144	6.2791	0.0117	

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0248	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143

18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0294	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230

69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0173	0.0220
74	0.0402	0.0177	0.0225
75	0.0412	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0446	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0526	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0576	0.0253	0.0323
86	0.0604	0.0265	0.0339
87	0.0636	0.0279	0.0357
88	0.0674	0.0296	0.0378
89	0.0719	0.0316	0.0403
90	0.0774	0.0340	0.0434
91	0.0843	0.0370	0.0473
92	0.0934	0.0410	0.0524
93	0.0683	0.0300	0.0383
94	0.0855	0.0375	0.0479
95	0.1194	0.0524	0.0670
96	0.2377	0.0755	0.1622
97	0.6853	0.0755	0.6098
98	0.0871	0.0383	0.0489
99	0.0938	0.0412	0.0526
100	0.0775	0.0340	0.0435
101	0.0675	0.0296	0.0378
102	0.0604	0.0265	0.0339
103	0.0548	0.0240	0.0307
104	0.0507	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0446	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0177	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187

120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0294	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 143.58(CFS)

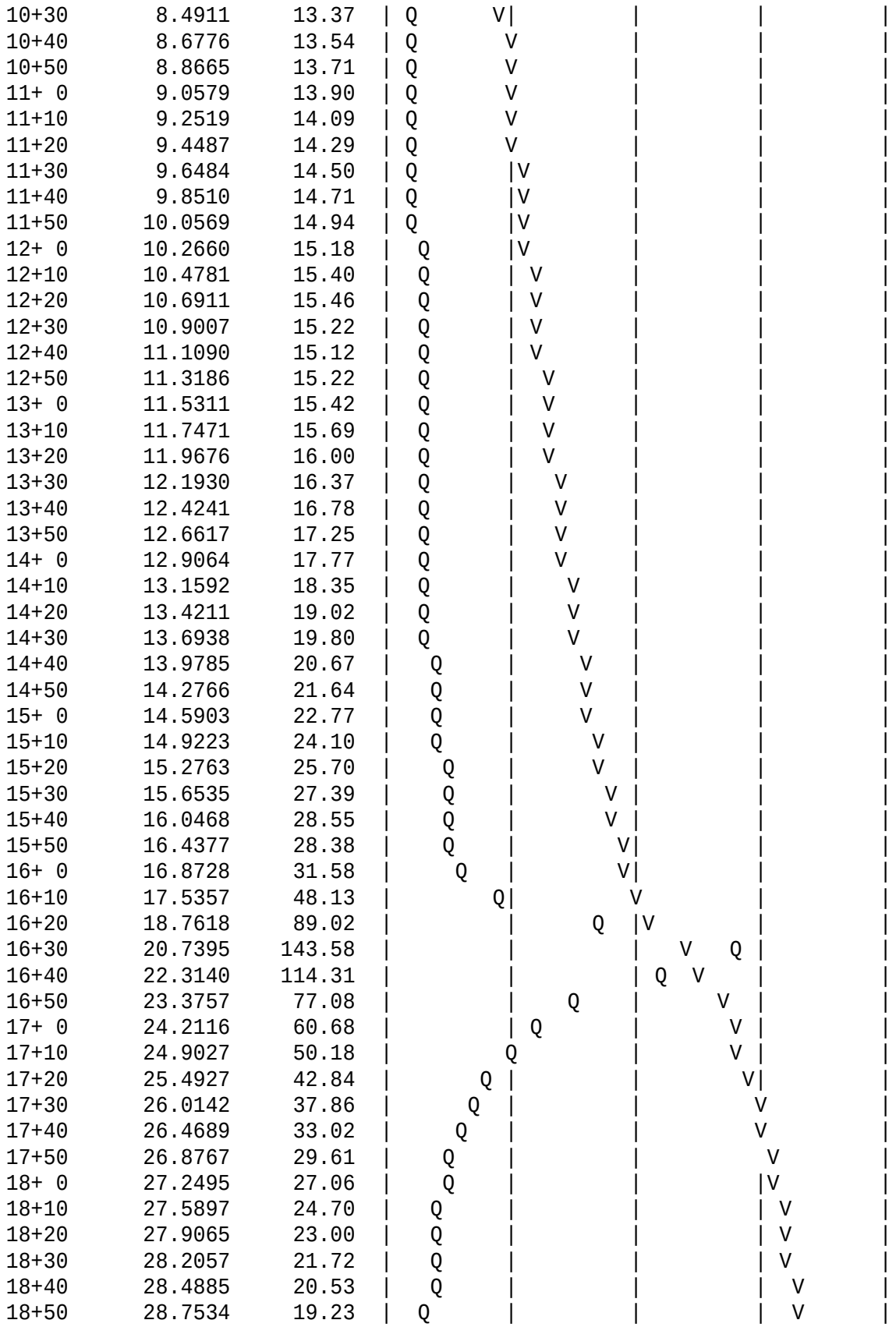
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+10	0.0025	0.18	Q	|	|	|	|
0+20	0.0168	1.04	Q	|	|	|	|
0+30	0.0622	3.30	Q	|	|	|	|
0+40	0.1317	5.04	VQ	|	|	|	|
0+50	0.2143	6.00	VQ	|	|	|	|
1+ 0	0.3057	6.64	VQ	|	|	|	|
1+10	0.4036	7.11	VQ	|	|	|	|
1+20	0.5065	7.47	VQ	|	|	|	|
1+30	0.6137	7.78	VQ	|	|	|	|
1+40	0.7242	8.02	VQ	|	|	|	|
1+50	0.8375	8.23	VQ	|	|	|	|

2+ 0	0.9533	8.41	Q				
2+10	1.0713	8.57	Q				
2+20	1.1913	8.71	Q				
2+30	1.3129	8.83	Q				
2+40	1.4361	8.95	Q				
2+50	1.5607	9.04	Q				
3+ 0	1.6864	9.13	Q				
3+10	1.8133	9.21	QV				
3+20	1.9413	9.30	QV				
3+30	2.0706	9.39	QV				
3+40	2.2010	9.47	QV				
3+50	2.3325	9.54	QV				
4+ 0	2.4649	9.62	QV				
4+10	2.5982	9.67	Q V				
4+20	2.7322	9.73	Q V				
4+30	2.8671	9.79	Q V				
4+40	3.0029	9.86	Q V				
4+50	3.1396	9.92	Q V				
5+ 0	3.2771	9.99	Q V				
5+10	3.4155	10.05	QV				
5+20	3.5549	10.12	Q V				
5+30	3.6953	10.19	Q V				
5+40	3.8366	10.26	Q V				
5+50	3.9789	10.33	Q V				
6+ 0	4.1222	10.40	Q V				
6+10	4.2665	10.48	Q V				
6+20	4.4119	10.56	Q V				
6+30	4.5584	10.64	Q V				
6+40	4.7060	10.72	Q V				
6+50	4.8548	10.80	Q V				
7+ 0	5.0047	10.88	Q V				
7+10	5.1559	10.97	Q V				
7+20	5.3082	11.06	Q V				
7+30	5.4619	11.15	Q V				
7+40	5.6168	11.25	Q V				
7+50	5.7730	11.34	Q V				
8+ 0	5.9306	11.44	Q V				
8+10	6.0897	11.55	Q V				
8+20	6.2502	11.65	Q V				
8+30	6.4121	11.76	Q V				
8+40	6.5756	11.87	Q V				
8+50	6.7407	11.99	Q V				
9+ 0	6.9074	12.10	Q V				
9+10	7.0758	12.23	Q V				
9+20	7.2460	12.35	Q V				
9+30	7.4179	12.48	Q V				
9+40	7.5917	12.62	Q V				
9+50	7.7675	12.76	Q V				
10+ 0	7.9452	12.90	Q V				
10+10	8.1250	13.05	Q V				
10+20	8.3069	13.21	Q V				



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   19+ 0      29.0008     17.96  |  Q      |         |         |  V      |
   19+10      29.2418     17.49  |  Q      |         |         |  V      |
   19+20      29.4774     17.10  |  Q      |         |         |   V     |
   19+30      29.7057     16.58  |  Q      |         |         |   V     |
   19+40      29.9221     15.71  |  Q      |         |         |   V     |
   19+50      30.1279     14.94  | Q       |         |         |   V     |
   20+ 0      30.3252     14.32  | Q       |         |         |    V    |
   20+10      30.5085     13.30  | Q       |         |         |    V    |
   20+20      30.6872     12.98  | Q       |         |         |    V    |
   20+30      30.8617     12.67  | Q       |         |         |    V    |
   20+40      31.0323     12.39  | Q       |         |         |     V   |
   20+50      31.1994     12.13  | Q       |         |         |     V   |
   21+ 0      31.3631     11.89  | Q       |         |         |     V   |
   21+10      31.5238     11.66  | Q       |         |         |     V   |
   21+20      31.6816     11.45  | Q       |         |         |     V   |
   21+30      31.8366     11.26  | Q       |         |         |     V   |
   21+40      31.9892     11.07  | Q       |         |         |      V  |
   21+50      32.1392     10.90  | Q       |         |         |      V  |
   22+ 0      32.2870     10.73  | Q       |         |         |      V  |
   22+10      32.4325     10.56  | Q       |         |         |      V  |
   22+20      32.5758     10.41  | Q       |         |         |      V  |
   22+30      32.7172     10.26  | Q       |         |         |      V  |
   22+40      32.8565     10.12  | Q       |         |         |       V |
   22+50      32.9940      9.98  |Q        |         |         |       V |
   23+ 0      33.1297      9.85  |Q        |         |         |       V |
   23+10      33.2637      9.73  |Q        |         |         |       V |
   23+20      33.3961      9.61  |Q        |         |         |       V |
   23+30      33.5269      9.49  |Q        |         |         |       V |
   23+40      33.6561      9.38  |Q        |         |         |        V|
   23+50      33.7839      9.28  |Q        |         |         |        V|
   24+ 0      33.9103      9.17  |Q        |         |         |        V|
   24+10      34.0328      8.90  |Q        |         |         |        V|
   24+20      34.1423      7.95  |Q        |         |         |        V|
   24+30      34.2197      5.62  |Q        |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA D
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
54.89	1	0.77
Rainfall data for year 2		
54.89	6	1.08
Rainfall data for year 2		
54.89	24	2.03
Rainfall data for year 100		
54.89	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            54.89            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            54.89           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0         54.89      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    54.89   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.435 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      54.89(Ac.)
Catchment Lag time =   0.348 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 47.8927
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      54.89(Ac.) (Ref: fig. E-4)

5-minute factor = 0.997     Adjusted rainfall =  0.611(In)
30-minute factor = 0.997    Adjusted rainfall =  1.045(In)
1-hour factor = 0.997       Adjusted rainfall =  1.287(In)
3-hour factor = 1.000       Adjusted rainfall =  2.159(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.989(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 331.91 (CFS))	
1	3.690	12.249
2	28.020	80.754
3	58.577	101.421
4	72.297	45.539
5	80.269	26.461
6	85.548	17.521
7	89.340	12.588
8	92.020	8.895
9	94.111	6.940
10	95.699	5.271
11	96.915	4.033
12	97.763	2.815
13	98.297	1.774
14	98.859	1.863
15	99.413	1.840
16	99.765	1.167
17	100.000	0.781

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7517	0.1411
2	0.9254	0.0765
3	1.0451	0.0556
4	1.1393	0.0447
5	1.2182	0.0379
6	1.2867	0.0332
7	1.3836	0.0475
8	1.4735	0.0441
9	1.5576	0.0414
10	1.6369	0.0391
11	1.7120	0.0371
12	1.7837	0.0354
13	1.8523	0.0339
14	1.9181	0.0326
15	1.9815	0.0314
16	2.0426	0.0303
17	2.1018	0.0294
18	2.1592	0.0285
19	2.2147	0.0276
20	2.2687	0.0268

21	2.3212	0.0261
22	2.3725	0.0255
23	2.4225	0.0249
24	2.4714	0.0243
25	2.5192	0.0238
26	2.5660	0.0233
27	2.6119	0.0228
28	2.6568	0.0224
29	2.7010	0.0220
30	2.7443	0.0216
31	2.7869	0.0212
32	2.8287	0.0208
33	2.8698	0.0205
34	2.9103	0.0202
35	2.9502	0.0199
36	2.9895	0.0196
37	3.0337	0.0220
38	3.0773	0.0217
39	3.1204	0.0215
40	3.1630	0.0212
41	3.2051	0.0210
42	3.2467	0.0208
43	3.2878	0.0205
44	3.3286	0.0203
45	3.3688	0.0201
46	3.4087	0.0199
47	3.4482	0.0197
48	3.4873	0.0195
49	3.5260	0.0193
50	3.5643	0.0191
51	3.6023	0.0190
52	3.6400	0.0188
53	3.6773	0.0186
54	3.7143	0.0185
55	3.7509	0.0183
56	3.7873	0.0181
57	3.8234	0.0180
58	3.8591	0.0178
59	3.8946	0.0177
60	3.9298	0.0176
61	3.9647	0.0174
62	3.9994	0.0173
63	4.0338	0.0172
64	4.0680	0.0170
65	4.1019	0.0169
66	4.1355	0.0168
67	4.1690	0.0167
68	4.2022	0.0166
69	4.2351	0.0165
70	4.2679	0.0163
71	4.3004	0.0162

72	4.3327	0.0161
73	4.3649	0.0160
74	4.3968	0.0159
75	4.4285	0.0158
76	4.4600	0.0157
77	4.4913	0.0156
78	4.5225	0.0155
79	4.5534	0.0155
80	4.5842	0.0154
81	4.6148	0.0153
82	4.6452	0.0152
83	4.6754	0.0151
84	4.7055	0.0150
85	4.7354	0.0149
86	4.7652	0.0149
87	4.7947	0.0148
88	4.8242	0.0147
89	4.8534	0.0146
90	4.8826	0.0145
91	4.9115	0.0145
92	4.9404	0.0144
93	4.9690	0.0143
94	4.9976	0.0142
95	5.0260	0.0142
96	5.0542	0.0141
97	5.0823	0.0140
98	5.1103	0.0140
99	5.1382	0.0139
100	5.1659	0.0138
101	5.1935	0.0138
102	5.2209	0.0137
103	5.2483	0.0137
104	5.2755	0.0136
105	5.3026	0.0135
106	5.3296	0.0135
107	5.3564	0.0134
108	5.3832	0.0134
109	5.4098	0.0133
110	5.4363	0.0132
111	5.4627	0.0132
112	5.4890	0.0131
113	5.5152	0.0131
114	5.5413	0.0130
115	5.5673	0.0130
116	5.5931	0.0129
117	5.6189	0.0129
118	5.6446	0.0128
119	5.6701	0.0128
120	5.6956	0.0127
121	5.7209	0.0127
122	5.7462	0.0126

123	5.7714	0.0126
124	5.7964	0.0125
125	5.8214	0.0125
126	5.8463	0.0124
127	5.8711	0.0124
128	5.8958	0.0123
129	5.9204	0.0123
130	5.9450	0.0123
131	5.9694	0.0122
132	5.9937	0.0122
133	6.0180	0.0121
134	6.0422	0.0121
135	6.0663	0.0120
136	6.0903	0.0120
137	6.1142	0.0120
138	6.1381	0.0119
139	6.1619	0.0119
140	6.1856	0.0118
141	6.2092	0.0118
142	6.2327	0.0118
143	6.2562	0.0117
144	6.2796	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0248	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149

25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0412	0.0181	0.0231

76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0526	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0574	0.0252	0.0322
86	0.0602	0.0264	0.0337
87	0.0634	0.0278	0.0355
88	0.0672	0.0295	0.0377
89	0.0717	0.0315	0.0402
90	0.0772	0.0339	0.0433
91	0.0841	0.0369	0.0472
92	0.0932	0.0409	0.0523
93	0.0685	0.0301	0.0384
94	0.0857	0.0376	0.0481
95	0.1197	0.0526	0.0671
96	0.2383	0.0755	0.1629
97	0.6871	0.0755	0.6116
98	0.0874	0.0384	0.0490
99	0.0936	0.0411	0.0525
100	0.0773	0.0340	0.0434
101	0.0672	0.0295	0.0377
102	0.0602	0.0264	0.0338
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0446	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0294	0.0129	0.0165

127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 78.68(CFS)

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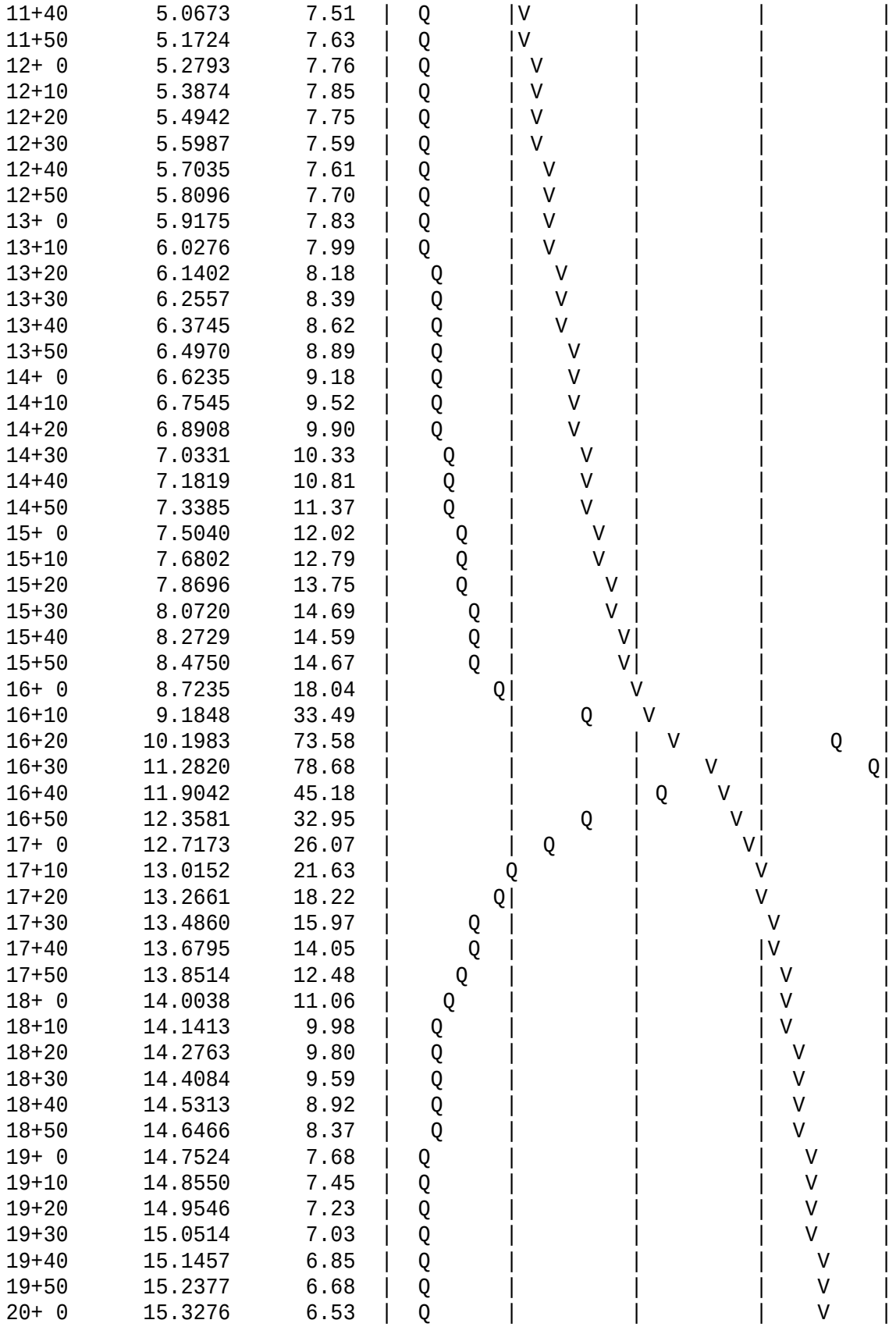
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+10	0.0022	0.16	Q	|	|	|	|
0+20	0.0190	1.22	Q	|	|	|	|
0+30	0.0542	2.56	VQ	|	|	|	|
0+40	0.0979	3.17	VQ	|	|	|	|
0+50	0.1465	3.53	VQ	|	|	|	|
1+ 0	0.1985	3.78	VQ	|	|	|	|
1+10	0.2530	3.96	VQ	|	|	|	|
1+20	0.3095	4.10	V Q	|	|	|	|
1+30	0.3675	4.21	V Q	|	|	|	|
1+40	0.4267	4.30	V Q	|	|	|	|
1+50	0.4870	4.38	|VQ	|	|	|	|
2+ 0	0.5481	4.44	|VQ	|	|	|	|
2+10	0.6098	4.48	|VQ	|	|	|	|
2+20	0.6723	4.53	|VQ	|	|	|	|
2+30	0.7353	4.58	|VQ	|	|	|	|
2+40	0.7990	4.62	|VQ	|	|	|	|
2+50	0.8632	4.66	|VQ	|	|	|	|
3+ 0	0.9277	4.68	| Q	|	|	|	|

3+10	0.9926	4.71	Q				
3+20	1.0578	4.74	Q				
3+30	1.1235	4.77	Q				
3+40	1.1895	4.79	Q				
3+50	1.2560	4.82	Q				
4+ 0	1.3228	4.85	QV				
4+10	1.3901	4.88	QV				
4+20	1.4578	4.91	QV				
4+30	1.5259	4.95	QV				
4+40	1.5945	4.98	QV				
4+50	1.6635	5.01	QV				
5+ 0	1.7329	5.04	Q V				
5+10	1.8029	5.08	Q V				
5+20	1.8733	5.11	Q V				
5+30	1.9442	5.15	Q V				
5+40	2.0156	5.18	Q V				
5+50	2.0875	5.22	Q V				
6+ 0	2.1599	5.26	Q V				
6+10	2.2329	5.30	Q V				
6+20	2.3064	5.34	Q V				
6+30	2.3805	5.38	Q V				
6+40	2.4552	5.42	Q V				
6+50	2.5304	5.46	Q V				
7+ 0	2.6063	5.51	Q V				
7+10	2.6827	5.55	Q V				
7+20	2.7599	5.60	Q V				
7+30	2.8376	5.65	Q V				
7+40	2.9160	5.69	Q V				
7+50	2.9952	5.74	Q V				
8+ 0	3.0750	5.80	Q V				
8+10	3.1556	5.85	Q V				
8+20	3.2369	5.90	Q V				
8+30	3.3190	5.96	Q V				
8+40	3.4018	6.02	Q V				
8+50	3.4855	6.08	Q V				
9+ 0	3.5701	6.14	Q V				
9+10	3.6555	6.20	Q V				
9+20	3.7419	6.27	Q V				
9+30	3.8291	6.34	Q V				
9+40	3.9174	6.41	Q V				
9+50	4.0066	6.48	Q V				
10+ 0	4.0969	6.56	Q V				
10+10	4.1883	6.63	Q V				
10+20	4.2808	6.72	Q V				
10+30	4.3744	6.80	Q V				
10+40	4.4693	6.89	Q V				
10+50	4.5655	6.98	Q V				
11+ 0	4.6629	7.08	Q V				
11+10	4.7618	7.18	Q V				
11+20	4.8621	7.28	Q V				
11+30	4.9639	7.39	Q V				



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   20+10      15.4155      6.38  |  Q      |         |         |    V    |
   20+20      15.5015      6.24  |  Q      |         |         |    V    |
   20+30      15.5858      6.12  |  Q      |         |         |     V   |
   20+40      15.6685      6.00  |  Q      |         |         |     V   |
   20+50      15.7496      5.89  | Q       |         |         |     V   |
   21+ 0      15.8292      5.78  | Q       |         |         |     V   |
   21+10      15.9074      5.68  | Q       |         |         |     V   |
   21+20      15.9843      5.58  | Q       |         |         |      V  |
   21+30      16.0599      5.49  | Q       |         |         |      V  |
   21+40      16.1344      5.40  | Q       |         |         |      V  |
   21+50      16.2077      5.32  | Q       |         |         |      V  |
   22+ 0      16.2799      5.24  | Q       |         |         |      V  |
   22+10      16.3511      5.17  | Q       |         |         |      V  |
   22+20      16.4213      5.10  | Q       |         |         |       V |
   22+30      16.4906      5.03  | Q       |         |         |       V |
   22+40      16.5590      4.96  | Q       |         |         |       V |
   22+50      16.6265      4.90  | Q       |         |         |       V |
   23+ 0      16.6931      4.84  | Q       |         |         |       V |
   23+10      16.7590      4.78  | Q       |         |         |       V |
   23+20      16.8241      4.73  | Q       |         |         |       V |
   23+30      16.8884      4.67  | Q       |         |         |        V|
   23+40      16.9521      4.62  | Q       |         |         |        V|
   23+50      17.0150      4.57  | Q       |         |         |        V|
   24+ 0      17.0773      4.52  | Q       |         |         |        V|
   24+10      17.1367      4.31  | Q       |         |         |        V|
   24+20      17.1810      3.22  |Q        |         |         |        V|
   24+30      17.2066      1.86  Q         |         |         |        V|
-------------------------------------------------------------------------
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127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 78.68(CFS)

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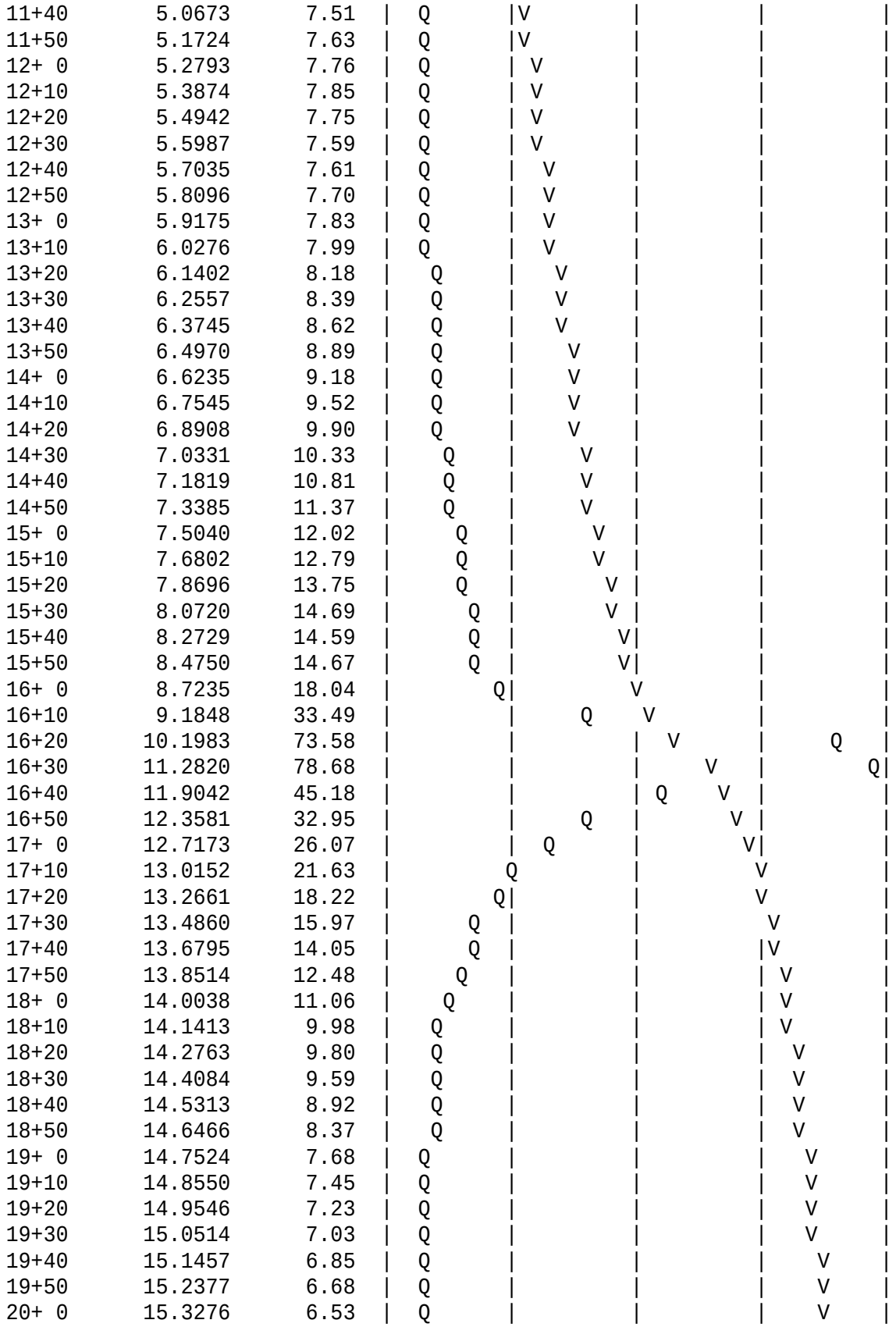
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+10	0.0022	0.16	Q	|	|	|	|
0+20	0.0190	1.22	Q	|	|	|	|
0+30	0.0542	2.56	VQ	|	|	|	|
0+40	0.0979	3.17	VQ	|	|	|	|
0+50	0.1465	3.53	VQ	|	|	|	|
1+ 0	0.1985	3.78	VQ	|	|	|	|
1+10	0.2530	3.96	VQ	|	|	|	|
1+20	0.3095	4.10	V Q	|	|	|	|
1+30	0.3675	4.21	V Q	|	|	|	|
1+40	0.4267	4.30	V Q	|	|	|	|
1+50	0.4870	4.38	|VQ	|	|	|	|
2+ 0	0.5481	4.44	|VQ	|	|	|	|
2+10	0.6098	4.48	|VQ	|	|	|	|
2+20	0.6723	4.53	|VQ	|	|	|	|
2+30	0.7353	4.58	|VQ	|	|	|	|
2+40	0.7990	4.62	|VQ	|	|	|	|
2+50	0.8632	4.66	|VQ	|	|	|	|
3+ 0	0.9277	4.68	| Q	|	|	|	|

3+10	0.9926	4.71	Q				
3+20	1.0578	4.74	Q				
3+30	1.1235	4.77	Q				
3+40	1.1895	4.79	Q				
3+50	1.2560	4.82	Q				
4+ 0	1.3228	4.85	QV				
4+10	1.3901	4.88	QV				
4+20	1.4578	4.91	QV				
4+30	1.5259	4.95	QV				
4+40	1.5945	4.98	QV				
4+50	1.6635	5.01	QV				
5+ 0	1.7329	5.04	Q V				
5+10	1.8029	5.08	Q V				
5+20	1.8733	5.11	Q V				
5+30	1.9442	5.15	Q V				
5+40	2.0156	5.18	Q V				
5+50	2.0875	5.22	Q V				
6+ 0	2.1599	5.26	Q V				
6+10	2.2329	5.30	Q V				
6+20	2.3064	5.34	Q V				
6+30	2.3805	5.38	Q V				
6+40	2.4552	5.42	Q V				
6+50	2.5304	5.46	Q V				
7+ 0	2.6063	5.51	Q V				
7+10	2.6827	5.55	Q V				
7+20	2.7599	5.60	Q V				
7+30	2.8376	5.65	Q V				
7+40	2.9160	5.69	Q V				
7+50	2.9952	5.74	Q V				
8+ 0	3.0750	5.80	Q V				
8+10	3.1556	5.85	Q V				
8+20	3.2369	5.90	Q V				
8+30	3.3190	5.96	Q V				
8+40	3.4018	6.02	Q V				
8+50	3.4855	6.08	Q V				
9+ 0	3.5701	6.14	Q V				
9+10	3.6555	6.20	Q V				
9+20	3.7419	6.27	Q V				
9+30	3.8291	6.34	Q V				
9+40	3.9174	6.41	Q V				
9+50	4.0066	6.48	Q V				
10+ 0	4.0969	6.56	Q V				
10+10	4.1883	6.63	Q V				
10+20	4.2808	6.72	Q V				
10+30	4.3744	6.80	Q V				
10+40	4.4693	6.89	Q V				
10+50	4.5655	6.98	Q V				
11+ 0	4.6629	7.08	Q V				
11+10	4.7618	7.18	Q V				
11+20	4.8621	7.28	Q V				
11+30	4.9639	7.39	Q V				



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   20+10      15.4155      6.38  |  Q      |         |         |    V    |
   20+20      15.5015      6.24  |  Q      |         |         |    V    |
   20+30      15.5858      6.12  |  Q      |         |         |     V   |
   20+40      15.6685      6.00  |  Q      |         |         |     V   |
   20+50      15.7496      5.89  | Q       |         |         |     V   |
   21+ 0      15.8292      5.78  | Q       |         |         |     V   |
   21+10      15.9074      5.68  | Q       |         |         |     V   |
   21+20      15.9843      5.58  | Q       |         |         |      V  |
   21+30      16.0599      5.49  | Q       |         |         |      V  |
   21+40      16.1344      5.40  | Q       |         |         |      V  |
   21+50      16.2077      5.32  | Q       |         |         |      V  |
   22+ 0      16.2799      5.24  | Q       |         |         |      V  |
   22+10      16.3511      5.17  | Q       |         |         |      V  |
   22+20      16.4213      5.10  | Q       |         |         |       V |
   22+30      16.4906      5.03  | Q       |         |         |       V |
   22+40      16.5590      4.96  | Q       |         |         |       V |
   22+50      16.6265      4.90  | Q       |         |         |       V |
   23+ 0      16.6931      4.84  | Q       |         |         |       V |
   23+10      16.7590      4.78  | Q       |         |         |       V |
   23+20      16.8241      4.73  | Q       |         |         |       V |
   23+30      16.8884      4.67  | Q       |         |         |        V|
   23+40      16.9521      4.62  | Q       |         |         |        V|
   23+50      17.0150      4.57  | Q       |         |         |        V|
   24+ 0      17.0773      4.52  | Q       |         |         |        V|
   24+10      17.1367      4.31  | Q       |         |         |        V|
   24+20      17.1810      3.22  |Q        |         |         |        V|
   24+30      17.2066      1.86  Q         |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA E
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
8.64	1	0.77
Rainfall data for year 2		
8.64	6	1.08
Rainfall data for year 2		
8.64	24	2.03
Rainfall data for year 100		
8.64	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            8.64            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            8.64           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          8.64      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     8.64   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.294 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       8.64(Ac.)
Catchment Lag time =   0.235 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 70.9582
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       8.64(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 52.25 (CFS))	
1	8.068	4.215
2	51.217	22.543
3	74.028	11.917
4	83.992	5.206
5	89.796	3.032
6	93.414	1.890
7	95.859	1.277
8	97.461	0.837
9	98.352	0.466
10	99.186	0.435
11	100.000	0.426

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7533	0.1414
2	0.9274	0.0767
3	1.0474	0.0557
4	1.1418	0.0448
5	1.2208	0.0380
6	1.2895	0.0332
7	1.3863	0.0474
8	1.4759	0.0441
9	1.5599	0.0413
10	1.6390	0.0390
11	1.7140	0.0370
12	1.7854	0.0353
13	1.8538	0.0338
14	1.9194	0.0325
15	1.9826	0.0313
16	2.0436	0.0302
17	2.1026	0.0293
18	2.1598	0.0284
19	2.2153	0.0275
20	2.2693	0.0268
21	2.3218	0.0261
22	2.3731	0.0255
23	2.4231	0.0249
24	2.4719	0.0243
25	2.5197	0.0238
26	2.5665	0.0233

27	2.6124	0.0228
28	2.6574	0.0224
29	2.7015	0.0220
30	2.7448	0.0216
31	2.7873	0.0212
32	2.8292	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9507	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2055	0.0210
42	3.2471	0.0208
43	3.2883	0.0205
44	3.3290	0.0203
45	3.3693	0.0201
46	3.4092	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5648	0.0191
51	3.6028	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7514	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8596	0.0178
59	3.8950	0.0177
60	3.9302	0.0176
61	3.9652	0.0174
62	3.9998	0.0173
63	4.0343	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1360	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2356	0.0165
70	4.2683	0.0163
71	4.3009	0.0162
72	4.3332	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4918	0.0156

78	4.5229	0.0155
79	4.5538	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152
83	4.6759	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7656	0.0149
87	4.7952	0.0148
88	4.8246	0.0147
89	4.8539	0.0146
90	4.8830	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9980	0.0142
95	5.0264	0.0142
96	5.0546	0.0141
97	5.0828	0.0140
98	5.1107	0.0140
99	5.1386	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2214	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3569	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4631	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5677	0.0130
116	5.5935	0.0129
117	5.6193	0.0129
118	5.6450	0.0128
119	5.6705	0.0128
120	5.6960	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7718	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123

129	5.9208	0.0123
130	5.9453	0.0123
131	5.9698	0.0122
132	5.9941	0.0122
133	6.0184	0.0121
134	6.0426	0.0121
135	6.0667	0.0120
136	6.0907	0.0120
137	6.1146	0.0120
138	6.1385	0.0119
139	6.1622	0.0119
140	6.1859	0.0118
141	6.2096	0.0118
142	6.2331	0.0118
143	6.2565	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155

31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274

82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336
87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0930	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2389	0.0755	0.1634
97	0.6886	0.0755	0.6131
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0670	0.0294	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151

133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 16.70(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+10	0.0008	0.06	Q	|	|	|	|
0+20	0.0056	0.35	Q	|	|	|	|
0+30	0.0126	0.51	VQ	|	|	|	|
0+40	0.0206	0.58	VQ	|	|	|	|
0+50	0.0292	0.62	VQ	|	|	|	|
1+ 0	0.0381	0.65	VQ	|	|	|	|
1+10	0.0474	0.67	VQ	|	|	|	|
1+20	0.0568	0.68	VQ	|	|	|	|
1+30	0.0664	0.69	VQ	|	|	|	|
1+40	0.0761	0.70	|Q	|	|	|	|
1+50	0.0859	0.71	|Q	|	|	|	|
2+ 0	0.0958	0.72	|Q	|	|	|	|
2+10	0.1057	0.72	|Q	|	|	|	|
2+20	0.1157	0.72	|Q	|	|	|	|
2+30	0.1257	0.73	|Q	|	|	|	|
2+40	0.1358	0.73	|Q	|	|	|	|
2+50	0.1460	0.74	|QV	|	|	|	|
3+ 0	0.1562	0.74	|QV	|	|	|	|
3+10	0.1665	0.75	|QV	|	|	|	|
3+20	0.1768	0.75	|QV	|	|	|	|
3+30	0.1872	0.75	|QV	|	|	|	|
3+40	0.1976	0.76	|QV	|	|	|	|
3+50	0.2082	0.76	|Q V	|	|	|	|
4+ 0	0.2188	0.77	|Q V	|	|	|	|

```
 4+10       0.2294      0.77  |Q V      |         |         |         |
 4+20       0.2401      0.78  |Q V      |         |         |         |
 4+30       0.2509      0.78  |Q V      |         |         |         |
 4+40       0.2618      0.79  |Q V      |         |         |         |
 4+50       0.2727      0.79  |Q  V     |         |         |         |
 5+ 0       0.2837      0.80  |Q  V     |         |         |         |
 5+10       0.2948      0.80  |Q  V     |         |         |         |
 5+20       0.3059      0.81  |Q  V     |         |         |         |
 5+30       0.3172      0.82  |Q  V     |         |         |         |
 5+40       0.3285      0.82  |Q  V     |         |         |         |
 5+50       0.3399      0.83  |Q   V    |         |         |         |
 6+ 0       0.3514      0.83  |Q   V    |         |         |         |
 6+10       0.3630      0.84  |Q   V    |         |         |         |
 6+20       0.3746      0.85  |Q   V    |         |         |         |
 6+30       0.3864      0.85  |Q   V    |         |         |         |
 6+40       0.3982      0.86  |Q   V    |         |         |         |
 6+50       0.4101      0.87  |Q    V   |         |         |         |
 7+ 0       0.4222      0.87  |Q    V   |         |         |         |
 7+10       0.4343      0.88  |Q    V   |         |         |         |
 7+20       0.4465      0.89  |Q    V   |         |         |         |
 7+30       0.4589      0.90  |Q    V   |         |         |         |
 7+40       0.4713      0.90  |Q    V   |         |         |         |
 7+50       0.4839      0.91  |Q     V  |         |         |         |
 8+ 0       0.4966      0.92  |Q     V  |         |         |         |
 8+10       0.5094      0.93  |Q     V  |         |         |         |
 8+20       0.5223      0.94  |Q     V  |         |         |         |
 8+30       0.5353      0.95  |Q     V  |         |         |         |
 8+40       0.5485      0.96  |Q      V |         |         |         |
 8+50       0.5618      0.97  |Q      V |         |         |         |
 9+ 0       0.5752      0.98  |Q      V |         |         |         |
 9+10       0.5888      0.99  |Q      V |         |         |         |
 9+20       0.6025      1.00  |Q      V |         |         |         |
 9+30       0.6164      1.01  | Q      V|         |         |         |
 9+40       0.6305      1.02  | Q      V|         |         |         |
 9+50       0.6447      1.03  | Q      V|         |         |         |
10+ 0       0.6590      1.04  | Q      V|         |         |         |
10+10       0.6736      1.06  | Q      V|         |         |         |
10+20       0.6883      1.07  | Q       V         |         |         |
10+30       0.7032      1.08  | Q       V         |         |         |
10+40       0.7184      1.10  | Q       V         |         |         |
10+50       0.7337      1.11  | Q       V         |         |         |
11+ 0       0.7492      1.13  | Q        V        |         |         |
11+10       0.7650      1.15  | Q       |V        |         |         |
11+20       0.7810      1.16  | Q       |V        |         |         |
11+30       0.7973      1.18  | Q       |V        |         |         |
11+40       0.8138      1.20  | Q       |V        |         |         |
11+50       0.8306      1.22  | Q       | V       |         |         |
12+ 0       0.8477      1.24  | Q       | V       |         |         |
12+10       0.8649      1.25  | Q       | V       |         |         |
12+20       0.8815      1.20  | Q       | V       |         |         |
12+30       0.8979      1.19  | Q       |  V      |         |         |
```

12+40	0.9145	1.20	Q	V			
12+50	0.9313	1.22	Q	V			
13+ 0	0.9485	1.25	Q	V			
13+10	0.9661	1.28	Q	V			
13+20	0.9841	1.31	Q	V			
13+30	1.0027	1.35	Q	V			
13+40	1.0218	1.39	Q	V			
13+50	1.0416	1.43	Q	V			
14+ 0	1.0621	1.49	Q	V			
14+10	1.0833	1.54	Q	V			
14+20	1.1055	1.61	Q	V			
14+30	1.1287	1.68	Q	V			
14+40	1.1530	1.77	Q	V			
14+50	1.1787	1.86	Q	V			
15+ 0	1.2060	1.98	Q	V			
15+10	1.2352	2.12	Q	V			
15+20	1.2668	2.29	Q	V			
15+30	1.3003	2.43	Q	V			
15+40	1.3315	2.26	Q	V			
15+50	1.3652	2.45	Q	V			
16+ 0	1.4115	3.36	Q	V			
16+10	1.5173	7.68	Q	V			
16+20	1.7474	16.70	V	Q			
16+30	1.8842	9.93	Q	V			
16+40	1.9657	5.92	Q	V			
16+50	2.0259	4.37	Q	V			
17+ 0	2.0729	3.41	Q	V			
17+10	2.1115	2.80	Q	V			
17+20	2.1437	2.34	Q	V			
17+30	2.1710	1.98	Q	V			
17+40	2.1963	1.83	Q	V			
17+50	2.2193	1.67	Q	V			
18+ 0	2.2379	1.35	Q	V			
18+10	2.2556	1.28	Q	V			
18+20	2.2733	1.29	Q	V			
18+30	2.2907	1.26	Q	V			
18+40	2.3076	1.23	Q	V			
18+50	2.3241	1.20	Q	V			
19+ 0	2.3401	1.16	Q	V			
19+10	2.3557	1.13	Q	V			
19+20	2.3709	1.10	Q	V			
19+30	2.3857	1.07	Q	V			
19+40	2.4001	1.05	Q	V			
19+50	2.4143	1.03	Q	V			
20+ 0	2.4281	1.00	Q	V			
20+10	2.4416	0.98	Q	V			
20+20	2.4548	0.96	Q	V			
20+30	2.4678	0.94	Q	V			
20+40	2.4805	0.92	Q	V			
20+50	2.4930	0.91	Q	V			
21+ 0	2.5053	0.89	Q	V			

```
   21+10       2.5174      0.88  |Q        |         |         |      V  |
   21+20       2.5292      0.86  |Q        |         |         |      V  |
   21+30       2.5409      0.85  |Q        |         |         |      V  |
   21+40       2.5524      0.84  |Q        |         |         |      V  |
   21+50       2.5638      0.82  |Q        |         |         |      V  |
   22+ 0       2.5750      0.81  |Q        |         |         |      V  |
   22+10       2.5860      0.80  |Q        |         |         |       V |
   22+20       2.5969      0.79  |Q        |         |         |       V |
   22+30       2.6077      0.78  |Q        |         |         |       V |
   22+40       2.6183      0.77  |Q        |         |         |       V |
   22+50       2.6287      0.76  |Q        |         |         |       V |
   23+ 0       2.6391      0.75  |Q        |         |         |       V |
   23+10       2.6493      0.74  |Q        |         |         |       V |
   23+20       2.6594      0.73  |Q        |         |         |        V|
   23+30       2.6695      0.73  |Q        |         |         |        V|
   23+40       2.6794      0.72  |Q        |         |         |        V|
   23+50       2.6891      0.71  |Q        |         |         |        V|
   24+ 0       2.6988      0.70  |Q        |         |         |        V|
   24+10       2.7077      0.64  |Q        |         |         |        V|
   24+20       2.7124      0.34  Q         |         |         |        V|
   24+30       2.7149      0.18  Q         |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA F
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
13.47	1	0.77
Rainfall data for year 2		
13.47	6	1.08
Rainfall data for year 2		
13.47	24	2.03
Rainfall data for year 100		
13.47	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            13.47            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            13.47           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0         13.47      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    13.47   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.274 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      13.47(Ac.)
Catchment Lag time =   0.219 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 76.0341
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      13.47(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.612(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 81.45 (CFS))	
1	9.515	7.750
2	54.852	36.928
3	76.268	17.444
4	85.718	7.697
5	91.101	4.384
6	94.490	2.761
7	96.695	1.796
8	97.987	1.052
9	98.855	0.707
10	99.630	0.631
11	100.000	0.301

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7531	0.1414
2	0.9272	0.0767
3	1.0471	0.0557
4	1.1415	0.0448
5	1.2206	0.0380
6	1.2892	0.0332
7	1.3860	0.0474
8	1.4757	0.0441
9	1.5596	0.0413
10	1.6387	0.0390
11	1.7138	0.0370
12	1.7853	0.0353
13	1.8536	0.0338
14	1.9193	0.0325
15	1.9825	0.0313
16	2.0435	0.0302
17	2.1025	0.0293
18	2.1598	0.0284
19	2.2152	0.0275
20	2.2692	0.0268
21	2.3218	0.0261
22	2.3730	0.0255
23	2.4230	0.0249
24	2.4719	0.0243
25	2.5197	0.0238
26	2.5665	0.0233

27	2.6123	0.0228
28	2.6573	0.0224
29	2.7014	0.0220
30	2.7447	0.0216
31	2.7873	0.0212
32	2.8291	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9506	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2054	0.0210
42	3.2471	0.0208
43	3.2882	0.0205
44	3.3289	0.0203
45	3.3692	0.0201
46	3.4091	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5647	0.0191
51	3.6027	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7513	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8595	0.0178
59	3.8950	0.0177
60	3.9302	0.0176
61	3.9651	0.0174
62	3.9998	0.0173
63	4.0342	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1359	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2355	0.0165
70	4.2683	0.0163
71	4.3008	0.0162
72	4.3331	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4917	0.0156

78	4.5228	0.0155
79	4.5538	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152
83	4.6758	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7655	0.0149
87	4.7951	0.0148
88	4.8245	0.0147
89	4.8538	0.0146
90	4.8829	0.0145
91	4.9119	0.0145
92	4.9407	0.0144
93	4.9694	0.0143
94	4.9979	0.0142
95	5.0263	0.0142
96	5.0546	0.0141
97	5.0827	0.0140
98	5.1107	0.0140
99	5.1385	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2213	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3568	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4631	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5676	0.0130
116	5.5935	0.0129
117	5.6192	0.0129
118	5.6449	0.0128
119	5.6705	0.0128
120	5.6959	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7717	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123

129	5.9208	0.0123
130	5.9453	0.0123
131	5.9697	0.0122
132	5.9941	0.0122
133	6.0184	0.0121
134	6.0425	0.0121
135	6.0666	0.0120
136	6.0906	0.0120
137	6.1146	0.0120
138	6.1384	0.0119
139	6.1622	0.0119
140	6.1859	0.0118
141	6.2095	0.0118
142	6.2331	0.0118
143	6.2565	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155

31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274

82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336
87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0931	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1199	0.0527	0.0673
96	0.2388	0.0755	0.1633
97	0.6884	0.0755	0.6129
98	0.0875	0.0384	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0671	0.0295	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151

133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 26.91(CFS)

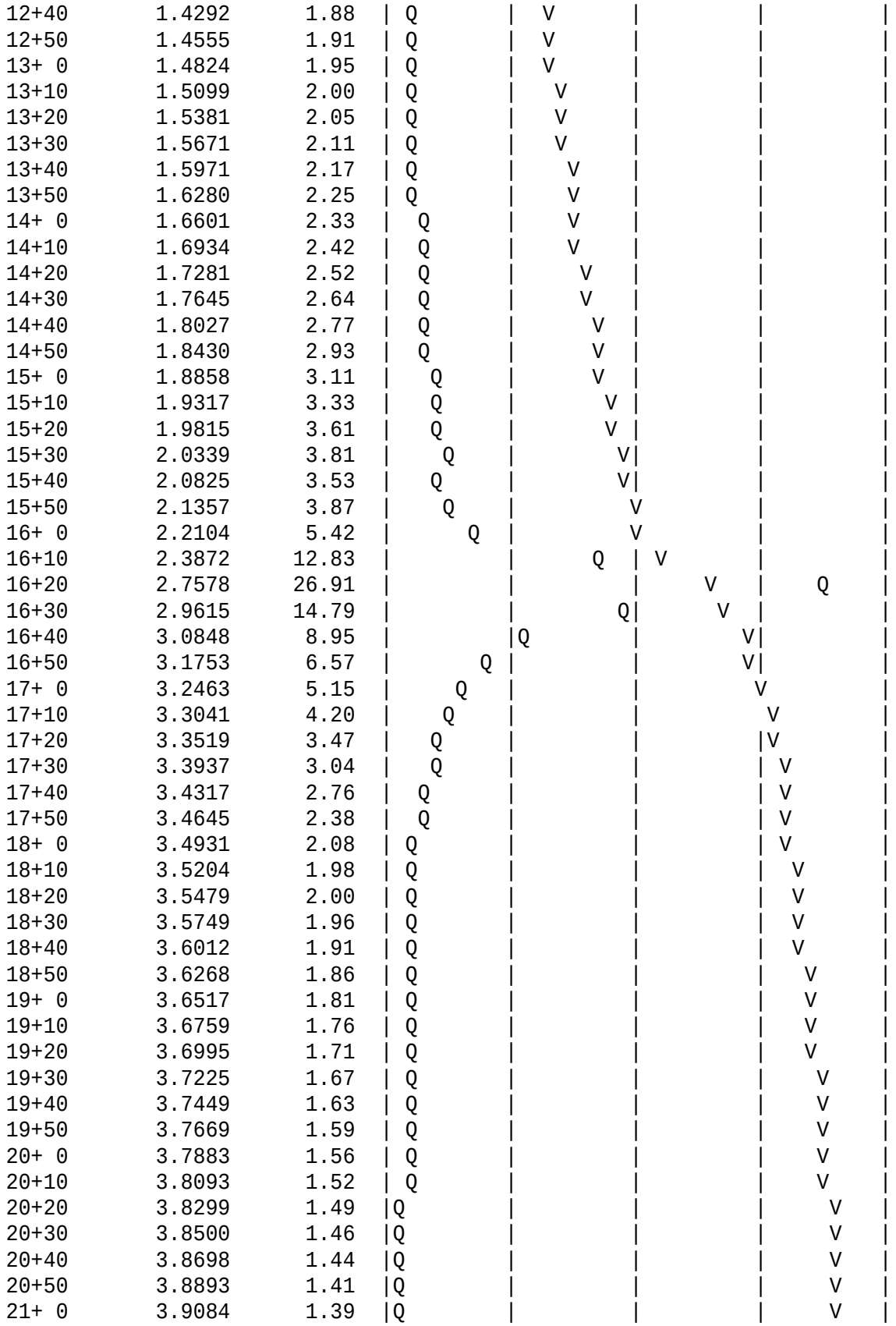
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+10	0.0014	0.10	Q	|	|	|	|
0+20	0.0095	0.59	Q	|	|	|	|
0+30	0.0207	0.82	VQ	|	|	|	|
0+40	0.0335	0.92	VQ	|	|	|	|
0+50	0.0470	0.99	VQ	|	|	|	|
1+ 0	0.0612	1.03	VQ	|	|	|	|
1+10	0.0757	1.06	VQ	|	|	|	|
1+20	0.0905	1.07	VQ	|	|	|	|
1+30	0.1055	1.09	VQ	|	|	|	|
1+40	0.1207	1.10	|Q	|	|	|	|
1+50	0.1360	1.11	|Q	|	|	|	|
2+ 0	0.1514	1.12	|Q	|	|	|	|
2+10	0.1669	1.12	|Q	|	|	|	|
2+20	0.1825	1.13	|Q	|	|	|	|
2+30	0.1982	1.14	|Q	|	|	|	|
2+40	0.2139	1.14	|QV	|	|	|	|
2+50	0.2298	1.15	|QV	|	|	|	|
3+ 0	0.2457	1.16	|QV	|	|	|	|
3+10	0.2617	1.16	|QV	|	|	|	|
3+20	0.2778	1.17	|QV	|	|	|	|
3+30	0.2941	1.18	|QV	|	|	|	|
3+40	0.3104	1.18	|QV	|	|	|	|
3+50	0.3268	1.19	|Q V	|	|	|	|
4+ 0	0.3433	1.20	|Q V	|	|	|	|

4+10	0.3599	1.21	Q V			
4+20	0.3766	1.21	Q V			
4+30	0.3935	1.22	Q V			
4+40	0.4104	1.23	Q V			
4+50	0.4275	1.24	Q V			
5+ 0	0.4447	1.25	Q V			
5+10	0.4620	1.26	Q V			
5+20	0.4794	1.26	Q V			
5+30	0.4969	1.27	Q V			
5+40	0.5146	1.28	Q V			
5+50	0.5323	1.29	Q V			
6+ 0	0.5503	1.30	Q V			
6+10	0.5683	1.31	Q V			
6+20	0.5865	1.32	Q V			
6+30	0.6048	1.33	Q V			
6+40	0.6233	1.34	Q V			
6+50	0.6420	1.35	Q V			
7+ 0	0.6607	1.36	Q V			
7+10	0.6797	1.37	Q V			
7+20	0.6988	1.39	Q V			
7+30	0.7180	1.40	Q V			
7+40	0.7375	1.41	Q V			
7+50	0.7571	1.42	Q V			
8+ 0	0.7769	1.44	Q V			
8+10	0.7968	1.45	Q V			
8+20	0.8170	1.46	Q V			
8+30	0.8373	1.48	Q V			
8+40	0.8579	1.49	Q V			
8+50	0.8787	1.51	Q V			
9+ 0	0.8996	1.52	Q V			
9+10	0.9208	1.54	Q V			
9+20	0.9423	1.56	Q V			
9+30	0.9640	1.57	Q V			
9+40	0.9859	1.59	Q V			
9+50	1.0081	1.61	Q V			
10+ 0	1.0305	1.63	Q V			
10+10	1.0532	1.65	Q V			
10+20	1.0762	1.67	Q V			
10+30	1.0995	1.69	Q V			
10+40	1.1231	1.71	Q V			
10+50	1.1471	1.74	Q V			
11+ 0	1.1714	1.76	Q V			
11+10	1.1960	1.79	Q V			
11+20	1.2210	1.82	Q V			
11+30	1.2464	1.84	Q V			
11+40	1.2722	1.87	Q V			
11+50	1.2984	1.91	Q V			
12+ 0	1.3251	1.94	Q V			
12+10	1.3520	1.95	Q V			
12+20	1.3778	1.87	Q V			
12+30	1.4034	1.86	Q V			



```
   21+10       3.9271      1.36  |Q        |         |         |      V  |
   21+20       3.9456      1.34  |Q        |         |         |      V  |
   21+30       3.9638      1.32  |Q        |         |         |      V  |
   21+40       3.9817      1.30  |Q        |         |         |      V  |
   21+50       3.9994      1.28  |Q        |         |         |      V  |
   22+ 0       4.0168      1.26  |Q        |         |         |      V  |
   22+10       4.0339      1.25  |Q        |         |         |       V |
   22+20       4.0509      1.23  |Q        |         |         |       V |
   22+30       4.0676      1.21  |Q        |         |         |       V |
   22+40       4.0841      1.20  |Q        |         |         |       V |
   22+50       4.1004      1.18  |Q        |         |         |       V |
   23+ 0       4.1165      1.17  |Q        |         |         |       V |
   23+10       4.1325      1.16  |Q        |         |         |       V |
   23+20       4.1482      1.14  |Q        |         |         |        V|
   23+30       4.1638      1.13  |Q        |         |         |        V|
   23+40       4.1792      1.12  |Q        |         |         |        V|
   23+50       4.1944      1.11  |Q        |         |         |        V|
   24+ 0       4.2095      1.10  |Q        |         |         |        V|
   24+10       4.2231      0.98  |Q        |         |         |        V|
   24+20       4.2298      0.49  Q         |         |         |        V|
   24+30       4.2334      0.26  Q         |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 12/06/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
Entire Site

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
193.82	1	0.77
Rainfall data for year 2		
193.82	6	1.08
Rainfall data for year 2		
193.82	24	2.03
Rainfall data for year 100		
193.82	1	1.29
Rainfall data for year 100		
193.82	6	2.99
Rainfall data for year 100		

```
           193.82           24           6.28
--------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0        193.82      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    19.38   0.100         32.0      52.0       9.23     0.229
   174.44   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.254 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     193.82(Ac.)
Catchment Lag time =   0.203 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 41.0105
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of     193.82(Ac.) (Ref: fig. E-4)

5-minute factor = 0.991     Adjusted rainfall =  0.607(In)
30-minute factor = 0.991    Adjusted rainfall =  1.038(In)
1-hour factor = 0.991       Adjusted rainfall =  1.278(In)
3-hour factor = 0.999       Adjusted rainfall =  2.157(In)
6-hour factor = 0.999       Adjusted rainfall =  2.988(In)
24-hour factor = 1.000      Adjusted rainfall =  6.278(In)
--------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
--------------------------------------------------------------------
```

(K = 2344.01 (CFS))

1	2.861	67.051
2	19.853	398.298
3	50.578	720.199
4	66.609	375.772
5	75.604	210.843
6	81.544	139.231
7	85.860	101.168
8	89.114	76.266
9	91.485	55.598
10	93.428	45.539
11	94.941	35.451
12	96.162	28.632
13	97.121	22.483
14	97.809	16.112
15	98.252	10.394
16	98.728	11.153
17	99.220	11.535
18	99.610	9.139
19	99.867	6.021
20	100.000	3.121

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6066	0.6066
2	0.7468	0.1402
3	0.8434	0.0966
4	0.9194	0.0760
5	0.9830	0.0637
6	1.0383	0.0553
7	1.0874	0.0491
8	1.1319	0.0444
9	1.1726	0.0407
10	1.2102	0.0377
11	1.2453	0.0351
12	1.2783	0.0329
13	1.3280	0.0497
14	1.3757	0.0477
15	1.4217	0.0460
16	1.4661	0.0444
17	1.5090	0.0430
18	1.5507	0.0417
19	1.5911	0.0405
20	1.6305	0.0394
21	1.6688	0.0383
22	1.7062	0.0374
23	1.7428	0.0365
24	1.7785	0.0357
25	1.8134	0.0349
26	1.8476	0.0342
27	1.8811	0.0335
28	1.9140	0.0329
29	1.9463	0.0323
30	1.9779	0.0317
31	2.0091	0.0311

32	2.0397	0.0306
33	2.0698	0.0301
34	2.0995	0.0296
35	2.1287	0.0292
36	2.1574	0.0288
37	2.1854	0.0280
38	2.2130	0.0276
39	2.2401	0.0272
40	2.2670	0.0268
41	2.2934	0.0265
42	2.3195	0.0261
43	2.3453	0.0258
44	2.3708	0.0255
45	2.3960	0.0252
46	2.4208	0.0249
47	2.4454	0.0246
48	2.4698	0.0243
49	2.4938	0.0240
50	2.5176	0.0238
51	2.5411	0.0235
52	2.5644	0.0233
53	2.5875	0.0231
54	2.6103	0.0228
55	2.6329	0.0226
56	2.6553	0.0224
57	2.6775	0.0222
58	2.6995	0.0220
59	2.7212	0.0218
60	2.7428	0.0216
61	2.7642	0.0214
62	2.7854	0.0212
63	2.8064	0.0210
64	2.8273	0.0208
65	2.8480	0.0207
66	2.8685	0.0205
67	2.8888	0.0203
68	2.9090	0.0202
69	2.9290	0.0200
70	2.9489	0.0199
71	2.9686	0.0197
72	2.9882	0.0196
73	3.0103	0.0222
74	3.0324	0.0220
75	3.0542	0.0219
76	3.0760	0.0217
77	3.0976	0.0216
78	3.1191	0.0215
79	3.1404	0.0214
80	3.1617	0.0212
81	3.1828	0.0211
82	3.2037	0.0210
83	3.2246	0.0209
84	3.2454	0.0207
85	3.2660	0.0206
86	3.2865	0.0205
87	3.3069	0.0204

88	3.3272	0.0203
89	3.3474	0.0202
90	3.3675	0.0201
91	3.3875	0.0200
92	3.4074	0.0199
93	3.4272	0.0198
94	3.4469	0.0197
95	3.4665	0.0196
96	3.4860	0.0195
97	3.5054	0.0194
98	3.5247	0.0193
99	3.5439	0.0192
100	3.5630	0.0191
101	3.5820	0.0190
102	3.6010	0.0190
103	3.6199	0.0189
104	3.6386	0.0188
105	3.6573	0.0187
106	3.6760	0.0186
107	3.6945	0.0185
108	3.7129	0.0185
109	3.7313	0.0184
110	3.7496	0.0183
111	3.7678	0.0182
112	3.7860	0.0181
113	3.8040	0.0181
114	3.8220	0.0180
115	3.8399	0.0179
116	3.8578	0.0178
117	3.8756	0.0178
118	3.8933	0.0177
119	3.9109	0.0176
120	3.9285	0.0176
121	3.9460	0.0175
122	3.9634	0.0174
123	3.9808	0.0174
124	3.9981	0.0173
125	4.0153	0.0172
126	4.0325	0.0172
127	4.0496	0.0171
128	4.0666	0.0170
129	4.0836	0.0170
130	4.1005	0.0169
131	4.1174	0.0169
132	4.1342	0.0168
133	4.1510	0.0167
134	4.1676	0.0167
135	4.1843	0.0166
136	4.2008	0.0166
137	4.2174	0.0165
138	4.2338	0.0165
139	4.2502	0.0164
140	4.2666	0.0163
141	4.2829	0.0163
142	4.2991	0.0162
143	4.3153	0.0162

144	4.3314	0.0161
145	4.3475	0.0161
146	4.3635	0.0160
147	4.3795	0.0160
148	4.3955	0.0159
149	4.4113	0.0159
150	4.4272	0.0158
151	4.4430	0.0158
152	4.4587	0.0157
153	4.4744	0.0157
154	4.4900	0.0156
155	4.5056	0.0156
156	4.5211	0.0155
157	4.5366	0.0155
158	4.5521	0.0155
159	4.5675	0.0154
160	4.5829	0.0154
161	4.5982	0.0153
162	4.6135	0.0153
163	4.6287	0.0152
164	4.6439	0.0152
165	4.6590	0.0151
166	4.6741	0.0151
167	4.6892	0.0151
168	4.7042	0.0150
169	4.7192	0.0150
170	4.7341	0.0149
171	4.7490	0.0149
172	4.7639	0.0149
173	4.7787	0.0148
174	4.7934	0.0148
175	4.8082	0.0147
176	4.8229	0.0147
177	4.8375	0.0147
178	4.8522	0.0146
179	4.8667	0.0146
180	4.8813	0.0145
181	4.8958	0.0145
182	4.9103	0.0145
183	4.9247	0.0144
184	4.9391	0.0144
185	4.9534	0.0144
186	4.9678	0.0143
187	4.9820	0.0143
188	4.9963	0.0143
189	5.0105	0.0142
190	5.0247	0.0142
191	5.0388	0.0141
192	5.0529	0.0141
193	5.0670	0.0141
194	5.0811	0.0140
195	5.0951	0.0140
196	5.1091	0.0140
197	5.1230	0.0139
198	5.1369	0.0139
199	5.1508	0.0139

200	5.1646	0.0138
201	5.1785	0.0138
202	5.1922	0.0138
203	5.2060	0.0138
204	5.2197	0.0137
205	5.2334	0.0137
206	5.2470	0.0137
207	5.2607	0.0136
208	5.2743	0.0136
209	5.2878	0.0136
210	5.3014	0.0135
211	5.3149	0.0135
212	5.3284	0.0135
213	5.3418	0.0134
214	5.3552	0.0134
215	5.3686	0.0134
216	5.3820	0.0134
217	5.3953	0.0133
218	5.4086	0.0133
219	5.4219	0.0133
220	5.4351	0.0132
221	5.4483	0.0132
222	5.4615	0.0132
223	5.4747	0.0132
224	5.4878	0.0131
225	5.5009	0.0131
226	5.5140	0.0131
227	5.5271	0.0131
228	5.5401	0.0130
229	5.5531	0.0130
230	5.5661	0.0130
231	5.5790	0.0129
232	5.5919	0.0129
233	5.6048	0.0129
234	5.6177	0.0129
235	5.6305	0.0128
236	5.6434	0.0128
237	5.6562	0.0128
238	5.6689	0.0128
239	5.6817	0.0127
240	5.6944	0.0127
241	5.7071	0.0127
242	5.7198	0.0127
243	5.7324	0.0126
244	5.7450	0.0126
245	5.7576	0.0126
246	5.7702	0.0126
247	5.7827	0.0126
248	5.7953	0.0125
249	5.8078	0.0125
250	5.8203	0.0125
251	5.8327	0.0125
252	5.8451	0.0124
253	5.8576	0.0124
254	5.8699	0.0124
255	5.8823	0.0124

256	5.8947	0.0123
257	5.9070	0.0123
258	5.9193	0.0123
259	5.9316	0.0123
260	5.9438	0.0123
261	5.9560	0.0122
262	5.9683	0.0122
263	5.9804	0.0122
264	5.9926	0.0122
265	6.0048	0.0121
266	6.0169	0.0121
267	6.0290	0.0121
268	6.0411	0.0121
269	6.0531	0.0121
270	6.0652	0.0120
271	6.0772	0.0120
272	6.0892	0.0120
273	6.1012	0.0120
274	6.1131	0.0120
275	6.1251	0.0119
276	6.1370	0.0119
277	6.1489	0.0119
278	6.1608	0.0119
279	6.1726	0.0119
280	6.1845	0.0118
281	6.1963	0.0118
282	6.2081	0.0118
283	6.2199	0.0118
284	6.2316	0.0118
285	6.2434	0.0117
286	6.2551	0.0117
287	6.2668	0.0117
288	6.2785	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108

19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0110
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0111
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0120
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0138	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0143	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130

75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174

131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0179
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0207	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0194
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0231	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0219
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0265	0.0029	0.0235
167	0.0272	0.0030	0.0242
168	0.0276	0.0031	0.0245
169	0.0288	0.0032	0.0256
170	0.0292	0.0032	0.0259
171	0.0301	0.0034	0.0268
172	0.0306	0.0034	0.0272
173	0.0317	0.0035	0.0282
174	0.0323	0.0036	0.0287
175	0.0335	0.0037	0.0298
176	0.0342	0.0038	0.0304
177	0.0357	0.0040	0.0317
178	0.0365	0.0041	0.0325
179	0.0383	0.0043	0.0341
180	0.0394	0.0044	0.0350
181	0.0417	0.0046	0.0370
182	0.0430	0.0048	0.0382
183	0.0460	0.0051	0.0409
184	0.0477	0.0053	0.0424
185	0.0329	0.0037	0.0293
186	0.0351	0.0039	0.0312

187	0.0407	0.0045	0.0362
188	0.0444	0.0049	0.0395
189	0.0553	0.0061	0.0491
190	0.0637	0.0065	0.0571
191	0.0966	0.0065	0.0900
192	0.1402	0.0065	0.1337
193	0.6066	0.0065	0.6000
194	0.0760	0.0065	0.0695
195	0.0491	0.0055	0.0437
196	0.0377	0.0042	0.0335
197	0.0497	0.0055	0.0442
198	0.0444	0.0049	0.0395
199	0.0405	0.0045	0.0360
200	0.0374	0.0042	0.0332
201	0.0349	0.0039	0.0310
202	0.0329	0.0037	0.0292
203	0.0311	0.0035	0.0277
204	0.0296	0.0033	0.0264
205	0.0280	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0177
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0186
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142

243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0126	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 556.84(CFS)

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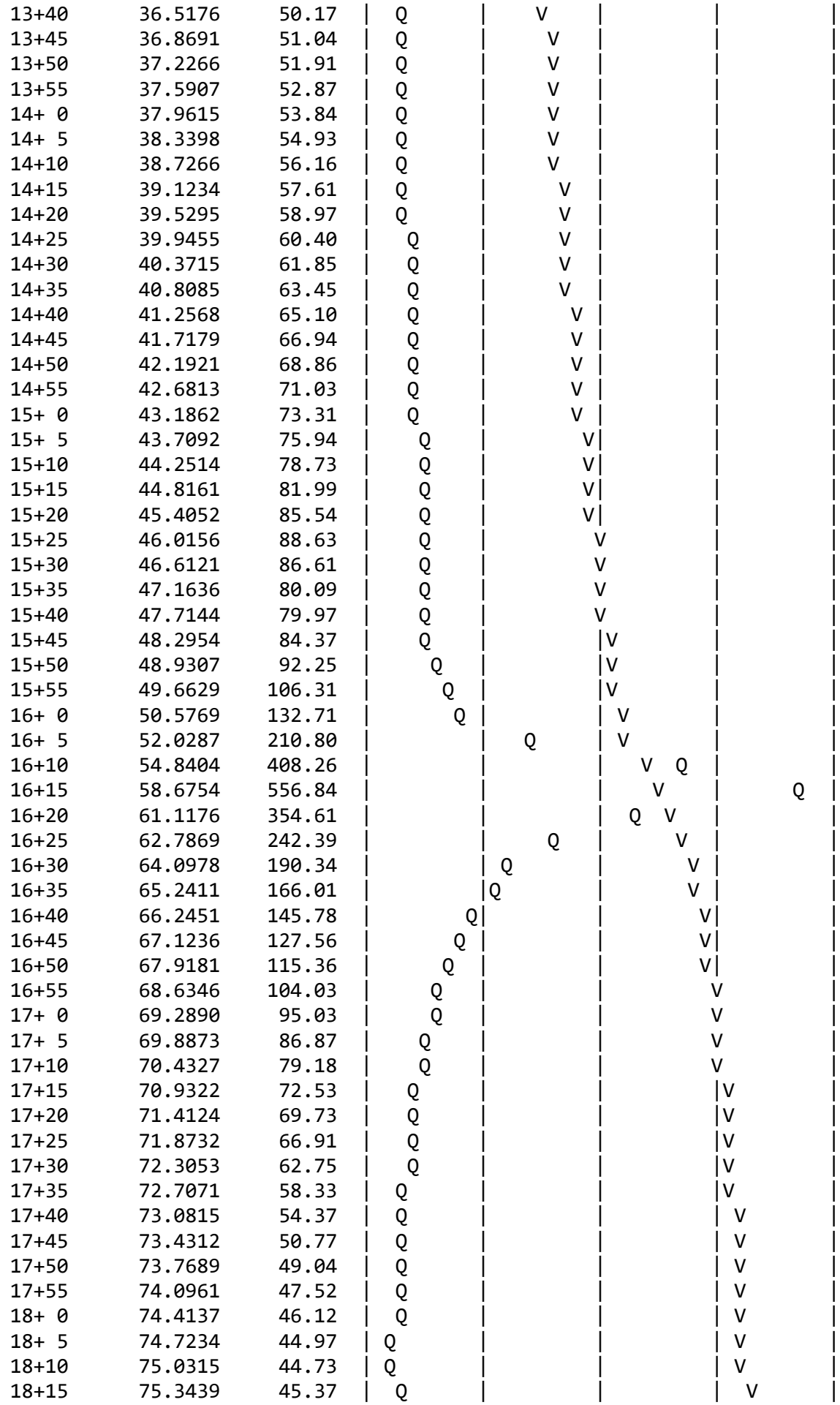
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	150.0	300.0	450.0	600.0
0+ 5	0.0048	0.70	Q				
0+10	0.0381	4.83	Q				
0+15	0.1229	12.32	Q				
0+20	0.2349	16.25	VQ				
0+25	0.3621	18.48	VQ				
0+30	0.4997	19.97	VQ				
0+35	0.6448	21.07	VQ				
0+40	0.7957	21.91	VQ				
0+45	0.9510	22.55	VQ				
0+50	1.1099	23.07	VQ				
0+55	1.2717	23.50	VQ				
1+ 0	1.4360	23.86	VQ				
1+ 5	1.6024	24.15	VQ				
1+10	1.7703	24.38	VQ				
1+15	1.9394	24.55	VQ				
1+20	2.1097	24.73	VQ				
1+25	2.2812	24.91	VQ				
1+30	2.4539	25.07	|Q				
1+35	2.6275	25.20	|Q				
1+40	2.8017	25.30	|Q				
1+45	2.9764	25.37	|Q				
1+50	3.1515	25.43	|Q				
1+55	3.3272	25.50	|Q				
2+ 0	3.5033	25.57	|Q				
2+ 5	3.6798	25.64	|Q				
2+10	3.8569	25.71	|Q				
2+15	4.0344	25.78	|Q				
2+20	4.2125	25.85	|Q				
2+25	4.3910	25.92	|Q				
2+30	4.5700	25.99	|QV				
2+35	4.7495	26.07	|QV				
2+40	4.9296	26.14	|QV				
2+45	5.1101	26.22	|QV				
2+50	5.2912	26.29	|QV				
2+55	5.4728	26.37	|QV				
3+ 0	5.6548	26.44	|QV				
3+ 5	5.8375	26.52	|QV				
3+10	6.0206	26.60	|QV				
3+15	6.2044	26.67	|QV				
3+20	6.3886	26.75	|QV				
3+25	6.5734	26.83	|QV				
3+30	6.7588	26.91	|QV				
3+35	6.9447	27.00	|Q V				
3+40	7.1312	27.08	|Q V				
3+45	7.3182	27.16	|Q V				
3+50	7.5058	27.24	|Q V				
3+55	7.6941	27.33	|Q V				
4+ 0	7.8829	27.41	|Q V				
4+ 5	8.0723	27.50	|Q V				
4+10	8.2622	27.59	|Q V				
4+15	8.4529	27.68	|Q V				

4+20	8.6441	27.76	Q V			
4+25	8.8359	27.85	Q V			
4+30	9.0283	27.94	Q V			
4+35	9.2214	28.04	Q V			
4+40	9.4152	28.13	Q V			
4+45	9.6095	28.22	Q V			
4+50	9.8045	28.32	Q V			
4+55	10.0002	28.41	Q V			
5+ 0	10.1966	28.51	Q V			
5+ 5	10.3936	28.61	Q V			
5+10	10.5913	28.70	Q V			
5+15	10.7897	28.81	Q V			
5+20	10.9887	28.91	Q V			
5+25	11.1885	29.01	Q V			
5+30	11.3890	29.11	Q V			
5+35	11.5902	29.22	Q V			
5+40	11.7922	29.32	Q V			
5+45	11.9948	29.43	Q V			
5+50	12.1982	29.53	Q V			
5+55	12.4024	29.65	Q V			
6+ 0	12.6073	29.75	Q V			
6+ 5	12.8130	29.87	Q V			
6+10	13.0195	29.98	Q V			
6+15	13.2268	30.10	Q V			
6+20	13.4348	30.21	Q V			
6+25	13.6437	30.33	Q V			
6+30	13.8534	30.45	Q V			
6+35	14.0639	30.57	Q V			
6+40	14.2753	30.69	Q V			
6+45	14.4875	30.81	Q V			
6+50	14.7005	30.94	Q V			
6+55	14.9145	31.06	Q V			
7+ 0	15.1293	31.19	Q V			
7+ 5	15.3450	31.32	Q V			
7+10	15.5616	31.45	Q V			
7+15	15.7792	31.59	Q V			
7+20	15.9976	31.72	Q V			
7+25	16.2170	31.86	Q V			
7+30	16.4374	32.00	Q V			
7+35	16.6587	32.14	Q V			
7+40	16.8811	32.28	Q V			
7+45	17.1044	32.43	Q V			
7+50	17.3287	32.57	Q V			
7+55	17.5541	32.72	Q V			
8+ 0	17.7804	32.87	Q V			
8+ 5	18.0079	33.03	Q V			
8+10	18.2364	33.18	Q V			
8+15	18.4660	33.34	Q V			
8+20	18.6967	33.50	Q V			
8+25	18.9286	33.66	Q V			
8+30	19.1615	33.83	Q V			
8+35	19.3957	34.00	Q V			
8+40	19.6310	34.16	Q V			
8+45	19.8675	34.34	Q V			
8+50	20.1052	34.51	Q V			
8+55	20.3441	34.70	Q V			

9+ 0	20.5843	34.87	Q	V			
9+ 5	20.8258	35.06	Q	V			
9+10	21.0685	35.25	Q	V			
9+15	21.3126	35.44	Q	V			
9+20	21.5580	35.63	Q	V			
9+25	21.8048	35.84	Q	V			
9+30	22.0530	36.03	Q	V			
9+35	22.3026	36.24	Q	V			
9+40	22.5536	36.45	Q	V			
9+45	22.8061	36.66	Q	V			
9+50	23.0601	36.88	Q	V			
9+55	23.3156	37.10	Q	V			
10+ 0	23.5727	37.32	Q	V			
10+ 5	23.8313	37.56	Q	V			
10+10	24.0916	37.79	Q	V			
10+15	24.3535	38.03	Q	V			
10+20	24.6170	38.27	Q	V			
10+25	24.8823	38.52	Q	V			
10+30	25.1493	38.77	Q	V			
10+35	25.4182	39.03	Q	V			
10+40	25.6888	39.29	Q	V			
10+45	25.9613	39.57	Q	V			
10+50	26.2357	39.84	Q	V			
10+55	26.5121	40.13	Q	V			
11+ 0	26.7904	40.41	Q	V			
11+ 5	27.0708	40.71	Q	V			
11+10	27.3532	41.01	Q	V			
11+15	27.6378	41.33	Q	V			
11+20	27.9246	41.64	Q	V			
11+25	28.2136	41.97	Q	V			
11+30	28.5049	42.29	Q	V			
11+35	28.7986	42.64	Q	V			
11+40	29.0946	42.99	Q	V			
11+45	29.3932	43.35	Q	V			
11+50	29.6943	43.72	Q	V			
11+55	29.9980	44.10	Q	V			
12+ 0	30.3044	44.49	Q	V			
12+ 5	30.6124	44.73	Q	V			
12+10	30.9167	44.17	Q	V			
12+15	31.2119	42.86	Q	V			
12+20	31.5038	42.39	Q	V			
12+25	31.7954	42.34	Q	V			
12+30	32.0878	42.46	Q	V			
12+35	32.3819	42.71	Q	V			
12+40	32.6782	43.01	Q	V			
12+45	32.9771	43.41	Q	V			
12+50	33.2789	43.82	Q	V			
12+55	33.5841	44.31	Q	V			
13+ 0	33.8926	44.80	Q	V			
13+ 5	34.2051	45.36	Q	V			
13+10	34.5214	45.94	Q	V			
13+15	34.8422	46.57	Q	V			
13+20	35.1673	47.21	Q	V			
13+25	35.4972	47.90	Q	V			
13+30	35.8320	48.61	Q	V			
13+35	36.1721	49.38	Q	V			


13+40 36.5176 50.17
13+45 36.8691 51.04
13+50 37.2266 51.91
13+55 37.5907 52.87
14+ 0 37.9615 53.84
14+ 5 38.3398 54.93
14+10 38.7266 56.16
14+15 39.1234 57.61
14+20 39.5295 58.97
14+25 39.9455 60.40
14+30 40.3715 61.85
14+35 40.8085 63.45
14+40 41.2568 65.10
14+45 41.7179 66.94
14+50 42.1921 68.86
14+55 42.6813 71.03
15+ 0 43.1862 73.31
15+ 5 43.7092 75.94
15+10 44.2514 78.73
15+15 44.8161 81.99
15+20 45.4052 85.54
15+25 46.0156 88.63
15+30 46.6121 86.61
15+35 47.1636 80.09
15+40 47.7144 79.97
15+45 48.2954 84.37
15+50 48.9307 92.25
15+55 49.6629 106.31
16+ 0 50.5769 132.71
16+ 5 52.0287 210.80
16+10 54.8404 408.26
16+15 58.6754 556.84
16+20 61.1176 354.61
16+25 62.7869 242.39
16+30 64.0978 190.34
16+35 65.2411 166.01
16+40 66.2451 145.78
16+45 67.1236 127.56
16+50 67.9181 115.36
16+55 68.6346 104.03
17+ 0 69.2890 95.03
17+ 5 69.8873 86.87
17+10 70.4327 79.18
17+15 70.9322 72.53
17+20 71.4124 69.73
17+25 71.8732 66.91
17+30 72.3053 62.75
17+35 72.7071 58.33
17+40 73.0815 54.37
17+45 73.4312 50.77
17+50 73.7689 49.04
17+55 74.0961 47.52
18+ 0 74.4137 46.12
18+ 5 74.7234 44.97
18+10 75.0315 44.73
18+15 75.3439 45.37

18+20	75.6556	45.26	| Q	|	|	|	V |
18+25	75.9643	44.82	| Q	|	|	|	V |
18+30	76.2691	44.26	| Q	|	|	|	V |
18+35	76.5699	43.68	| Q	|	|	|	V |
18+40	76.8666	43.08	| Q	|	|	|	V |
18+45	77.1591	42.47	| Q	|	|	|	V |
18+50	77.4475	41.88	| Q	|	|	|	V |
18+55	77.7320	41.30	| Q	|	|	|	V |
19+ 0	78.0125	40.74	| Q	|	|	|	V |
19+ 5	78.2893	40.19	| Q	|	|	|	V |
19+10	78.5624	39.66	| Q	|	|	|	V |
19+15	78.8320	39.13	| Q	|	|	|	V |
19+20	79.0980	38.64	| Q	|	|	|	V |
19+25	79.3608	38.16	| Q	|	|	|	V |
19+30	79.6205	37.70	| Q	|	|	|	V |
19+35	79.8770	37.25	| Q	|	|	|	V |
19+40	80.1306	36.81	| Q	|	|	|	V |
19+45	80.3811	36.38	| Q	|	|	|	V |
19+50	80.6288	35.97	| Q	|	|	|	V |
19+55	80.8738	35.57	| Q	|	|	|	V |
20+ 0	81.1161	35.18	| Q	|	|	|	V |
20+ 5	81.3559	34.81	| Q	|	|	|	V |
20+10	81.5931	34.45	| Q	|	|	|	V |
20+15	81.8280	34.10	| Q	|	|	|	V |
20+20	82.0605	33.76	| Q	|	|	|	V |
20+25	82.2908	33.44	| Q	|	|	|	V |
20+30	82.5189	33.12	| Q	|	|	|	V |
20+35	82.7449	32.81	| Q	|	|	|	V |
20+40	82.9688	32.51	| Q	|	|	|	V |
20+45	83.1907	32.22	| Q	|	|	|	V |
20+50	83.4107	31.94	| Q	|	|	|	V |
20+55	83.6288	31.66	| Q	|	|	|	V |
21+ 0	83.8450	31.40	| Q	|	|	|	V |
21+ 5	84.0594	31.14	| Q	|	|	|	V |
21+10	84.2721	30.88	| Q	|	|	|	V |
21+15	84.4831	30.64	| Q	|	|	|	V |
21+20	84.6924	30.39	| Q	|	|	|	V |
21+25	84.9001	30.16	| Q	|	|	|	V |
21+30	85.1063	29.93	|Q	|	|	|	V |
21+35	85.3108	29.70	|Q	|	|	|	V |
21+40	85.5139	29.49	|Q	|	|	|	V |
21+45	85.7155	29.27	|Q	|	|	|	V |
21+50	85.9157	29.06	|Q	|	|	|	V |
21+55	86.1144	28.86	|Q	|	|	|	V |
22+ 0	86.3118	28.66	|Q	|	|	|	V |
22+ 5	86.5078	28.46	|Q	|	|	|	V |
22+10	86.7025	28.27	|Q	|	|	|	V |
22+15	86.8959	28.08	|Q	|	|	|	V |
22+20	87.0881	27.90	|Q	|	|	|	V |
22+25	87.2790	27.72	|Q	|	|	|	V |
22+30	87.4687	27.54	|Q	|	|	|	V |
22+35	87.6572	27.37	|Q	|	|	|	V |
22+40	87.8445	27.20	|Q	|	|	|	V |
22+45	88.0307	27.04	|Q	|	|	|	V |
22+50	88.2158	26.87	|Q	|	|	|	V |
22+55	88.3998	26.71	|Q	|	|	|	V |

```
   23+ 0      88.5827     26.56  |Q        |         |         |       V |
   23+ 5      88.7645     26.40  |Q        |         |         |       V |
   23+10      88.9453     26.25  |Q        |         |         |       V |
   23+15      89.1251     26.10  |Q        |         |         |        V|
   23+20      89.3039     25.96  |Q        |         |         |        V|
   23+25      89.4816     25.81  |Q        |         |         |        V|
   23+30      89.6585     25.67  |Q        |         |         |        V|
   23+35      89.8343     25.53  |Q        |         |         |        V|
   23+40      90.0092     25.40  |Q        |         |         |        V|
   23+45      90.1832     25.26  |Q        |         |         |        V|
   23+50      90.3563     25.13  |Q        |         |         |        V|
   23+55      90.5285     25.00  |Q        |         |         |        V|
   24+ 0      90.6998     24.88  |Q        |         |         |        V|
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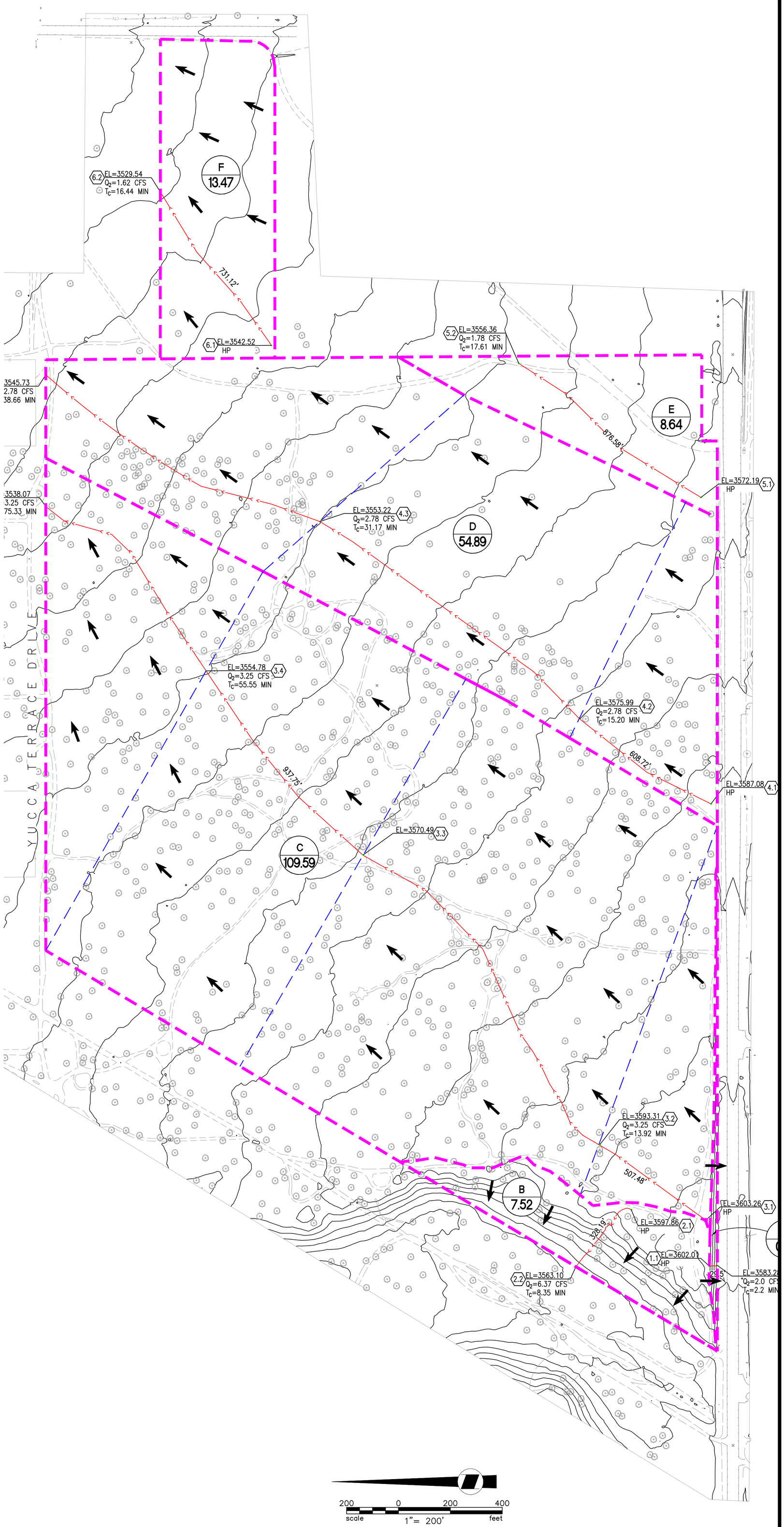
Appendix C – Exhibits

CITY OF HESPERIA
PRE_DEVELOPMENT EXHIBIT
FOR
HCC2 INDUSTRIAL PARK



200 0 200 400
scale 1"= 200' feet

LEGEND:

- DRAINAGE AREA BOUNDARY
- SUB DRAINAGE AREA BOUNDARY
- FLOW PATH
- PROPOSED FLOW DIRECTION ARROW
- A=3.0 — SUB-DRAINAGE AREA (AC)
- X / XXX — DRAINAGE AREA DESIGNATION / AREA (AC)
- 1.0 — REACH NUMBER
- HP — HIGHT POINT

HYDROLOGY INFORMATION

SITE AREA 1: 193.63 ACRE
SOIL GROUP: A (PER SBC SOIL GROUP MAP FIGURE C-15)
ISOHYETALS: 1.29" (100-YEAR 1 HOUR)
0.77" (10-YEAR 1 HOUR)
CN NUMBER: 67 (SOIL GROUP A)

FREQUENCY: 100 YEAR (FOR STORM DRAIN DESIGN)
2 YEAR (FOR STORMWATER QUALITY)

METHOD: SAN BERNARDINO COUNTY HYDROLOGY MANUAL

HYDROLOGY SUMMARY

DRAINAGE AREA No.	TRIBUTARY AREA (AC)	PERVIOUS RATIO	VOLUME (CFT)
AREA A	0.61	1.00	8,346
AREA B	7.52	1.00	102,728
AREA C	109.58	1.00	1,477,133
AREA D	54.90	1.00	743,887
AREA E	8.64	1.00	117,559
AREA F	6.72	1.00	183,366
TOTAL	193.63		2,633,019

PREPARED BY:
WestLAND Group, Inc. Land Surveyors • Civil Engineers • GIS
4150 CONCOURS, ONTARIO, CA 91764
PHONE: (909) 989-9789 FAX: (909) 989-9660
JOB NO: 2017-289

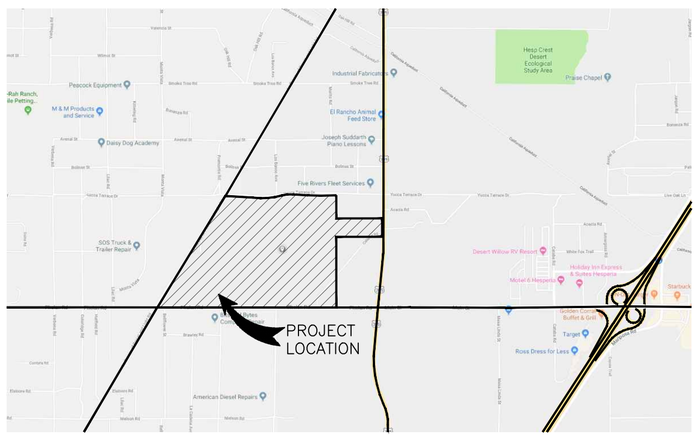
HCCII INDUSTRIAL PARK
WQMP EXHIBIT

CITY OF HESPERIA

DATE: OCT 2019
SHEET 1 OF 2

CITY OF HESPERIA

POST DEVELOPMENT EXHIBIT FOR HCCII INDUSTRIAL PARK



VICINITY MAP
NOT TO SCALE

HYDROLOGY INFORMATION

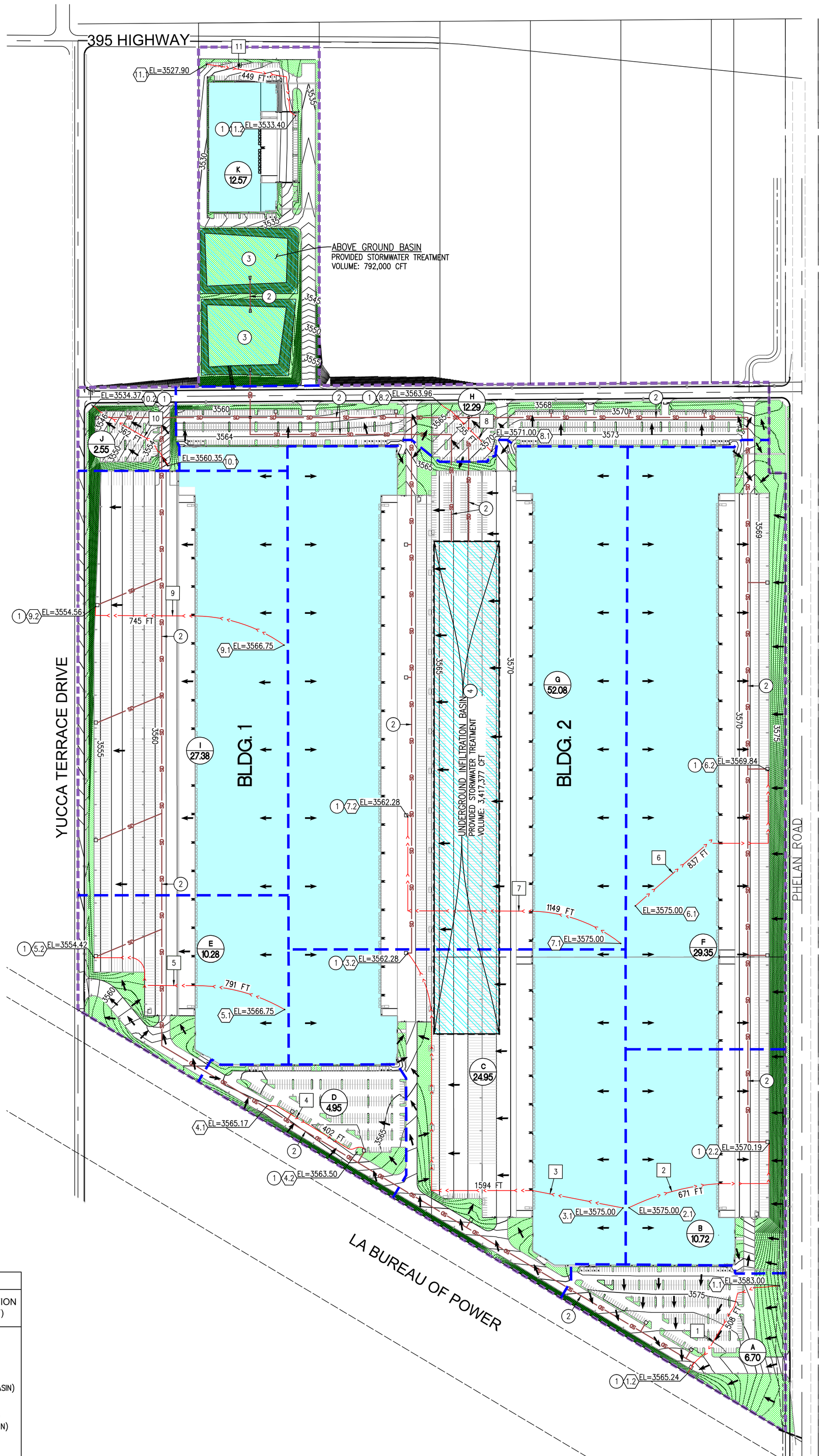
SITE AREA:	193.82 ACRE	
SOIL GROUP:	A	(PER USDA WEB SOIL SURVEY)
IMPERVIOUS:	89.1%	(PER CALCULATIONS)
ISOHYETALS:	0.448" 1.26"	(2-YEAR 1 HOUR) (100-YEAR 1 HOUR)
CN NUMBER:	32	(SOIL GROUP A)
FREQUENCY:	100 YEAR 2/10 YEAR	(FOR STORM DRAIN DESIGN) (FOR WATER QUALITY)
METHOD:	SAN BERNARDINO COUNTY HYDROLOGY MANUAL	

LEGEND:

- DRAINAGE AREA/SITE BOUNDARY
- DRAINAGE SUB-AREA BOUNDARY
- STORM WATER FLOW PATH
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOW DIRECTION ARROW
- DRAINAGE AREA DESIGNATION (X / XXX) AREA(AC)
- NODE (US/DS) (X.X)
- STREAM # (3)
- PROPOSED UNDERGROUND INFILTRATION/DETENTION
- PROPOSED BUILDING
- PROPOSED LANDSCAPING

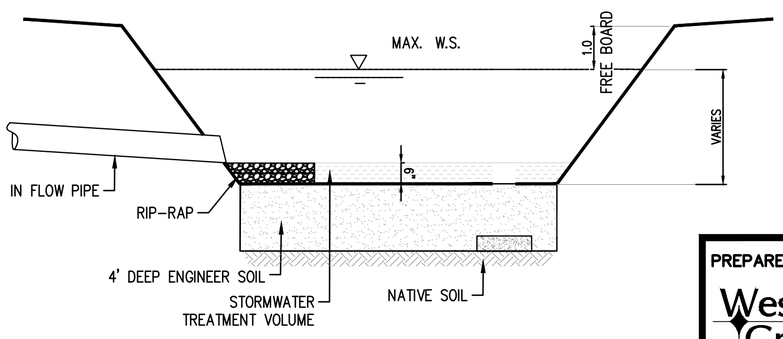
DRAINAGE NOTES:

1. PROPOSED STORM DRAIN INLET
2. PROPOSED STORM DRAIN
3. PROPOSED INFILTRATION/DETENTION BASIN
4. PROPOSED UNDERGROUND INFILTRATION CMP



HYDROLOGY SUMMARY

DRAINAGE SUB AREA	AREA (AC)	IMPERVIOUS RATIO	DCV (CF)	V100 (CF)	TOTAL RETENTION VOLUME (CF)
A	6.70	0.90	558,982	136,334	792,000 (ABOVE GROUND BASIN) 3,417,377 (UNDERGROUND INFILTRATION BASIN)
B	10.72			219,020	
C	24.95			508,776	
D	4.95			101,181	
E	10.28			210,120	
F	29.35			599,255	
G	52.08			1,063,239	
H	12.29			251,694	
I	27.38			559,698	
J	2.55			52,228	
K	12.57			257,113	
TOTAL	193.82			3,958,659	4,209,377



INFILTRATION/DETENTION DETAIL
N.T.S

200 0 200 400
scale 1"= 200' feet

PREPARED BY:
WestLAND Group, Inc. Land Surveyors • Civil Engineers • GIS
4150 CONCOURS, ONTARIO, CA 91764
PHONE: (909) 989-9789 FAX: (909) 989-9660
JOB NO: 2019-185

HCCII INDUSTRIAL PARK
WQMP EXHIBIT

CITY OF HESPERIA

Appendix D – WSPG Calculations

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line A - Above Ground Basin to Diversion Structure
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3529.500	1	3530.650

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1168.220	3540.230	1	.013	.000	.000	.000	0

ELEMENT NO 3 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1168.220	3540.230	1	3540.230

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time:11:46:57

2019-185 Hesperia Commerce Center II

Line A - Above Ground Basin to Diversion Structure

WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3529.500	4.117	3533.617	743.11	31.57	15.47	3549.09	.00	6.63	6.89	7.000	.000	.00	1 .0
32.900	.0638					.0302	.99	4.12	3.01	3.34	.013	.00	.00	PIPE
1032.900	3531.599	4.265	3535.864	743.11	30.26	14.22	3550.09	.00	6.63	6.83	7.000	.000	.00	1 .0
30.339	.0638					.0270	.82	4.26	2.81	3.34	.013	.00	.00	PIPE
1063.239	3533.534	4.441	3537.975	743.11	28.86	12.93	3550.91	.00	6.63	6.74	7.000	.000	.00	1 .0
24.781	.0638					.0239	.59	4.44	2.60	3.34	.013	.00	.00	PIPE
1088.020	3535.114	4.629	3539.744	743.11	27.51	11.75	3551.50	.00	6.63	6.63	7.000	.000	.00	1 .0
20.407	.0638					.0213	.43	4.63	2.40	3.34	.013	.00	.00	PIPE
1108.427	3536.416	4.831	3541.247	743.11	26.23	10.69	3551.93	.00	6.63	6.47	7.000	.000	.00	1 .0
16.841	.0638					.0190	.32	4.83	2.21	3.34	.013	.00	.00	PIPE
1125.267	3537.490	5.047	3542.538	743.11	25.01	9.71	3552.25	.00	6.63	6.28	7.000	.000	.00	1 .0
13.831	.0638					.0170	.23	5.05	2.03	3.34	.013	.00	.00	PIPE
1139.098	3538.372	5.283	3543.655	743.11	23.85	8.83	3552.49	.00	6.63	6.02	7.000	.000	.00	1 .0
11.192	.0638					.0152	.17	5.28	1.85	3.34	.013	.00	.00	PIPE
1150.290	3539.086	5.543	3544.629	743.11	22.74	8.03	3552.66	.00	6.63	5.68	7.000	.000	.00	1 .0
8.756	.0638					.0138	.12	5.54	1.67	3.34	.013	.00	.00	PIPE
1159.046	3539.645	5.835	3545.479	743.11	21.68	7.30	3552.78	.00	6.63	5.22	7.000	.000	.00	1 .0
6.267	.0638					.0126	.08	5.83	1.49	3.34	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time:11:46:57

2019-185 Hesperia Commerce Center II

Line A - Above Ground Basin to Diversion Structure
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1165.313	3540.044	6.178	3546.222	743.11	20.67	6.64	3552.86	.00	6.63	4.51	7.000	.000	.00	1 .0
2.907	.0638					.0119	.03	6.18	1.29	3.34	.013	.00	.00	PIPE
1168.220	3540.230	6.631	3546.861	743.11	19.71	6.03	3552.89	.00	6.63	3.13	7.000	.000	.00	1 .0

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line B - Diversion Structure to North CB
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3540.230	1	3546.860

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1323.730	3541.530	1	.013	.000	.000	90.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	3620.830	3550.710	1	.013	.000	.000	-90.000	0

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5886.230	3559.780	1	.013	.000	.000	-59.000	0

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5898.230	3559.820	1	.013	.000	.000	90.000	0

ELEMENT NO 6 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	5898.230	3559.820	1	3559.820

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:11:45

2019-185 Hesperia Commerce Center II

Line B - Diversion Structure to North CB

WSPG Analysis

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3540.230	6.630	3546.860	371.55	9.85	1.51	3548.37	.00	5.08	3.13	7.000	.000	.00	1 .0
291.343	.0040					.0030	.87	6.63	.50	5.28	.013	.00	.00	PIPE
1291.343	3541.400	6.178	3547.578	371.55	10.34	1.66	3549.24	.00	5.08	4.51	7.000	.000	.00	1 .0
32.387	.0040					.0030	.10	6.18	.64	5.28	.013	.00	.00	PIPE
1323.730	3541.530	6.124	3547.654	371.55	10.41	1.68	3549.34	.00	5.08	4.63	7.000	.000	.00	1 .0
207.137	.0040					.0032	.66	6.12	.66	5.29	.013	.00	.00	PIPE
1530.867	3542.358	5.790	3548.148	371.55	10.91	1.85	3550.00	.00	5.08	5.29	7.000	.000	.00	1 .0
204.078	.0040					.0035	.71	5.79	.76	5.29	.013	.00	.00	PIPE
1734.945	3543.174	5.503	3548.677	371.55	11.45	2.03	3550.71	.00	5.08	5.74	7.000	.000	.00	1 .0
274.215	.0040					.0038	1.05	5.50	.85	5.29	.013	.00	.00	PIPE
2009.159	3544.270	5.291	3549.560	371.55	11.91	2.20	3551.76	.00	5.08	6.01	7.000	.000	.00	1 .0
1611.671	.0040					.0040	6.43	5.29	.92	5.29	.013	.00	.00	PIPE
3620.830	3550.710	5.291	3556.001	371.55	11.91	2.20	3558.20	.00	5.08	6.01	7.000	.000	.00	1 .0
81.397	.0040					.0040	.33	5.29	.92	5.29	.013	.00	.00	PIPE
3702.227	3551.036	5.286	3556.322	371.55	11.92	2.20	3558.53	.00	5.08	6.02	7.000	.000	.00	1 .0
2184.003	.0040					.0040	8.73	5.29	.92	5.29	.013	.00	.00	PIPE
5886.230	3559.780	5.286	3565.066	371.55	11.92	2.20	3567.27	.00	5.08	6.02	7.000	.000	.00	1 .0
12.000	.0033					.0040	.05	5.29	.92	5.78	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:11:45

2019-185 Hesperia Commerce Center II

Line B - Diversion Structure to North CB
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5898.230	3559.820	5.333	3565.153	371.55	11.81	2.17	3567.32	.00	5.08	5.96	7.000	.000	.00	1 .0

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line C - Diversion Structure to South CB
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3540.230	1	3546.860

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2820.250	3547.930	1	.013	.000	.000	-90.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5469.540	3559.130	1	.013	.000	.000	90.000	0

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5535.540	3559.400	1	.013	.000	.000	-90.000	0

ELEMENT NO 5 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	5535.540	3559.400	1	3559.400

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:36: 3

2019-185 Hesperia Commerce Center II

Line C - Diversion Structure to South CB

WSPG Analysis

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3540.230	6.630	3546.860	371.55	9.85	1.51	3548.37	.00	5.08	3.13	7.000	.000	.00	1 .0
241.375	.0042					.0030	.72	6.63	.50	5.16	.013	.00	.00	PIPE
1241.375	3541.251	6.178	3547.429	371.55	10.34	1.66	3549.09	.00	5.08	4.51	7.000	.000	.00	1 .0
165.494	.0042					.0032	.52	6.18	.64	5.16	.013	.00	.00	PIPE
1406.869	3541.951	5.835	3547.786	371.55	10.84	1.82	3549.61	.00	5.08	5.22	7.000	.000	.00	1 .0
140.630	.0042					.0034	.49	5.83	.75	5.16	.013	.00	.00	PIPE
1547.498	3542.546	5.543	3548.088	371.55	11.37	2.01	3550.10	.00	5.08	5.68	7.000	.000	.00	1 .0
140.781	.0042					.0038	.54	5.54	.84	5.16	.013	.00	.00	PIPE
1688.280	3543.141	5.283	3548.424	371.55	11.92	2.21	3550.63	.00	5.08	6.02	7.000	.000	.00	1 .0
109.042	.0042					.0041	.45	5.28	.92	5.16	.013	.00	.00	PIPE
1797.322	3543.603	5.164	3548.766	371.55	12.21	2.31	3551.08	.00	5.08	6.16	7.000	.000	.00	1 .0
1022.928	.0042					.0042	4.32	5.16	.97	5.16	.013	.00	.00	PIPE
2820.250	3547.930	5.164	3553.094	371.55	12.21	2.31	3555.41	.00	5.08	6.16	7.000	.000	.00	1 .0
27.638	.0042					.0042	.12	5.16	.97	5.17	.013	.00	.00	PIPE
2847.888	3548.047	5.165	3553.212	371.55	12.20	2.31	3555.53	.00	5.08	6.16	7.000	.000	.00	1 .0
2621.652	.0042					.0042	11.06	5.17	.97	5.17	.013	.00	.00	PIPE
5469.540	3559.130	5.165	3564.295	371.55	12.20	2.31	3566.61	.00	5.08	6.16	7.000	.000	.00	1 .0
66.000	.0041					.0042	.28	5.17	.97	5.24	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:36: 3

2019-185 Hesperia Commerce Center II

Line C - Diversion Structure to South CB
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5535.540	3559.400	5.226	3564.626	371.55	12.06	2.26	3566.88	.00	5.08	6.09	7.000	.000	.00	1 .0

Appendix E – Basin Summary

Above Ground Basin 1 Stage Storage Calculations								
Elevation	**Surface Area (SF)**	**Depth (ft)**	**Volume Engineered Soil (CF)**	**Above Ground Volume (CF)**	**Upstream Storage Volume (CF)**	**Total Volume (CF)**	**Total Volume (Ac-Ft)**	**Outflow (cfs)**
3525	52,859	0	74,002	0	3,417,377	3,491,379	80.15	0.00
3526	55,740	1	74,002	54,293	3,417,377	3,545,671	81.40	0.00
3527	58,681	2	74,002	111,497	3,417,377	3,602,876	82.71	0.00
3528	61,683	3	74,002	171,673	3,417,377	3,663,052	84.09	0.00
3529	123,931	4	156,862	234,881	3,417,377	3,809,120	87.45	0.00
3530	130,024	5	156,862	361,847	3,417,377	3,936,086	90.36	0.00
3531	133,056	6	156,862	425,512	3,417,377	3,999,751	91.82	0.00
3532	136,151	7	156,862	492,241	3,417,377	4,066,480	93.35	0.00
3533	139,308	8	156,862	562,096	3,417,377	4,136,334	94.96	0.00
3534	142,527	9	156,862	635,138	3,417,377	4,209,377	96.63	0.00
3535	145,809	10	156,862	711,432	3,417,377	4,285,670	98.39	0.00

CONTECH ENGINEERED SOLUTIONS

Date: 7/18/2021
Project Name: Underground Infiltration CMP #1 - 7614 (7-18-2021 0-14-3

City / County:
State:

Designed By:
Company:
Telephone:

CMP: Underground Detention System
Storage Volume Estimation

=Adjustable Input Cells

Contech Engineered Solutions, LLC is pleased to offer the following estimate of storage volume for the above named project. The results are submitted as an estimate only, without liability on the part of Contech Engineered Solutions, LLC for accuracy or suitability to any particular applicaton and are subject to verification of the Engineer of Record. **This tool is only applicable for rectangular shaped systems.**

Summary of Inputs

System Information		Backfill Information		Pipe & Analysis Information	
Out-to-out length (ft):	1,800.0	Backfill Porosity (%):	40%	System Diameter (in):	144
Out-to-out width (ft):	237.0	Depth Above Pipe (in):	6.0	Pipe Spacing (in):	36
Number of Manifolds (ea):	1.0	Depth Below Pipe (in):	6.0	Incremental Analysis (in):	2
Number of Barrels (ea):	16.0	Width At Ends (ft):	3.0	System Invert (Elevation):	0
		Width At Sides (ft):	3.0		

Storage Volume Estimation

System		Pipe		Stone		Total System		Miscellaneous	
Depth (ft)	Elevation (ft)	Incremental Storage (cf)	Cumulative Storage (cf)	Incremental Storage (cf)	Cumulative Storage (cf)	Incremental Storage (cf)	Cumulative Storage (cf)	Percent Open Storage (%)	Ave. Surface Area (sf)
0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0%	175,543.2
0.17	0.16	0.0	0.0	29,257.2	29,257.2	29,257.2	29,257.2	0.0%	175,543.2
0.33	0.33	0.0	0.0	29,257.2	58,514.4	29,257.2	58,514.4	0.0%	175,543.2
0.50	0.50	0.0	0.0	29,257.2	87,771.6	29,257.2	87,771.6	0.0%	175,543.2
0.67	0.66	9,027.2	9,027.2	25,646.3	113,417.9	34,673.5	122,445.1	7.4%	224,153.7
0.83	0.83	16,398.0	25,425.3	22,698.0	136,115.9	39,096.0	161,541.2	15.7%	243,802.9
1.00	1.00	21,085.2	46,510.4	20,823.1	156,939.0	41,908.3	203,449.5	22.9%	258,544.7
1.17	1.16	24,789.5	71,299.9	19,341.4	176,280.4	44,130.9	247,580.4	28.8%	270,688.0
1.33	1.33	27,912.7	99,212.6	18,092.1	194,372.6	46,004.8	293,585.2	33.8%	281,133.2
1.50	1.50	30,634.8	129,847.4	17,003.3	211,375.9	47,638.1	341,223.2	38.1%	290,344.9
1.67	1.66	33,055.7	162,903.0	16,034.9	227,410.8	49,090.6	390,313.8	41.7%	298,600.2
1.83	1.83	35,237.8	198,140.8	15,162.1	242,572.9	50,399.9	440,713.7	45.0%	306,080.8
2.00	2.00	37,223.2	235,364.0	14,367.9	256,940.8	51,591.1	492,304.8	47.8%	312,913.3
2.17	2.16	39,042.1	274,406.1	13,640.4	270,581.2	52,682.5	544,987.3	50.4%	319,190.1
2.33	2.33	40,716.8	315,122.9	12,970.5	283,551.6	53,687.3	598,674.6	52.6%	324,981.5
2.50	2.50	42,264.5	357,387.5	12,351.4	295,903.0	54,615.9	653,290.5	54.7%	330,341.7
2.67	2.66	43,698.8	401,086.2	11,777.7	307,680.7	55,476.5	708,766.9	56.6%	335,314.3
2.83	2.83	45,030.3	446,116.6	11,245.1	318,925.8	56,275.4	765,042.4	58.3%	339,934.4
3.00	3.00	46,268.2	492,384.7	10,749.9	329,675.7	57,018.1	822,060.4	59.9%	344,231.0
3.17	3.16	47,419.6	539,804.3	10,289.4	339,965.1	57,708.9	879,769.4	61.4%	348,228.2
3.33	3.33	48,490.7	588,295.0	9,860.9	349,826.0	58,351.6	938,121.0	62.7%	351,946.4
3.50	3.50	49,486.8	637,781.8	9,462.5	359,288.5	58,949.3	997,070.3	64.0%	355,402.8
3.67	3.66	50,412.3	688,194.2	9,092.3	368,380.7	59,504.6	1,056,574.9	65.1%	358,612.4
3.83	3.83	51,271.1	739,465.3	8,748.8	377,129.5	60,019.9	1,116,594.8	66.2%	361,587.9
4.00	4.00	52,066.4	791,531.7	8,430.6	385,560.1	60,497.0	1,177,091.8	67.2%	364,340.3
4.17	4.16	52,801.1	844,332.8	8,136.8	393,696.9	60,937.9	1,238,029.7	68.2%	366,879.3
4.33	4.33	53,477.7	897,810.5	7,866.1	401,563.0	61,343.8	1,299,373.5	69.1%	369,213.3
4.50	4.50	54,098.4	951,909.0	7,617.8	409,180.8	61,716.3	1,361,089.8	69.9%	371,349.6
4.67	4.66	54,665.2	1,006,574.1	7,391.1	416,572.0	62,056.3	1,423,146.1	70.7%	373,294.6
4.83	4.83	55,179.5	1,061,753.6	7,185.4	423,757.3	62,364.9	1,485,511.0	71.5%	375,053.9
5.00	5.00	55,643.0	1,117,396.6	7,000.0	430,757.3	62,643.0	1,548,154.0	72.2%	376,632.4
5.17	5.16	56,056.9	1,173,453.5	6,834.5	437,591.8	62,891.3	1,611,045.3	72.8%	378,034.3
5.33	5.33	56,422.2	1,229,875.7	6,688.3	444,280.1	63,110.5	1,674,155.8	73.5%	379,263.2
5.50	5.50	56,739.9	1,286,615.6	6,561.2	450,841.4	63,301.1	1,737,456.9	74.1%	380,322.4
5.67	5.66	57,010.8	1,343,626.4	6,452.9	457,294.2	63,463.7	1,800,920.6	74.6%	381,214.3
5.83	5.83	57,235.6	1,400,862.0	6,363.0	463,657.2	63,598.6	1,864,519.2	75.1%	381,941.2
6.00	6.00	57,414.8	1,458,276.8	6,291.3	469,948.5	63,706.1	1,928,225.3	75.6%	382,504.8
6.17	6.16	57,548.9	1,515,825.7	6,237.7	476,186.1	63,786.5	1,992,011.8	76.1%	382,906.5

These results are submitted to you as a guideline only, without liability on the part of CONTECH Engineered Solutions, LLC for accuracy or suitability to any particular application, and are subject to your verification.

6.33	6.33	57,638.0	1,573,463.7	6,202.0	482,388.1	63,840.0	2,055,851.8	76.5%	383,147.1
6.50	6.50	57,682.6	1,631,146.3	6,184.2	488,572.3	63,866.7	2,119,718.6	77.0%	383,227.2
6.67	6.66	57,682.6	1,688,828.9	6,184.2	494,756.4	63,866.7	2,183,585.3	77.3%	383,147.1
6.83	6.83	57,638.0	1,746,466.9	6,202.0	500,958.4	63,840.0	2,247,425.4	77.7%	382,906.5
7.00	7.00	57,548.9	1,804,015.8	6,237.7	507,196.1	63,786.5	2,311,211.9	78.1%	382,504.8
7.17	7.16	57,414.8	1,861,430.6	6,291.3	513,487.4	63,706.1	2,374,918.0	78.4%	381,941.2
7.33	7.33	57,235.6	1,918,666.2	6,363.0	519,850.3	63,598.6	2,438,516.5	78.7%	381,214.3
7.50	7.50	57,010.8	1,975,677.1	6,452.9	526,303.2	63,463.7	2,501,980.2	79.0%	380,322.4
7.67	7.66	56,739.9	2,032,417.0	6,561.2	532,864.4	63,301.1	2,565,281.4	79.2%	379,263.2
7.83	7.83	56,422.2	2,088,839.2	6,688.3	539,552.7	63,110.5	2,628,391.9	79.5%	378,034.3
8.00	8.00	56,056.9	2,144,896.0	6,834.5	546,387.2	62,891.3	2,691,283.2	79.7%	376,632.4
8.17	8.16	55,643.0	2,200,539.0	7,000.0	553,387.2	62,643.0	2,753,926.2	79.9%	375,053.9
8.33	8.33	55,179.5	2,255,718.5	7,185.4	560,572.6	62,364.9	2,816,291.1	80.1%	373,294.6
8.50	8.50	54,665.2	2,310,383.7	7,391.1	567,963.7	62,056.3	2,878,347.4	80.3%	371,349.6
8.67	8.66	54,098.4	2,364,482.1	7,617.8	575,581.5	61,716.3	2,940,063.7	80.4%	369,213.3
8.83	8.83	53,477.7	2,417,959.9	7,866.1	583,447.7	61,343.8	3,001,407.5	80.6%	366,879.3
9.00	9.00	52,801.1	2,470,761.0	8,136.8	591,584.4	60,937.9	3,062,345.4	80.7%	364,340.3
9.17	9.16	52,066.4	2,522,827.4	8,430.6	600,015.0	60,497.0	3,122,842.4	80.8%	361,587.9
9.33	9.33	51,271.1	2,574,098.5	8,748.8	608,763.8	60,019.9	3,182,862.3	80.9%	358,612.4
9.50	9.50	50,412.3	2,624,510.8	9,092.3	617,856.1	59,504.6	3,242,366.9	80.9%	355,402.8
9.67	9.66	49,486.8	2,673,997.6	9,462.5	627,318.5	58,949.3	3,301,316.2	81.0%	351,946.4
9.83	9.83	48,490.7	2,722,488.3	9,860.9	637,179.5	58,351.6	3,359,667.8	81.0%	348,228.2
10.00	10.00	47,419.6	2,769,907.9	10,289.4	647,468.8	57,708.9	3,417,376.7	81.1%	344,231.0
10.17	10.16	46,268.2	2,816,176.1	10,749.9	658,218.8	57,018.1	3,474,394.8	81.1%	339,934.4
10.33	10.33	45,030.3	2,861,206.4	11,245.1	669,463.8	56,275.4	3,530,670.2	81.0%	335,314.3
10.50	10.50	43,698.8	2,904,905.2	11,777.7	681,241.5	55,476.5	3,586,146.7	81.0%	330,341.7
10.67	10.66	42,264.5	2,947,169.7	12,351.4	693,592.9	54,615.9	3,640,762.6	80.9%	324,981.5
10.83	10.83	40,716.8	2,987,886.5	12,970.5	706,563.4	53,687.3	3,694,449.9	80.9%	319,190.1
11.00	11.00	39,042.1	3,026,928.6	13,640.4	720,203.7	52,682.5	3,747,132.4	80.8%	312,913.3
11.17	11.16	37,223.2	3,064,151.9	14,367.9	734,571.7	51,591.1	3,798,723.5	80.7%	306,080.8
11.33	11.33	35,237.8	3,099,389.6	15,162.1	749,733.8	50,399.9	3,849,123.4	80.5%	298,600.2
11.50	11.50	33,055.7	3,132,445.3	16,034.9	765,768.7	49,090.6	3,898,214.0	80.4%	290,344.9
11.67	11.66	30,634.8	3,163,080.0	17,003.3	782,772.0	47,638.1	3,945,852.0	80.2%	281,133.2
11.83	11.83	27,912.7	3,190,992.7	18,092.1	800,864.1	46,004.8	3,991,856.8	79.9%	270,688.0
12.00	12.00	24,789.5	3,215,782.2	19,341.4	820,205.5	44,130.9	4,035,987.7	79.7%	258,544.7
12.17	12.16	21,085.2	3,236,867.4	20,823.1	841,028.6	41,908.3	4,077,896.0	79.4%	243,802.9
12.33	12.33	16,398.0	3,253,265.4	22,698.0	863,726.6	39,096.0	4,116,992.0	79.0%	224,153.7
12.50	12.50	9,027.2	3,262,292.6	25,646.3	889,372.9	34,673.5	4,151,665.6	78.6%	175,543.2
12.67	12.66	0.0	3,262,292.6	29,257.2	918,630.1	29,257.2	4,180,922.8	78.0%	175,543.2
12.83	12.83	0.0	3,262,292.6	29,257.2	947,887.3	29,257.2	4,210,180.0	77.5%	175,543.2
13.00	13.00	0.0	3,262,292.6	29,257.2	977,144.5	29,257.2	4,239,437.2	77.0%	175,543.2

These results are submitted to you as a guideline only, without liability on the part of CONTECH Engineered Solutions, LLC for accuracy or suitability to any particular application, and are subject to your verification.

FLOOD HYDROGRAPH ROUTING PROGRAM
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Study date: 12/06/21

2019-185 HCC II
Post-Developed Conditions
Basin Analysis - 100yr Storm
Entire Site

Program License Serial Number 6277

********** HYDROGRAPH INFORMATION **********

From study/file name: 2019185HCC2UH100Full.rte
**********HYDROGRAPH DATA**********
Number of intervals = 307
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 556.843 (CFS)
Total volume = 91.316 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

****

++
Process from Point/Station 0.000 to Point/Station 0.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 307
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)

0.000	0.000	0.000	0.000	0.000
1.000	81.400	0.001	81.400	81.400
2.000	82.710	0.001	82.710	82.710
3.000	84.090	0.001	84.090	84.090
4.000	87.450	0.001	87.450	87.450
5.000	90.360	0.001	90.360	90.360
6.000	91.820	0.001	91.820	91.820
7.000	93.350	0.001	93.350	93.350
8.000	94.960	0.001	94.960	94.960
9.000	96.630	0.001	96.630	96.630
10.000	98.390	0.001	98.390	98.390

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	139.2	278.42	417.63	556.84	Depth (Ft.)
0.083	0.70	0.00	0.002	O	|	|	|	|	0.00
0.167	4.83	0.00	0.021	O	|	|	|	|	0.00
0.250	12.32	0.00	0.081	O	|	|	|	|	0.00
0.333	16.25	0.00	0.179	O	|	|	|	|	0.00
0.417	18.48	0.00	0.299	OI	|	|	|	|	0.00
0.500	19.97	0.00	0.431	OI	|	|	|	|	0.01
0.583	21.07	0.00	0.572	OI	|	|	|	|	0.01
0.667	21.91	0.00	0.720	OI	|	|	|	|	0.01
0.750	22.55	0.00	0.873	OI	|	|	|	|	0.01
0.833	23.07	0.00	1.030	OI	|	|	|	|	0.01
0.917	23.50	0.00	1.191	OI	|	|	|	|	0.01
1.000	23.86	0.00	1.354	OI	|	|	|	|	0.02
1.083	24.15	0.00	1.519	OI	|	|	|	|	0.02
1.167	24.38	0.00	1.686	OI	|	|	|	|	0.02
1.250	24.55	0.00	1.855	OI	|	|	|	|	0.02
1.333	24.73	0.00	2.025	OI	|	|	|	|	0.02
1.417	24.91	0.00	2.195	OI	|	|	|	|	0.03
1.500	25.07	0.00	2.368	OI	|	|	|	|	0.03
1.583	25.20	0.00	2.541	OI	|	|	|	|	0.03
1.667	25.30	0.00	2.715	OI	|	|	|	|	0.03
1.750	25.37	0.00	2.889	OI	|	|	|	|	0.04
1.833	25.43	0.00	3.064	OI	|	|	|	|	0.04
1.917	25.50	0.00	3.239	OI	|	|	|	|	0.04
2.000	25.57	0.00	3.415	OI	|	|	|	|	0.04
2.083	25.64	0.00	3.592	OI	|	|	|	|	0.04
2.167	25.71	0.00	3.768	OI	|	|	|	|	0.05
2.250	25.78	0.00	3.946	OI	|	|	|	|	0.05
2.333	25.85	0.00	4.123	OI	|	|	|	|	0.05
2.417	25.92	0.00	4.302	OI	|	|	|	|	0.05
2.500	25.99	0.00	4.481	OI	|	|	|	|	0.06
2.583	26.07	0.00	4.660	OI	|	|	|	|	0.06
2.667	26.14	0.00	4.840	OI	|	|	|	|	0.06
2.750	26.22	0.00	5.020	OI	|	|	|	|	0.06
2.833	26.29	0.00	5.201	OI	|	|	|	|	0.06
2.917	26.37	0.00	5.382	OI	|	|	|	|	0.07
3.000	26.44	0.00	5.564	OI	|	|	|	|	0.07
3.083	26.52	0.00	5.746	OI	|	|	|	|	0.07

3.167	26.60	0.00	5.929	OI	|	|	|	0.07
3.250	26.67	0.00	6.112	OI	|	|	|	0.08
3.333	26.75	0.00	6.296	OI	|	|	|	0.08
3.417	26.83	0.00	6.481	OI	|	|	|	0.08
3.500	26.91	0.00	6.666	OI	|	|	|	0.08
3.583	27.00	0.00	6.852	OI	|	|	|	0.08
3.667	27.08	0.00	7.038	OI	|	|	|	0.09
3.750	27.16	0.00	7.225	OI	|	|	|	0.09
3.833	27.24	0.00	7.412	OI	|	|	|	0.09
3.917	27.33	0.00	7.600	OI	|	|	|	0.09
4.000	27.41	0.00	7.788	OI	|	|	|	0.10
4.083	27.50	0.00	7.978	OI	|	|	|	0.10
4.167	27.59	0.00	8.167	OI	|	|	|	0.10
4.250	27.68	0.00	8.358	OI	|	|	|	0.10
4.333	27.76	0.00	8.548	OI	|	|	|	0.11
4.417	27.85	0.00	8.740	OI	|	|	|	0.11
4.500	27.94	0.00	8.932	OI	|	|	|	0.11
4.583	28.04	0.00	9.125	OI	|	|	|	0.11
4.667	28.13	0.00	9.318	OI	|	|	|	0.11
4.750	28.22	0.00	9.512	OI	|	|	|	0.12
4.833	28.32	0.00	9.707	OI	|	|	|	0.12
4.917	28.41	0.00	9.902	OI	|	|	|	0.12
5.000	28.51	0.00	10.098	OI	|	|	|	0.12
5.083	28.61	0.00	10.295	OI	|	|	|	0.13
5.167	28.70	0.00	10.492	OI	|	|	|	0.13
5.250	28.81	0.00	10.690	OI	|	|	|	0.13
5.333	28.91	0.00	10.889	OI	|	|	|	0.13
5.417	29.01	0.00	11.089	OI	|	|	|	0.14
5.500	29.11	0.00	11.289	OI	|	|	|	0.14
5.583	29.22	0.00	11.490	OI	|	|	|	0.14
5.667	29.32	0.00	11.691	OI	|	|	|	0.14
5.750	29.43	0.00	11.893	OI	|	|	|	0.15
5.833	29.53	0.00	12.097	OI	|	|	|	0.15
5.917	29.65	0.00	12.300	OI	|	|	|	0.15
6.000	29.75	0.00	12.505	OI	|	|	|	0.15
6.083	29.87	0.00	12.710	OI	|	|	|	0.16
6.167	29.98	0.00	12.916	OI	|	|	|	0.16
6.250	30.10	0.00	13.123	OI	|	|	|	0.16
6.333	30.21	0.00	13.331	OI	|	|	|	0.16
6.417	30.33	0.00	13.539	OI	|	|	|	0.17
6.500	30.45	0.00	13.749	OI	|	|	|	0.17
6.583	30.57	0.00	13.959	OI	|	|	|	0.17
6.667	30.69	0.00	14.170	OI	|	|	|	0.17
6.750	30.81	0.00	14.381	OI	|	|	|	0.18
6.833	30.94	0.00	14.594	OI	|	|	|	0.18
6.917	31.06	0.00	14.807	OI	|	|	|	0.18
7.000	31.19	0.00	15.022	OI	|	|	|	0.18
7.083	31.32	0.00	15.237	OI	|	|	|	0.19
7.167	31.45	0.00	15.453	OI	|	|	|	0.19
7.250	31.59	0.00	15.670	OI	|	|	|	0.19
7.333	31.72	0.00	15.888	OI	|	|	|	0.20
7.417	31.86	0.00	16.107	OI	|	|	|	0.20
7.500	32.00	0.00	16.327	OI	|	|	|	0.20
7.583	32.14	0.00	16.548	OI	|	|	|	0.20
7.667	32.28	0.00	16.770	OI	|	|	|	0.21
7.750	32.43	0.00	16.993	OI	|	|	|	0.21

7.833	32.57	0.00	17.216	OI	|	|	|	0.21
7.917	32.72	0.00	17.441	OI	|	|	|	0.21
8.000	32.87	0.00	17.667	OI	|	|	|	0.22
8.083	33.03	0.00	17.894	OI	|	|	|	0.22
8.167	33.18	0.00	18.122	OI	|	|	|	0.22
8.250	33.34	0.00	18.351	OI	|	|	|	0.23
8.333	33.50	0.00	18.581	OI	|	|	|	0.23
8.417	33.66	0.00	18.813	OI	|	|	|	0.23
8.500	33.83	0.00	19.045	OI	|	|	|	0.23
8.583	34.00	0.00	19.279	OI	|	|	|	0.24
8.667	34.16	0.00	19.513	OI	|	|	|	0.24
8.750	34.34	0.00	19.749	OI	|	|	|	0.24
8.833	34.51	0.00	19.986	OI	|	|	|	0.25
8.917	34.70	0.00	20.225	OI	|	|	|	0.25
9.000	34.87	0.00	20.464	O I	|	|	|	0.25
9.083	35.06	0.00	20.705	O I	|	|	|	0.25
9.167	35.25	0.00	20.947	O I	|	|	|	0.26
9.250	35.44	0.00	21.190	O I	|	|	|	0.26
9.333	35.63	0.00	21.435	O I	|	|	|	0.26
9.417	35.84	0.00	21.681	O I	|	|	|	0.27
9.500	36.03	0.00	21.929	O I	|	|	|	0.27
9.583	36.24	0.00	22.178	O I	|	|	|	0.27
9.667	36.45	0.00	22.428	O I	|	|	|	0.28
9.750	36.66	0.00	22.680	O I	|	|	|	0.28
9.833	36.88	0.00	22.933	O I	|	|	|	0.28
9.917	37.10	0.00	23.188	O I	|	|	|	0.28
10.000	37.32	0.00	23.444	O I	|	|	|	0.29
10.083	37.56	0.00	23.702	O I	|	|	|	0.29
10.167	37.79	0.00	23.961	O I	|	|	|	0.29
10.250	38.03	0.00	24.222	O I	|	|	|	0.30
10.333	38.27	0.00	24.485	O I	|	|	|	0.30
10.417	38.52	0.00	24.750	O I	|	|	|	0.30
10.500	38.77	0.00	25.016	O I	|	|	|	0.31
10.583	39.03	0.00	25.284	O I	|	|	|	0.31
10.667	39.29	0.00	25.553	O I	|	|	|	0.31
10.750	39.57	0.00	25.825	O I	|	|	|	0.32
10.833	39.84	0.00	26.098	O I	|	|	|	0.32
10.917	40.13	0.00	26.374	O I	|	|	|	0.32
11.000	40.41	0.00	26.651	O I	|	|	|	0.33
11.083	40.71	0.00	26.930	O I	|	|	|	0.33
11.167	41.01	0.00	27.212	O I	|	|	|	0.33
11.250	41.33	0.00	27.495	O I	|	|	|	0.34
11.333	41.64	0.00	27.781	O I	|	|	|	0.34
11.417	41.97	0.00	28.069	O I	|	|	|	0.34
11.500	42.29	0.00	28.359	O I	|	|	|	0.35
11.583	42.64	0.00	28.652	O I	|	|	|	0.35
11.667	42.99	0.00	28.946	O I	|	|	|	0.36
11.750	43.35	0.00	29.244	O I	|	|	|	0.36
11.833	43.72	0.00	29.544	O I	|	|	|	0.36
11.917	44.10	0.00	29.846	O I	|	|	|	0.37
12.000	44.49	0.00	30.151	O I	|	|	|	0.37
12.083	44.73	0.00	30.458	O I	|	|	|	0.37
12.167	44.17	0.00	30.764	O I	|	|	|	0.38
12.250	42.86	0.00	31.064	O I	|	|	|	0.38
12.333	42.39	0.00	31.358	O I	|	|	|	0.39
12.417	42.34	0.00	31.649	O I	|	|	|	0.39

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12.500   42.46    0.00     31.941  O I     |       |       |       |     0.39
12.583   42.71    0.00     32.235  O I     |       |       |       |     0.40
12.667   43.01    0.00     32.530  O I     |       |       |       |     0.40
12.750   43.41    0.00     32.827  O I     |       |       |       |     0.40
12.833   43.82    0.00     33.128  O I     |       |       |       |     0.41
12.917   44.31    0.00     33.431  O I     |       |       |       |     0.41
13.000   44.80    0.00     33.738  O I     |       |       |       |     0.41
13.083   45.36    0.00     34.049  O I     |       |       |       |     0.42
13.167   45.94    0.00     34.363  O I     |       |       |       |     0.42
13.250   46.57    0.00     34.682  O I     |       |       |       |     0.43
13.333   47.21    0.00     35.005  O I     |       |       |       |     0.43
13.417   47.90    0.00     35.332  O I     |       |       |       |     0.43
13.500   48.61    0.00     35.664  O I     |       |       |       |     0.44
13.583   49.38    0.00     36.002  O I     |       |       |       |     0.44
13.667   50.17    0.00     36.345  O I     |       |       |       |     0.45
13.750   51.04    0.00     36.693  O I     |       |       |       |     0.45
13.833   51.91    0.00     37.048  O I     |       |       |       |     0.46
13.917   52.87    0.00     37.408  O  I    |       |       |       |     0.46
14.000   53.84    0.00     37.776  O  I    |       |       |       |     0.46
14.083   54.93    0.00     38.150  O  I    |       |       |       |     0.47
14.167   56.16    0.00     38.533  O  I    |       |       |       |     0.47
14.250   57.61    0.00     38.925  O  I    |       |       |       |     0.48
14.333   58.97    0.00     39.326  O  I    |       |       |       |     0.48
14.417   60.40    0.00     39.737  O  I    |       |       |       |     0.49
14.500   61.85    0.00     40.158  O  I    |       |       |       |     0.49
14.583   63.45    0.00     40.590  O  I    |       |       |       |     0.50
14.667   65.10    0.00     41.032  O  I    |       |       |       |     0.50
14.750   66.94    0.00     41.487  O  I    |       |       |       |     0.51
14.833   68.86    0.00     41.955  O  I    |       |       |       |     0.52
14.917   71.03    0.00     42.436  O   I   |       |       |       |     0.52
15.000   73.31    0.00     42.933  O   I   |       |       |       |     0.53
15.083   75.94    0.00     43.447  O   I   |       |       |       |     0.53
15.167   78.73    0.00     43.980  O   I   |       |       |       |     0.54
15.250   81.99    0.00     44.533  O   I   |       |       |       |     0.55
15.333   85.54    0.00     45.110  O   I   |       |       |       |     0.55
15.417   88.63    0.00     45.710  O    I  |       |       |       |     0.56
15.500   86.61    0.00     46.314  O   I   |       |       |       |     0.57
15.583   80.09    0.00     46.888  O   I   |       |       |       |     0.58
15.667   79.97    0.00     47.439  O   I   |       |       |       |     0.58
15.750   84.37    0.00     48.005  O   I   |       |       |       |     0.59
15.833   92.25    0.00     48.613  O    I  |       |       |       |     0.60
15.917  106.31    0.00     49.297  O     I |       |       |       |     0.61
16.000  132.71    0.00     50.120  O      I|       |       |       |     0.62
16.083  210.80    0.00     51.302  O       |   I   |       |       |     0.63
16.167  408.26    0.00     53.434  O       |       |      I|       |     0.66
16.250  556.84    0.00     56.758  O       |       |       |      I|     0.70
16.333  354.61    0.00     59.896  O       |       |   I   |       |     0.74
16.417  242.39    0.00     61.952  O       |    I  |       |       |     0.76
16.500  190.34    0.00     63.442  O       | I     |       |       |     0.78
16.583  166.01    0.00     64.669  O       |I      |       |       |     0.79
16.667  145.78    0.00     65.743  O       I       |       |       |     0.81
16.750  127.56    0.00     66.684  O      I|       |       |       |     0.82
16.833  115.36    0.00     67.520  O     I |       |       |       |     0.83
16.917  104.03    0.00     68.276  O    I  |       |       |       |     0.84
17.000   95.03    0.00     68.961  O    I  |       |       |       |     0.85
17.083   86.87    0.00     69.588  O   I   |       |       |       |     0.85
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17.167	79.18	0.00	70.160	O I				0.86
17.250	72.53	0.00	70.682	O I				0.87
17.333	69.73	0.00	71.172	O I				0.87
17.417	66.91	0.00	71.642	O I				0.88
17.500	62.75	0.00	72.089	O I				0.89
17.583	58.33	0.00	72.506	O I				0.89
17.667	54.37	0.00	72.894	O I				0.90
17.750	50.77	0.00	73.256	O I				0.90
17.833	49.04	0.00	73.600	O I				0.90
17.917	47.52	0.00	73.932	O I				0.91
18.000	46.12	0.00	74.254	O I				0.91
18.083	44.97	0.00	74.568	O I				0.92
18.167	44.73	0.00	74.877	O I				0.92
18.250	45.37	0.00	75.187	O I				0.92
18.333	45.26	0.00	75.499	O I				0.93
18.417	44.82	0.00	75.809	O I				0.93
18.500	44.26	0.00	76.116	O I				0.94
18.583	43.68	0.00	76.419	O I				0.94
18.667	43.08	0.00	76.718	O I				0.94
18.750	42.47	0.00	77.012	O I				0.95
18.833	41.88	0.00	77.303	O I				0.95
18.917	41.30	0.00	77.589	O I				0.95
19.000	40.74	0.00	77.872	O I				0.96
19.083	40.19	0.00	78.150	O I				0.96
19.167	39.66	0.00	78.425	O I				0.96
19.250	39.13	0.00	78.697	O I				0.97
19.333	38.64	0.00	78.964	O I				0.97
19.417	38.16	0.00	79.229	O I				0.97
19.500	37.70	0.00	79.490	O I				0.98
19.583	37.25	0.00	79.748	O I				0.98
19.667	36.81	0.00	80.003	O I				0.98
19.750	36.38	0.00	80.255	O I				0.99
19.833	35.97	0.00	80.504	O I				0.99
19.917	35.57	0.00	80.751	O I				0.99
20.000	35.18	0.00	80.994	O I				1.00
20.083	34.81	0.00	81.235	O I				1.00
20.167	34.45	0.00	81.474	OI				1.06
20.250	34.10	0.00	81.710	OI				1.24
20.333	33.76	0.00	81.944	OI				1.41
20.417	33.44	0.00	82.175	OI				1.59
20.500	33.12	0.00	82.404	OI				1.77
20.583	32.81	0.00	82.631	OI				1.94
20.667	32.51	0.00	82.856	OI				2.11
20.750	32.22	0.00	83.079	OI				2.27
20.833	31.94	0.00	83.300	OI				2.43
20.917	31.66	0.00	83.519	OI				2.59
21.000	31.40	0.00	83.736	OI				2.74
21.083	31.14	0.00	83.952	OI				2.90
21.167	30.88	0.00	84.165	OI				3.02
21.250	30.64	0.00	84.377	OI				3.09
21.333	30.39	0.00	84.587	OI				3.15
21.417	30.16	0.00	84.796	OI				3.21
21.500	29.93	0.00	85.002	OI				3.27
21.583	29.70	0.00	85.208	OI				3.33
21.667	29.49	0.00	85.412	OI				3.39
21.750	29.27	0.00	85.614	OI				3.45

21.833	29.06	0.00	85.815	OI	|	|	|	3.51
21.917	28.86	0.00	86.014	OI	|	|	|	3.57
22.000	28.66	0.00	86.212	OI	|	|	|	3.63
22.083	28.46	0.00	86.409	OI	|	|	|	3.69
22.167	28.27	0.00	86.604	OI	|	|	|	3.75
22.250	28.08	0.00	86.798	OI	|	|	|	3.81
22.333	27.90	0.00	86.991	OI	|	|	|	3.86
22.417	27.72	0.00	87.183	OI	|	|	|	3.92
22.500	27.54	0.00	87.373	OI	|	|	|	3.98
22.583	27.37	0.00	87.562	OI	|	|	|	4.04
22.667	27.20	0.00	87.750	OI	|	|	|	4.10
22.750	27.04	0.00	87.937	OI	|	|	|	4.17
22.833	26.87	0.00	88.122	OI	|	|	|	4.23
22.917	26.71	0.00	88.307	OI	|	|	|	4.29
23.000	26.56	0.00	88.490	OI	|	|	|	4.36
23.083	26.40	0.00	88.673	OI	|	|	|	4.42
23.167	26.25	0.00	88.854	OI	|	|	|	4.48
23.250	26.10	0.00	89.034	OI	|	|	|	4.54
23.333	25.96	0.00	89.214	OI	|	|	|	4.61
23.417	25.81	0.00	89.392	OI	|	|	|	4.67
23.500	25.67	0.00	89.569	OI	|	|	|	4.73
23.583	25.53	0.00	89.745	OI	|	|	|	4.79
23.667	25.40	0.00	89.921	OI	|	|	|	4.85
23.750	25.26	0.00	90.095	OI	|	|	|	4.91
23.833	25.13	0.00	90.269	OI	|	|	|	4.97
23.917	25.00	0.00	90.441	OI	|	|	|	5.06
24.000	24.88	0.00	90.613	OI	|	|	|	5.17
24.083	24.05	0.00	90.782	OI	|	|	|	5.29
24.167	19.80	0.00	90.933	OI	|	|	|	5.39
24.250	12.24	0.00	91.043	O	|	|	|	5.47
24.333	8.28	0.00	91.114	O	|	|	|	5.52
24.417	6.05	0.00	91.163	O	|	|	|	5.55
24.500	4.58	0.00	91.200	O	|	|	|	5.58
24.583	3.51	0.00	91.228	O	|	|	|	5.59
24.667	2.70	0.00	91.249	O	|	|	|	5.61
24.750	2.11	0.00	91.265	O	|	|	|	5.62
24.833	1.63	0.00	91.278	O	|	|	|	5.63
24.917	1.25	0.00	91.288	O	|	|	|	5.64
25.000	0.95	0.00	91.296	O	|	|	|	5.64
25.083	0.71	0.00	91.302	O	|	|	|	5.64
25.167	0.54	0.00	91.306	O	|	|	|	5.65
25.250	0.43	0.00	91.309	O	|	|	|	5.65
25.333	0.31	0.00	91.312	O	|	|	|	5.65
25.417	0.19	0.00	91.313	O	|	|	|	5.65
25.500	0.10	0.00	91.314	O	|	|	|	5.65
25.583	0.03	0.00	91.315	O	|	|	|	5.65
25.667	0.00	0.00	91.315	O	|	|	|	5.65

Remaining water in basin = 91.31 (Ac.Ft)

**********HYDROGRAPH DATA**********

Number of intervals = 308
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.001 (CFS)

```
                Total volume =       0.001 (Ac.Ft)
        Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
****************************************************************************

----------------------------------------------------------------------
```

Appendix F – Reference Documents

NOAA Atlas 14, Volume 6, Version 2
Location name: Hesperia, California, USA*
Latitude: 34.4292°, Longitude: -117.4116°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.084 (0.070-0.103)	0.121 (0.100-0.148)	0.169 (0.139-0.207)	0.208 (0.170-0.257)	0.262 (0.207-0.335)	0.304 (0.235-0.397)	0.347 (0.262-0.464)	0.392 (0.288-0.539)	0.453 (0.319-0.650)	0.502 (0.341-0.745)
10-min	0.121 (0.100-0.148)	0.173 (0.143-0.212)	0.242 (0.199-0.296)	0.298 (0.244-0.369)	0.376 (0.297-0.480)	0.436 (0.337-0.569)	0.497 (0.376-0.665)	0.562 (0.413-0.772)	0.650 (0.458-0.932)	0.719 (0.489-1.07)
15-min	0.146 (0.121-0.178)	0.209 (0.173-0.256)	0.292 (0.241-0.358)	0.361 (0.295-0.446)	0.454 (0.359-0.580)	0.527 (0.408-0.688)	0.602 (0.454-0.804)	0.679 (0.499-0.934)	0.786 (0.554-1.13)	0.870 (0.592-1.29)
30-min	0.222 (0.184-0.271)	0.318 (0.263-0.388)	0.444 (0.366-0.544)	0.548 (0.448-0.677)	0.690 (0.545-0.881)	0.800 (0.620-1.04)	0.914 (0.690-1.22)	1.03 (0.758-1.42)	1.19 (0.841-1.71)	1.32 (0.899-1.96)
60-min	0.313 (0.259-0.382)	0.448 (0.371-0.548)	0.626 (0.516-0.768)	0.773 (0.632-0.955)	0.973 (0.769-1.24)	1.13 (0.874-1.47)	1.29 (0.974-1.72)	1.46 (1.07-2.00)	1.68 (1.19-2.41)	1.86 (1.27-2.77)
2-hr	0.456 (0.377-0.556)	0.619 (0.512-0.757)	0.841 (0.693-1.03)	1.03 (0.840-1.27)	1.29 (1.02-1.65)	1.50 (1.16-1.95)	1.71 (1.30-2.29)	1.95 (1.43-2.68)	2.27 (1.60-3.26)	2.53 (1.72-3.76)
3-hr	0.576 (0.476-0.703)	0.770 (0.636-0.941)	1.04 (0.854-1.27)	1.26 (1.03-1.56)	1.58 (1.25-2.02)	1.84 (1.42-2.40)	2.11 (1.60-2.82)	2.40 (1.77-3.31)	2.82 (1.99-4.04)	3.16 (2.15-4.69)
6-hr	0.814 (0.674-0.994)	1.08 (0.892-1.32)	1.45 (1.19-1.77)	1.76 (1.44-2.18)	2.22 (1.75-2.83)	2.59 (2.00-3.38)	2.99 (2.26-3.99)	3.42 (2.51-4.70)	4.04 (2.85-5.80)	4.56 (3.11-6.77)
12-hr	1.05 (0.872-1.29)	1.44 (1.19-1.76)	1.97 (1.63-2.42)	2.43 (1.99-3.00)	3.09 (2.44-3.95)	3.63 (2.81-4.74)	4.21 (3.18-5.63)	4.84 (3.56-6.66)	5.76 (4.06-8.25)	6.52 (4.43-9.67)
24-hr	1.43 (1.27-1.65)	2.03 (1.79-2.34)	2.85 (2.52-3.29)	3.55 (3.11-4.14)	4.57 (3.87-5.50)	5.40 (4.48-6.64)	6.28 (5.09-7.92)	7.25 (5.71-9.39)	8.64 (6.53-11.7)	9.79 (7.15-13.7)
2-day	1.63 (1.45-1.88)	2.30 (2.04-2.65)	3.24 (2.86-3.74)	4.05 (3.55-4.72)	5.23 (4.43-6.30)	6.21 (5.15-7.64)	7.27 (5.89-9.15)	8.42 (6.64-10.9)	10.1 (7.64-13.6)	11.5 (8.42-16.1)
3-day	1.75 (1.55-2.02)	2.46 (2.18-2.84)	3.46 (3.05-4.00)	4.33 (3.79-5.04)	5.60 (4.75-6.75)	6.66 (5.53-8.19)	7.81 (6.33-9.84)	9.08 (7.15-11.8)	10.9 (8.27-14.8)	12.5 (9.13-17.5)
4-day	1.89 (1.68-2.18)	2.65 (2.35-3.06)	3.72 (3.29-4.30)	4.65 (4.08-5.42)	6.03 (5.11-7.26)	7.17 (5.95-8.81)	8.40 (6.81-10.6)	9.77 (7.70-12.7)	11.8 (8.90-15.9)	13.5 (9.84-18.8)
7-day	2.12 (1.88-2.44)	2.94 (2.61-3.39)	4.09 (3.61-4.73)	5.10 (4.46-5.94)	6.56 (5.56-7.90)	7.78 (6.46-9.57)	9.10 (7.38-11.5)	10.6 (8.32-13.7)	12.7 (9.60-17.1)	14.5 (10.6-20.2)
10-day	2.27 (2.01-2.61)	3.14 (2.78-3.62)	4.34 (3.83-5.02)	5.39 (4.72-6.28)	6.91 (5.86-8.32)	8.18 (6.79-10.1)	9.54 (7.73-12.0)	11.1 (8.71-14.3)	13.2 (10.0-17.9)	15.1 (11.0-21.1)
20-day	2.74 (2.43-3.16)	3.76 (3.33-4.33)	5.17 (4.56-5.97)	6.38 (5.59-7.44)	8.15 (6.90-9.81)	9.60 (7.97-11.8)	11.2 (9.05-14.1)	12.9 (10.2-16.7)	15.4 (11.7-20.8)	17.5 (12.8-24.5)
30-day	3.24 (2.87-3.73)	4.41 (3.91-5.09)	6.02 (5.32-6.96)	7.41 (6.49-8.64)	9.42 (7.98-11.3)	11.1 (9.19-13.6)	12.9 (10.4-16.2)	14.8 (11.7-19.2)	17.7 (13.4-23.9)	20.2 (14.7-28.2)
45-day	3.86 (3.42-4.45)	5.18 (4.59-5.97)	7.00 (6.18-8.08)	8.55 (7.49-9.97)	10.8 (9.15-13.0)	12.7 (10.5-15.6)	14.7 (11.9-18.5)	16.9 (13.3-21.9)	20.1 (15.2-27.2)	22.9 (16.7-32.0)
60-day	4.40 (3.90-5.07)	5.81 (5.15-6.70)	7.75 (6.84-8.95)	9.40 (8.24-11.0)	11.8 (10.00-14.2)	13.8 (11.4-16.9)	15.9 (12.9-20.0)	18.3 (14.4-23.7)	21.8 (16.5-29.4)	24.8 (18.1-34.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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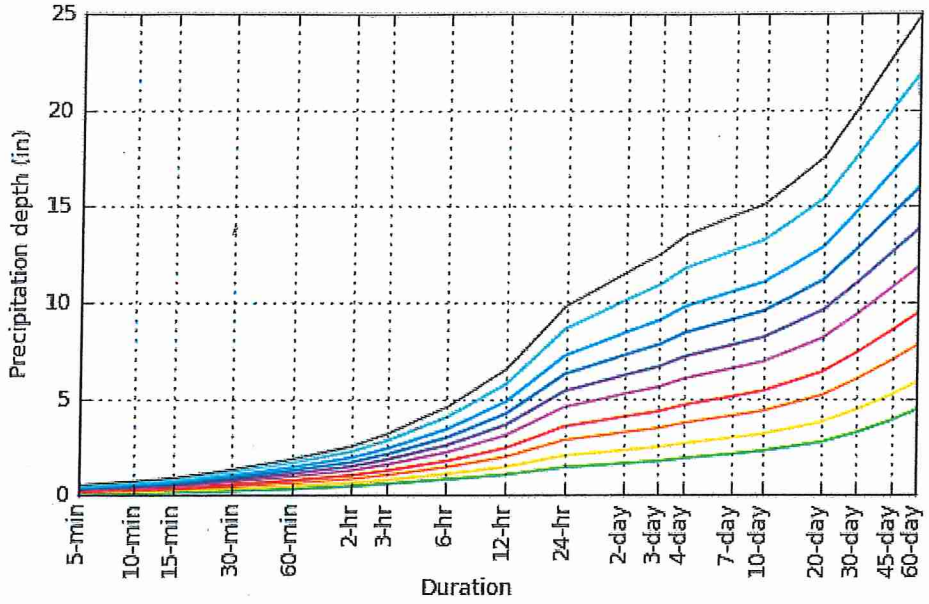
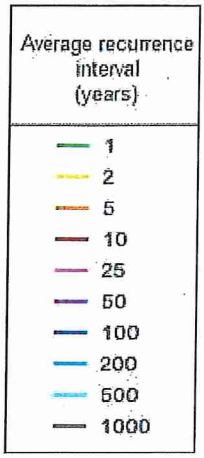
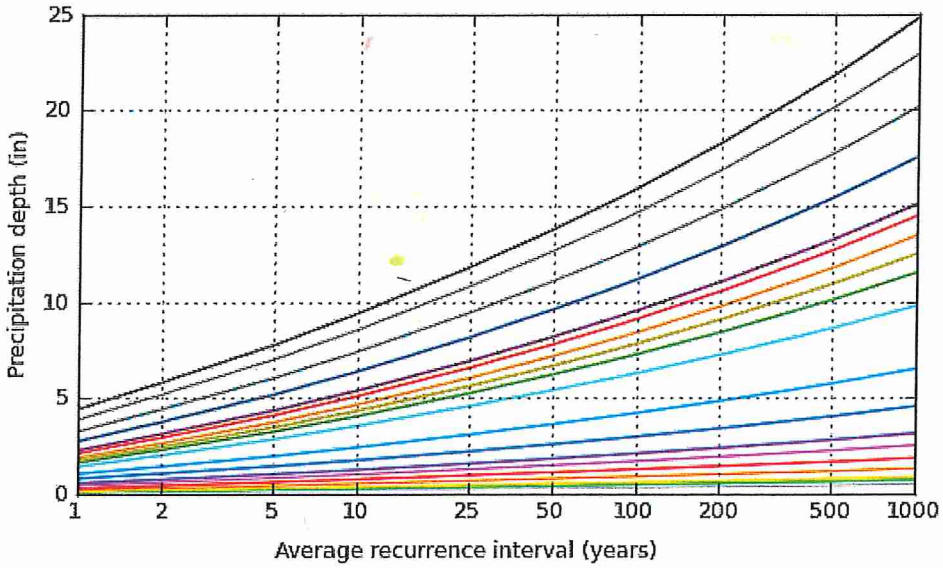
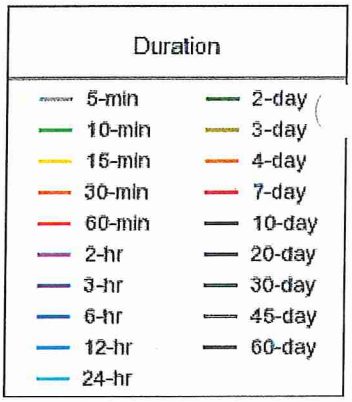
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.4292°, Longitude: -117.4116°









NOAA Atlas 14, Volume 6, Version 2 Created (GMT): Thu Oct 24 17:41:43 2019

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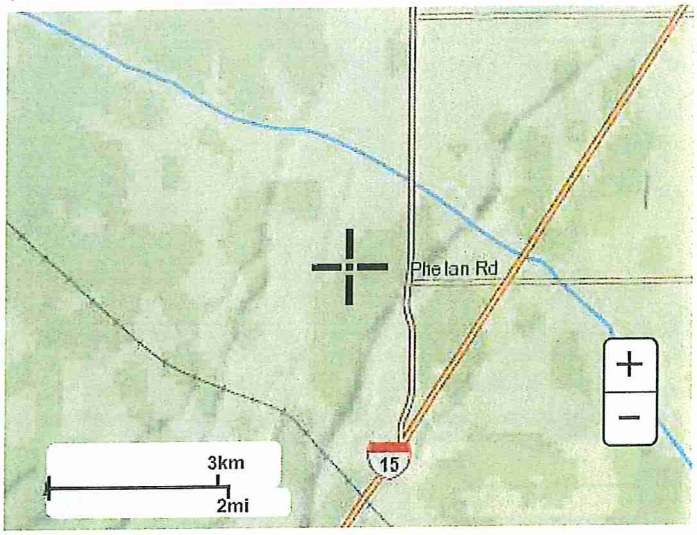
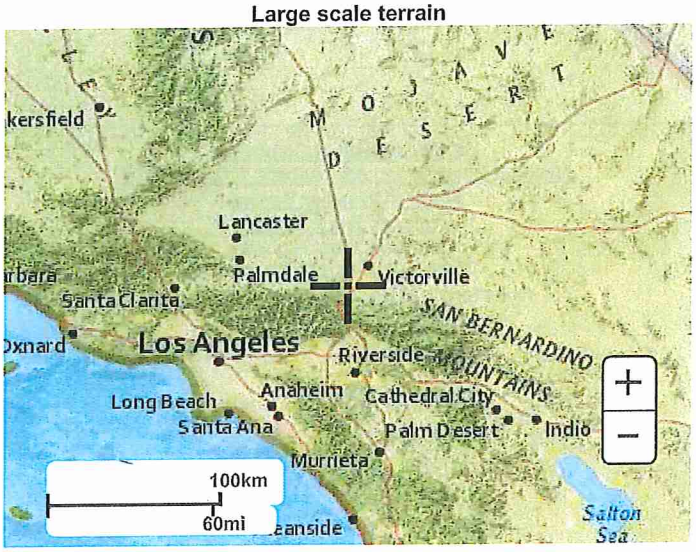
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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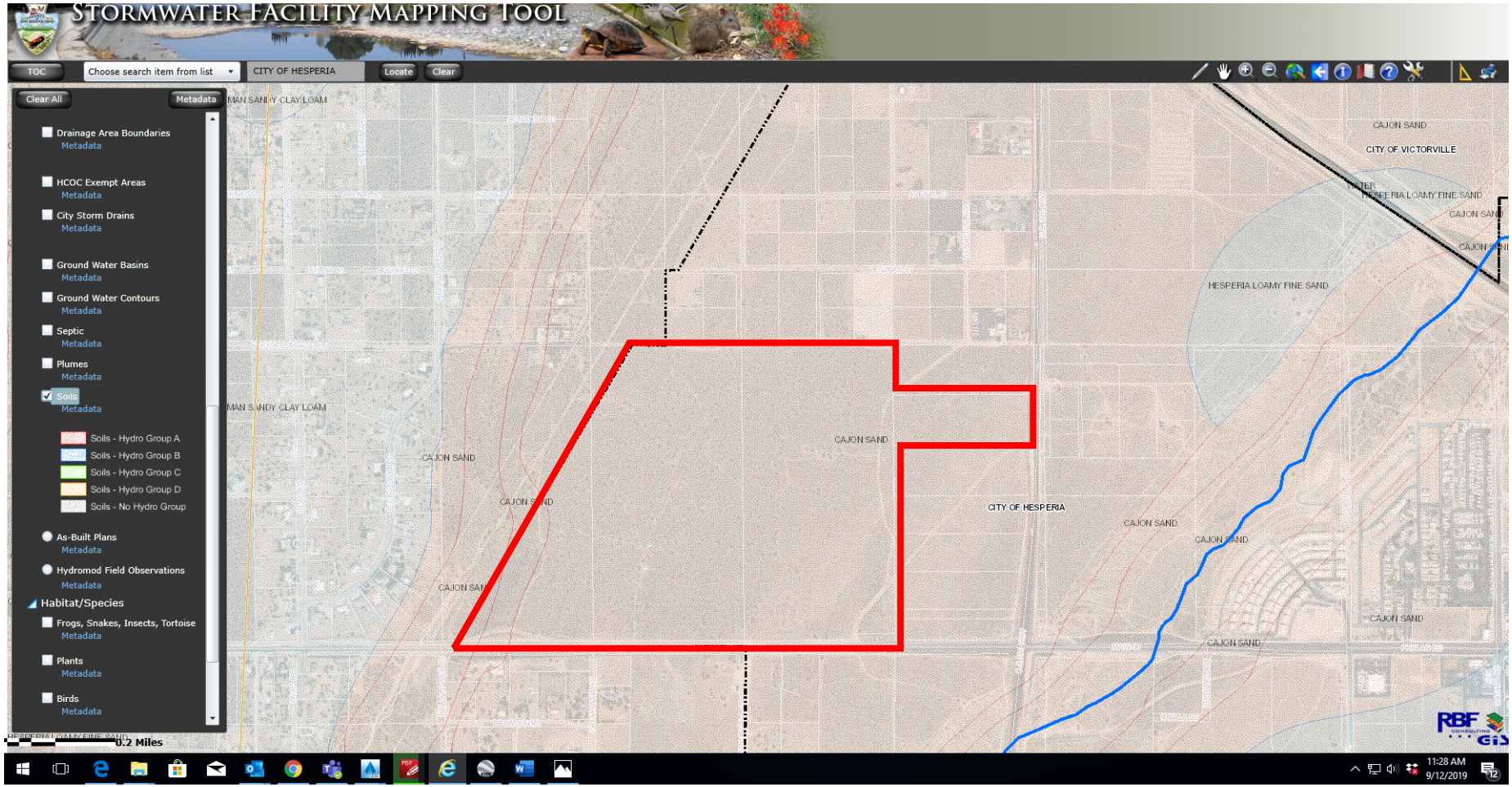
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer


STORMWATER FACILITY MAPPING TOOL
TOC
Choose search item from list
CITY OF HESPERIA
Locate
Clear
Clear All
Metadata
Drainage Area Boundaries
Metadata
HCOC Exempt Areas
Metadata
City Storm Drains
Metadata
Ground Water Basins
Metadata
Ground Water Contours
Metadata
Septic
Metadata
Plumes
Metadata
Soils
Metadata
Soils - Hydro Group A
Soils - Hydro Group B
Soils - Hydro Group C
Soils - Hydro Group D
Soils - No Hydro Group
As-Built Plans
Metadata
Hydromod Field Observations
Metadata
Habitat/Species
Frogs, Snakes, Insects, Tortoise
Metadata
Plants
Metadata
Birds
Metadata
MAN SANDY CLAY LOAM
CAJON SAND
CITY OF VICTORVILLE
HESPERIA LOAMY FINE SAND
CITY OF HESPERIA
0.2 Miles
11:28 AM
9/12/2019

Appendix I-2

Preliminary Drainage Report

December 2021
2019-185

Hesperia Commerce II
Industrial Buildings
City of Hesperia, CA

Preliminary Hydrology Report

Prepared For:
Covington Group, Inc.
14180 Dallas Pkwy Suite 730
Dallas, TX 75254

Prepared By:
WestLAND Group, Inc.
4150 Concours, Suite 100
Ontario, CA 91764
Tel: 909-989-9789

WestLAND Group, Inc.

WestLAND Group, Inc.

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  - *i. 100-Year Storm*
- *b. Post-Development Condition*
  - *i. 100-Year Storm*

B. Unit Hydrograph Method
- *a. Pre-Development Condition*
  - *i. 100-Year Storm*
- *b. Post-Development Condition*
  - *i. 100-Year Storm*

C. Exhibits

D. WSPG Calculations

E. Basin Summary

F. Reference Documents
- *a. NOAA Atlas 14 Rainfall Data*
- *b. Soil Map*

I. Purpose and Scope

The purpose of this study is to identify onsite and offsite surface flow tributary to the proposed development and show that the development will not harm downstream conditions. This study evaluates the Post-Development Hydrological Conditions and the Pre-Development Hydrological Conditions and also also provides the criteria for the design of the on-site storm drain systems for flood protection of the proposed structures. The project site is located in the City of Hesperia and proposes to construct 2 buildings, parking areas, street improvements, above ground and underground infiltration/retention basins, and storm drain infrastructure. To prevent erosion in downstream conditions, the project proposes to retain the entire runoff volume for the 100-year storm via a combination of above ground and underground infiltration/retention basins.

The scope of the study includes the following:

1. *Perform 100-year rational method calculations as outlined in the San Bernardino County Flood Control Hydrology Manual.*
2. *Perform 100-year unit hydrograph calculations utilizing the San Bernardino County Flood Control Hydrology Manual.*
3. *Determine peak flow rates tributary to the mainline systems.*
4. *Size the infiltration/retention basin using the volumes determined from the unit hydrograph calculations.*
5. *Preparation of a report, which consists of hydrological and hydraulic results, as well as supporting exhibits.*

II. Project Site and Drainage Area Overview

The proposed site is an industrial development located near the southwest corner of Yucca Terrace Drive and Highway 395 in Hesperia, California. The project site is bounded by roads and can be located with the provided information below:

- *South of Yucca Terrace Dr*
- *East of La Bureau of Power and Light Rd*
- *West of Caliente Rd and Highway 395*
- *North of Phelan Road*

The site consists of several parcels both irregular and rectangular in shape which approximate to 193.82 acres. The site is entirely vacant and undeveloped and surrounded by mostly paved/dirt roads. The existing natural cover consists primarily of shrubs, native bushes and trees throughout the site. The highest elevation per survey data is located on the south westerly corner of the project site. A small portion of the site sheet flows towards the south and another portion will sheet flow towards the west. The majority of the site will sheet flow towards the northerly east corner of the project site. Overall, the site depicts slopes of approximately 2± percent towards the northerly east corner of the project site. The slopes at which sheet flow towards the south and west side of the project side slopes downward at a gradient of approximately 7± percent. Existing drainage patterns can be seen in the "Pre-Developed Condition Exhibit" in Appendix C where the site was separated into drainage areas and sub areas for further hydrological analysis.

The proposed site is considered an industrial development, and flows will be collected through nearby catch basins and conveyed to either an above ground or underground infiltration/retention basin via a storm drain system. Buildings 1 and 2 will share the same storm drain system.

The project proposes to construct a total of 2 buildings that will be used for industrial and commercial purposes. Each building will have its own dedicated parking areas and truck docking areas. In addition, for water quality purposes, each building proposes to share the same storm drain system that will use a combination of an above ground infiltration basin and underground CMP infiltration/retention basin to treat the stormwater runoff. To prevent erosion in the downstream conditions, the project proposes to retain the entire runoff volume for up to a 100-year storm event.

Part of the project will include offsite street improvements along the frontage of the project on Yucca Terrace, Phelan road, and a portion of Highway 395.

III. Methodology

The San Bernardino County Hydrology Manual, was used to develop the hydrological parameters for the hydrology analysis. The rational method and unit hydrograph method were used in order to perform a hydrological analysis for the existing and proposed project conditions. The proposed development will be designed to prevent flooding for the 100-year storm.

Civil Design Software, Version 8.1 was used for the 100-year Hydrological Analysis imputing the following information:

- *100-year AMC III*
- *Soil Type A*
- *Manning's Values Used:*
    - *Existing Surface n=0.030*
- *Project is located in the "Desert" area*

IV. Hydrology

The rainfall depths used in the hydrology calculations are as follows:

Storm Event & Duration	Rainfall (inches)
2-Year, 1-Hour	0.448
2-Year, 6-Hour	1.08
2-Year, 24-Hour	2.03
10-Year, 1-Hour	0.773
100-Year, 1-Hour	1.29
100-Year, 6-Hour	2.99
100-Year, 24-Hour	6.28

The rainfall depths were obtained from NOAA Atlas 14, which is included as part of Appendix F.

The proposed site was divided in subareas based on the proposed drainage patterns in order to better analyze the runoff produced throughout each area. Below is a summary of the results.

HYDROLOGY SUMMARY						
AREA ID	AREA (SF)	TC (MIN)	Q_{100} (CFS)	V_{100} (CF)	Retention Provided (CF)	Total V Provided (CF)
A	291,882	7.20	33.86	136,334	4,209,377	5,107,731
B	466,987	11.03	39.98	219,020		
C	1,086,826	15.26	73.77	508,776		
D	215,781	10.00	19.8	101,181		
E	447,674	10.08	40.86	210,120		
F	1,278,449	12.42	100.6	599,255		
G	2,268,702	12.54	177.2	1,063,239		
H	535,507	5.71	73.14	251,694		
I	1,192,584	9.75	111.5	559,698		
J	111,022	5.44	15.72	52,228		
K	547,366	8.44	56.72	257,113		
TOTAL	8,442,779		743.11	3,958,659		

BASIN SUMMARY TABLE		
BASIN ID	**RETENTION VOLUME**	**TOTAL VOLUME**
ABOVE GROUND BASIN	792,000 CF	868,293 CF
UNDERGROUND INFILTRATION BASIN (1800' x 237')	3,417,377 CF	4,239,437 CF
TOTAL	**4,209,377 CF**	**5,107,731 CF**

To verify storm drain feasibility, preliminary WSPG calculations were performed and the results indicate the water surface elevation does not rise above the finished surface. The WSPG calculations can be found in Appendix D.

V. Conclusion

In conclusion, this drainage study shows that the proposed development will provide enough volume to capture the entire runoff volume generated from a 100-year storm event and will not release any runoff off-site for up to a 100-year storm event. To store the volume, the development proposes a combination of above ground and underground infiltration/retention basins. Since the development will not release runoff off-site, the development will not negatively impact downstream conditions. The results demonstrate that the proposed on-site storm drain system and above ground and underground infiltration/retention basins will comply with the flood protection and WQMP requirements of the City of Hesperia and County of San Bernardino.

Appendix

Appendix A – Rational Method

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA A
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 1.100 to Point/Station 1.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 29.500(Ft.)
Top (of initial area) elevation = 3602.010(Ft.)
Bottom (of initial area) elevation = 3583.280(Ft.)
Difference in elevation = 18.730(Ft.)
Slope = 0.63492 s(%)= 63.49
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 2.226 min.
Rainfall intensity = 12.942(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.842
Subarea runoff = 6.644(CFS)
Total initial stream area = 0.610(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 0.61 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YERA STORM AREA B
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 2.100 to Point/Station 2.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 328.190(Ft.)
Top (of initial area) elevation = 3597.780(Ft.)
Bottom (of initial area) elevation = 3563.100(Ft.)
Difference in elevation = 34.680(Ft.)
Slope = 0.10567 s(%)= 10.57
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.353 min.
Rainfall intensity = 5.129(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.753
Subarea runoff = 29.028(CFS)
Total initial stream area = 7.520(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 7.52 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 UNDUSTRIAL PARK
100 YEAR STORM AREA C
PRE-DEVELPED CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 3.100 to Point/Station 3.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 507.480(Ft.)
Top (of initial area) elevation = 3603.260(Ft.)
Bottom (of initial area) elevation = 3593.310(Ft.)
Difference in elevation = 9.950(Ft.)
Slope = 0.01961 s(%)= 1.96
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 13.927 min.
Rainfall intensity = 3.586(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.689
Subarea runoff = 22.021(CFS)
Total initial stream area = 8.910(Ac.)

```
      Pervious area fraction = 1.000
      Initial area Fm value =    0.840(In/Hr)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.200 to Point/Station
3.300
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.290(Ft.), Average velocity =   1.770(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.32
            2             50.00              0.15
            3            100.00              0.12
            4            150.00              0.00
            5            200.00              0.53
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     46.072(CFS)
        '     '    flow top width =    168.394(Ft.)
        '     '    velocity=    1.770(Ft/s)
        '     '    area =     26.023(Sq.Ft)
        '     '    Froude number =     0.794

      Upstream point elevation =  3593.310(Ft.)
      Downstream point elevation =  3570.490(Ft.)
      Flow length =  1481.380(Ft.)
      Travel time  =   13.95 min.
      Time of concentration =   27.87 min.
      Depth of flow =   0.290(Ft.)
      Average velocity =   1.770(Ft/s)
      Total irregular channel flow =    46.072(CFS)
      Irregular channel normal depth above invert elev. =   0.290(Ft.)
      Average velocity of channel(s) =   1.770(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.206(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.557
      Subarea runoff =     48.042(CFS) for   48.060(Ac.)
      Total runoff =     70.062(CFS)
      Effective area this stream =       56.97(Ac.)
      Total Study Area (Main Stream No. 1) =       56.97(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.338(Ft.), Average velocity =   2.030(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

```
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.300 to Point/Station
3.400
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.382(Ft.), Average velocity =   2.085(Ft/s)
      !!Warning: Water is above left or right bank elevations
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.30
            2             50.00              0.24
            3            100.00              0.21
            4            150.00              0.00
            5            200.00              0.37
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     77.316(CFS)
        '     '    flow top width =    200.000(Ft.)
        '     '    velocity=    2.085(Ft/s)
        '     '    area =     37.086(Sq.Ft)
        '     '    Froude number =     0.853

      Upstream point elevation =  3570.490(Ft.)
      Downstream point elevation =  3554.780(Ft.)
      Flow length =   937.750(Ft.)
      Travel time  =    7.50 min.
      Time of concentration =   35.37 min.
      Depth of flow =   0.382(Ft.)
      Average velocity =   2.085(Ft/s)
      Total irregular channel flow =    77.316(CFS)
      Irregular channel normal depth above invert elev. =   0.382(Ft.)
      Average velocity of channel(s) =   2.085(Ft/s)
      !!Warning: Water is above left or right bank elevations
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      1.867(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.495
      Subarea runoff =     14.422(CFS) for   34.380(Ac.)
      Total runoff =     84.484(CFS)
      Effective area this stream =       91.35(Ac.)
      Total Study Area (Main Stream No. 1) =       91.35(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.392(Ft.), Average velocity =   2.160(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

```
      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        3.400 to Point/Station
3.500
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.114(Ft.), Average velocity =   7.418(Ft/s)
      !!Warning: Water is above left or right bank elevations
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.09
            2             50.00              0.00
            3            100.00              0.00
            4            150.00              0.11
            5            200.00              0.30
      Manning's 'N' friction factor =   0.005
      ------------------------------------------------------------------
      Sub-Channel flow  =     89.360(CFS)
        '     '    flow top width =    151.129(Ft.)
        '     '    velocity=    7.418(Ft/s)
        '     '    area =     12.046(Sq.Ft)
        '     '    Froude number =     4.631

      Upstream point elevation =  3554.780(Ft.)
      Downstream point elevation =  3538.070(Ft.)
      Flow length =   920.000(Ft.)
      Travel time  =    2.07 min.
      Time of concentration =   37.44 min.
      Depth of flow =   0.114(Ft.)
      Average velocity =   7.418(Ft/s)
      Total irregular channel flow =    89.360(CFS)
      Irregular channel normal depth above invert elev. =   0.114(Ft.)
      Average velocity of channel(s) =   7.418(Ft/s)
      !!Warning: Water is above left or right bank elevations
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      1.795(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.479
      Subarea runoff =      9.690(CFS) for   18.240(Ac.)
      Total runoff =     94.174(CFS)
      Effective area this stream =      109.59(Ac.)
      Total Study Area (Main Stream No. 1) =      109.59(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.117(Ft.), Average velocity =   7.561(Ft/s)
      !!Warning: Water is above left or right bank elevations
```

End of computations, Total Study Area = 109.59 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 UNDUSTRIAL PARK
100 YEAR STORM AREA D
PRE-DEVELPED CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 4.100 to Point/Station 4.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 608.720(Ft.)
Top (of initial area) elevation = 3587.080(Ft.)
Bottom (of initial area) elevation = 3575.990(Ft.)
Difference in elevation = 11.090(Ft.)
Slope = 0.01822 s(%)= 1.82
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.199 min.
Rainfall intensity = 3.373(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.676
Subarea runoff = 21.271(CFS)
Total initial stream area = 9.330(Ac.)

```
      Pervious area fraction = 1.000
      Initial area Fm value =    0.840(In/Hr)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
++++
      Process from Point/Station        4.200 to Point/Station
4.300
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.459(Ft.), Average velocity =   2.497(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.60
            2             50.00              0.00
            3            100.00              0.90
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     36.593(CFS)
        '     '    flow top width =     63.802(Ft.)
        '     '    velocity=    2.497(Ft/s)
        '     '    area =     14.655(Sq.Ft)
        '     '    Froude number =     0.918

      Upstream point elevation =  3575.990(Ft.)
      Downstream point elevation =  3553.220(Ft.)
      Flow length =  1260.180(Ft.)
      Travel time  =    8.41 min.
      Time of concentration =   23.61 min.
      Depth of flow =   0.459(Ft.)
      Average velocity =   2.497(Ft/s)
      Total irregular channel flow =    36.593(CFS)
      Irregular channel normal depth above invert elev. =   0.459(Ft.)
      Average velocity of channel(s) =   2.497(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.478(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.595
      Subarea runoff =     30.555(CFS) for   25.820(Ac.)
      Total runoff =     51.826(CFS)
      Effective area this stream =       35.15(Ac.)
      Total Study Area (Main Stream No. 1) =       35.15(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.523(Ft.), Average velocity =   2.724(Ft/s)


      ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
```

```
++++
      Process from Point/Station        4.300 to Point/Station
4.400
      **** IRREGULAR CHANNEL FLOW TRAVEL TIME ****
      ____________________________________________________________________
____
      Estimated mean flow rate at midpoint of channel =      0.000(CFS)
      Depth of flow =   0.353(Ft.), Average velocity =   2.872(Ft/s)
            ******* Irregular Channel Data ***********
      ------------------------------------------------------------------
      Information entered for subchannel number 1 :
      Point number      'X' coordinate     'Y' coordinate
            1              0.00              0.70
            2             50.00              0.01
            3            100.00              0.00
      Manning's 'N' friction factor =   0.030
      ------------------------------------------------------------------
      Sub-Channel flow  =     62.283(CFS)
        '     '    flow top width =     74.880(Ft.)
        '     '    velocity=    2.872(Ft/s)
        '     '    area =     21.689(Sq.Ft)
        '     '    Froude number =     0.940

      Upstream point elevation =  3553.220(Ft.)
      Downstream point elevation =  3545.730(Ft.)
      Flow length =   427.050(Ft.)
      Travel time  =    2.48 min.
      Time of concentration =   26.09 min.
      Depth of flow =   0.353(Ft.)
      Average velocity =   2.872(Ft/s)
      Total irregular channel flow =    62.283(CFS)
      Irregular channel normal depth above invert elev. =   0.353(Ft.)
      Average velocity of channel(s) =   2.872(Ft/s)
       Adding area flow to channel
      UNDEVELOPED (poor cover) subarea
      Decimal fraction soil group A = 1.000
      Decimal fraction soil group B = 0.000
      Decimal fraction soil group C = 0.000
      Decimal fraction soil group D = 0.000
      SCS curve number for soil(AMC 2)  = 67.00
      Adjusted SCS curve number for AMC 1 = 47.40
      Pervious ratio(Ap) = 1.0000     Max loss rate(Fm)=     0.840
(In/Hr)
      Rainfall intensity =      2.311(In/Hr) for a   100.0 year storm
      Effective runoff coefficient used for area,(total area with
modified
      rational method)(Q=KCIA) is C = 0.573
      Subarea runoff =     20.843(CFS) for   19.740(Ac.)
      Total runoff =     72.668(CFS)
      Effective area this stream =       54.89(Ac.)
      Total Study Area (Main Stream No. 1) =       54.89(Ac.)
      Area averaged Fm value =    0.840(In/Hr)
      Depth of flow =   0.385(Ft.), Average velocity =   3.018(Ft/s)
      End of computations, Total Study Area =           54.89 (Ac.)
      The following figures may
      be used for a unit hydrograph study of the same area.
      Note: These figures do not consider reduced effective area
      effects caused by confluences in the rational equation.

      Area averaged pervious area fraction(Ap) = 1.000
      Area averaged SCS curve number =  67.0
```

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA E
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 5.100 to Point/Station 5.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 876.580(Ft.)
Top (of initial area) elevation = 3572.190(Ft.)
Bottom (of initial area) elevation = 3556.360(Ft.)
Difference in elevation = 15.830(Ft.)
Slope = 0.01806 s(%)= 1.81
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 17.617 min.
Rainfall intensity = 3.042(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.652
Subarea runoff = 17.123(CFS)
Total initial stream area = 8.640(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 8.64 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1

Rational Hydrology Study Date: 10/30/19

JOB NO. 2019-185
HCC2 INDUSTRIAL PARK
100 YEAR STORM AREA F
PRE-DEVELOPMENET CONDITION 10-30-2019

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 1

++

Process from Point/Station 6.100 to Point/Station 6.200

**** INITIAL AREA EVALUATION ****

UNDEVELOPED (poor cover) subarea
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 67.00
Adjusted SCS curve number for AMC 1 = 47.40
Pervious ratio(Ap) = 1.0000 Max loss rate(Fm)= 0.840 (In/Hr)
Initial subarea data:
Initial area flow distance = 731.120(Ft.)
Top (of initial area) elevation = 3542.520(Ft.)
Bottom (of initial area) elevation = 3529.540(Ft.)
Difference in elevation = 12.980(Ft.)
Slope = 0.01775 s(%)= 1.78
TC = k(0.525)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 16.440 min.
Rainfall intensity = 3.193(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.663
Subarea runoff = 14.230(CFS)
Total initial stream area = 6.720(Ac.)

Pervious area fraction = 1.000
Initial area Fm value = 0.840(In/Hr)
End of computations, Total Study Area = 6.72 (Ac.)
The following figures may
be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 1.000
Area averaged SCS curve number = 67.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA A

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 1.100 to Point/Station 1.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 509.000(Ft.)
Top (of initial area) elevation = 3583.000(Ft.)
Bottom (of initial area) elevation = 3565.240(Ft.)
Difference in elevation = 17.760(Ft.)
Slope = 0.03489 s(%)= 3.49
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 7.195 min.
Rainfall intensity = 5.694(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.888
Subarea runoff = 33.859(CFS)
Total initial stream area = 6.700(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 6.70 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA B

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 2.100 to Point/Station 2.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 670.940(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3570.190(Ft.)
Difference in elevation = 4.810(Ft.)
Slope = 0.00717 s(%)= 0.72
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 11.027 min.
Rainfall intensity = 4.223(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.883
Subarea runoff = 39.982(CFS)
Total initial stream area = 10.720(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 10.72 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA C

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 3.100 to Point/Station 3.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 1594.500(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3562.280(Ft.)
Difference in elevation = 12.720(Ft.)
Slope = 0.00798 s(%)= 0.80
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 15.260 min.
Rainfall intensity = 3.364(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.879
Subarea runoff = 73.768(CFS)
Total initial stream area = 24.950(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 24.95 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA D

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 4.100 to Point/Station 4.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 400.510(Ft.)
Top (of initial area) elevation = 3565.170(Ft.)
Bottom (of initial area) elevation = 3563.500(Ft.)
Difference in elevation = 1.670(Ft.)
Slope = 0.00417 s(%)= 0.42
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.998 min.
Rainfall intensity = 4.522(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884
Subarea runoff = 19.797(CFS)
Total initial stream area = 4.950(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 4.95 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA E

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 5.100 to Point/Station 5.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 791.130(Ft.)
Top (of initial area) elevation = 3566.750(Ft.)
Bottom (of initial area) elevation = 3554.420(Ft.)
Difference in elevation = 12.330(Ft.)
Slope = 0.01559 s(%)= 1.56
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 10.084 min.
Rainfall intensity = 4.495(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.884
Subarea runoff = 40.864(CFS)
Total initial stream area = 10.280(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 10.28 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA F

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 6.100 to Point/Station 6.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 837.170(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3569.840(Ft.)
Difference in elevation = 5.160(Ft.)
Slope = 0.00616 s(%)= 0.62
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.417 min.
Rainfall intensity = 3.886(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff = 100.568(CFS)
Total initial stream area = 29.350(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 29.35 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA G

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 7.100 to Point/Station 7.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 1149.380(Ft.)
Top (of initial area) elevation = 3575.000(Ft.)
Bottom (of initial area) elevation = 3562.280(Ft.)
Difference in elevation = 12.720(Ft.)
Slope = 0.01107 s(%)= 1.11
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 12.539 min.
Rainfall intensity = 3.859(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.882
Subarea runoff = 177.217(CFS)
Total initial stream area = 52.080(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 52.08 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA H

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 8.100 to Point/Station 8.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 254.630(Ft.)
Top (of initial area) elevation = 3571.000(Ft.)
Bottom (of initial area) elevation = 3563.960(Ft.)
Difference in elevation = 7.040(Ft.)
Slope = 0.02765 s(%)= 2.76
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.714 min.
Rainfall intensity = 6.691(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.889
Subarea runoff = 73.136(CFS)
Total initial stream area = 12.290(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 12.29 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA I

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 9.100 to Point/Station 9.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 745.180(Ft.)
Top (of initial area) elevation = 3566.750(Ft.)
Bottom (of initial area) elevation = 3554.560(Ft.)
Difference in elevation = 12.190(Ft.)
Slope = 0.01636 s(%)= 1.64
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 9.751 min.
Rainfall intensity = 4.602(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.885
Subarea runoff = 111.475(CFS)
Total initial stream area = 27.380(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 27.38 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA J

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 10.100 to Point/Station 10.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 362.230(Ft.)
Top (of initial area) elevation = 3560.350(Ft.)
Bottom (of initial area) elevation = 3534.370(Ft.)
Difference in elevation = 25.980(Ft.)
Slope = 0.07172 s(%)= 7.17
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 5.437 min.
Rainfall intensity = 6.927(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.890
Subarea runoff = 15.718(CFS)
Total initial stream area = 2.550(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 2.55 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

San Bernardino County Rational Hydrology Program

(Hydrology Manual Date - August 1986)

CIVILCADD/CIVILDESIGN Engineering Software, (c) 1989-2005 Version 7.1
Rational Hydrology Study Date: 11/15/21

2019-185 HCC II
Post-Developed Conditions
Rational Method - 100-Year Storm
DMA K

Program License Serial Number 6277

********* Hydrology Study Control Information **********

Rational hydrology study storm event year is 100.0
Computed rainfall intensity:
Storm year = 100.00 1 hour rainfall = 1.290 (In.)
Slope used for rainfall intensity curve b = 0.7000
Soil antecedent moisture condition (AMC) = 3

++
Process from Point/Station 11.100 to Point/Station 11.200
**** INITIAL AREA EVALUATION ****

COMMERCIAL subarea type
Decimal fraction soil group A = 1.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 0.000
SCS curve number for soil(AMC 2) = 32.00
Adjusted SCS curve number for AMC 3 = 52.00
Pervious ratio(Ap) = 0.1000 Max loss rate(Fm)= 0.079(In/Hr)
Initial subarea data:
Initial area flow distance = 449.180(Ft.)
Top (of initial area) elevation = 3533.400(Ft.)
Bottom (of initial area) elevation = 3527.900(Ft.)
Difference in elevation = 5.500(Ft.)
Slope = 0.01224 s(%)= 1.22
TC = k(0.304)*[(length^3)/(elevation change)]^0.2
Initial area time of concentration = 8.438 min.
Rainfall intensity = 5.092(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.886
Subarea runoff = 56.722(CFS)
Total initial stream area = 12.570(Ac.)
Pervious area fraction = 0.100
Initial area Fm value = 0.079(In/Hr)
End of computations, Total Study Area = 12.57 (Ac.)
The following figures may

be used for a unit hydrograph study of the same area.
Note: These figures do not consider reduced effective area
effects caused by confluences in the rational equation.

Area averaged pervious area fraction(Ap) = 0.100
Area averaged SCS curve number = 32.0

Appendix B – Unit Hydrograph

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA A
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
0.61	1	0.77
Rainfall data for year 2		
0.61	6	1.08
Rainfall data for year 2		
0.61	24	2.03
Rainfall data for year 100		
0.61	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            0.61           6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            0.61          24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          0.61      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.61   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.083 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       0.61(Ac.)
Catchment Lag time =   0.066 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 251.0040
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       0.61(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.048(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 3.69 (CFS))	
1	50.190	1.851
2	92.180	1.549
3	98.599	0.237
4	100.000	0.052

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7536	0.1415
2	0.9278	0.0767
3	1.0478	0.0558
4	1.1422	0.0449
5	1.2213	0.0380
6	1.2900	0.0332
7	1.3867	0.0474
8	1.4764	0.0440
9	1.5603	0.0413
10	1.6393	0.0390
11	1.7143	0.0370
12	1.7857	0.0353
13	1.8541	0.0338
14	1.9197	0.0325
15	1.9828	0.0313
16	2.0438	0.0302
17	2.1028	0.0292
18	2.1599	0.0284
19	2.2154	0.0275
20	2.2694	0.0268
21	2.3219	0.0261
22	2.3731	0.0255
23	2.4232	0.0249
24	2.4720	0.0243
25	2.5198	0.0238
26	2.5666	0.0233
27	2.6125	0.0228
28	2.6574	0.0224
29	2.7016	0.0220
30	2.7449	0.0216
31	2.7874	0.0212
32	2.8292	0.0208
33	2.8704	0.0205

34	2.9109	0.0202
35	2.9507	0.0199
36	2.9900	0.0196
37	3.0342	0.0220
38	3.0778	0.0217
39	3.1209	0.0215
40	3.1635	0.0212
41	3.2056	0.0210
42	3.2472	0.0208
43	3.2884	0.0205
44	3.3291	0.0203
45	3.3694	0.0201
46	3.4092	0.0199
47	3.4487	0.0197
48	3.4878	0.0195
49	3.5265	0.0193
50	3.5649	0.0191
51	3.6028	0.0190
52	3.6405	0.0188
53	3.6778	0.0186
54	3.7148	0.0185
55	3.7515	0.0183
56	3.7878	0.0181
57	3.8239	0.0180
58	3.8596	0.0178
59	3.8951	0.0177
60	3.9303	0.0176
61	3.9653	0.0174
62	3.9999	0.0173
63	4.0343	0.0172
64	4.0685	0.0170
65	4.1024	0.0169
66	4.1361	0.0168
67	4.1695	0.0167
68	4.2027	0.0166
69	4.2357	0.0165
70	4.2684	0.0163
71	4.3009	0.0162
72	4.3333	0.0161
73	4.3654	0.0160
74	4.3973	0.0159
75	4.4290	0.0158
76	4.4605	0.0157
77	4.4918	0.0156
78	4.5230	0.0155
79	4.5539	0.0155
80	4.5847	0.0154
81	4.6153	0.0153
82	4.6457	0.0152
83	4.6759	0.0151
84	4.7060	0.0150

85	4.7359	0.0149
86	4.7657	0.0149
87	4.7952	0.0148
88	4.8247	0.0147
89	4.8539	0.0146
90	4.8831	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9981	0.0142
95	5.0265	0.0142
96	5.0547	0.0141
97	5.0828	0.0140
98	5.1108	0.0140
99	5.1387	0.0139
100	5.1664	0.0138
101	5.1940	0.0138
102	5.2214	0.0137
103	5.2488	0.0137
104	5.2760	0.0136
105	5.3031	0.0135
106	5.3301	0.0135
107	5.3569	0.0134
108	5.3837	0.0134
109	5.4103	0.0133
110	5.4368	0.0132
111	5.4632	0.0132
112	5.4895	0.0131
113	5.5157	0.0131
114	5.5418	0.0130
115	5.5677	0.0130
116	5.5936	0.0129
117	5.6194	0.0129
118	5.6450	0.0128
119	5.6706	0.0128
120	5.6960	0.0127
121	5.7214	0.0127
122	5.7467	0.0126
123	5.7718	0.0126
124	5.7969	0.0125
125	5.8219	0.0125
126	5.8468	0.0124
127	5.8716	0.0124
128	5.8963	0.0123
129	5.9209	0.0123
130	5.9454	0.0123
131	5.9698	0.0122
132	5.9942	0.0122
133	6.0185	0.0121
134	6.0426	0.0121
135	6.0667	0.0120

136	6.0908	0.0120
137	6.1147	0.0120
138	6.1385	0.0119
139	6.1623	0.0119
140	6.1860	0.0118
141	6.2096	0.0118
142	6.2332	0.0118
143	6.2566	0.0117
144	6.2800	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163

38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0599	0.0263	0.0336
87	0.0632	0.0277	0.0354
88	0.0669	0.0294	0.0375

89	0.0714	0.0314	0.0401
90	0.0769	0.0338	0.0432
91	0.0839	0.0368	0.0470
92	0.0930	0.0408	0.0522
93	0.0687	0.0302	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2390	0.0755	0.1635
97	0.6888	0.0755	0.6133
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0432
101	0.0670	0.0294	0.0376
102	0.0600	0.0263	0.0336
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139

140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

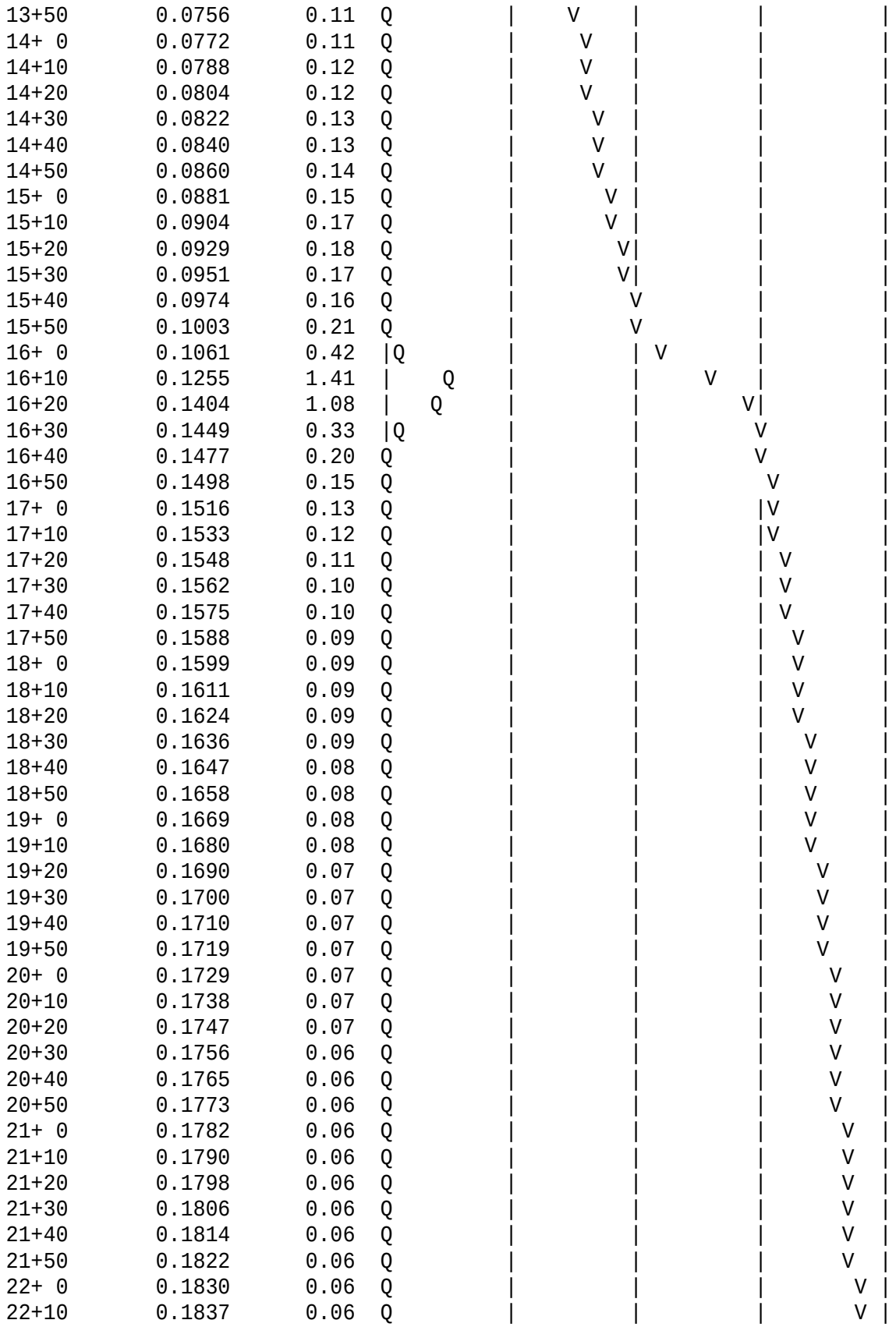
Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 1.41(CFS)

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+10	0.0003	0.02	Q | | | |
0+20	0.0010	0.04	Q | | | |
0+30	0.0016	0.05	Q | | | |
0+40	0.0023	0.05	Q | | | |
0+50	0.0030	0.05	Q | | | |
1+ 0	0.0036	0.05	Q | | | |
1+10	0.0043	0.05	Q | | | |
1+20	0.0050	0.05	QV | | | |
1+30	0.0057	0.05	QV | | | |
1+40	0.0064	0.05	QV | | | |
1+50	0.0071	0.05	QV | | | |
2+ 0	0.0078	0.05	QV | | | |
2+10	0.0085	0.05	QV | | | |
2+20	0.0092	0.05	QV | | | |
2+30	0.0099	0.05	Q V | | | |
2+40	0.0107	0.05	Q V | | | |
2+50	0.0114	0.05	Q V | | | |
3+ 0	0.0121	0.05	Q V | | | |
3+10	0.0128	0.05	Q V | | | |
3+20	0.0136	0.05	Q V | | | |
3+30	0.0143	0.05	Q V | | | |
3+40	0.0151	0.05	Q V | | | |
3+50	0.0158	0.05	Q V | | | |
4+ 0	0.0166	0.05	Q V | | | |
4+10	0.0173	0.06	Q V | | | |
4+20	0.0181	0.06	Q V | | | |
4+30	0.0189	0.06	Q V | | | |
4+40	0.0196	0.06	Q V | | | |
4+50	0.0204	0.06	Q V | | | |
5+ 0	0.0212	0.06	Q V | | | |
5+10	0.0220	0.06	Q V | | | |

```
 5+20       0.0228      0.06  Q   V     |          |          |          |
 5+30       0.0236      0.06  Q   V     |          |          |          |
 5+40       0.0244      0.06  Q    V    |          |          |          |
 5+50       0.0252      0.06  Q    V    |          |          |          |
 6+ 0       0.0260      0.06  Q    V    |          |          |          |
 6+10       0.0268      0.06  Q    V    |          |          |          |
 6+20       0.0277      0.06  Q    V    |          |          |          |
 6+30       0.0285      0.06  Q    V    |          |          |          |
 6+40       0.0294      0.06  Q     V   |          |          |          |
 6+50       0.0302      0.06  Q     V   |          |          |          |
 7+ 0       0.0311      0.06  Q     V   |          |          |          |
 7+10       0.0319      0.06  Q     V   |          |          |          |
 7+20       0.0328      0.06  Q     V   |          |          |          |
 7+30       0.0337      0.06  Q      V  |          |          |          |
 7+40       0.0346      0.06  Q      V  |          |          |          |
 7+50       0.0355      0.07  Q      V  |          |          |          |
 8+ 0       0.0364      0.07  Q      V  |          |          |          |
 8+10       0.0373      0.07  Q      V  |          |          |          |
 8+20       0.0382      0.07  Q      V  |          |          |          |
 8+30       0.0392      0.07  Q       V |          |          |          |
 8+40       0.0401      0.07  Q       V |          |          |          |
 8+50       0.0411      0.07  Q       V |          |          |          |
 9+ 0       0.0420      0.07  Q       V |          |          |          |
 9+10       0.0430      0.07  Q       V |          |          |          |
 9+20       0.0440      0.07  Q        V|          |          |          |
 9+30       0.0450      0.07  Q        V|          |          |          |
 9+40       0.0460      0.07  Q        V|          |          |          |
 9+50       0.0470      0.07  Q        V|          |          |          |
10+ 0       0.0481      0.07  Q         V          |          |          |
10+10       0.0491      0.08  Q         V          |          |          |
10+20       0.0502      0.08  Q         V          |          |          |
10+30       0.0512      0.08  Q         V          |          |          |
10+40       0.0523      0.08  Q         V          |          |          |
10+50       0.0534      0.08  Q         |V         |          |          |
11+ 0       0.0545      0.08  Q         |V         |          |          |
11+10       0.0557      0.08  Q         |V         |          |          |
11+20       0.0568      0.08  Q         |V         |          |          |
11+30       0.0580      0.09  Q         | V        |          |          |
11+40       0.0592      0.09  Q         | V        |          |          |
11+50       0.0604      0.09  Q         | V        |          |          |
12+ 0       0.0617      0.09  Q         | V        |          |          |
12+10       0.0628      0.09  Q         |  V       |          |          |
12+20       0.0640      0.08  Q         |  V       |          |          |
12+30       0.0651      0.08  Q         |  V       |          |          |
12+40       0.0663      0.09  Q         |  V       |          |          |
12+50       0.0675      0.09  Q         |   V      |          |          |
13+ 0       0.0688      0.09  Q         |   V      |          |          |
13+10       0.0701      0.09  Q         |   V      |          |          |
13+20       0.0714      0.10  Q         |   V      |          |          |
13+30       0.0728      0.10  Q         |    V     |          |          |
13+40       0.0742      0.10  Q         |    V     |          |          |
```


13+50 0.0756 0.11 Q | V | | |
14+ 0 0.0772 0.11 Q | V | | |
14+10 0.0788 0.12 Q | V | | |
14+20 0.0804 0.12 Q | V | | |
14+30 0.0822 0.13 Q | V | | |
14+40 0.0840 0.13 Q | V | | |
14+50 0.0860 0.14 Q | V | | |
15+ 0 0.0881 0.15 Q | V | | |
15+10 0.0904 0.17 Q | V | | |
15+20 0.0929 0.18 Q | V| | |
15+30 0.0951 0.17 Q | V| | |
15+40 0.0974 0.16 Q | V | |
15+50 0.1003 0.21 Q | V | |
16+ 0 0.1061 0.42 |Q | | V | |
16+10 0.1255 1.41 | Q | | V | |
16+20 0.1404 1.08 | Q | | V| |
16+30 0.1449 0.33 |Q | | V |
16+40 0.1477 0.20 Q | | V |
16+50 0.1498 0.15 Q | | V |
17+ 0 0.1516 0.13 Q | | |V |
17+10 0.1533 0.12 Q | | |V |
17+20 0.1548 0.11 Q | | | V |
17+30 0.1562 0.10 Q | | | V |
17+40 0.1575 0.10 Q | | | V |
17+50 0.1588 0.09 Q | | | V |
18+ 0 0.1599 0.09 Q | | | V |
18+10 0.1611 0.09 Q | | | V |
18+20 0.1624 0.09 Q | | | V |
18+30 0.1636 0.09 Q | | | V |
18+40 0.1647 0.08 Q | | | V |
18+50 0.1658 0.08 Q | | | V |
19+ 0 0.1669 0.08 Q | | | V |
19+10 0.1680 0.08 Q | | | V |
19+20 0.1690 0.07 Q | | | V |
19+30 0.1700 0.07 Q | | | V |
19+40 0.1710 0.07 Q | | | V |
19+50 0.1719 0.07 Q | | | V |
20+ 0 0.1729 0.07 Q | | | V |
20+10 0.1738 0.07 Q | | | V |
20+20 0.1747 0.07 Q | | | V |
20+30 0.1756 0.06 Q | | | V |
20+40 0.1765 0.06 Q | | | V |
20+50 0.1773 0.06 Q | | | V |
21+ 0 0.1782 0.06 Q | | | V |
21+10 0.1790 0.06 Q | | | V |
21+20 0.1798 0.06 Q | | | V |
21+30 0.1806 0.06 Q | | | V |
21+40 0.1814 0.06 Q | | | V |
21+50 0.1822 0.06 Q | | | V |
22+ 0 0.1830 0.06 Q | | | V |
22+10 0.1837 0.06 Q | | | V |

```
   22+20       0.1845      0.05  Q         |          |          |       V |
   22+30       0.1852      0.05  Q         |          |          |       V |
   22+40       0.1860      0.05  Q         |          |          |       V |
   22+50       0.1867      0.05  Q         |          |          |       V |
   23+ 0       0.1874      0.05  Q         |          |          |        V|
   23+10       0.1881      0.05  Q         |          |          |        V|
   23+20       0.1888      0.05  Q         |          |          |        V|
   23+30       0.1895      0.05  Q         |          |          |        V|
   23+40       0.1902      0.05  Q         |          |          |        V|
   23+50       0.1909      0.05  Q         |          |          |        V|
   24+ 0       0.1916      0.05  Q         |          |          |        V|
   24+10       0.1919      0.02  Q         |          |          |        V|
   24+20       0.1920      0.00  Q         |          |          |        V|
   24+30       0.1920      0.00  Q         |          |          |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDTION FOR AREA B
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
7.52	1	0.77
Rainfall data for year 2		
7.52	6	1.08
Rainfall data for year 2		
7.52	24	2.03
Rainfall data for year 100		
7.52	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
             7.52            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
             7.52           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          7.52      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     7.52   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.139 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       7.52(Ac.)
Catchment Lag time =   0.111 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 149.6648
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       7.52(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 45.47 (CFS))	
1	31.597	14.368
2	80.545	22.258
3	92.529	5.449
4	97.196	2.122
5	99.137	0.883
6	100.000	0.392

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7533	0.1414
2	0.9275	0.0767
3	1.0474	0.0558
4	1.1419	0.0448
5	1.2209	0.0380
6	1.2895	0.0332
7	1.3863	0.0474
8	1.4760	0.0440
9	1.5599	0.0413
10	1.6390	0.0390
11	1.7140	0.0370
12	1.7855	0.0353
13	1.8538	0.0338
14	1.9195	0.0325
15	1.9827	0.0313
16	2.0436	0.0302
17	2.1026	0.0293
18	2.1598	0.0284
19	2.2153	0.0275
20	2.2693	0.0268
21	2.3218	0.0261
22	2.3731	0.0255
23	2.4231	0.0249
24	2.4720	0.0243
25	2.5198	0.0238
26	2.5666	0.0233
27	2.6124	0.0228
28	2.6574	0.0224
29	2.7015	0.0220
30	2.7448	0.0216
31	2.7873	0.0212

32	2.8292	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9507	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2055	0.0210
42	3.2471	0.0208
43	3.2883	0.0205
44	3.3290	0.0203
45	3.3693	0.0201
46	3.4092	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5648	0.0191
51	3.6028	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7514	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8596	0.0178
59	3.8951	0.0177
60	3.9303	0.0176
61	3.9652	0.0174
62	3.9999	0.0173
63	4.0343	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1360	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2356	0.0165
70	4.2683	0.0163
71	4.3009	0.0162
72	4.3332	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4918	0.0156
78	4.5229	0.0155
79	4.5539	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152

83	4.6759	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7656	0.0149
87	4.7952	0.0148
88	4.8246	0.0147
89	4.8539	0.0146
90	4.8830	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9980	0.0142
95	5.0264	0.0142
96	5.0546	0.0141
97	5.0828	0.0140
98	5.1107	0.0140
99	5.1386	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2214	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3569	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4632	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5677	0.0130
116	5.5935	0.0129
117	5.6193	0.0129
118	5.6450	0.0128
119	5.6705	0.0128
120	5.6960	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7718	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123
129	5.9208	0.0123
130	5.9453	0.0123
131	5.9698	0.0122
132	5.9941	0.0122
133	6.0184	0.0121

134	6.0426	0.0121
135	6.0667	0.0120
136	6.0907	0.0120
137	6.1146	0.0120
138	6.1385	0.0119
139	6.1623	0.0119
140	6.1859	0.0118
141	6.2096	0.0118
142	6.2331	0.0118
143	6.2566	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161

36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336

87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0930	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2389	0.0755	0.1634
97	0.6886	0.0755	0.6131
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0670	0.0294	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142

138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 15.44(CFS)

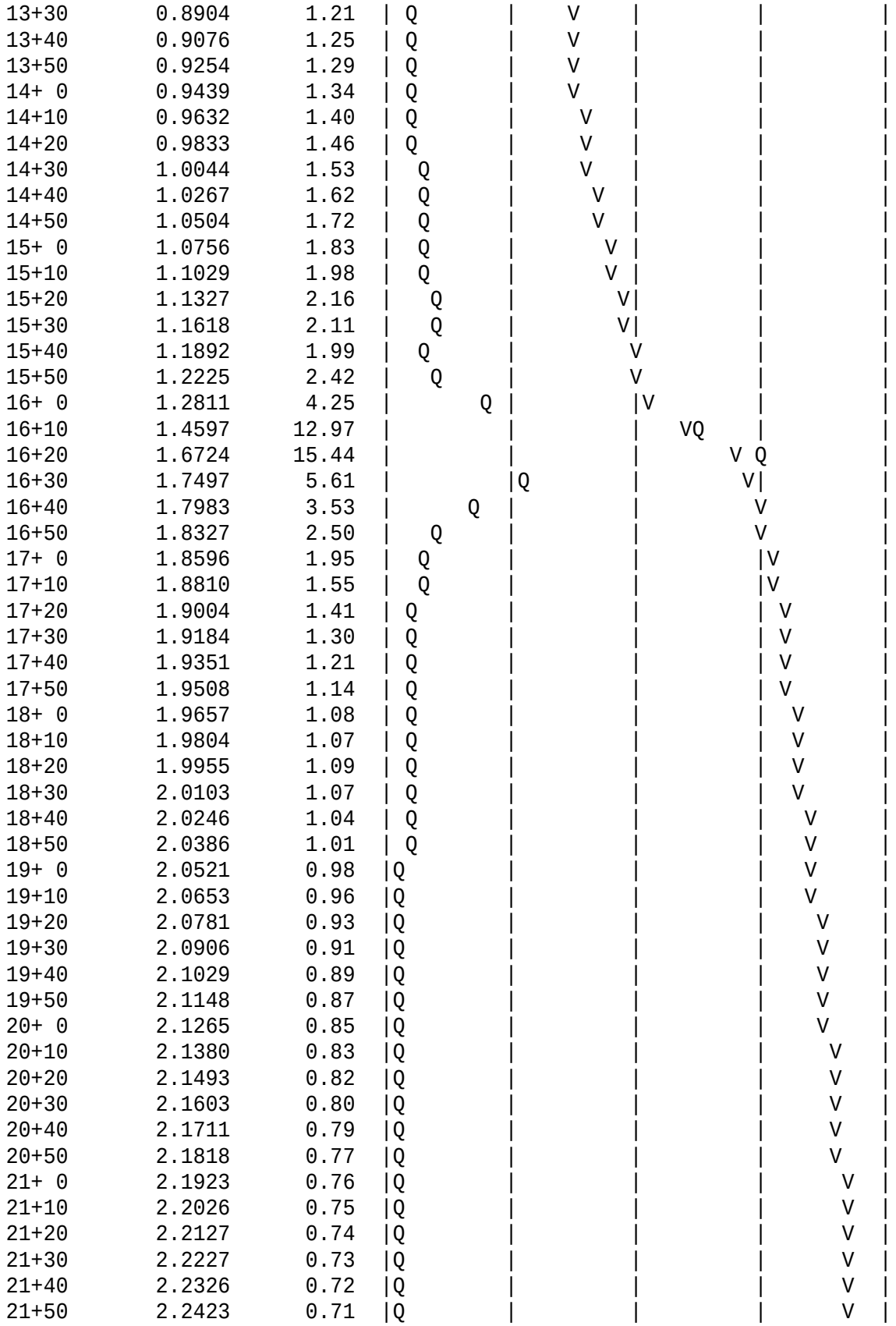
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+10	0.0026	0.19	Q				
0+20	0.0092	0.48	Q				
0+30	0.0169	0.56	VQ				
0+40	0.0249	0.59	VQ				
0+50	0.0332	0.60	VQ				
1+ 0	0.0416	0.61	VQ				
1+10	0.0500	0.61	VQ				
1+20	0.0585	0.61	VQ				
1+30	0.0670	0.62	|Q				
1+40	0.0755	0.62	|Q				
1+50	0.0841	0.62	|Q				
2+ 0	0.0928	0.63	|Q				
2+10	0.1015	0.63	|Q				
2+20	0.1102	0.63	|Q				
2+30	0.1190	0.64	|QV				
2+40	0.1279	0.64	|QV				
2+50	0.1367	0.65	|QV				
3+ 0	0.1457	0.65	|QV				
3+10	0.1547	0.65	|QV				
3+20	0.1637	0.66	|QV				
3+30	0.1728	0.66	|QV				
3+40	0.1820	0.67	|Q V				
3+50	0.1912	0.67	|Q V				
4+ 0	0.2005	0.67	|Q V				
4+10	0.2098	0.68	|Q V				
4+20	0.2192	0.68	|Q V				
4+30	0.2287	0.69	|Q V				
4+40	0.2382	0.69	|Q V				
4+50	0.2478	0.70	|Q V				

5+ 0	0.2574	0.70	|Q V |	|	|	|
5+10	0.2671	0.71	|Q V |	|	|	|
5+20	0.2769	0.71	|Q V |	|	|	|
5+30	0.2868	0.72	|Q V |	|	|	|
5+40	0.2967	0.72	|Q V |	|	|	|
5+50	0.3067	0.73	|Q V |	|	|	|
6+ 0	0.3168	0.73	|Q V |	|	|	|
6+10	0.3269	0.74	|Q V |	|	|	|
6+20	0.3372	0.74	|Q V |	|	|	|
6+30	0.3475	0.75	|Q V |	|	|	|
6+40	0.3579	0.75	|Q V |	|	|	|
6+50	0.3683	0.76	|Q V |	|	|	|
7+ 0	0.3789	0.77	|Q V |	|	|	|
7+10	0.3896	0.77	|Q V |	|	|	|
7+20	0.4003	0.78	|Q V |	|	|	|
7+30	0.4112	0.79	|Q V |	|	|	|
7+40	0.4221	0.79	|Q V |	|	|	|
7+50	0.4331	0.80	|Q V |	|	|	|
8+ 0	0.4443	0.81	|Q V |	|	|	|
8+10	0.4555	0.82	|Q V |	|	|	|
8+20	0.4669	0.82	|Q V |	|	|	|
8+30	0.4783	0.83	|Q V |	|	|	|
8+40	0.4899	0.84	|Q V |	|	|	|
8+50	0.5016	0.85	|Q V |	|	|	|
9+ 0	0.5135	0.86	|Q V |	|	|	|
9+10	0.5254	0.87	|Q V |	|	|	|
9+20	0.5375	0.88	|Q V|	|	|	|
9+30	0.5497	0.89	|Q V|	|	|	|
9+40	0.5621	0.90	|Q V|	|	|	|
9+50	0.5746	0.91	|Q V|	|	|	|
10+ 0	0.5873	0.92	|Q V|	|	|	|
10+10	0.6001	0.93	|Q V |	|	|	|
10+20	0.6131	0.94	|Q V |	|	|	|
10+30	0.6263	0.96	|Q V |	|	|	|
10+40	0.6396	0.97	|Q V |	|	|	|
10+50	0.6532	0.98	|Q V |	|	|	|
11+ 0	0.6669	1.00	|Q |V |	|	|	|
11+10	0.6809	1.01	| Q |V |	|	|	|
11+20	0.6950	1.03	| Q |V |	|	|	|
11+30	0.7094	1.04	| Q |V |	|	|	|
11+40	0.7240	1.06	| Q | V |	|	|	|
11+50	0.7389	1.08	| Q | V |	|	|	|
12+ 0	0.7541	1.10	| Q | V |	|	|	|
12+10	0.7689	1.08	| Q | V |	|	|	|
12+20	0.7831	1.03	| Q | V |	|	|	|
12+30	0.7973	1.04	| Q | V |	|	|	|
12+40	0.8119	1.05	| Q | V |	|	|	|
12+50	0.8267	1.08	| Q | V |	|	|	|
13+ 0	0.8419	1.11	| Q | V |	|	|	|
13+10	0.8576	1.14	| Q | V |	|	|	|
13+20	0.8737	1.17	| Q | V |	|	|	|



```
   22+ 0       2.2519      0.70  |Q        |         |         |       V |
   22+10       2.2614      0.69  |Q        |         |         |       V |
   22+20       2.2707      0.68  |Q        |         |         |       V |
   22+30       2.2799      0.67  |Q        |         |         |       V |
   22+40       2.2890      0.66  |Q        |         |         |       V |
   22+50       2.2980      0.65  |Q        |         |         |       V |
   23+ 0       2.3069      0.65  |Q        |         |         |       V |
   23+10       2.3157      0.64  |Q        |         |         |        V|
   23+20       2.3244      0.63  |Q        |         |         |        V|
   23+30       2.3330      0.62  |Q        |         |         |        V|
   23+40       2.3415      0.62  |Q        |         |         |        V|
   23+50       2.3499      0.61  |Q        |         |         |        V|
   24+ 0       2.3583      0.61  |Q        |         |         |        V|
   24+10       2.3639      0.41  Q         |         |         |        V|
   24+20       2.3655      0.12  Q         |         |         |        V|
   24+30       2.3662      0.04  Q         |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA C
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
109.59	1	0.77
Rainfall data for year 2		
109.59	6	1.08
Rainfall data for year 2		
109.59	24	2.03
Rainfall data for year 100		
109.59	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
          109.59            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
          109.59           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0        109.59      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
   109.59   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.624 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     109.59(Ac.)
Catchment Lag time =   0.499 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 33.3868
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of     109.59(Ac.) (Ref: fig. E-4)

5-minute factor = 0.995     Adjusted rainfall =  0.609(In)
30-minute factor = 0.995    Adjusted rainfall =  1.042(In)
1-hour factor = 0.995       Adjusted rainfall =  1.283(In)
3-hour factor = 0.999       Adjusted rainfall =  2.159(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.989(In)
24-hour factor = 1.000 Adjusted rainfall = 6.279(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 662.68 (CFS))	
1	2.076	13.757
2	11.935	65.335
3	37.859	171.790
4	57.783	132.032
5	68.437	70.605
6	75.475	46.638
7	80.519	33.421
8	84.291	24.997
9	87.388	20.524
10	89.726	15.492
11	91.596	12.392
12	93.190	10.565
13	94.489	8.610
14	95.588	7.282
15	96.487	5.954
16	97.215	4.825
17	97.779	3.737
18	98.143	2.411
19	98.512	2.446
20	98.913	2.655
21	99.313	2.654
22	99.611	1.977
23	99.820	1.383
24	100.000	1.193

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7497	0.1408
2	0.9230	0.0763
3	1.0424	0.0555
4	1.1364	0.0446
5	1.2151	0.0378
6	1.2834	0.0331
7	1.3805	0.0476
8	1.4706	0.0442
9	1.5549	0.0415
10	1.6344	0.0392
11	1.7098	0.0372
12	1.7816	0.0355
13	1.8504	0.0340

14	1.9165	0.0327
15	1.9801	0.0315
16	2.0415	0.0304
17	2.1009	0.0295
18	2.1585	0.0286
19	2.2140	0.0276
20	2.2680	0.0268
21	2.3206	0.0261
22	2.3718	0.0255
23	2.4219	0.0249
24	2.4707	0.0243
25	2.5186	0.0238
26	2.5654	0.0233
27	2.6113	0.0228
28	2.6562	0.0224
29	2.7004	0.0220
30	2.7437	0.0216
31	2.7863	0.0212
32	2.8281	0.0208
33	2.8693	0.0205
34	2.9098	0.0202
35	2.9497	0.0199
36	2.9890	0.0196
37	3.0332	0.0220
38	3.0768	0.0217
39	3.1199	0.0215
40	3.1624	0.0212
41	3.2045	0.0210
42	3.2462	0.0208
43	3.2873	0.0205
44	3.3280	0.0203
45	3.3683	0.0201
46	3.4082	0.0199
47	3.4477	0.0197
48	3.4868	0.0195
49	3.5255	0.0193
50	3.5638	0.0191
51	3.6018	0.0190
52	3.6394	0.0188
53	3.6768	0.0186
54	3.7137	0.0185
55	3.7504	0.0183
56	3.7868	0.0181
57	3.8228	0.0180
58	3.8586	0.0178
59	3.8941	0.0177
60	3.9293	0.0176
61	3.9642	0.0174
62	3.9989	0.0173
63	4.0333	0.0172
64	4.0674	0.0170

65	4.1013	0.0169
66	4.1350	0.0168
67	4.1684	0.0167
68	4.2016	0.0166
69	4.2346	0.0165
70	4.2674	0.0163
71	4.2999	0.0162
72	4.3322	0.0161
73	4.3643	0.0160
74	4.3963	0.0159
75	4.4280	0.0158
76	4.4595	0.0157
77	4.4908	0.0156
78	4.5219	0.0155
79	4.5529	0.0155
80	4.5837	0.0154
81	4.6143	0.0153
82	4.6447	0.0152
83	4.6749	0.0151
84	4.7050	0.0150
85	4.7349	0.0149
86	4.7646	0.0149
87	4.7942	0.0148
88	4.8237	0.0147
89	4.8529	0.0146
90	4.8821	0.0145
91	4.9110	0.0145
92	4.9398	0.0144
93	4.9685	0.0143
94	4.9971	0.0143
95	5.0255	0.0142
96	5.0537	0.0141
97	5.0818	0.0140
98	5.1098	0.0140
99	5.1377	0.0139
100	5.1654	0.0138
101	5.1930	0.0138
102	5.2205	0.0137
103	5.2478	0.0137
104	5.2750	0.0136
105	5.3021	0.0135
106	5.3291	0.0135
107	5.3560	0.0134
108	5.3827	0.0134
109	5.4093	0.0133
110	5.4359	0.0132
111	5.4623	0.0132
112	5.4886	0.0131
113	5.5147	0.0131
114	5.5408	0.0130
115	5.5668	0.0130

116	5.5927	0.0129	
117	5.6184	0.0129	
118	5.6441	0.0128	
119	5.6696	0.0128	
120	5.6951	0.0127	
121	5.7205	0.0127	
122	5.7457	0.0126	
123	5.7709	0.0126	
124	5.7960	0.0125	
125	5.8210	0.0125	
126	5.8459	0.0124	
127	5.8707	0.0124	
128	5.8954	0.0123	
129	5.9200	0.0123	
130	5.9445	0.0123	
131	5.9689	0.0122	
132	5.9933	0.0122	
133	6.0176	0.0121	
134	6.0418	0.0121	
135	6.0659	0.0120	
136	6.0899	0.0120	
137	6.1138	0.0120	
138	6.1377	0.0119	
139	6.1614	0.0119	
140	6.1851	0.0118	
141	6.2088	0.0118	
142	6.2323	0.0118	
143	6.2558	0.0117	
144	6.2791	0.0117	

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0248	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143

18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0294	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230

69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0173	0.0220
74	0.0402	0.0177	0.0225
75	0.0412	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0446	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0526	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0576	0.0253	0.0323
86	0.0604	0.0265	0.0339
87	0.0636	0.0279	0.0357
88	0.0674	0.0296	0.0378
89	0.0719	0.0316	0.0403
90	0.0774	0.0340	0.0434
91	0.0843	0.0370	0.0473
92	0.0934	0.0410	0.0524
93	0.0683	0.0300	0.0383
94	0.0855	0.0375	0.0479
95	0.1194	0.0524	0.0670
96	0.2377	0.0755	0.1622
97	0.6853	0.0755	0.6098
98	0.0871	0.0383	0.0489
99	0.0938	0.0412	0.0526
100	0.0775	0.0340	0.0435
101	0.0675	0.0296	0.0378
102	0.0604	0.0265	0.0339
103	0.0548	0.0240	0.0307
104	0.0507	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0446	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0177	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187

120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0294	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 143.58(CFS)

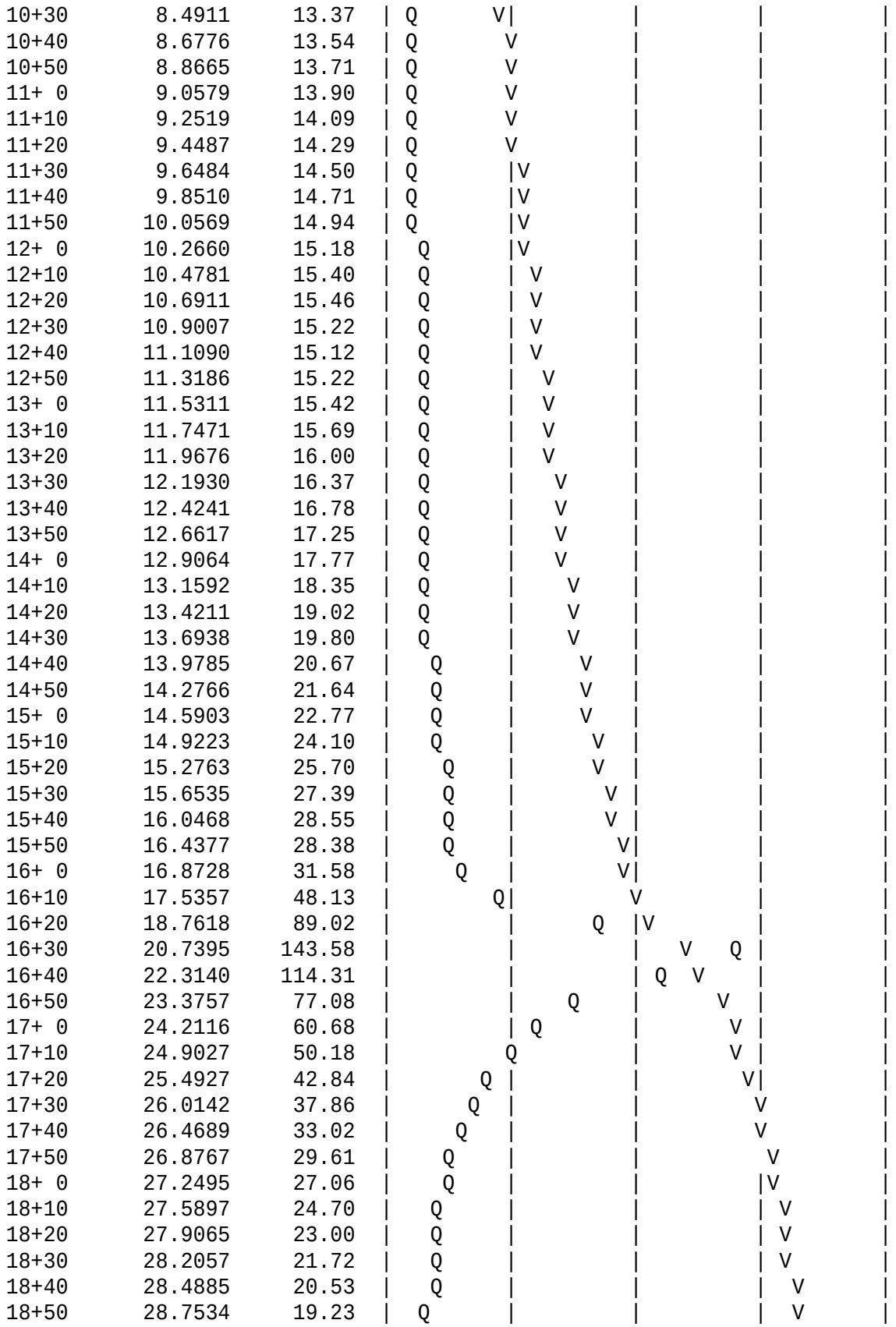
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	50.0	100.0	150.0	200.0
0+10	0.0025	0.18	Q	|	|	|	|
0+20	0.0168	1.04	Q	|	|	|	|
0+30	0.0622	3.30	Q	|	|	|	|
0+40	0.1317	5.04	VQ	|	|	|	|
0+50	0.2143	6.00	VQ	|	|	|	|
1+ 0	0.3057	6.64	VQ	|	|	|	|
1+10	0.4036	7.11	VQ	|	|	|	|
1+20	0.5065	7.47	VQ	|	|	|	|
1+30	0.6137	7.78	VQ	|	|	|	|
1+40	0.7242	8.02	VQ	|	|	|	|
1+50	0.8375	8.23	VQ	|	|	|	|

2+ 0	0.9533	8.41	Q				
2+10	1.0713	8.57	Q				
2+20	1.1913	8.71	Q				
2+30	1.3129	8.83	Q				
2+40	1.4361	8.95	Q				
2+50	1.5607	9.04	Q				
3+ 0	1.6864	9.13	Q				
3+10	1.8133	9.21	QV				
3+20	1.9413	9.30	QV				
3+30	2.0706	9.39	QV				
3+40	2.2010	9.47	QV				
3+50	2.3325	9.54	QV				
4+ 0	2.4649	9.62	QV				
4+10	2.5982	9.67	Q V				
4+20	2.7322	9.73	Q V				
4+30	2.8671	9.79	Q V				
4+40	3.0029	9.86	Q V				
4+50	3.1396	9.92	Q V				
5+ 0	3.2771	9.99	Q V				
5+10	3.4155	10.05	QV				
5+20	3.5549	10.12	Q V				
5+30	3.6953	10.19	Q V				
5+40	3.8366	10.26	Q V				
5+50	3.9789	10.33	Q V				
6+ 0	4.1222	10.40	Q V				
6+10	4.2665	10.48	Q V				
6+20	4.4119	10.56	Q V				
6+30	4.5584	10.64	Q V				
6+40	4.7060	10.72	Q V				
6+50	4.8548	10.80	Q V				
7+ 0	5.0047	10.88	Q V				
7+10	5.1559	10.97	Q V				
7+20	5.3082	11.06	Q V				
7+30	5.4619	11.15	Q V				
7+40	5.6168	11.25	Q V				
7+50	5.7730	11.34	Q V				
8+ 0	5.9306	11.44	Q V				
8+10	6.0897	11.55	Q V				
8+20	6.2502	11.65	Q V				
8+30	6.4121	11.76	Q V				
8+40	6.5756	11.87	Q V				
8+50	6.7407	11.99	Q V				
9+ 0	6.9074	12.10	Q V				
9+10	7.0758	12.23	Q V				
9+20	7.2460	12.35	Q V				
9+30	7.4179	12.48	Q V				
9+40	7.5917	12.62	Q V				
9+50	7.7675	12.76	Q V				
10+ 0	7.9452	12.90	Q V				
10+10	8.1250	13.05	Q V				
10+20	8.3069	13.21	Q V				



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   19+ 0      29.0008     17.96  |  Q      |         |         |  V      |
   19+10      29.2418     17.49  |  Q      |         |         |  V      |
   19+20      29.4774     17.10  |  Q      |         |         |   V     |
   19+30      29.7057     16.58  |  Q      |         |         |   V     |
   19+40      29.9221     15.71  |  Q      |         |         |   V     |
   19+50      30.1279     14.94  | Q       |         |         |   V     |
   20+ 0      30.3252     14.32  | Q       |         |         |    V    |
   20+10      30.5085     13.30  | Q       |         |         |    V    |
   20+20      30.6872     12.98  | Q       |         |         |    V    |
   20+30      30.8617     12.67  | Q       |         |         |    V    |
   20+40      31.0323     12.39  | Q       |         |         |     V   |
   20+50      31.1994     12.13  | Q       |         |         |     V   |
   21+ 0      31.3631     11.89  | Q       |         |         |     V   |
   21+10      31.5238     11.66  | Q       |         |         |     V   |
   21+20      31.6816     11.45  | Q       |         |         |     V   |
   21+30      31.8366     11.26  | Q       |         |         |     V   |
   21+40      31.9892     11.07  | Q       |         |         |      V  |
   21+50      32.1392     10.90  | Q       |         |         |      V  |
   22+ 0      32.2870     10.73  | Q       |         |         |      V  |
   22+10      32.4325     10.56  | Q       |         |         |      V  |
   22+20      32.5758     10.41  | Q       |         |         |      V  |
   22+30      32.7172     10.26  | Q       |         |         |      V  |
   22+40      32.8565     10.12  | Q       |         |         |       V |
   22+50      32.9940      9.98  |Q        |         |         |       V |
   23+ 0      33.1297      9.85  |Q        |         |         |       V |
   23+10      33.2637      9.73  |Q        |         |         |       V |
   23+20      33.3961      9.61  |Q        |         |         |       V |
   23+30      33.5269      9.49  |Q        |         |         |       V |
   23+40      33.6561      9.38  |Q        |         |         |        V|
   23+50      33.7839      9.28  |Q        |         |         |        V|
   24+ 0      33.9103      9.17  |Q        |         |         |        V|
   24+10      34.0328      8.90  |Q        |         |         |        V|
   24+20      34.1423      7.95  |Q        |         |         |        V|
   24+30      34.2197      5.62  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA D
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
54.89	1	0.77
Rainfall data for year 2		
54.89	6	1.08
Rainfall data for year 2		
54.89	24	2.03
Rainfall data for year 100		
54.89	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            54.89            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            54.89           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0         54.89      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    54.89   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.435 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      54.89(Ac.)
Catchment Lag time =   0.348 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 47.8927
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      54.89(Ac.) (Ref: fig. E-4)

5-minute factor = 0.997     Adjusted rainfall =  0.611(In)
30-minute factor = 0.997    Adjusted rainfall =  1.045(In)
1-hour factor = 0.997       Adjusted rainfall =  1.287(In)
3-hour factor = 1.000       Adjusted rainfall =  2.159(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.989(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 331.91 (CFS))	
1	3.690	12.249
2	28.020	80.754
3	58.577	101.421
4	72.297	45.539
5	80.269	26.461
6	85.548	17.521
7	89.340	12.588
8	92.020	8.895
9	94.111	6.940
10	95.699	5.271
11	96.915	4.033
12	97.763	2.815
13	98.297	1.774
14	98.859	1.863
15	99.413	1.840
16	99.765	1.167
17	100.000	0.781

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7517	0.1411
2	0.9254	0.0765
3	1.0451	0.0556
4	1.1393	0.0447
5	1.2182	0.0379
6	1.2867	0.0332
7	1.3836	0.0475
8	1.4735	0.0441
9	1.5576	0.0414
10	1.6369	0.0391
11	1.7120	0.0371
12	1.7837	0.0354
13	1.8523	0.0339
14	1.9181	0.0326
15	1.9815	0.0314
16	2.0426	0.0303
17	2.1018	0.0294
18	2.1592	0.0285
19	2.2147	0.0276
20	2.2687	0.0268

21	2.3212	0.0261
22	2.3725	0.0255
23	2.4225	0.0249
24	2.4714	0.0243
25	2.5192	0.0238
26	2.5660	0.0233
27	2.6119	0.0228
28	2.6568	0.0224
29	2.7010	0.0220
30	2.7443	0.0216
31	2.7869	0.0212
32	2.8287	0.0208
33	2.8698	0.0205
34	2.9103	0.0202
35	2.9502	0.0199
36	2.9895	0.0196
37	3.0337	0.0220
38	3.0773	0.0217
39	3.1204	0.0215
40	3.1630	0.0212
41	3.2051	0.0210
42	3.2467	0.0208
43	3.2878	0.0205
44	3.3286	0.0203
45	3.3688	0.0201
46	3.4087	0.0199
47	3.4482	0.0197
48	3.4873	0.0195
49	3.5260	0.0193
50	3.5643	0.0191
51	3.6023	0.0190
52	3.6400	0.0188
53	3.6773	0.0186
54	3.7143	0.0185
55	3.7509	0.0183
56	3.7873	0.0181
57	3.8234	0.0180
58	3.8591	0.0178
59	3.8946	0.0177
60	3.9298	0.0176
61	3.9647	0.0174
62	3.9994	0.0173
63	4.0338	0.0172
64	4.0680	0.0170
65	4.1019	0.0169
66	4.1355	0.0168
67	4.1690	0.0167
68	4.2022	0.0166
69	4.2351	0.0165
70	4.2679	0.0163
71	4.3004	0.0162

72	4.3327	0.0161
73	4.3649	0.0160
74	4.3968	0.0159
75	4.4285	0.0158
76	4.4600	0.0157
77	4.4913	0.0156
78	4.5225	0.0155
79	4.5534	0.0155
80	4.5842	0.0154
81	4.6148	0.0153
82	4.6452	0.0152
83	4.6754	0.0151
84	4.7055	0.0150
85	4.7354	0.0149
86	4.7652	0.0149
87	4.7947	0.0148
88	4.8242	0.0147
89	4.8534	0.0146
90	4.8826	0.0145
91	4.9115	0.0145
92	4.9404	0.0144
93	4.9690	0.0143
94	4.9976	0.0142
95	5.0260	0.0142
96	5.0542	0.0141
97	5.0823	0.0140
98	5.1103	0.0140
99	5.1382	0.0139
100	5.1659	0.0138
101	5.1935	0.0138
102	5.2209	0.0137
103	5.2483	0.0137
104	5.2755	0.0136
105	5.3026	0.0135
106	5.3296	0.0135
107	5.3564	0.0134
108	5.3832	0.0134
109	5.4098	0.0133
110	5.4363	0.0132
111	5.4627	0.0132
112	5.4890	0.0131
113	5.5152	0.0131
114	5.5413	0.0130
115	5.5673	0.0130
116	5.5931	0.0129
117	5.6189	0.0129
118	5.6446	0.0128
119	5.6701	0.0128
120	5.6956	0.0127
121	5.7209	0.0127
122	5.7462	0.0126

123	5.7714	0.0126
124	5.7964	0.0125
125	5.8214	0.0125
126	5.8463	0.0124
127	5.8711	0.0124
128	5.8958	0.0123
129	5.9204	0.0123
130	5.9450	0.0123
131	5.9694	0.0122
132	5.9937	0.0122
133	6.0180	0.0121
134	6.0422	0.0121
135	6.0663	0.0120
136	6.0903	0.0120
137	6.1142	0.0120
138	6.1381	0.0119
139	6.1619	0.0119
140	6.1856	0.0118
141	6.2092	0.0118
142	6.2327	0.0118
143	6.2562	0.0117
144	6.2796	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0248	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149

25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155
31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0412	0.0181	0.0231

76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274
82	0.0506	0.0222	0.0284
83	0.0526	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0574	0.0252	0.0322
86	0.0602	0.0264	0.0337
87	0.0634	0.0278	0.0355
88	0.0672	0.0295	0.0377
89	0.0717	0.0315	0.0402
90	0.0772	0.0339	0.0433
91	0.0841	0.0369	0.0472
92	0.0932	0.0409	0.0523
93	0.0685	0.0301	0.0384
94	0.0857	0.0376	0.0481
95	0.1197	0.0526	0.0671
96	0.2383	0.0755	0.1629
97	0.6871	0.0755	0.6116
98	0.0874	0.0384	0.0490
99	0.0936	0.0411	0.0525
100	0.0773	0.0340	0.0434
101	0.0672	0.0295	0.0377
102	0.0602	0.0264	0.0338
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0446	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0294	0.0129	0.0165

127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 78.68(CFS)

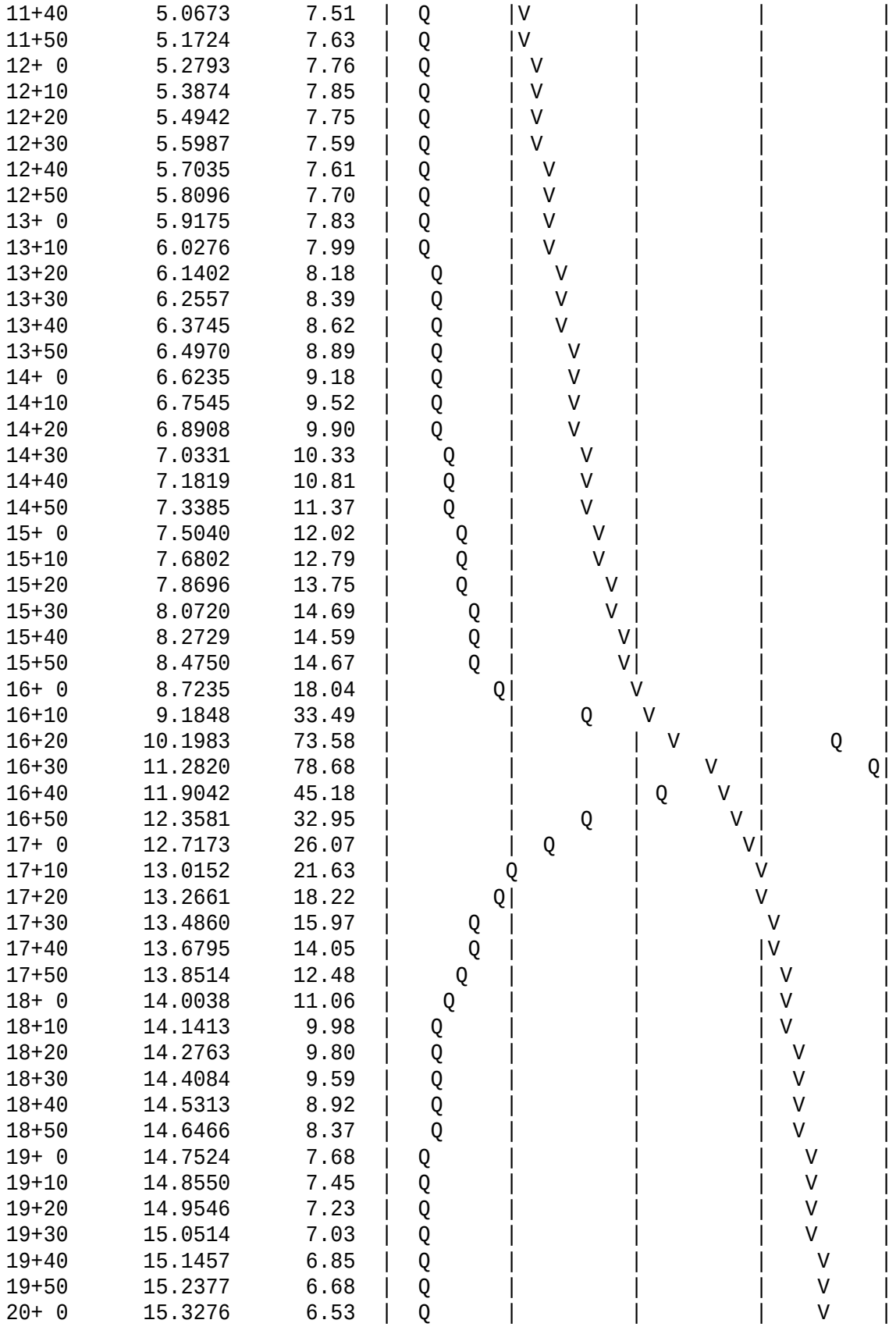
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+10	0.0022	0.16	Q	|	|	|	|
0+20	0.0190	1.22	Q	|	|	|	|
0+30	0.0542	2.56	VQ	|	|	|	|
0+40	0.0979	3.17	VQ	|	|	|	|
0+50	0.1465	3.53	VQ	|	|	|	|
1+ 0	0.1985	3.78	VQ	|	|	|	|
1+10	0.2530	3.96	VQ	|	|	|	|
1+20	0.3095	4.10	V Q	|	|	|	|
1+30	0.3675	4.21	V Q	|	|	|	|
1+40	0.4267	4.30	V Q	|	|	|	|
1+50	0.4870	4.38	|VQ	|	|	|	|
2+ 0	0.5481	4.44	|VQ	|	|	|	|
2+10	0.6098	4.48	|VQ	|	|	|	|
2+20	0.6723	4.53	|VQ	|	|	|	|
2+30	0.7353	4.58	|VQ	|	|	|	|
2+40	0.7990	4.62	|VQ	|	|	|	|
2+50	0.8632	4.66	|VQ	|	|	|	|
3+ 0	0.9277	4.68	| Q	|	|	|	|

3+10	0.9926	4.71	Q				
3+20	1.0578	4.74	Q				
3+30	1.1235	4.77	Q				
3+40	1.1895	4.79	Q				
3+50	1.2560	4.82	Q				
4+ 0	1.3228	4.85	QV				
4+10	1.3901	4.88	QV				
4+20	1.4578	4.91	QV				
4+30	1.5259	4.95	QV				
4+40	1.5945	4.98	QV				
4+50	1.6635	5.01	QV				
5+ 0	1.7329	5.04	Q V				
5+10	1.8029	5.08	Q V				
5+20	1.8733	5.11	Q V				
5+30	1.9442	5.15	Q V				
5+40	2.0156	5.18	Q V				
5+50	2.0875	5.22	Q V				
6+ 0	2.1599	5.26	Q V				
6+10	2.2329	5.30	Q V				
6+20	2.3064	5.34	Q V				
6+30	2.3805	5.38	Q V				
6+40	2.4552	5.42	Q V				
6+50	2.5304	5.46	Q V				
7+ 0	2.6063	5.51	Q V				
7+10	2.6827	5.55	Q V				
7+20	2.7599	5.60	Q V				
7+30	2.8376	5.65	Q V				
7+40	2.9160	5.69	Q V				
7+50	2.9952	5.74	Q V				
8+ 0	3.0750	5.80	Q V				
8+10	3.1556	5.85	Q V				
8+20	3.2369	5.90	Q V				
8+30	3.3190	5.96	Q V				
8+40	3.4018	6.02	Q V				
8+50	3.4855	6.08	Q V				
9+ 0	3.5701	6.14	Q V				
9+10	3.6555	6.20	Q V				
9+20	3.7419	6.27	Q V				
9+30	3.8291	6.34	Q V				
9+40	3.9174	6.41	Q V				
9+50	4.0066	6.48	Q V				
10+ 0	4.0969	6.56	Q V				
10+10	4.1883	6.63	Q V				
10+20	4.2808	6.72	Q V				
10+30	4.3744	6.80	Q V				
10+40	4.4693	6.89	Q V				
10+50	4.5655	6.98	Q V				
11+ 0	4.6629	7.08	Q V				
11+10	4.7618	7.18	Q V				
11+20	4.8621	7.28	Q V				
11+30	4.9639	7.39	Q V				



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   20+10      15.4155      6.38  |  Q      |         |         |    V    |
   20+20      15.5015      6.24  |  Q      |         |         |    V    |
   20+30      15.5858      6.12  |  Q      |         |         |     V   |
   20+40      15.6685      6.00  |  Q      |         |         |     V   |
   20+50      15.7496      5.89  | Q       |         |         |     V   |
   21+ 0      15.8292      5.78  | Q       |         |         |     V   |
   21+10      15.9074      5.68  | Q       |         |         |     V   |
   21+20      15.9843      5.58  | Q       |         |         |      V  |
   21+30      16.0599      5.49  | Q       |         |         |      V  |
   21+40      16.1344      5.40  | Q       |         |         |      V  |
   21+50      16.2077      5.32  | Q       |         |         |      V  |
   22+ 0      16.2799      5.24  | Q       |         |         |      V  |
   22+10      16.3511      5.17  | Q       |         |         |      V  |
   22+20      16.4213      5.10  | Q       |         |         |       V |
   22+30      16.4906      5.03  | Q       |         |         |       V |
   22+40      16.5590      4.96  | Q       |         |         |       V |
   22+50      16.6265      4.90  | Q       |         |         |       V |
   23+ 0      16.6931      4.84  | Q       |         |         |       V |
   23+10      16.7590      4.78  | Q       |         |         |       V |
   23+20      16.8241      4.73  | Q       |         |         |       V |
   23+30      16.8884      4.67  | Q       |         |         |        V|
   23+40      16.9521      4.62  | Q       |         |         |        V|
   23+50      17.0150      4.57  | Q       |         |         |        V|
   24+ 0      17.0773      4.52  | Q       |         |         |        V|
   24+10      17.1367      4.31  | Q       |         |         |        V|
   24+20      17.1810      3.22  |Q        |         |         |        V|
   24+30      17.2066      1.86  Q         |         |         |        V|
-------------------------------------------------------------------------
```

127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151
133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0248	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 78.68(CFS)

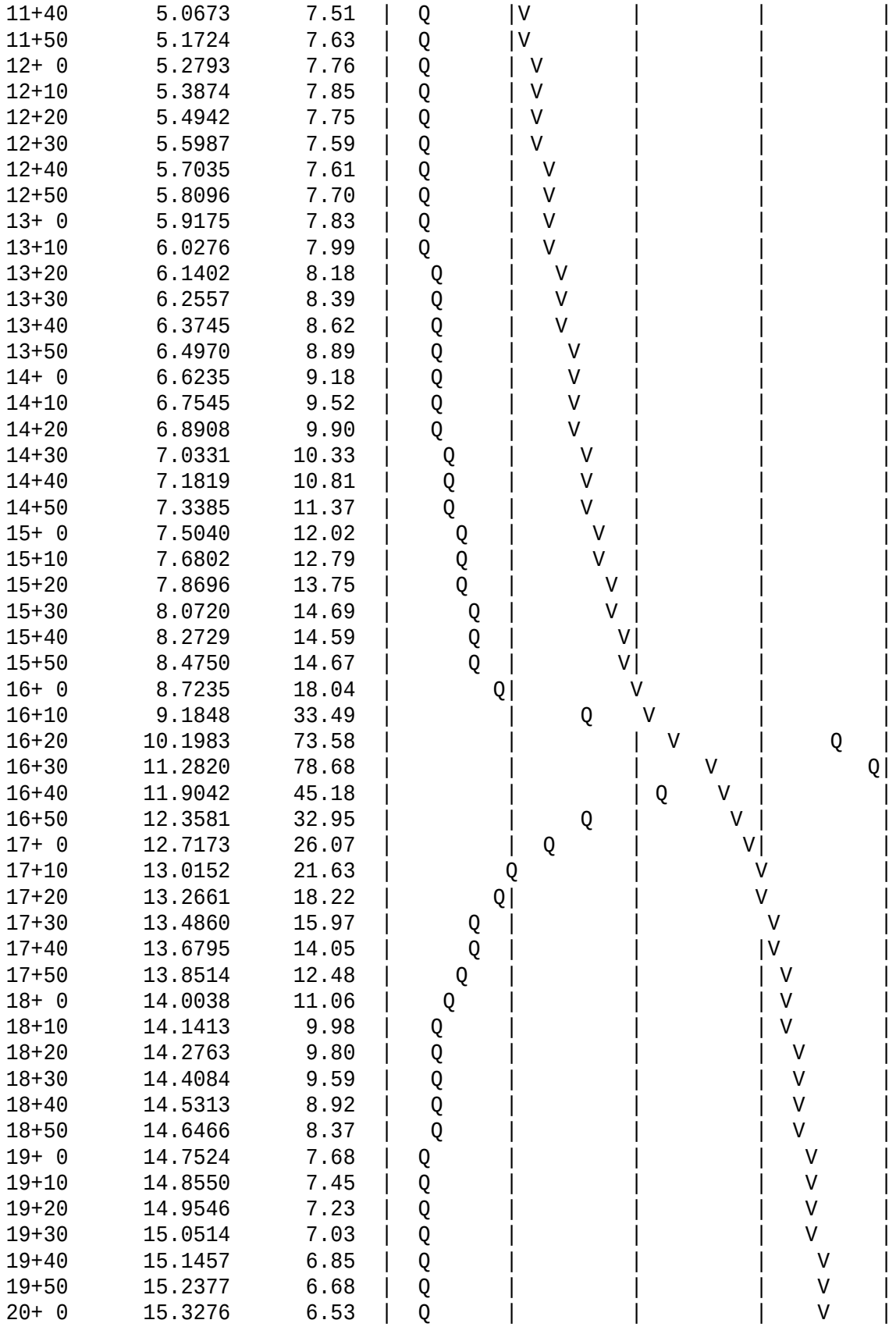
++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+10	0.0022	0.16	Q	|	|	|	|
0+20	0.0190	1.22	Q	|	|	|	|
0+30	0.0542	2.56	VQ	|	|	|	|
0+40	0.0979	3.17	VQ	|	|	|	|
0+50	0.1465	3.53	VQ	|	|	|	|
1+ 0	0.1985	3.78	VQ	|	|	|	|
1+10	0.2530	3.96	VQ	|	|	|	|
1+20	0.3095	4.10	V Q	|	|	|	|
1+30	0.3675	4.21	V Q	|	|	|	|
1+40	0.4267	4.30	V Q	|	|	|	|
1+50	0.4870	4.38	|VQ	|	|	|	|
2+ 0	0.5481	4.44	|VQ	|	|	|	|
2+10	0.6098	4.48	|VQ	|	|	|	|
2+20	0.6723	4.53	|VQ	|	|	|	|
2+30	0.7353	4.58	|VQ	|	|	|	|
2+40	0.7990	4.62	|VQ	|	|	|	|
2+50	0.8632	4.66	|VQ	|	|	|	|
3+ 0	0.9277	4.68	| Q	|	|	|	|

3+10	0.9926	4.71	Q				
3+20	1.0578	4.74	Q				
3+30	1.1235	4.77	Q				
3+40	1.1895	4.79	Q				
3+50	1.2560	4.82	Q				
4+ 0	1.3228	4.85	QV				
4+10	1.3901	4.88	QV				
4+20	1.4578	4.91	QV				
4+30	1.5259	4.95	QV				
4+40	1.5945	4.98	QV				
4+50	1.6635	5.01	QV				
5+ 0	1.7329	5.04	Q V				
5+10	1.8029	5.08	Q V				
5+20	1.8733	5.11	Q V				
5+30	1.9442	5.15	Q V				
5+40	2.0156	5.18	Q V				
5+50	2.0875	5.22	Q V				
6+ 0	2.1599	5.26	Q V				
6+10	2.2329	5.30	Q V				
6+20	2.3064	5.34	Q V				
6+30	2.3805	5.38	Q V				
6+40	2.4552	5.42	Q V				
6+50	2.5304	5.46	Q V				
7+ 0	2.6063	5.51	Q V				
7+10	2.6827	5.55	Q V				
7+20	2.7599	5.60	Q V				
7+30	2.8376	5.65	Q V				
7+40	2.9160	5.69	Q V				
7+50	2.9952	5.74	Q V				
8+ 0	3.0750	5.80	Q V				
8+10	3.1556	5.85	Q V				
8+20	3.2369	5.90	Q V				
8+30	3.3190	5.96	Q V				
8+40	3.4018	6.02	Q V				
8+50	3.4855	6.08	Q V				
9+ 0	3.5701	6.14	Q V				
9+10	3.6555	6.20	Q V				
9+20	3.7419	6.27	Q V				
9+30	3.8291	6.34	Q V				
9+40	3.9174	6.41	Q V				
9+50	4.0066	6.48	Q V				
10+ 0	4.0969	6.56	Q V				
10+10	4.1883	6.63	Q V				
10+20	4.2808	6.72	Q V				
10+30	4.3744	6.80	Q V				
10+40	4.4693	6.89	Q V				
10+50	4.5655	6.98	Q V				
11+ 0	4.6629	7.08	Q V				
11+10	4.7618	7.18	Q V				
11+20	4.8621	7.28	Q V				
11+30	4.9639	7.39	Q V				



```
   20+10      15.4155      6.38  |  Q      |         |         |    V    |
   20+20      15.5015      6.24  |  Q      |         |         |    V    |
   20+30      15.5858      6.12  |  Q      |         |         |     V   |
   20+40      15.6685      6.00  |  Q      |         |         |     V   |
   20+50      15.7496      5.89  | Q       |         |         |     V   |
   21+ 0      15.8292      5.78  | Q       |         |         |     V   |
   21+10      15.9074      5.68  | Q       |         |         |     V   |
   21+20      15.9843      5.58  | Q       |         |         |      V  |
   21+30      16.0599      5.49  | Q       |         |         |      V  |
   21+40      16.1344      5.40  | Q       |         |         |      V  |
   21+50      16.2077      5.32  | Q       |         |         |      V  |
   22+ 0      16.2799      5.24  | Q       |         |         |      V  |
   22+10      16.3511      5.17  | Q       |         |         |      V  |
   22+20      16.4213      5.10  | Q       |         |         |       V |
   22+30      16.4906      5.03  | Q       |         |         |       V |
   22+40      16.5590      4.96  | Q       |         |         |       V |
   22+50      16.6265      4.90  | Q       |         |         |       V |
   23+ 0      16.6931      4.84  | Q       |         |         |       V |
   23+10      16.7590      4.78  | Q       |         |         |       V |
   23+20      16.8241      4.73  | Q       |         |         |       V |
   23+30      16.8884      4.67  | Q       |         |         |        V|
   23+40      16.9521      4.62  | Q       |         |         |        V|
   23+50      17.0150      4.57  | Q       |         |         |        V|
   24+ 0      17.0773      4.52  | Q       |         |         |        V|
   24+10      17.1367      4.31  | Q       |         |         |        V|
   24+20      17.1810      3.22  |Q        |         |         |        V|
   24+30      17.2066      1.86  Q         |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA E
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
8.64	1	0.77
Rainfall data for year 2		
8.64	6	1.08
Rainfall data for year 2		
8.64	24	2.03
Rainfall data for year 100		
8.64	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            8.64            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            8.64           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0          8.64      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     8.64   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.294 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       8.64(Ac.)
Catchment Lag time =   0.235 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 70.9582
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       8.64(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 52.25 (CFS))	
1	8.068	4.215
2	51.217	22.543
3	74.028	11.917
4	83.992	5.206
5	89.796	3.032
6	93.414	1.890
7	95.859	1.277
8	97.461	0.837
9	98.352	0.466
10	99.186	0.435
11	100.000	0.426

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7533	0.1414
2	0.9274	0.0767
3	1.0474	0.0557
4	1.1418	0.0448
5	1.2208	0.0380
6	1.2895	0.0332
7	1.3863	0.0474
8	1.4759	0.0441
9	1.5599	0.0413
10	1.6390	0.0390
11	1.7140	0.0370
12	1.7854	0.0353
13	1.8538	0.0338
14	1.9194	0.0325
15	1.9826	0.0313
16	2.0436	0.0302
17	2.1026	0.0293
18	2.1598	0.0284
19	2.2153	0.0275
20	2.2693	0.0268
21	2.3218	0.0261
22	2.3731	0.0255
23	2.4231	0.0249
24	2.4719	0.0243
25	2.5197	0.0238
26	2.5665	0.0233

27	2.6124	0.0228
28	2.6574	0.0224
29	2.7015	0.0220
30	2.7448	0.0216
31	2.7873	0.0212
32	2.8292	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9507	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2055	0.0210
42	3.2471	0.0208
43	3.2883	0.0205
44	3.3290	0.0203
45	3.3693	0.0201
46	3.4092	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5648	0.0191
51	3.6028	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7514	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8596	0.0178
59	3.8950	0.0177
60	3.9302	0.0176
61	3.9652	0.0174
62	3.9998	0.0173
63	4.0343	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1360	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2356	0.0165
70	4.2683	0.0163
71	4.3009	0.0162
72	4.3332	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4918	0.0156

78	4.5229	0.0155
79	4.5538	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152
83	4.6759	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7656	0.0149
87	4.7952	0.0148
88	4.8246	0.0147
89	4.8539	0.0146
90	4.8830	0.0145
91	4.9120	0.0145
92	4.9408	0.0144
93	4.9695	0.0143
94	4.9980	0.0142
95	5.0264	0.0142
96	5.0546	0.0141
97	5.0828	0.0140
98	5.1107	0.0140
99	5.1386	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2214	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3569	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4631	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5677	0.0130
116	5.5935	0.0129
117	5.6193	0.0129
118	5.6450	0.0128
119	5.6705	0.0128
120	5.6960	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7718	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123

129	5.9208	0.0123
130	5.9453	0.0123
131	5.9698	0.0122
132	5.9941	0.0122
133	6.0184	0.0121
134	6.0426	0.0121
135	6.0667	0.0120
136	6.0907	0.0120
137	6.1146	0.0120
138	6.1385	0.0119
139	6.1622	0.0119
140	6.1859	0.0118
141	6.2096	0.0118
142	6.2331	0.0118
143	6.2565	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155

31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0223
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274

82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336
87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0930	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1200	0.0527	0.0673
96	0.2389	0.0755	0.1634
97	0.6886	0.0755	0.6131
98	0.0876	0.0385	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0670	0.0294	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151

133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 16.70(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+10	0.0008	0.06	Q	|	|	|	|
0+20	0.0056	0.35	Q	|	|	|	|
0+30	0.0126	0.51	VQ	|	|	|	|
0+40	0.0206	0.58	VQ	|	|	|	|
0+50	0.0292	0.62	VQ	|	|	|	|
1+ 0	0.0381	0.65	VQ	|	|	|	|
1+10	0.0474	0.67	VQ	|	|	|	|
1+20	0.0568	0.68	VQ	|	|	|	|
1+30	0.0664	0.69	VQ	|	|	|	|
1+40	0.0761	0.70	|Q	|	|	|	|
1+50	0.0859	0.71	|Q	|	|	|	|
2+ 0	0.0958	0.72	|Q	|	|	|	|
2+10	0.1057	0.72	|Q	|	|	|	|
2+20	0.1157	0.72	|Q	|	|	|	|
2+30	0.1257	0.73	|Q	|	|	|	|
2+40	0.1358	0.73	|Q	|	|	|	|
2+50	0.1460	0.74	|QV	|	|	|	|
3+ 0	0.1562	0.74	|QV	|	|	|	|
3+10	0.1665	0.75	|QV	|	|	|	|
3+20	0.1768	0.75	|QV	|	|	|	|
3+30	0.1872	0.75	|QV	|	|	|	|
3+40	0.1976	0.76	|QV	|	|	|	|
3+50	0.2082	0.76	|Q V	|	|	|	|
4+ 0	0.2188	0.77	|Q V	|	|	|	|

```
 4+10       0.2294      0.77  |Q V      |         |         |         |
 4+20       0.2401      0.78  |Q V      |         |         |         |
 4+30       0.2509      0.78  |Q V      |         |         |         |
 4+40       0.2618      0.79  |Q V      |         |         |         |
 4+50       0.2727      0.79  |Q  V     |         |         |         |
 5+ 0       0.2837      0.80  |Q  V     |         |         |         |
 5+10       0.2948      0.80  |Q  V     |         |         |         |
 5+20       0.3059      0.81  |Q  V     |         |         |         |
 5+30       0.3172      0.82  |Q  V     |         |         |         |
 5+40       0.3285      0.82  |Q  V     |         |         |         |
 5+50       0.3399      0.83  |Q   V    |         |         |         |
 6+ 0       0.3514      0.83  |Q   V    |         |         |         |
 6+10       0.3630      0.84  |Q   V    |         |         |         |
 6+20       0.3746      0.85  |Q   V    |         |         |         |
 6+30       0.3864      0.85  |Q   V    |         |         |         |
 6+40       0.3982      0.86  |Q   V    |         |         |         |
 6+50       0.4101      0.87  |Q    V   |         |         |         |
 7+ 0       0.4222      0.87  |Q    V   |         |         |         |
 7+10       0.4343      0.88  |Q    V   |         |         |         |
 7+20       0.4465      0.89  |Q    V   |         |         |         |
 7+30       0.4589      0.90  |Q    V   |         |         |         |
 7+40       0.4713      0.90  |Q    V   |         |         |         |
 7+50       0.4839      0.91  |Q     V  |         |         |         |
 8+ 0       0.4966      0.92  |Q     V  |         |         |         |
 8+10       0.5094      0.93  |Q     V  |         |         |         |
 8+20       0.5223      0.94  |Q     V  |         |         |         |
 8+30       0.5353      0.95  |Q     V  |         |         |         |
 8+40       0.5485      0.96  |Q      V |         |         |         |
 8+50       0.5618      0.97  |Q      V |         |         |         |
 9+ 0       0.5752      0.98  |Q      V |         |         |         |
 9+10       0.5888      0.99  |Q      V |         |         |         |
 9+20       0.6025      1.00  |Q      V |         |         |         |
 9+30       0.6164      1.01  | Q      V|         |         |         |
 9+40       0.6305      1.02  | Q      V|         |         |         |
 9+50       0.6447      1.03  | Q      V|         |         |         |
10+ 0       0.6590      1.04  | Q      V|         |         |         |
10+10       0.6736      1.06  | Q      V|         |         |         |
10+20       0.6883      1.07  | Q       V         |         |         |
10+30       0.7032      1.08  | Q       V         |         |         |
10+40       0.7184      1.10  | Q       V         |         |         |
10+50       0.7337      1.11  | Q       V         |         |         |
11+ 0       0.7492      1.13  | Q        V        |         |         |
11+10       0.7650      1.15  | Q       |V        |         |         |
11+20       0.7810      1.16  | Q       |V        |         |         |
11+30       0.7973      1.18  | Q       |V        |         |         |
11+40       0.8138      1.20  | Q       |V        |         |         |
11+50       0.8306      1.22  | Q       | V       |         |         |
12+ 0       0.8477      1.24  | Q       | V       |         |         |
12+10       0.8649      1.25  | Q       | V       |         |         |
12+20       0.8815      1.20  | Q       | V       |         |         |
12+30       0.8979      1.19  | Q       |  V      |         |         |
```

12+40	0.9145	1.20	Q	V			
12+50	0.9313	1.22	Q	V			
13+ 0	0.9485	1.25	Q	V			
13+10	0.9661	1.28	Q	V			
13+20	0.9841	1.31	Q	V			
13+30	1.0027	1.35	Q	V			
13+40	1.0218	1.39	Q	V			
13+50	1.0416	1.43	Q	V			
14+ 0	1.0621	1.49	Q	V			
14+10	1.0833	1.54	Q	V			
14+20	1.1055	1.61	Q	V			
14+30	1.1287	1.68	Q	V			
14+40	1.1530	1.77	Q	V			
14+50	1.1787	1.86	Q	V			
15+ 0	1.2060	1.98	Q	V			
15+10	1.2352	2.12	Q	V			
15+20	1.2668	2.29	Q	V			
15+30	1.3003	2.43	Q	V			
15+40	1.3315	2.26	Q	V			
15+50	1.3652	2.45	Q	V			
16+ 0	1.4115	3.36	Q	V			
16+10	1.5173	7.68	Q	V			
16+20	1.7474	16.70	V	Q			
16+30	1.8842	9.93	Q	V			
16+40	1.9657	5.92	Q	V			
16+50	2.0259	4.37	Q	V			
17+ 0	2.0729	3.41	Q	V			
17+10	2.1115	2.80	Q	V			
17+20	2.1437	2.34	Q	V			
17+30	2.1710	1.98	Q	V			
17+40	2.1963	1.83	Q	V			
17+50	2.2193	1.67	Q	V			
18+ 0	2.2379	1.35	Q	V			
18+10	2.2556	1.28	Q	V			
18+20	2.2733	1.29	Q	V			
18+30	2.2907	1.26	Q	V			
18+40	2.3076	1.23	Q	V			
18+50	2.3241	1.20	Q	V			
19+ 0	2.3401	1.16	Q	V			
19+10	2.3557	1.13	Q	V			
19+20	2.3709	1.10	Q	V			
19+30	2.3857	1.07	Q	V			
19+40	2.4001	1.05	Q	V			
19+50	2.4143	1.03	Q	V			
20+ 0	2.4281	1.00	Q	V			
20+10	2.4416	0.98	Q	V			
20+20	2.4548	0.96	Q	V			
20+30	2.4678	0.94	Q	V			
20+40	2.4805	0.92	Q	V			
20+50	2.4930	0.91	Q	V			
21+ 0	2.5053	0.89	Q	V			

```
   21+10       2.5174      0.88  |Q        |         |         |      V  |
   21+20       2.5292      0.86  |Q        |         |         |      V  |
   21+30       2.5409      0.85  |Q        |         |         |      V  |
   21+40       2.5524      0.84  |Q        |         |         |      V  |
   21+50       2.5638      0.82  |Q        |         |         |      V  |
   22+ 0       2.5750      0.81  |Q        |         |         |      V  |
   22+10       2.5860      0.80  |Q        |         |         |       V |
   22+20       2.5969      0.79  |Q        |         |         |       V |
   22+30       2.6077      0.78  |Q        |         |         |       V |
   22+40       2.6183      0.77  |Q        |         |         |       V |
   22+50       2.6287      0.76  |Q        |         |         |       V |
   23+ 0       2.6391      0.75  |Q        |         |         |       V |
   23+10       2.6493      0.74  |Q        |         |         |       V |
   23+20       2.6594      0.73  |Q        |         |         |        V|
   23+30       2.6695      0.73  |Q        |         |         |        V|
   23+40       2.6794      0.72  |Q        |         |         |        V|
   23+50       2.6891      0.71  |Q        |         |         |        V|
   24+ 0       2.6988      0.70  |Q        |         |         |        V|
   24+10       2.7077      0.64  |Q        |         |         |        V|
   24+20       2.7124      0.34  Q         |         |         |        V|
   24+30       2.7149      0.18  Q         |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/04/19

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

JOB NO. 2019-185
100-YEAR UNIT HYDROGRPAH
PRE-PROJECT CONDITION FOR AREA F
HCCII, 11-04-2019

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
13.47	1	0.77
Rainfall data for year 2		
13.47	6	1.08
Rainfall data for year 2		
13.47	24	2.03
Rainfall data for year 100		
13.47	1	1.29

```
------------------------------------------------------------------------
Rainfall data for year 100
            13.47            6           2.99
------------------------------------------------------------------------
Rainfall data for year 100
            13.47           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 55.0      75.0         13.47      1.000     0.453    1.000    0.453

Area-averaged adjusted loss rate Fm (In/Hr) =  0.453

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    13.47   1.000         55.0      75.0       3.33     0.561

Area-averaged catchment yield fraction, Y =  0.561
Area-averaged low loss fraction, Yb =  0.439
User entry of time of concentration  =   0.274 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      13.47(Ac.)
Catchment Lag time =   0.219 hours
Unit interval =  10.000 minutes
Unit interval percentage of lag time = 76.0341
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.453(In/Hr)
Average low loss rate fraction (Yb) = 0.439 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      13.47(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.612(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
```

6-hour factor = 1.000 Adjusted rainfall = 2.990(In)
24-hour factor = 1.000 Adjusted rainfall = 6.280(In)

U n i t H y d r o g r a p h

Interval Number	'S' Graph Mean values	Unit Hydrograph ((CFS))
	(K = 81.45 (CFS))	
1	9.515	7.750
2	54.852	36.928
3	76.268	17.444
4	85.718	7.697
5	91.101	4.384
6	94.490	2.761
7	96.695	1.796
8	97.987	1.052
9	98.855	0.707
10	99.630	0.631
11	100.000	0.301

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.7531	0.1414
2	0.9272	0.0767
3	1.0471	0.0557
4	1.1415	0.0448
5	1.2206	0.0380
6	1.2892	0.0332
7	1.3860	0.0474
8	1.4757	0.0441
9	1.5596	0.0413
10	1.6387	0.0390
11	1.7138	0.0370
12	1.7853	0.0353
13	1.8536	0.0338
14	1.9193	0.0325
15	1.9825	0.0313
16	2.0435	0.0302
17	2.1025	0.0293
18	2.1598	0.0284
19	2.2152	0.0275
20	2.2692	0.0268
21	2.3218	0.0261
22	2.3730	0.0255
23	2.4230	0.0249
24	2.4719	0.0243
25	2.5197	0.0238
26	2.5665	0.0233

27	2.6123	0.0228
28	2.6573	0.0224
29	2.7014	0.0220
30	2.7447	0.0216
31	2.7873	0.0212
32	2.8291	0.0208
33	2.8703	0.0205
34	2.9108	0.0202
35	2.9506	0.0199
36	2.9899	0.0196
37	3.0341	0.0220
38	3.0777	0.0217
39	3.1208	0.0215
40	3.1634	0.0212
41	3.2054	0.0210
42	3.2471	0.0208
43	3.2882	0.0205
44	3.3289	0.0203
45	3.3692	0.0201
46	3.4091	0.0199
47	3.4486	0.0197
48	3.4877	0.0195
49	3.5264	0.0193
50	3.5647	0.0191
51	3.6027	0.0190
52	3.6404	0.0188
53	3.6777	0.0186
54	3.7147	0.0185
55	3.7513	0.0183
56	3.7877	0.0181
57	3.8238	0.0180
58	3.8595	0.0178
59	3.8950	0.0177
60	3.9302	0.0176
61	3.9651	0.0174
62	3.9998	0.0173
63	4.0342	0.0172
64	4.0684	0.0170
65	4.1023	0.0169
66	4.1359	0.0168
67	4.1694	0.0167
68	4.2026	0.0166
69	4.2355	0.0165
70	4.2683	0.0163
71	4.3008	0.0162
72	4.3331	0.0161
73	4.3653	0.0160
74	4.3972	0.0159
75	4.4289	0.0158
76	4.4604	0.0157
77	4.4917	0.0156

78	4.5228	0.0155
79	4.5538	0.0155
80	4.5846	0.0154
81	4.6152	0.0153
82	4.6456	0.0152
83	4.6758	0.0151
84	4.7059	0.0150
85	4.7358	0.0149
86	4.7655	0.0149
87	4.7951	0.0148
88	4.8245	0.0147
89	4.8538	0.0146
90	4.8829	0.0145
91	4.9119	0.0145
92	4.9407	0.0144
93	4.9694	0.0143
94	4.9979	0.0142
95	5.0263	0.0142
96	5.0546	0.0141
97	5.0827	0.0140
98	5.1107	0.0140
99	5.1385	0.0139
100	5.1663	0.0138
101	5.1939	0.0138
102	5.2213	0.0137
103	5.2487	0.0137
104	5.2759	0.0136
105	5.3030	0.0135
106	5.3300	0.0135
107	5.3568	0.0134
108	5.3836	0.0134
109	5.4102	0.0133
110	5.4367	0.0132
111	5.4631	0.0132
112	5.4894	0.0131
113	5.5156	0.0131
114	5.5417	0.0130
115	5.5676	0.0130
116	5.5935	0.0129
117	5.6192	0.0129
118	5.6449	0.0128
119	5.6705	0.0128
120	5.6959	0.0127
121	5.7213	0.0127
122	5.7466	0.0126
123	5.7717	0.0126
124	5.7968	0.0125
125	5.8218	0.0125
126	5.8467	0.0124
127	5.8715	0.0124
128	5.8962	0.0123

129	5.9208	0.0123
130	5.9453	0.0123
131	5.9697	0.0122
132	5.9941	0.0122
133	6.0184	0.0121
134	6.0425	0.0121
135	6.0666	0.0120
136	6.0906	0.0120
137	6.1146	0.0120
138	6.1384	0.0119
139	6.1622	0.0119
140	6.1859	0.0118
141	6.2095	0.0118
142	6.2331	0.0118
143	6.2565	0.0117
144	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0234	0.0103	0.0131
2	0.0235	0.0103	0.0132
3	0.0236	0.0104	0.0132
4	0.0237	0.0104	0.0133
5	0.0239	0.0105	0.0134
6	0.0240	0.0105	0.0134
7	0.0241	0.0106	0.0135
8	0.0242	0.0106	0.0136
9	0.0244	0.0107	0.0137
10	0.0245	0.0108	0.0137
11	0.0246	0.0108	0.0138
12	0.0247	0.0109	0.0139
13	0.0249	0.0109	0.0140
14	0.0250	0.0110	0.0140
15	0.0252	0.0111	0.0141
16	0.0253	0.0111	0.0142
17	0.0255	0.0112	0.0143
18	0.0256	0.0112	0.0144
19	0.0258	0.0113	0.0144
20	0.0259	0.0114	0.0145
21	0.0261	0.0115	0.0146
22	0.0262	0.0115	0.0147
23	0.0264	0.0116	0.0148
24	0.0266	0.0117	0.0149
25	0.0267	0.0117	0.0150
26	0.0269	0.0118	0.0151
27	0.0271	0.0119	0.0152
28	0.0273	0.0120	0.0153
29	0.0275	0.0121	0.0154
30	0.0277	0.0121	0.0155

31	0.0279	0.0122	0.0156
32	0.0281	0.0123	0.0157
33	0.0283	0.0124	0.0158
34	0.0285	0.0125	0.0160
35	0.0287	0.0126	0.0161
36	0.0289	0.0127	0.0162
37	0.0291	0.0128	0.0163
38	0.0293	0.0129	0.0165
39	0.0296	0.0130	0.0166
40	0.0298	0.0131	0.0167
41	0.0301	0.0132	0.0169
42	0.0303	0.0133	0.0170
43	0.0306	0.0134	0.0172
44	0.0309	0.0136	0.0173
45	0.0311	0.0137	0.0175
46	0.0314	0.0138	0.0176
47	0.0317	0.0139	0.0178
48	0.0320	0.0141	0.0180
49	0.0323	0.0142	0.0181
50	0.0326	0.0143	0.0183
51	0.0330	0.0145	0.0185
52	0.0333	0.0146	0.0187
53	0.0337	0.0148	0.0189
54	0.0340	0.0149	0.0191
55	0.0344	0.0151	0.0193
56	0.0348	0.0153	0.0195
57	0.0352	0.0155	0.0197
58	0.0356	0.0156	0.0200
59	0.0361	0.0158	0.0202
60	0.0365	0.0160	0.0205
61	0.0370	0.0162	0.0207
62	0.0375	0.0165	0.0210
63	0.0380	0.0167	0.0213
64	0.0385	0.0169	0.0216
65	0.0391	0.0172	0.0219
66	0.0397	0.0174	0.0222
67	0.0403	0.0177	0.0226
68	0.0409	0.0180	0.0230
69	0.0416	0.0183	0.0233
70	0.0423	0.0186	0.0237
71	0.0431	0.0189	0.0242
72	0.0439	0.0193	0.0246
73	0.0393	0.0172	0.0220
74	0.0402	0.0176	0.0225
75	0.0411	0.0181	0.0231
76	0.0422	0.0185	0.0237
77	0.0433	0.0190	0.0243
78	0.0445	0.0196	0.0250
79	0.0459	0.0201	0.0257
80	0.0473	0.0208	0.0265
81	0.0489	0.0215	0.0274

82	0.0506	0.0222	0.0284
83	0.0525	0.0231	0.0295
84	0.0547	0.0240	0.0307
85	0.0572	0.0251	0.0321
86	0.0600	0.0263	0.0336
87	0.0632	0.0278	0.0354
88	0.0670	0.0294	0.0376
89	0.0715	0.0314	0.0401
90	0.0770	0.0338	0.0432
91	0.0839	0.0369	0.0471
92	0.0931	0.0409	0.0522
93	0.0686	0.0301	0.0385
94	0.0859	0.0377	0.0482
95	0.1199	0.0527	0.0673
96	0.2388	0.0755	0.1633
97	0.6884	0.0755	0.6129
98	0.0875	0.0384	0.0491
99	0.0934	0.0410	0.0524
100	0.0771	0.0339	0.0433
101	0.0671	0.0295	0.0376
102	0.0600	0.0264	0.0337
103	0.0547	0.0240	0.0307
104	0.0506	0.0222	0.0284
105	0.0473	0.0208	0.0265
106	0.0445	0.0196	0.0250
107	0.0422	0.0185	0.0237
108	0.0402	0.0176	0.0225
109	0.0439	0.0193	0.0246
110	0.0423	0.0186	0.0237
111	0.0409	0.0180	0.0230
112	0.0397	0.0174	0.0223
113	0.0385	0.0169	0.0216
114	0.0375	0.0165	0.0210
115	0.0365	0.0160	0.0205
116	0.0356	0.0156	0.0200
117	0.0348	0.0153	0.0195
118	0.0340	0.0149	0.0191
119	0.0333	0.0146	0.0187
120	0.0326	0.0143	0.0183
121	0.0320	0.0141	0.0180
122	0.0314	0.0138	0.0176
123	0.0309	0.0136	0.0173
124	0.0303	0.0133	0.0170
125	0.0298	0.0131	0.0167
126	0.0293	0.0129	0.0165
127	0.0289	0.0127	0.0162
128	0.0285	0.0125	0.0160
129	0.0281	0.0123	0.0157
130	0.0277	0.0121	0.0155
131	0.0273	0.0120	0.0153
132	0.0269	0.0118	0.0151

133	0.0266	0.0117	0.0149
134	0.0262	0.0115	0.0147
135	0.0259	0.0114	0.0145
136	0.0256	0.0112	0.0144
137	0.0253	0.0111	0.0142
138	0.0250	0.0110	0.0140
139	0.0247	0.0109	0.0139
140	0.0245	0.0108	0.0137
141	0.0242	0.0106	0.0136
142	0.0240	0.0105	0.0134
143	0.0237	0.0104	0.0133
144	0.0235	0.0103	0.0132

Total soil rain loss = 2.50(In)
Total effective rainfall = 3.78(In)
Peak flow rate in flood hydrograph = 26.91(CFS)

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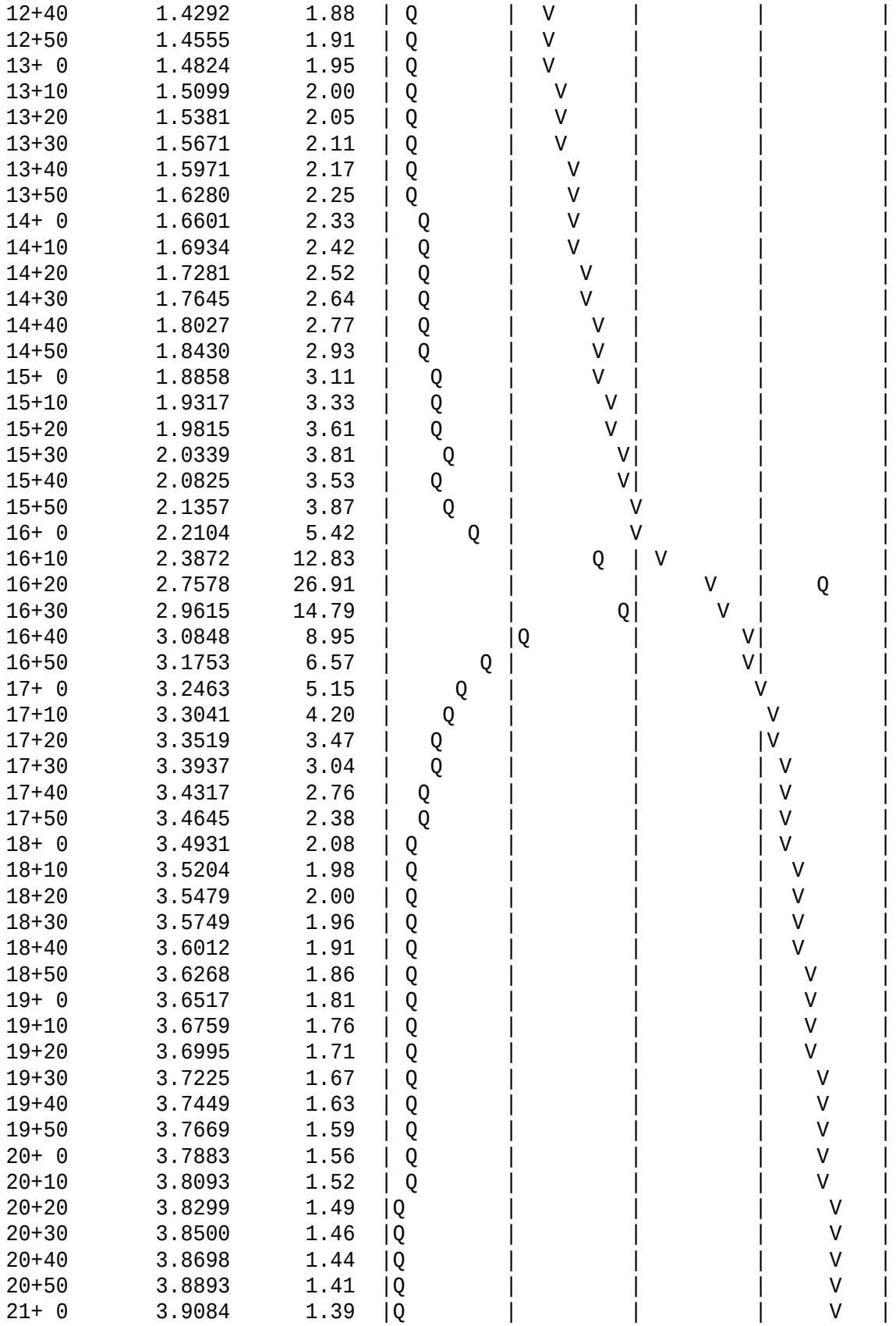
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 10 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+10	0.0014	0.10	Q	|	|	|	|
0+20	0.0095	0.59	Q	|	|	|	|
0+30	0.0207	0.82	VQ	|	|	|	|
0+40	0.0335	0.92	VQ	|	|	|	|
0+50	0.0470	0.99	VQ	|	|	|	|
1+ 0	0.0612	1.03	VQ	|	|	|	|
1+10	0.0757	1.06	VQ	|	|	|	|
1+20	0.0905	1.07	VQ	|	|	|	|
1+30	0.1055	1.09	VQ	|	|	|	|
1+40	0.1207	1.10	|Q	|	|	|	|
1+50	0.1360	1.11	|Q	|	|	|	|
2+ 0	0.1514	1.12	|Q	|	|	|	|
2+10	0.1669	1.12	|Q	|	|	|	|
2+20	0.1825	1.13	|Q	|	|	|	|
2+30	0.1982	1.14	|Q	|	|	|	|
2+40	0.2139	1.14	|QV	|	|	|	|
2+50	0.2298	1.15	|QV	|	|	|	|
3+ 0	0.2457	1.16	|QV	|	|	|	|
3+10	0.2617	1.16	|QV	|	|	|	|
3+20	0.2778	1.17	|QV	|	|	|	|
3+30	0.2941	1.18	|QV	|	|	|	|
3+40	0.3104	1.18	|QV	|	|	|	|
3+50	0.3268	1.19	|Q V	|	|	|	|
4+ 0	0.3433	1.20	|Q V	|	|	|	|

4+10	0.3599	1.21	Q V			
4+20	0.3766	1.21	Q V			
4+30	0.3935	1.22	Q V			
4+40	0.4104	1.23	Q V			
4+50	0.4275	1.24	Q V			
5+ 0	0.4447	1.25	Q V			
5+10	0.4620	1.26	Q V			
5+20	0.4794	1.26	Q V			
5+30	0.4969	1.27	Q V			
5+40	0.5146	1.28	Q V			
5+50	0.5323	1.29	Q V			
6+ 0	0.5503	1.30	Q V			
6+10	0.5683	1.31	Q V			
6+20	0.5865	1.32	Q V			
6+30	0.6048	1.33	Q V			
6+40	0.6233	1.34	Q V			
6+50	0.6420	1.35	Q V			
7+ 0	0.6607	1.36	Q V			
7+10	0.6797	1.37	Q V			
7+20	0.6988	1.39	Q V			
7+30	0.7180	1.40	Q V			
7+40	0.7375	1.41	Q V			
7+50	0.7571	1.42	Q V			
8+ 0	0.7769	1.44	Q V			
8+10	0.7968	1.45	Q V			
8+20	0.8170	1.46	Q V			
8+30	0.8373	1.48	Q V			
8+40	0.8579	1.49	Q V			
8+50	0.8787	1.51	Q V			
9+ 0	0.8996	1.52	Q V			
9+10	0.9208	1.54	Q V			
9+20	0.9423	1.56	Q V			
9+30	0.9640	1.57	Q V			
9+40	0.9859	1.59	Q V			
9+50	1.0081	1.61	Q V			
10+ 0	1.0305	1.63	Q V			
10+10	1.0532	1.65	Q V			
10+20	1.0762	1.67	Q V			
10+30	1.0995	1.69	Q V			
10+40	1.1231	1.71	Q V			
10+50	1.1471	1.74	Q V			
11+ 0	1.1714	1.76	Q V			
11+10	1.1960	1.79	Q V			
11+20	1.2210	1.82	Q V			
11+30	1.2464	1.84	Q V			
11+40	1.2722	1.87	Q V			
11+50	1.2984	1.91	Q V			
12+ 0	1.3251	1.94	Q V			
12+10	1.3520	1.95	Q V			
12+20	1.3778	1.87	Q V			
12+30	1.4034	1.86	Q V			



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   21+10       3.9271      1.36  |Q        |         |         |      V  |
   21+20       3.9456      1.34  |Q        |         |         |      V  |
   21+30       3.9638      1.32  |Q        |         |         |      V  |
   21+40       3.9817      1.30  |Q        |         |         |      V  |
   21+50       3.9994      1.28  |Q        |         |         |      V  |
   22+ 0       4.0168      1.26  |Q        |         |         |      V  |
   22+10       4.0339      1.25  |Q        |         |         |       V |
   22+20       4.0509      1.23  |Q        |         |         |       V |
   22+30       4.0676      1.21  |Q        |         |         |       V |
   22+40       4.0841      1.20  |Q        |         |         |       V |
   22+50       4.1004      1.18  |Q        |         |         |       V |
   23+ 0       4.1165      1.17  |Q        |         |         |       V |
   23+10       4.1325      1.16  |Q        |         |         |       V |
   23+20       4.1482      1.14  |Q        |         |         |        V|
   23+30       4.1638      1.13  |Q        |         |         |        V|
   23+40       4.1792      1.12  |Q        |         |         |        V|
   23+50       4.1944      1.11  |Q        |         |         |        V|
   24+ 0       4.2095      1.10  |Q        |         |         |        V|
   24+10       4.2231      0.98  |Q        |         |         |        V|
   24+20       4.2298      0.49  Q         |         |         |        V|
   24+30       4.2334      0.26  Q         |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA A

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
6.70	1	0.77
Rainfall data for year 2		
6.70	6	1.08
Rainfall data for year 2		
6.70	24	2.03
Rainfall data for year 100		
6.70	1	1.29
Rainfall data for year 100		
6.70	6	2.99
Rainfall data for year 100		

```
             6.70           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0          6.70      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.67   0.100         32.0      52.0       9.23     0.229
     6.03   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.120 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       6.70(Ac.)
Catchment Lag time =   0.096 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 86.8056
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       6.70(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
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Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
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(K = 81.03 (CFS))

1	12.900	10.453
2	61.216	39.149
3	80.211	15.392
4	88.718	6.893
5	93.403	3.796
6	96.281	2.333
7	97.904	1.315
8	98.913	0.817
9	100.000	0.409

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6119	0.6119
2	0.7534	0.1414
3	0.8508	0.0974
4	0.9275	0.0767
5	0.9917	0.0642
6	1.0475	0.0558
7	1.0971	0.0496
8	1.1419	0.0448
9	1.1830	0.0411
10	1.2210	0.0380
11	1.2564	0.0354
12	1.2896	0.0332
13	1.3390	0.0494
14	1.3864	0.0474
15	1.4320	0.0456
16	1.4761	0.0440
17	1.5187	0.0426
18	1.5600	0.0413
19	1.6001	0.0401
20	1.6391	0.0390
21	1.6770	0.0380
22	1.7140	0.0370
23	1.7502	0.0361
24	1.7855	0.0353
25	1.8201	0.0345
26	1.8539	0.0338
27	1.8870	0.0331
28	1.9195	0.0325
29	1.9514	0.0319
30	1.9827	0.0313
31	2.0134	0.0308
32	2.0437	0.0302
33	2.0734	0.0297
34	2.1027	0.0293
35	2.1315	0.0288
36	2.1598	0.0284
37	2.1878	0.0279
38	2.2153	0.0275
39	2.2425	0.0272
40	2.2693	0.0268
41	2.2957	0.0264
42	2.3218	0.0261

43	2.3476	0.0258
44	2.3731	0.0255
45	2.3982	0.0252
46	2.4231	0.0249
47	2.4477	0.0246
48	2.4720	0.0243
49	2.4960	0.0240
50	2.5198	0.0238
51	2.5433	0.0235
52	2.5666	0.0233
53	2.5896	0.0230
54	2.6124	0.0228
55	2.6350	0.0226
56	2.6574	0.0224
57	2.6795	0.0222
58	2.7015	0.0220
59	2.7232	0.0218
60	2.7448	0.0216
61	2.7662	0.0214
62	2.7874	0.0212
63	2.8084	0.0210
64	2.8292	0.0208
65	2.8498	0.0207
66	2.8703	0.0205
67	2.8907	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9507	0.0199
71	2.9704	0.0197
72	2.9899	0.0196
73	3.0121	0.0222
74	3.0341	0.0220
75	3.0560	0.0219
76	3.0777	0.0217
77	3.0994	0.0216
78	3.1208	0.0215
79	3.1422	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2264	0.0209
84	3.2471	0.0208
85	3.2678	0.0206
86	3.2883	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3693	0.0201
91	3.3893	0.0200
92	3.4092	0.0199
93	3.4290	0.0198
94	3.4487	0.0197
95	3.4682	0.0196
96	3.4877	0.0195
97	3.5071	0.0194
98	3.5265	0.0193

99	3.5457	0.0192
100	3.5648	0.0191
101	3.5838	0.0190
102	3.6028	0.0190
103	3.6217	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6777	0.0186
107	3.6963	0.0185
108	3.7147	0.0185
109	3.7331	0.0184
110	3.7514	0.0183
111	3.7696	0.0182
112	3.7878	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8417	0.0179
116	3.8596	0.0178
117	3.8774	0.0178
118	3.8951	0.0177
119	3.9127	0.0176
120	3.9303	0.0176
121	3.9478	0.0175
122	3.9652	0.0174
123	3.9826	0.0174
124	3.9999	0.0173
125	4.0171	0.0172
126	4.0343	0.0172
127	4.0514	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1192	0.0169
132	4.1360	0.0168
133	4.1527	0.0167
134	4.1694	0.0167
135	4.1861	0.0166
136	4.2026	0.0166
137	4.2191	0.0165
138	4.2356	0.0165
139	4.2520	0.0164
140	4.2683	0.0163
141	4.2846	0.0163
142	4.3009	0.0162
143	4.3171	0.0162
144	4.3332	0.0161
145	4.3493	0.0161
146	4.3653	0.0160
147	4.3813	0.0160
148	4.3972	0.0159
149	4.4131	0.0159
150	4.4289	0.0158
151	4.4447	0.0158
152	4.4605	0.0157
153	4.4761	0.0157
154	4.4918	0.0156

155	4.5074	0.0156
156	4.5229	0.0155
157	4.5384	0.0155
158	4.5539	0.0155
159	4.5693	0.0154
160	4.5846	0.0154
161	4.5999	0.0153
162	4.6152	0.0153
163	4.6304	0.0152
164	4.6456	0.0152
165	4.6608	0.0151
166	4.6759	0.0151
167	4.6909	0.0151
168	4.7059	0.0150
169	4.7209	0.0150
170	4.7359	0.0149
171	4.7507	0.0149
172	4.7656	0.0149
173	4.7804	0.0148
174	4.7952	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8393	0.0147
178	4.8539	0.0146
179	4.8685	0.0146
180	4.8830	0.0145
181	4.8975	0.0145
182	4.9120	0.0145
183	4.9264	0.0144
184	4.9408	0.0144
185	4.9551	0.0144
186	4.9695	0.0143
187	4.9838	0.0143
188	4.9980	0.0142
189	5.0122	0.0142
190	5.0264	0.0142
191	5.0405	0.0141
192	5.0546	0.0141
193	5.0687	0.0141
194	5.0828	0.0140
195	5.0968	0.0140
196	5.1108	0.0140
197	5.1247	0.0139
198	5.1386	0.0139
199	5.1525	0.0139
200	5.1663	0.0138
201	5.1801	0.0138
202	5.1939	0.0138
203	5.2077	0.0137
204	5.2214	0.0137
205	5.2351	0.0137
206	5.2487	0.0137
207	5.2623	0.0136
208	5.2759	0.0136
209	5.2895	0.0136
210	5.3030	0.0135

211	5.3165	0.0135
212	5.3300	0.0135
213	5.3435	0.0134
214	5.3569	0.0134
215	5.3703	0.0134
216	5.3836	0.0134
217	5.3969	0.0133
218	5.4102	0.0133
219	5.4235	0.0133
220	5.4368	0.0132
221	5.4500	0.0132
222	5.4632	0.0132
223	5.4763	0.0132
224	5.4895	0.0131
225	5.5026	0.0131
226	5.5156	0.0131
227	5.5287	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5677	0.0130
231	5.5806	0.0129
232	5.5935	0.0129
233	5.6064	0.0129
234	5.6193	0.0129
235	5.6321	0.0128
236	5.6450	0.0128
237	5.6578	0.0128
238	5.6705	0.0128
239	5.6833	0.0127
240	5.6960	0.0127
241	5.7087	0.0127
242	5.7213	0.0127
243	5.7340	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7718	0.0126
247	5.7843	0.0125
248	5.7968	0.0125
249	5.8094	0.0125
250	5.8218	0.0125
251	5.8343	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8839	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9454	0.0123
261	5.9576	0.0122
262	5.9698	0.0122
263	5.9820	0.0122
264	5.9941	0.0122
265	6.0063	0.0121
266	6.0184	0.0121

267	6.0305	0.0121
268	6.0426	0.0121
269	6.0547	0.0121
270	6.0667	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1027	0.0120
274	6.1146	0.0120
275	6.1266	0.0119
276	6.1385	0.0119
277	6.1504	0.0119
278	6.1623	0.0119
279	6.1741	0.0119
280	6.1860	0.0118
281	6.1978	0.0118
282	6.2096	0.0118
283	6.2213	0.0118
284	6.2331	0.0118
285	6.2448	0.0117
286	6.2566	0.0117
287	6.2683	0.0117
288	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112

30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136

86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191

142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0294
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0361	0.0040	0.0321
179	0.0380	0.0042	0.0337
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0399
189	0.0558	0.0062	0.0496
190	0.0642	0.0065	0.0577
191	0.0974	0.0065	0.0909
192	0.1414	0.0065	0.1349
193	0.6119	0.0065	0.6054
194	0.0767	0.0065	0.0701
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439

198	0.0440	0.0049	0.0391
199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0345	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129

254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 27.57(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	7.5	15.0	22.5	30.0
0+ 5	0.0007	0.11	Q	|	|	|	|
0+10	0.0043	0.52	Q	|	|	|	|
0+15	0.0090	0.68	Q	|	|	|	|
0+20	0.0141	0.75	Q	|	|	|	|
0+25	0.0196	0.79	VQ	|	|	|	|
0+30	0.0252	0.82	VQ	|	|	|	|

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0+35       0.0309      0.83  VQ        |          |          |          |
0+40       0.0367      0.84  VQ        |          |          |          |
0+45       0.0426      0.85  VQ        |          |          |          |
0+50       0.0484      0.85  VQ        |          |          |          |
0+55       0.0543      0.85  VQ        |          |          |          |
1+ 0       0.0602      0.86  VQ        |          |          |          |
1+ 5       0.0661      0.86  VQ        |          |          |          |
1+10       0.0720      0.86  VQ        |          |          |          |
1+15       0.0780      0.86  VQ        |          |          |          |
1+20       0.0839      0.86  |Q        |          |          |          |
1+25       0.0899      0.87  |Q        |          |          |          |
1+30       0.0959      0.87  |Q        |          |          |          |
1+35       0.1019      0.87  |Q        |          |          |          |
1+40       0.1079      0.87  |Q        |          |          |          |
1+45       0.1139      0.88  |Q        |          |          |          |
1+50       0.1200      0.88  |Q        |          |          |          |
1+55       0.1260      0.88  |Q        |          |          |          |
2+ 0       0.1321      0.88  |Q        |          |          |          |
2+ 5       0.1382      0.89  |Q        |          |          |          |
2+10       0.1443      0.89  |Q        |          |          |          |
2+15       0.1505      0.89  |Q        |          |          |          |
2+20       0.1566      0.89  |Q        |          |          |          |
2+25       0.1628      0.90  |QV       |          |          |          |
2+30       0.1690      0.90  |QV       |          |          |          |
2+35       0.1752      0.90  |QV       |          |          |          |
2+40       0.1814      0.90  |QV       |          |          |          |
2+45       0.1876      0.91  |QV       |          |          |          |
2+50       0.1939      0.91  |QV       |          |          |          |
2+55       0.2002      0.91  |QV       |          |          |          |
3+ 0       0.2065      0.91  |QV       |          |          |          |
3+ 5       0.2128      0.92  |QV       |          |          |          |
3+10       0.2191      0.92  |QV       |          |          |          |
3+15       0.2254      0.92  |QV       |          |          |          |
3+20       0.2318      0.92  |QV       |          |          |          |
3+25       0.2382      0.93  |Q V      |          |          |          |
3+30       0.2446      0.93  |Q V      |          |          |          |
3+35       0.2510      0.93  |Q V      |          |          |          |
3+40       0.2575      0.94  |Q V      |          |          |          |
3+45       0.2639      0.94  |Q V      |          |          |          |
3+50       0.2704      0.94  |Q V      |          |          |          |
3+55       0.2769      0.94  |Q V      |          |          |          |
4+ 0       0.2835      0.95  |Q V      |          |          |          |
4+ 5       0.2900      0.95  |Q V      |          |          |          |
4+10       0.2966      0.95  |Q V      |          |          |          |
4+15       0.3032      0.96  |Q V      |          |          |          |
4+20       0.3098      0.96  |Q V      |          |          |          |
4+25       0.3164      0.96  |Q  V     |          |          |          |
4+30       0.3231      0.97  |Q  V     |          |          |          |
4+35       0.3297      0.97  |Q  V     |          |          |          |
4+40       0.3364      0.97  |Q  V     |          |          |          |
4+45       0.3432      0.98  |Q  V     |          |          |          |
4+50       0.3499      0.98  |Q  V     |          |          |          |
4+55       0.3567      0.98  |Q  V     |          |          |          |
5+ 0       0.3635      0.99  |Q  V     |          |          |          |
5+ 5       0.3703      0.99  |Q  V     |          |          |          |
5+10       0.3771      0.99  |Q  V     |          |          |          |
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5+15       0.3840      1.00  |Q  V     |          |          |          |
5+20       0.3909      1.00  |Q  V     |          |          |          |
5+25       0.3978      1.00  |Q   V    |          |          |          |
5+30       0.4047      1.01  |Q   V    |          |          |          |
5+35       0.4117      1.01  |Q   V    |          |          |          |
5+40       0.4187      1.01  |Q   V    |          |          |          |
5+45       0.4257      1.02  |Q   V    |          |          |          |
5+50       0.4327      1.02  |Q   V    |          |          |          |
5+55       0.4398      1.03  |Q   V    |          |          |          |
6+ 0       0.4469      1.03  |Q   V    |          |          |          |
6+ 5       0.4540      1.03  |Q   V    |          |          |          |
6+10       0.4611      1.04  |Q   V    |          |          |          |
6+15       0.4683      1.04  |Q   V    |          |          |          |
6+20       0.4755      1.05  |Q    V   |          |          |          |
6+25       0.4827      1.05  |Q    V   |          |          |          |
6+30       0.4900      1.05  |Q    V   |          |          |          |
6+35       0.4973      1.06  |Q    V   |          |          |          |
6+40       0.5046      1.06  |Q    V   |          |          |          |
6+45       0.5120      1.07  |Q    V   |          |          |          |
6+50       0.5193      1.07  |Q    V   |          |          |          |
6+55       0.5267      1.08  |Q    V   |          |          |          |
7+ 0       0.5342      1.08  |Q    V   |          |          |          |
7+ 5       0.5417      1.08  |Q    V   |          |          |          |
7+10       0.5492      1.09  |Q    V   |          |          |          |
7+15       0.5567      1.09  |Q     V  |          |          |          |
7+20       0.5643      1.10  |Q     V  |          |          |          |
7+25       0.5719      1.10  |Q     V  |          |          |          |
7+30       0.5795      1.11  |Q     V  |          |          |          |
7+35       0.5872      1.11  |Q     V  |          |          |          |
7+40       0.5949      1.12  |Q     V  |          |          |          |
7+45       0.6026      1.12  |Q     V  |          |          |          |
7+50       0.6104      1.13  |Q     V  |          |          |          |
7+55       0.6182      1.13  |Q     V  |          |          |          |
8+ 0       0.6261      1.14  |Q     V  |          |          |          |
8+ 5       0.6339      1.14  |Q      V |          |          |          |
8+10       0.6419      1.15  |Q      V |          |          |          |
8+15       0.6498      1.16  |Q      V |          |          |          |
8+20       0.6578      1.16  |Q      V |          |          |          |
8+25       0.6659      1.17  |Q      V |          |          |          |
8+30       0.6740      1.17  |Q      V |          |          |          |
8+35       0.6821      1.18  |Q      V |          |          |          |
8+40       0.6902      1.19  |Q      V |          |          |          |
8+45       0.6984      1.19  |Q      V |          |          |          |
8+50       0.7067      1.20  |Q       V|          |          |          |
8+55       0.7150      1.20  |Q       V|          |          |          |
9+ 0       0.7233      1.21  |Q       V|          |          |          |
9+ 5       0.7317      1.22  |Q       V|          |          |          |
9+10       0.7401      1.22  |Q       V|          |          |          |
9+15       0.7486      1.23  |Q       V|          |          |          |
9+20       0.7571      1.24  |Q       V|          |          |          |
9+25       0.7657      1.24  |Q       V|          |          |          |
9+30       0.7743      1.25  |Q       V|          |          |          |
9+35       0.7830      1.26  |Q       V|          |          |          |
9+40       0.7917      1.27  |Q        V          |          |          |
9+45       0.8005      1.27  |Q        V          |          |          |
9+50       0.8093      1.28  |Q        V          |          |          |
```
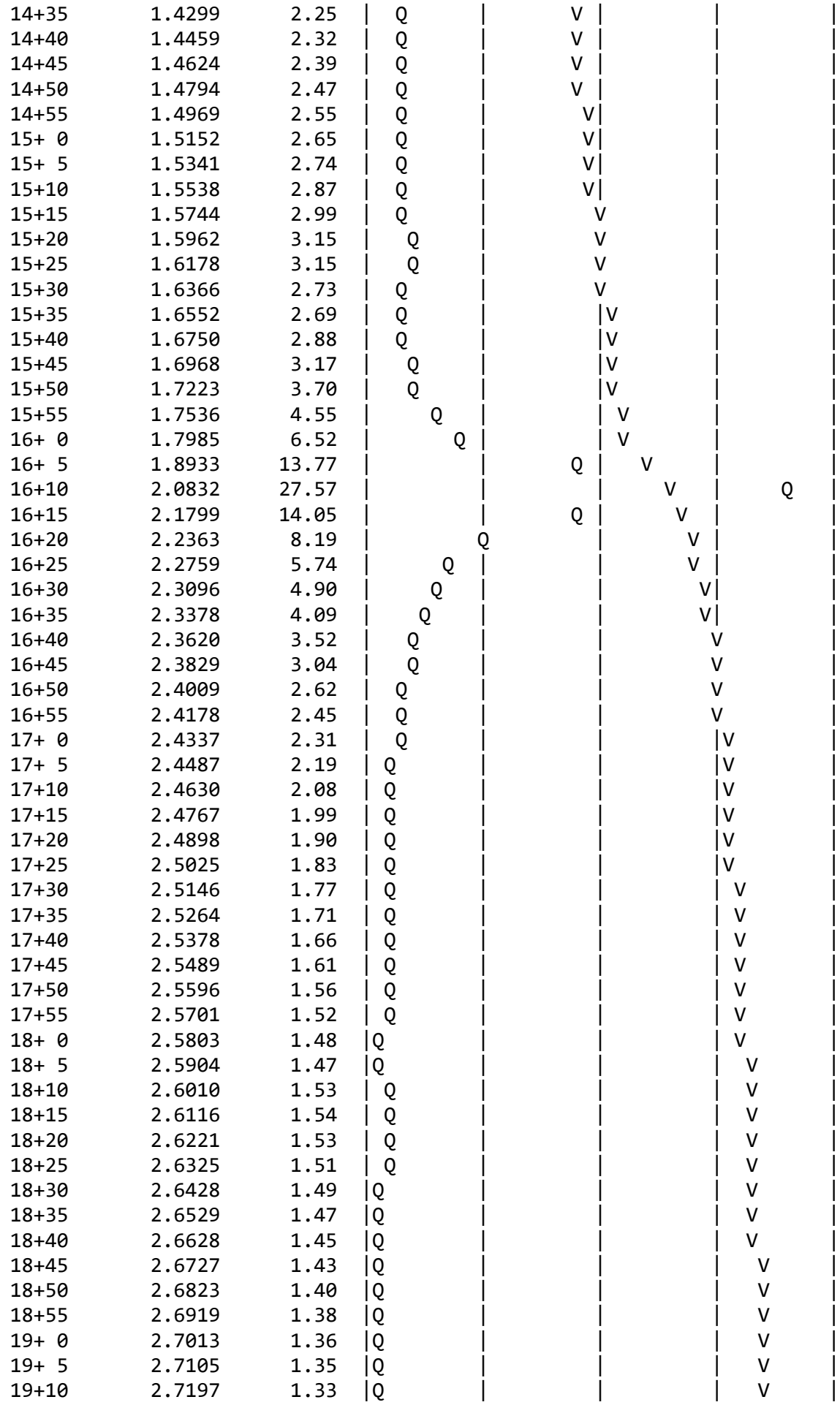

```
 9+55       0.8182      1.29  |Q        V         |         |         |
10+ 0       0.8271      1.30  |Q        V         |         |         |
10+ 5       0.8361      1.31  |Q        V         |         |         |
10+10       0.8452      1.31  |Q        V         |         |         |
10+15       0.8543      1.32  |Q        V         |         |         |
10+20       0.8635      1.33  |Q        |V        |         |         |
10+25       0.8727      1.34  |Q        |V        |         |         |
10+30       0.8820      1.35  |Q        |V        |         |         |
10+35       0.8913      1.36  |Q        |V        |         |         |
10+40       0.9008      1.37  |Q        |V        |         |         |
10+45       0.9102      1.38  |Q        |V        |         |         |
10+50       0.9198      1.39  |Q        |V        |         |         |
10+55       0.9294      1.40  |Q        |V        |         |         |
11+ 0       0.9391      1.41  |Q        |V        |         |         |
11+ 5       0.9489      1.42  |Q        | V       |         |         |
11+10       0.9587      1.43  |Q        | V       |         |         |
11+15       0.9687      1.44  |Q        | V       |         |         |
11+20       0.9787      1.45  |Q        | V       |         |         |
11+25       0.9887      1.46  |Q        | V       |         |         |
11+30       0.9989      1.48  |Q        | V       |         |         |
11+35       1.0092      1.49  |Q        | V       |         |         |
11+40       1.0195      1.50  | Q       | V       |         |         |
11+45       1.0299      1.51  | Q       |  V      |         |         |
11+50       1.0404      1.53  | Q       |  V      |         |         |
11+55       1.0510      1.54  | Q       |  V      |         |         |
12+ 0       1.0618      1.56  | Q       |  V      |         |         |
12+ 5       1.0724      1.54  | Q       |  V      |         |         |
12+10       1.0825      1.46  |Q        |  V      |         |         |
12+15       1.0924      1.44  |Q        |  V      |         |         |
12+20       1.1023      1.44  |Q        |   V     |         |         |
12+25       1.1123      1.45  |Q        |   V     |         |         |
12+30       1.1223      1.46  |Q        |   V     |         |         |
12+35       1.1325      1.47  |Q        |   V     |         |         |
12+40       1.1427      1.49  |Q        |   V     |         |         |
12+45       1.1531      1.51  | Q       |   V     |         |         |
12+50       1.1636      1.53  | Q       |   V     |         |         |
12+55       1.1743      1.55  | Q       |   V     |         |         |
13+ 0       1.1851      1.57  | Q       |    V    |         |         |
13+ 5       1.1961      1.59  | Q       |    V    |         |         |
13+10       1.2072      1.62  | Q       |    V    |         |         |
13+15       1.2185      1.64  | Q       |    V    |         |         |
13+20       1.2299      1.66  | Q       |    V    |         |         |
13+25       1.2415      1.69  | Q       |    V    |         |         |
13+30       1.2534      1.72  | Q       |    V    |         |         |
13+35       1.2654      1.74  | Q       |     V   |         |         |
13+40       1.2776      1.78  | Q       |     V   |         |         |
13+45       1.2901      1.81  | Q       |     V   |         |         |
13+50       1.3028      1.84  | Q       |     V   |         |         |
13+55       1.3157      1.88  | Q       |     V   |         |         |
14+ 0       1.3289      1.92  | Q       |     V   |         |         |
14+ 5       1.3423      1.95  | Q       |      V  |         |         |
14+10       1.3561      2.00  | Q       |      V  |         |         |
14+15       1.3701      2.04  | Q       |      V  |         |         |
14+20       1.3845      2.09  | Q       |      V  |         |         |
14+25       1.3993      2.14  | Q       |      V  |         |         |
14+30       1.4144      2.20  | Q       |       V |         |         |
```



```
19+15       2.7287      1.31  |Q        |         |         |   V     |
19+20       2.7376      1.29  |Q        |         |         |   V     |
19+25       2.7464      1.28  |Q        |         |         |   V     |
19+30       2.7551      1.26  |Q        |         |         |    V    |
19+35       2.7637      1.25  |Q        |         |         |    V    |
19+40       2.7722      1.23  |Q        |         |         |    V    |
19+45       2.7806      1.22  |Q        |         |         |    V    |
19+50       2.7889      1.21  |Q        |         |         |    V    |
19+55       2.7972      1.20  |Q        |         |         |    V    |
20+ 0       2.8053      1.18  |Q        |         |         |    V    |
20+ 5       2.8134      1.17  |Q        |         |         |    V    |
20+10       2.8214      1.16  |Q        |         |         |    V    |
20+15       2.8293      1.15  |Q        |         |         |     V   |
20+20       2.8371      1.14  |Q        |         |         |     V   |
20+25       2.8449      1.13  |Q        |         |         |     V   |
20+30       2.8525      1.12  |Q        |         |         |     V   |
20+35       2.8602      1.11  |Q        |         |         |     V   |
20+40       2.8677      1.10  |Q        |         |         |     V   |
20+45       2.8752      1.09  |Q        |         |         |     V   |
20+50       2.8826      1.08  |Q        |         |         |     V   |
20+55       2.8900      1.07  |Q        |         |         |     V   |
21+ 0       2.8973      1.06  |Q        |         |         |     V   |
21+ 5       2.9046      1.05  |Q        |         |         |      V  |
21+10       2.9117      1.04  |Q        |         |         |      V  |
21+15       2.9189      1.04  |Q        |         |         |      V  |
21+20       2.9260      1.03  |Q        |         |         |      V  |
21+25       2.9330      1.02  |Q        |         |         |      V  |
21+30       2.9400      1.01  |Q        |         |         |      V  |
21+35       2.9469      1.01  |Q        |         |         |      V  |
21+40       2.9538      1.00  |Q        |         |         |      V  |
21+45       2.9606      0.99  |Q        |         |         |      V  |
21+50       2.9674      0.98  |Q        |         |         |      V  |
21+55       2.9741      0.98  |Q        |         |         |      V  |
22+ 0       2.9808      0.97  |Q        |         |         |      V  |
22+ 5       2.9874      0.96  |Q        |         |         |       V |
22+10       2.9940      0.96  |Q        |         |         |       V |
22+15       3.0006      0.95  |Q        |         |         |       V |
22+20       3.0071      0.95  |Q        |         |         |       V |
22+25       3.0136      0.94  |Q        |         |         |       V |
22+30       3.0200      0.93  |Q        |         |         |       V |
22+35       3.0264      0.93  |Q        |         |         |       V |
22+40       3.0328      0.92  |Q        |         |         |       V |
22+45       3.0391      0.92  |Q        |         |         |       V |
22+50       3.0454      0.91  |Q        |         |         |       V |
22+55       3.0516      0.91  |Q        |         |         |       V |
23+ 0       3.0578      0.90  |Q        |         |         |       V |
23+ 5       3.0640      0.90  |Q        |         |         |        V|
23+10       3.0702      0.89  |Q        |         |         |        V|
23+15       3.0763      0.89  |Q        |         |         |        V|
23+20       3.0823      0.88  |Q        |         |         |        V|
23+25       3.0884      0.88  |Q        |         |         |        V|
23+30       3.0944      0.87  |Q        |         |         |        V|
23+35       3.1004      0.87  |Q        |         |         |        V|
23+40       3.1063      0.86  |Q        |         |         |        V|
23+45       3.1122      0.86  |Q        |         |         |        V|
23+50       3.1181      0.85  |Q        |         |         |        V|
```

```
   23+55       3.1240      0.85  |Q        |         |         |        V|
   24+ 0       3.1298      0.85  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA B

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
10.72	1	0.77
Rainfall data for year 2		
10.72	6	1.08
Rainfall data for year 2		
10.72	24	2.03
Rainfall data for year 100		
10.72	1	1.29
Rainfall data for year 100		
10.72	6	2.99
Rainfall data for year 100		

```
            10.72           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         10.72      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.07   0.100         32.0      52.0       9.23     0.229
     9.65   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.184 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      10.72(Ac.)
Catchment Lag time =   0.147 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 56.6123
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      10.72(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.612(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 129.65 (CFS))

1	4.973	6.448
2	37.958	42.763
3	65.824	36.127
4	77.737	15.446
5	84.689	9.012
6	89.324	6.009
7	92.440	4.039
8	94.734	2.975
9	96.405	2.166
10	97.562	1.501
11	98.253	0.896
12	98.912	0.854
13	99.526	0.796
14	100.000	0.614

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6118	0.6118
2	0.7532	0.1414
3	0.8507	0.0974
4	0.9273	0.0767
5	0.9915	0.0642
6	1.0473	0.0557
7	1.0968	0.0496
8	1.1417	0.0448
9	1.1827	0.0411
10	1.2207	0.0380
11	1.2561	0.0354
12	1.2894	0.0332
13	1.3387	0.0494
14	1.3861	0.0474
15	1.4318	0.0456
16	1.4758	0.0441
17	1.5185	0.0426
18	1.5598	0.0413
19	1.5999	0.0401
20	1.6389	0.0390
21	1.6768	0.0380
22	1.7139	0.0370
23	1.7500	0.0361
24	1.7854	0.0353
25	1.8199	0.0346
26	1.8537	0.0338
27	1.8869	0.0331
28	1.9194	0.0325
29	1.9513	0.0319
30	1.9826	0.0313
31	2.0133	0.0308
32	2.0436	0.0302
33	2.0733	0.0297
34	2.1026	0.0293
35	2.1314	0.0288
36	2.1598	0.0284
37	2.1877	0.0279

38	2.2153	0.0275
39	2.2424	0.0272
40	2.2692	0.0268
41	2.2957	0.0264
42	2.3218	0.0261
43	2.3476	0.0258
44	2.3730	0.0255
45	2.3982	0.0252
46	2.4230	0.0249
47	2.4476	0.0246
48	2.4719	0.0243
49	2.4959	0.0240
50	2.5197	0.0238
51	2.5432	0.0235
52	2.5665	0.0233
53	2.5896	0.0230
54	2.6124	0.0228
55	2.6350	0.0226
56	2.6573	0.0224
57	2.6795	0.0222
58	2.7014	0.0220
59	2.7232	0.0218
60	2.7448	0.0216
61	2.7661	0.0214
62	2.7873	0.0212
63	2.8083	0.0210
64	2.8291	0.0208
65	2.8498	0.0207
66	2.8703	0.0205
67	2.8906	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9506	0.0199
71	2.9703	0.0197
72	2.9899	0.0196
73	3.0121	0.0222
74	3.0341	0.0220
75	3.0560	0.0219
76	3.0777	0.0217
77	3.0993	0.0216
78	3.1208	0.0215
79	3.1422	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2263	0.0209
84	3.2471	0.0208
85	3.2677	0.0206
86	3.2883	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3693	0.0201
91	3.3893	0.0200
92	3.4091	0.0199
93	3.4289	0.0198

94	3.4486	0.0197
95	3.4682	0.0196
96	3.4877	0.0195
97	3.5071	0.0194
98	3.5264	0.0193
99	3.5456	0.0192
100	3.5648	0.0191
101	3.5838	0.0190
102	3.6027	0.0190
103	3.6216	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6777	0.0186
107	3.6962	0.0185
108	3.7147	0.0185
109	3.7331	0.0184
110	3.7514	0.0183
111	3.7696	0.0182
112	3.7877	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8417	0.0179
116	3.8595	0.0178
117	3.8773	0.0178
118	3.8950	0.0177
119	3.9127	0.0176
120	3.9302	0.0176
121	3.9477	0.0175
122	3.9652	0.0174
123	3.9825	0.0174
124	3.9998	0.0173
125	4.0171	0.0172
126	4.0342	0.0172
127	4.0513	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1192	0.0169
132	4.1360	0.0168
133	4.1527	0.0167
134	4.1694	0.0167
135	4.1860	0.0166
136	4.2026	0.0166
137	4.2191	0.0165
138	4.2356	0.0165
139	4.2520	0.0164
140	4.2683	0.0163
141	4.2846	0.0163
142	4.3008	0.0162
143	4.3170	0.0162
144	4.3332	0.0161
145	4.3492	0.0161
146	4.3653	0.0160
147	4.3813	0.0160
148	4.3972	0.0159
149	4.4131	0.0159

150	4.4289	0.0158
151	4.4447	0.0158
152	4.4604	0.0157
153	4.4761	0.0157
154	4.4917	0.0156
155	4.5073	0.0156
156	4.5229	0.0155
157	4.5384	0.0155
158	4.5538	0.0155
159	4.5692	0.0154
160	4.5846	0.0154
161	4.5999	0.0153
162	4.6152	0.0153
163	4.6304	0.0152
164	4.6456	0.0152
165	4.6607	0.0151
166	4.6758	0.0151
167	4.6909	0.0151
168	4.7059	0.0150
169	4.7209	0.0150
170	4.7358	0.0149
171	4.7507	0.0149
172	4.7656	0.0149
173	4.7804	0.0148
174	4.7951	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8392	0.0147
178	4.8538	0.0146
179	4.8684	0.0146
180	4.8830	0.0145
181	4.8975	0.0145
182	4.9119	0.0145
183	4.9264	0.0144
184	4.9408	0.0144
185	4.9551	0.0144
186	4.9694	0.0143
187	4.9837	0.0143
188	4.9980	0.0142
189	5.0122	0.0142
190	5.0264	0.0142
191	5.0405	0.0141
192	5.0546	0.0141
193	5.0687	0.0141
194	5.0827	0.0140
195	5.0967	0.0140
196	5.1107	0.0140
197	5.1247	0.0139
198	5.1386	0.0139
199	5.1524	0.0139
200	5.1663	0.0138
201	5.1801	0.0138
202	5.1939	0.0138
203	5.2076	0.0137
204	5.2213	0.0137
205	5.2350	0.0137

206	5.2487	0.0137
207	5.2623	0.0136
208	5.2759	0.0136
209	5.2895	0.0136
210	5.3030	0.0135
211	5.3165	0.0135
212	5.3300	0.0135
213	5.3434	0.0134
214	5.3568	0.0134
215	5.3702	0.0134
216	5.3836	0.0134
217	5.3969	0.0133
218	5.4102	0.0133
219	5.4235	0.0133
220	5.4367	0.0132
221	5.4499	0.0132
222	5.4631	0.0132
223	5.4763	0.0132
224	5.4894	0.0131
225	5.5025	0.0131
226	5.5156	0.0131
227	5.5287	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5676	0.0130
231	5.5806	0.0129
232	5.5935	0.0129
233	5.6064	0.0129
234	5.6193	0.0129
235	5.6321	0.0128
236	5.6449	0.0128
237	5.6577	0.0128
238	5.6705	0.0128
239	5.6832	0.0127
240	5.6960	0.0127
241	5.7086	0.0127
242	5.7213	0.0127
243	5.7340	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7717	0.0126
247	5.7843	0.0125
248	5.7968	0.0125
249	5.8093	0.0125
250	5.8218	0.0125
251	5.8342	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8838	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9453	0.0123
261	5.9575	0.0122

262	5.9698	0.0122
263	5.9819	0.0122
264	5.9941	0.0122
265	6.0063	0.0121
266	6.0184	0.0121
267	6.0305	0.0121
268	6.0426	0.0121
269	6.0546	0.0121
270	6.0667	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1026	0.0120
274	6.1146	0.0120
275	6.1265	0.0119
276	6.1385	0.0119
277	6.1504	0.0119
278	6.1622	0.0119
279	6.1741	0.0119
280	6.1859	0.0118
281	6.1977	0.0118
282	6.2095	0.0118
283	6.2213	0.0118
284	6.2331	0.0118
285	6.2448	0.0117
286	6.2565	0.0117
287	6.2682	0.0117
288	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110

25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133

81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182

137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0295
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0361	0.0040	0.0321
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0577
191	0.0974	0.0065	0.0909
192	0.1414	0.0065	0.1349

193	0.6118	0.0065	0.6053
194	0.0767	0.0065	0.0701
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134

249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 33.94(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+ 5	0.0005	0.07	Q	|	|	|	|

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0+10      0.0040     0.51  Q        |         |         |         |
0+15      0.0101     0.89  Q        |         |         |         |
0+20      0.0173     1.05  VQ       |         |         |         |
0+25      0.0252     1.15  VQ       |         |         |         |
0+30      0.0335     1.21  VQ       |         |         |         |
0+35      0.0422     1.26  VQ       |         |         |         |
0+40      0.0511     1.29  VQ       |         |         |         |
0+45      0.0601     1.32  VQ       |         |         |         |
0+50      0.0693     1.33  VQ       |         |         |         |
0+55      0.0786     1.35  VQ       |         |         |         |
1+ 0      0.0880     1.36  VQ       |         |         |         |
1+ 5      0.0974     1.37  VQ       |         |         |         |
1+10      0.1069     1.38  VQ       |         |         |         |
1+15      0.1164     1.38  VQ       |         |         |         |
1+20      0.1260     1.39  VQ       |         |         |         |
1+25      0.1356     1.39  |Q       |         |         |         |
1+30      0.1452     1.40  |Q       |         |         |         |
1+35      0.1548     1.40  |Q       |         |         |         |
1+40      0.1645     1.40  |Q       |         |         |         |
1+45      0.1742     1.41  |Q       |         |         |         |
1+50      0.1839     1.41  |Q       |         |         |         |
1+55      0.1936     1.41  |Q       |         |         |         |
2+ 0      0.2034     1.42  |Q       |         |         |         |
2+ 5      0.2132     1.42  |Q       |         |         |         |
2+10      0.2230     1.43  |Q       |         |         |         |
2+15      0.2328     1.43  |Q       |         |         |         |
2+20      0.2427     1.43  |Q       |         |         |         |
2+25      0.2526     1.44  |Q       |         |         |         |
2+30      0.2625     1.44  |QV      |         |         |         |
2+35      0.2725     1.45  |QV      |         |         |         |
2+40      0.2825     1.45  |QV      |         |         |         |
2+45      0.2925     1.45  |QV      |         |         |         |
2+50      0.3025     1.46  |QV      |         |         |         |
2+55      0.3126     1.46  |QV      |         |         |         |
3+ 0      0.3227     1.47  |QV      |         |         |         |
3+ 5      0.3328     1.47  |QV      |         |         |         |
3+10      0.3430     1.48  |QV      |         |         |         |
3+15      0.3532     1.48  |QV      |         |         |         |
3+20      0.3634     1.48  |QV      |         |         |         |
3+25      0.3736     1.49  |QV      |         |         |         |
3+30      0.3839     1.49  |Q V     |         |         |         |
3+35      0.3942     1.50  |Q V     |         |         |         |
3+40      0.4046     1.50  |Q V     |         |         |         |
3+45      0.4149     1.51  |Q V     |         |         |         |
3+50      0.4254     1.51  |Q V     |         |         |         |
3+55      0.4358     1.52  |Q V     |         |         |         |
4+ 0      0.4463     1.52  |Q V     |         |         |         |
4+ 5      0.4568     1.53  |Q V     |         |         |         |
4+10      0.4673     1.53  |Q V     |         |         |         |
4+15      0.4779     1.54  |Q V     |         |         |         |
4+20      0.4885     1.54  |Q V     |         |         |         |
4+25      0.4991     1.55  |Q V     |         |         |         |
4+30      0.5098     1.55  |Q  V    |         |         |         |
4+35      0.5205     1.56  |Q  V    |         |         |         |
4+40      0.5313     1.56  |Q  V    |         |         |         |
4+45      0.5421     1.57  |Q  V    |         |         |         |
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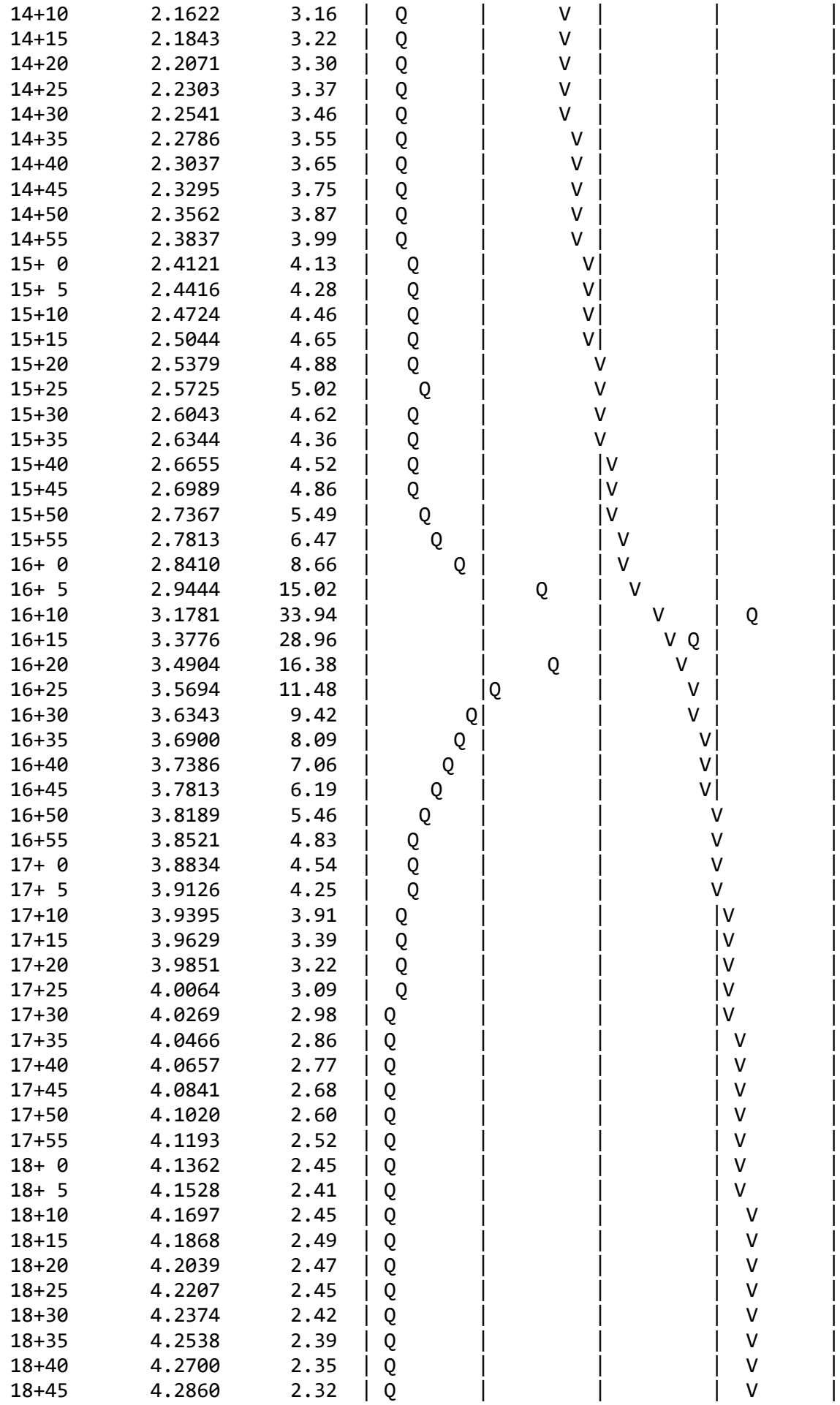
4+50	0.5529	1.57	|Q V	|	|	|	|
4+55	0.5637	1.58	|Q V	|	|	|	|
5+ 0	0.5746	1.58	|Q V	|	|	|	|
5+ 5	0.5856	1.59	|Q V	|	|	|	|
5+10	0.5965	1.59	|Q V	|	|	|	|
5+15	0.6075	1.60	|Q V	|	|	|	|
5+20	0.6186	1.60	|Q V	|	|	|	|
5+25	0.6297	1.61	|Q V	|	|	|	|
5+30	0.6408	1.62	|Q V	|	|	|	|
5+35	0.6520	1.62	|Q V	|	|	|	|
5+40	0.6632	1.63	|Q V	|	|	|	|
5+45	0.6744	1.63	|Q V	|	|	|	|
5+50	0.6857	1.64	|Q V	|	|	|	|
5+55	0.6970	1.65	|Q V	|	|	|	|
6+ 0	0.7084	1.65	|Q V	|	|	|	|
6+ 5	0.7198	1.66	|Q V	|	|	|	|
6+10	0.7313	1.66	|Q V	|	|	|	|
6+15	0.7428	1.67	|Q V	|	|	|	|
6+20	0.7543	1.68	|Q V	|	|	|	|
6+25	0.7659	1.68	|Q V	|	|	|	|
6+30	0.7776	1.69	|Q V	|	|	|	|
6+35	0.7893	1.70	|Q V	|	|	|	|
6+40	0.8010	1.70	|Q V	|	|	|	|
6+45	0.8128	1.71	|Q V	|	|	|	|
6+50	0.8246	1.72	|Q V	|	|	|	|
6+55	0.8365	1.72	|Q V	|	|	|	|
7+ 0	0.8484	1.73	|Q V	|	|	|	|
7+ 5	0.8604	1.74	|Q V	|	|	|	|
7+10	0.8724	1.75	|Q V	|	|	|	|
7+15	0.8845	1.75	|Q V	|	|	|	|
7+20	0.8966	1.76	|Q V	|	|	|	|
7+25	0.9088	1.77	|Q V	|	|	|	|
7+30	0.9211	1.78	|Q V	|	|	|	|
7+35	0.9334	1.78	|Q V	|	|	|	|
7+40	0.9457	1.79	|Q V	|	|	|	|
7+45	0.9581	1.80	|Q V	|	|	|	|
7+50	0.9706	1.81	|Q V	|	|	|	|
7+55	0.9831	1.82	|Q V	|	|	|	|
8+ 0	0.9957	1.83	|Q V	|	|	|	|
8+ 5	1.0083	1.83	|Q V	|	|	|	|
8+10	1.0210	1.84	|Q V	|	|	|	|
8+15	1.0338	1.85	|Q V	|	|	|	|
8+20	1.0466	1.86	|Q V	|	|	|	|
8+25	1.0595	1.87	|Q V	|	|	|	|
8+30	1.0724	1.88	|Q V	|	|	|	|
8+35	1.0854	1.89	|Q V	|	|	|	|
8+40	1.0985	1.90	|Q V	|	|	|	|
8+45	1.1116	1.91	|Q V	|	|	|	|
8+50	1.1249	1.92	|Q V	|	|	|	|
8+55	1.1381	1.93	|Q V	|	|	|	|
9+ 0	1.1515	1.94	|Q V	|	|	|	|
9+ 5	1.1649	1.95	|Q V	|	|	|	|
9+10	1.1784	1.96	|Q V	|	|	|	|
9+15	1.1920	1.97	|Q V	|	|	|	|
9+20	1.2056	1.98	|Q V	|	|	|	|
9+25	1.2193	1.99	|Q V	|	|	|	|

```
 9+30       1.2331      2.00  | Q      V|          |          |          |
 9+35       1.2470      2.02  | Q      V|          |          |          |
 9+40       1.2610      2.03  | Q      V|          |          |          |
 9+45       1.2750      2.04  | Q       V          |          |          |
 9+50       1.2892      2.05  | Q       V          |          |          |
 9+55       1.3034      2.06  | Q       V          |          |          |
10+ 0       1.3177      2.08  | Q       V          |          |          |
10+ 5       1.3321      2.09  | Q       V          |          |          |
10+10       1.3465      2.10  | Q       V          |          |          |
10+15       1.3611      2.12  | Q       V          |          |          |
10+20       1.3758      2.13  | Q       V          |          |          |
10+25       1.3906      2.14  | Q       |V         |          |          |
10+30       1.4054      2.16  | Q       |V         |          |          |
10+35       1.4204      2.17  | Q       |V         |          |          |
10+40       1.4354      2.19  | Q       |V         |          |          |
10+45       1.4506      2.20  | Q       |V         |          |          |
10+50       1.4659      2.22  | Q       |V         |          |          |
10+55       1.4813      2.23  | Q       |V         |          |          |
11+ 0       1.4968      2.25  | Q       |V         |          |          |
11+ 5       1.5124      2.27  | Q       |V         |          |          |
11+10       1.5281      2.28  | Q       | V        |          |          |
11+15       1.5440      2.30  | Q       | V        |          |          |
11+20       1.5600      2.32  | Q       | V        |          |          |
11+25       1.5761      2.34  | Q       | V        |          |          |
11+30       1.5923      2.36  | Q       | V        |          |          |
11+35       1.6087      2.38  | Q       | V        |          |          |
11+40       1.6252      2.40  | Q       | V        |          |          |
11+45       1.6418      2.42  | Q       | V        |          |          |
11+50       1.6586      2.44  | Q       |  V       |          |          |
11+55       1.6756      2.46  | Q       |  V       |          |          |
12+ 0       1.6927      2.48  | Q       |  V       |          |          |
12+ 5       1.7098      2.49  | Q       |  V       |          |          |
12+10       1.7264      2.41  | Q       |  V       |          |          |
12+15       1.7425      2.34  | Q       |  V       |          |          |
12+20       1.7586      2.33  | Q       |  V       |          |          |
12+25       1.7747      2.33  | Q       |   V      |          |          |
12+30       1.7908      2.35  | Q       |   V      |          |          |
12+35       1.8071      2.36  | Q       |   V      |          |          |
12+40       1.8235      2.39  | Q       |   V      |          |          |
12+45       1.8401      2.41  | Q       |   V      |          |          |
12+50       1.8569      2.44  | Q       |   V      |          |          |
12+55       1.8739      2.47  | Q       |   V      |          |          |
13+ 0       1.8911      2.50  | Q       |   V      |          |          |
13+ 5       1.9086      2.53  | Q       |    V     |          |          |
13+10       1.9262      2.57  | Q       |    V     |          |          |
13+15       1.9441      2.60  | Q       |    V     |          |          |
13+20       1.9623      2.64  | Q       |    V     |          |          |
13+25       1.9808      2.68  | Q       |    V     |          |          |
13+30       1.9996      2.72  | Q       |    V     |          |          |
13+35       2.0186      2.77  | Q       |    V     |          |          |
13+40       2.0380      2.82  | Q       |     V    |          |          |
13+45       2.0577      2.86  | Q       |     V    |          |          |
13+50       2.0778      2.92  | Q       |     V    |          |          |
13+55       2.0983      2.97  | Q       |     V    |          |          |
14+ 0       2.1192      3.03  |  Q      |     V    |          |          |
14+ 5       2.1404      3.09  |  Q      |     V    |          |          |
```



18+50	4.3017	2.29	Q				V
18+55	4.3173	2.25	Q				V
19+ 0	4.3326	2.22	Q				V
19+ 5	4.3477	2.19	Q				V
19+10	4.3626	2.17	Q				V
19+15	4.3773	2.14	Q				V
19+20	4.3919	2.11	Q				V
19+25	4.4062	2.08	Q				V
19+30	4.4204	2.06	Q				V
19+35	4.4344	2.03	Q				V
19+40	4.4482	2.01	Q				V
19+45	4.4619	1.99	Q				V
19+50	4.4755	1.97	Q				V
19+55	4.4889	1.94	Q				V
20+ 0	4.5021	1.92	Q				V
20+ 5	4.5152	1.90	Q				V
20+10	4.5282	1.88	Q				V
20+15	4.5410	1.87	Q				V
20+20	4.5538	1.85	Q				V
20+25	4.5664	1.83	Q				V
20+30	4.5789	1.81	Q				V
20+35	4.5912	1.80	Q				V
20+40	4.6035	1.78	Q				V
20+45	4.6157	1.77	Q				V
20+50	4.6277	1.75	Q				V
20+55	4.6397	1.74	Q				V
21+ 0	4.6515	1.72	Q				V
21+ 5	4.6633	1.71	Q				V
21+10	4.6749	1.69	Q				V
21+15	4.6865	1.68	Q				V
21+20	4.6980	1.67	Q				V
21+25	4.7094	1.65	Q				V
21+30	4.7207	1.64	Q				V
21+35	4.7319	1.63	Q				V
21+40	4.7431	1.62	Q				V
21+45	4.7541	1.61	Q				V
21+50	4.7651	1.60	Q				V
21+55	4.7760	1.58	Q				V
22+ 0	4.7869	1.57	Q				V
22+ 5	4.7976	1.56	Q				V
22+10	4.8083	1.55	Q				V
22+15	4.8189	1.54	Q				V
22+20	4.8295	1.53	Q				V
22+25	4.8400	1.52	Q				V
22+30	4.8504	1.51	Q				V
22+35	4.8608	1.50	Q				V
22+40	4.8710	1.49	Q				V
22+45	4.8813	1.49	Q				V
22+50	4.8914	1.48	Q				V
22+55	4.9016	1.47	Q				V
23+ 0	4.9116	1.46	Q				V
23+ 5	4.9216	1.45	Q				V
23+10	4.9315	1.44	Q				V
23+15	4.9414	1.44	Q				V
23+20	4.9513	1.43	Q				V
23+25	4.9610	1.42	Q				V

23+30	4.9708	1.41	Q				V
23+35	4.9804	1.40	Q				V
23+40	4.9900	1.40	Q				V
23+45	4.9996	1.39	Q				V
23+50	5.0091	1.38	Q				V
23+55	5.0186	1.38	Q				V
24+ 0	5.0280	1.37	Q				V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA C

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
24.95	1	0.77
Rainfall data for year 2		
24.95	6	1.08
Rainfall data for year 2		
24.95	24	2.03
Rainfall data for year 100		
24.95	1	1.29
Rainfall data for year 100		
24.95	6	2.99
Rainfall data for year 100		

```
            24.95           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         24.95      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     2.50   0.100         32.0      52.0       9.23     0.229
    22.45   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.254 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      24.95(Ac.)
Catchment Lag time =   0.203 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 41.0105
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      24.95(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.611(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.288(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 301.74 (CFS))

1	2.861	8.631
2	19.853	51.272
3	50.578	92.710
4	66.609	48.372
5	75.604	27.141
6	81.544	17.923
7	85.860	13.023
8	89.114	9.818
9	91.485	7.157
10	93.428	5.862
11	94.941	4.563
12	96.162	3.686
13	97.121	2.894
14	97.809	2.074
15	98.252	1.338
16	98.728	1.436
17	99.220	1.485
18	99.610	1.176
19	99.867	0.775
20	100.000	0.402

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6114	0.6114
2	0.7527	0.1413
3	0.8501	0.0974
4	0.9267	0.0766
5	0.9909	0.0642
6	1.0466	0.0557
7	1.0961	0.0495
8	1.1409	0.0448
9	1.1820	0.0410
10	1.2199	0.0380
11	1.2553	0.0354
12	1.2885	0.0332
13	1.3379	0.0494
14	1.3853	0.0474
15	1.4310	0.0457
16	1.4751	0.0441
17	1.5177	0.0426
18	1.5591	0.0413
19	1.5992	0.0401
20	1.6382	0.0390
21	1.6762	0.0380
22	1.7133	0.0371
23	1.7495	0.0362
24	1.7848	0.0354
25	1.8194	0.0346
26	1.8533	0.0339
27	1.8864	0.0332
28	1.9190	0.0325
29	1.9509	0.0319
30	1.9822	0.0313
31	2.0130	0.0308

32	2.0433	0.0303
33	2.0731	0.0298
34	2.1023	0.0293
35	2.1312	0.0288
36	2.1596	0.0284
37	2.1875	0.0279
38	2.2151	0.0275
39	2.2423	0.0272
40	2.2691	0.0268
41	2.2955	0.0264
42	2.3216	0.0261
43	2.3474	0.0258
44	2.3729	0.0255
45	2.3980	0.0252
46	2.4229	0.0249
47	2.4474	0.0246
48	2.4717	0.0243
49	2.4958	0.0240
50	2.5196	0.0238
51	2.5431	0.0235
52	2.5664	0.0233
53	2.5894	0.0230
54	2.6122	0.0228
55	2.6348	0.0226
56	2.6572	0.0224
57	2.6793	0.0222
58	2.7013	0.0220
59	2.7230	0.0218
60	2.7446	0.0216
61	2.7660	0.0214
62	2.7872	0.0212
63	2.8082	0.0210
64	2.8290	0.0208
65	2.8497	0.0207
66	2.8701	0.0205
67	2.8905	0.0203
68	2.9106	0.0202
69	2.9306	0.0200
70	2.9505	0.0199
71	2.9702	0.0197
72	2.9898	0.0196
73	3.0119	0.0222
74	3.0339	0.0220
75	3.0558	0.0219
76	3.0776	0.0217
77	3.0992	0.0216
78	3.1207	0.0215
79	3.1420	0.0214
80	3.1632	0.0212
81	3.1844	0.0211
82	3.2053	0.0210
83	3.2262	0.0209
84	3.2470	0.0208
85	3.2676	0.0206
86	3.2881	0.0205
87	3.3085	0.0204

88	3.3288	0.0203
89	3.3490	0.0202
90	3.3691	0.0201
91	3.3891	0.0200
92	3.4090	0.0199
93	3.4288	0.0198
94	3.4485	0.0197
95	3.4681	0.0196
96	3.4876	0.0195
97	3.5070	0.0194
98	3.5263	0.0193
99	3.5455	0.0192
100	3.5646	0.0191
101	3.5837	0.0190
102	3.6026	0.0190
103	3.6215	0.0189
104	3.6403	0.0188
105	3.6590	0.0187
106	3.6776	0.0186
107	3.6961	0.0185
108	3.7146	0.0185
109	3.7329	0.0184
110	3.7512	0.0183
111	3.7694	0.0182
112	3.7876	0.0181
113	3.8056	0.0181
114	3.8236	0.0180
115	3.8416	0.0179
116	3.8594	0.0178
117	3.8772	0.0178
118	3.8949	0.0177
119	3.9125	0.0176
120	3.9301	0.0176
121	3.9476	0.0175
122	3.9650	0.0174
123	3.9824	0.0174
124	3.9997	0.0173
125	4.0169	0.0172
126	4.0341	0.0172
127	4.0512	0.0171
128	4.0682	0.0170
129	4.0852	0.0170
130	4.1022	0.0169
131	4.1190	0.0169
132	4.1358	0.0168
133	4.1526	0.0167
134	4.1693	0.0167
135	4.1859	0.0166
136	4.2025	0.0166
137	4.2190	0.0165
138	4.2354	0.0165
139	4.2518	0.0164
140	4.2682	0.0163
141	4.2845	0.0163
142	4.3007	0.0162
143	4.3169	0.0162

144	4.3330	0.0161
145	4.3491	0.0161
146	4.3651	0.0160
147	4.3811	0.0160
148	4.3971	0.0159
149	4.4129	0.0159
150	4.4288	0.0158
151	4.4445	0.0158
152	4.4603	0.0157
153	4.4760	0.0157
154	4.4916	0.0156
155	4.5072	0.0156
156	4.5227	0.0155
157	4.5382	0.0155
158	4.5537	0.0155
159	4.5691	0.0154
160	4.5845	0.0154
161	4.5998	0.0153
162	4.6150	0.0153
163	4.6303	0.0152
164	4.6455	0.0152
165	4.6606	0.0151
166	4.6757	0.0151
167	4.6908	0.0151
168	4.7058	0.0150
169	4.7208	0.0150
170	4.7357	0.0149
171	4.7506	0.0149
172	4.7654	0.0149
173	4.7802	0.0148
174	4.7950	0.0148
175	4.8097	0.0147
176	4.8244	0.0147
177	4.8391	0.0147
178	4.8537	0.0146
179	4.8683	0.0146
180	4.8828	0.0145
181	4.8973	0.0145
182	4.9118	0.0145
183	4.9262	0.0144
184	4.9406	0.0144
185	4.9550	0.0144
186	4.9693	0.0143
187	4.9836	0.0143
188	4.9978	0.0142
189	5.0120	0.0142
190	5.0262	0.0142
191	5.0404	0.0141
192	5.0545	0.0141
193	5.0686	0.0141
194	5.0826	0.0140
195	5.0966	0.0140
196	5.1106	0.0140
197	5.1245	0.0139
198	5.1384	0.0139
199	5.1523	0.0139

200	5.1662	0.0138
201	5.1800	0.0138
202	5.1938	0.0138
203	5.2075	0.0137
204	5.2212	0.0137
205	5.2349	0.0137
206	5.2486	0.0137
207	5.2622	0.0136
208	5.2758	0.0136
209	5.2893	0.0136
210	5.3029	0.0135
211	5.3164	0.0135
212	5.3299	0.0135
213	5.3433	0.0134
214	5.3567	0.0134
215	5.3701	0.0134
216	5.3835	0.0134
217	5.3968	0.0133
218	5.4101	0.0133
219	5.4234	0.0133
220	5.4366	0.0132
221	5.4498	0.0132
222	5.4630	0.0132
223	5.4762	0.0132
224	5.4893	0.0131
225	5.5024	0.0131
226	5.5155	0.0131
227	5.5285	0.0131
228	5.5416	0.0130
229	5.5546	0.0130
230	5.5675	0.0130
231	5.5805	0.0129
232	5.5934	0.0129
233	5.6063	0.0129
234	5.6192	0.0129
235	5.6320	0.0128
236	5.6448	0.0128
237	5.6576	0.0128
238	5.6704	0.0128
239	5.6831	0.0127
240	5.6958	0.0127
241	5.7085	0.0127
242	5.7212	0.0127
243	5.7338	0.0126
244	5.7465	0.0126
245	5.7591	0.0126
246	5.7716	0.0126
247	5.7842	0.0125
248	5.7967	0.0125
249	5.8092	0.0125
250	5.8217	0.0125
251	5.8341	0.0125
252	5.8466	0.0124
253	5.8590	0.0124
254	5.8714	0.0124
255	5.8837	0.0124

256	5.8961	0.0123
257	5.9084	0.0123
258	5.9207	0.0123
259	5.9329	0.0123
260	5.9452	0.0123
261	5.9574	0.0122
262	5.9696	0.0122
263	5.9818	0.0122
264	5.9940	0.0122
265	6.0061	0.0121
266	6.0183	0.0121
267	6.0304	0.0121
268	6.0424	0.0121
269	6.0545	0.0121
270	6.0665	0.0120
271	6.0786	0.0120
272	6.0906	0.0120
273	6.1025	0.0120
274	6.1145	0.0120
275	6.1264	0.0119
276	6.1383	0.0119
277	6.1502	0.0119
278	6.1621	0.0119
279	6.1740	0.0119
280	6.1858	0.0118
281	6.1976	0.0118
282	6.2094	0.0118
283	6.2212	0.0118
284	6.2330	0.0118
285	6.2447	0.0117
286	6.2564	0.0117
287	6.2681	0.0117
288	6.2798	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108

19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130

75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174

131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0253
170	0.0288	0.0032	0.0256
171	0.0298	0.0033	0.0265
172	0.0303	0.0034	0.0269
173	0.0313	0.0035	0.0279
174	0.0319	0.0036	0.0284
175	0.0332	0.0037	0.0295
176	0.0339	0.0038	0.0301
177	0.0354	0.0039	0.0314
178	0.0362	0.0040	0.0322
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0457	0.0051	0.0406
184	0.0474	0.0053	0.0422
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0314

187	0.0410	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0576
191	0.0974	0.0065	0.0908
192	0.1413	0.0065	0.1348
193	0.6114	0.0065	0.6049
194	0.0766	0.0065	0.0701
195	0.0495	0.0055	0.0440
196	0.0380	0.0042	0.0337
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0357
200	0.0371	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0274
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142

243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 72.26(CFS)

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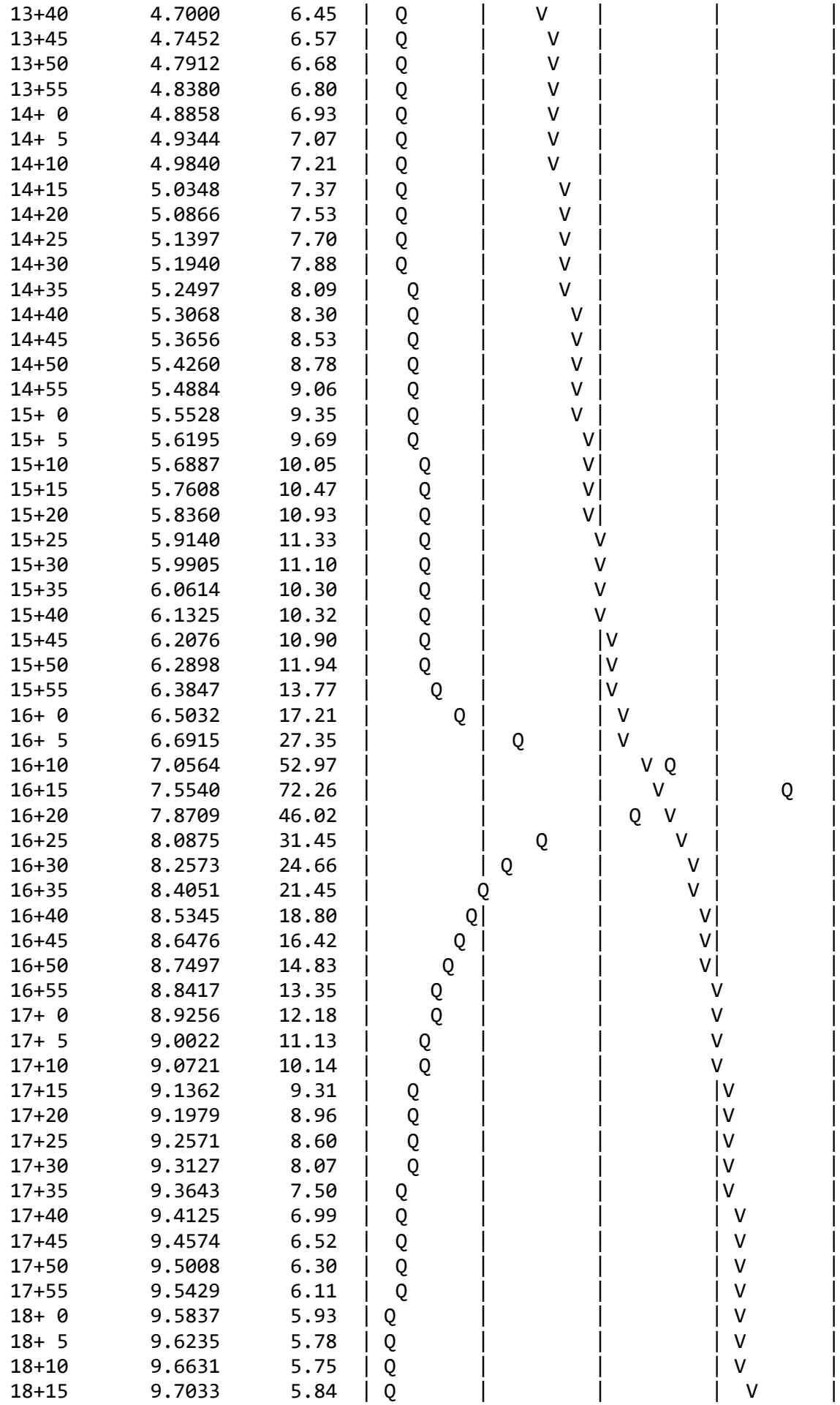
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	20.0	40.0	60.0	80.0
0+ 5	0.0006	0.09	Q				
0+10	0.0049	0.62	Q				
0+15	0.0158	1.59	Q				
0+20	0.0302	2.09	VQ				
0+25	0.0466	2.38	VQ				
0+30	0.0643	2.57	VQ				
0+35	0.0830	2.71	VQ				
0+40	0.1024	2.82	VQ				
0+45	0.1224	2.90	VQ				
0+50	0.1428	2.97	VQ				
0+55	0.1637	3.02	VQ				
1+ 0	0.1848	3.07	VQ				
1+ 5	0.2062	3.11	VQ				
1+10	0.2278	3.14	VQ				
1+15	0.2496	3.16	VQ				
1+20	0.2715	3.18	VQ				
1+25	0.2936	3.21	VQ				
1+30	0.3158	3.23	|Q				
1+35	0.3382	3.24	|Q				
1+40	0.3606	3.26	|Q				
1+45	0.3831	3.26	|Q				
1+50	0.4056	3.27	|Q				
1+55	0.4282	3.28	|Q				
2+ 0	0.4509	3.29	|Q				
2+ 5	0.4736	3.30	|Q				
2+10	0.4964	3.31	|Q				
2+15	0.5192	3.32	|Q				
2+20	0.5422	3.33	|Q				
2+25	0.5651	3.34	|Q				
2+30	0.5882	3.35	|QV				
2+35	0.6113	3.36	|QV				
2+40	0.6344	3.36	|QV				
2+45	0.6577	3.37	|QV				
2+50	0.6810	3.38	|QV				
2+55	0.7044	3.39	|QV				
3+ 0	0.7278	3.40	|QV				
3+ 5	0.7513	3.41	|QV				
3+10	0.7749	3.42	|QV				
3+15	0.7985	3.43	|QV				
3+20	0.8222	3.44	|QV				
3+25	0.8460	3.45	|QV				
3+30	0.8699	3.46	|QV				
3+35	0.8938	3.47	|Q V				
3+40	0.9178	3.48	|Q V				
3+45	0.9419	3.50	|Q V				
3+50	0.9660	3.51	|Q V				
3+55	0.9903	3.52	|Q V				
4+ 0	1.0146	3.53	|Q V				
4+ 5	1.0389	3.54	|Q V				
4+10	1.0634	3.55	|Q V				
4+15	1.0879	3.56	|Q V				

4+20	1.1125	3.57	Q V			
4+25	1.1372	3.59	Q V			
4+30	1.1620	3.60	Q V			
4+35	1.1868	3.61	Q V			
4+40	1.2118	3.62	Q V			
4+45	1.2368	3.63	Q V			
4+50	1.2619	3.64	Q V			
4+55	1.2871	3.66	Q V			
5+ 0	1.3123	3.67	Q V			
5+ 5	1.3377	3.68	Q V			
5+10	1.3632	3.69	Q V			
5+15	1.3887	3.71	Q V			
5+20	1.4143	3.72	Q V			
5+25	1.4400	3.73	Q V			
5+30	1.4658	3.75	Q V			
5+35	1.4917	3.76	Q V			
5+40	1.5177	3.77	Q V			
5+45	1.5438	3.79	Q V			
5+50	1.5700	3.80	Q V			
5+55	1.5963	3.82	Q V			
6+ 0	1.6226	3.83	Q V			
6+ 5	1.6491	3.84	Q V			
6+10	1.6757	3.86	Q V			
6+15	1.7024	3.87	Q V			
6+20	1.7292	3.89	Q V			
6+25	1.7560	3.90	Q V			
6+30	1.7830	3.92	Q V			
6+35	1.8101	3.93	Q V			
6+40	1.8373	3.95	Q V			
6+45	1.8646	3.97	Q V			
6+50	1.8921	3.98	Q V			
6+55	1.9196	4.00	Q V			
7+ 0	1.9473	4.01	Q V			
7+ 5	1.9750	4.03	Q V			
7+10	2.0029	4.05	Q V			
7+15	2.0309	4.07	Q V			
7+20	2.0590	4.08	Q V			
7+25	2.0873	4.10	Q V			
7+30	2.1156	4.12	Q V			
7+35	2.1441	4.14	Q V			
7+40	2.1727	4.15	Q V			
7+45	2.2015	4.17	Q V			
7+50	2.2304	4.19	Q V			
7+55	2.2594	4.21	Q V			
8+ 0	2.2885	4.23	Q V			
8+ 5	2.3178	4.25	Q V			
8+10	2.3472	4.27	Q V			
8+15	2.3768	4.29	Q V			
8+20	2.4064	4.31	Q V			
8+25	2.4363	4.33	Q V			
8+30	2.4663	4.35	Q V			
8+35	2.4964	4.38	Q V			
8+40	2.5267	4.40	Q V			
8+45	2.5571	4.42	Q V			
8+50	2.5877	4.44	Q V			
8+55	2.6185	4.47	Q V			

9+ 0	2.6494	4.49	Q	V			
9+ 5	2.6805	4.51	Q	V			
9+10	2.7118	4.54	Q	V			
9+15	2.7432	4.56	Q	V			
9+20	2.7748	4.59	Q	V			
9+25	2.8065	4.61	Q	V			
9+30	2.8385	4.64	Q	V			
9+35	2.8706	4.67	Q	V			
9+40	2.9029	4.69	Q	V			
9+45	2.9354	4.72	Q	V			
9+50	2.9681	4.75	Q	V			
9+55	3.0010	4.78	Q	V			
10+ 0	3.0341	4.80	Q	V			
10+ 5	3.0674	4.83	Q	V			
10+10	3.1009	4.86	Q	V			
10+15	3.1346	4.90	Q	V			
10+20	3.1685	4.93	Q	V			
10+25	3.2027	4.96	Q	V			
10+30	3.2371	4.99	Q	V			
10+35	3.2717	5.02	Q	V			
10+40	3.3065	5.06	Q	V			
10+45	3.3416	5.09	Q	V			
10+50	3.3769	5.13	Q	V			
10+55	3.4125	5.17	Q	V			
11+ 0	3.4483	5.20	Q	V			
11+ 5	3.4844	5.24	Q	V			
11+10	3.5208	5.28	Q	V			
11+15	3.5574	5.32	Q	V			
11+20	3.5943	5.36	Q	V			
11+25	3.6315	5.40	Q	V			
11+30	3.6690	5.44	Q	V			
11+35	3.7068	5.49	Q	V			
11+40	3.7449	5.53	Q	V			
11+45	3.7834	5.58	Q	V			
11+50	3.8221	5.63	Q	V			
11+55	3.8612	5.68	Q	V			
12+ 0	3.9007	5.73	Q	V			
12+ 5	3.9403	5.76	Q	V			
12+10	3.9795	5.69	Q	V			
12+15	4.0175	5.52	Q	V			
12+20	4.0550	5.45	Q	V			
12+25	4.0926	5.45	Q	V			
12+30	4.1302	5.46	Q	V			
12+35	4.1680	5.49	Q	V			
12+40	4.2061	5.53	Q	V			
12+45	4.2446	5.58	Q	V			
12+50	4.2834	5.64	Q	V			
12+55	4.3226	5.70	Q	V			
13+ 0	4.3623	5.76	Q	V			
13+ 5	4.4025	5.83	Q	V			
13+10	4.4432	5.91	Q	V			
13+15	4.4845	5.99	Q	V			
13+20	4.5263	6.07	Q	V			
13+25	4.5687	6.16	Q	V			
13+30	4.6118	6.25	Q	V			
13+35	4.6555	6.35	Q	V			



18+20	9.7434	5.82	Q			V	
18+25	9.7832	5.77	Q			V	
18+30	9.8224	5.70	Q			V	
18+35	9.8611	5.62	Q			V	
18+40	9.8993	5.54	Q			V	
18+45	9.9370	5.47	Q			V	
18+50	9.9741	5.39	Q			V	
18+55	10.0107	5.32	Q			V	
19+ 0	10.0468	5.24	Q			V	
19+ 5	10.0824	5.17	Q			V	
19+10	10.1176	5.10	Q			V	
19+15	10.1523	5.04	Q			V	
19+20	10.1865	4.97	Q			V	
19+25	10.2204	4.91	Q			V	
19+30	10.2538	4.85	Q			V	
19+35	10.2868	4.80	Q			V	
19+40	10.3195	4.74	Q			V	
19+45	10.3517	4.68	Q			V	
19+50	10.3836	4.63	Q			V	
19+55	10.4151	4.58	Q			V	
20+ 0	10.4463	4.53	Q			V	
20+ 5	10.4772	4.48	Q			V	
20+10	10.5077	4.43	Q			V	
20+15	10.5380	4.39	Q			V	
20+20	10.5679	4.35	Q			V	
20+25	10.5975	4.30	Q			V	
20+30	10.6269	4.26	Q			V	
20+35	10.6560	4.22	Q			V	
20+40	10.6848	4.18	Q			V	
20+45	10.7134	4.15	Q			V	
20+50	10.7417	4.11	Q			V	
20+55	10.7698	4.08	Q			V	
21+ 0	10.7976	4.04	Q			V	
21+ 5	10.8252	4.01	Q			V	
21+10	10.8526	3.98	Q			V	
21+15	10.8797	3.94	Q			V	
21+20	10.9067	3.91	Q			V	
21+25	10.9334	3.88	Q			V	
21+30	10.9599	3.85	Q			V	
21+35	10.9863	3.82	Q			V	
21+40	11.0124	3.80	Q			V	
21+45	11.0383	3.77	Q			V	
21+50	11.0641	3.74	Q			V	
21+55	11.0897	3.71	Q			V	
22+ 0	11.1151	3.69	Q			V	
22+ 5	11.1403	3.66	Q			V	
22+10	11.1654	3.64	Q			V	
22+15	11.1903	3.61	Q			V	
22+20	11.2150	3.59	Q			V	
22+25	11.2396	3.57	Q			V	
22+30	11.2640	3.55	Q			V	
22+35	11.2883	3.52	Q			V	
22+40	11.3124	3.50	Q			V	
22+45	11.3363	3.48	Q			V	
22+50	11.3602	3.46	Q			V	
22+55	11.3838	3.44	Q			V	

```
   23+ 0      11.4074      3.42  |Q        |         |         |       V |
   23+ 5      11.4308      3.40  |Q        |         |         |       V |
   23+10      11.4541      3.38  |Q        |         |         |       V |
   23+15      11.4772      3.36  |Q        |         |         |        V|
   23+20      11.5002      3.34  |Q        |         |         |        V|
   23+25      11.5231      3.32  |Q        |         |         |        V|
   23+30      11.5458      3.30  |Q        |         |         |        V|
   23+35      11.5685      3.29  |Q        |         |         |        V|
   23+40      11.5910      3.27  |Q        |         |         |        V|
   23+45      11.6134      3.25  |Q        |         |         |        V|
   23+50      11.6356      3.23  |Q        |         |         |        V|
   23+55      11.6578      3.22  |Q        |         |         |        V|
   24+ 0      11.6799      3.20  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA D

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
4.95	1	0.77
Rainfall data for year 2		
4.95	6	1.08
Rainfall data for year 2		
4.95	24	2.03
Rainfall data for year 100		
4.95	1	1.29
Rainfall data for year 100		
4.95	6	2.99
Rainfall data for year 100		

```
             4.95           24           6.28
----------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0          4.95      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.50   0.100         32.0      52.0       9.23     0.229
     4.46   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.167 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       4.95(Ac.)
Catchment Lag time =   0.134 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 62.3752
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       4.95(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.048(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
----------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
```

(K = 59.86 (CFS))

1	6.045	3.619
2	43.820	22.613
3	69.517	15.384
4	80.554	6.607
5	87.049	3.888
6	91.168	2.466
7	94.032	1.714
8	96.052	1.209
9	97.435	0.828
10	98.235	0.479
11	98.959	0.434
12	99.599	0.383
13	100.000	0.240

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6120	0.6120
2	0.7534	0.1415
3	0.8509	0.0975
4	0.9276	0.0767
5	0.9918	0.0642
6	1.0476	0.0558
7	1.0971	0.0496
8	1.1420	0.0448
9	1.1831	0.0411
10	1.2211	0.0380
11	1.2565	0.0354
12	1.2897	0.0332
13	1.3391	0.0494
14	1.3865	0.0474
15	1.4321	0.0456
16	1.4761	0.0440
17	1.5188	0.0426
18	1.5600	0.0413
19	1.6001	0.0401
20	1.6391	0.0390
21	1.6771	0.0380
22	1.7141	0.0370
23	1.7503	0.0361
24	1.7856	0.0353
25	1.8201	0.0345
26	1.8539	0.0338
27	1.8871	0.0331
28	1.9195	0.0325
29	1.9514	0.0319
30	1.9827	0.0313
31	2.0135	0.0307
32	2.0437	0.0302
33	2.0734	0.0297
34	2.1027	0.0293
35	2.1315	0.0288
36	2.1599	0.0284
37	2.1878	0.0279
38	2.2154	0.0275

39	2.2425	0.0272
40	2.2693	0.0268
41	2.2958	0.0264
42	2.3219	0.0261
43	2.3476	0.0258
44	2.3731	0.0255
45	2.3982	0.0252
46	2.4231	0.0249
47	2.4477	0.0246
48	2.4720	0.0243
49	2.4960	0.0240
50	2.5198	0.0238
51	2.5433	0.0235
52	2.5666	0.0233
53	2.5896	0.0230
54	2.6124	0.0228
55	2.6350	0.0226
56	2.6574	0.0224
57	2.6796	0.0222
58	2.7015	0.0220
59	2.7233	0.0218
60	2.7448	0.0216
61	2.7662	0.0214
62	2.7874	0.0212
63	2.8084	0.0210
64	2.8292	0.0208
65	2.8499	0.0207
66	2.8703	0.0205
67	2.8907	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9507	0.0199
71	2.9704	0.0197
72	2.9900	0.0196
73	3.0121	0.0222
74	3.0341	0.0220
75	3.0560	0.0219
76	3.0778	0.0217
77	3.0994	0.0216
78	3.1209	0.0215
79	3.1422	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2264	0.0209
84	3.2471	0.0208
85	3.2678	0.0206
86	3.2883	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3693	0.0201
91	3.3893	0.0200
92	3.4092	0.0199
93	3.4290	0.0198
94	3.4487	0.0197

95	3.4683	0.0196
96	3.4878	0.0195
97	3.5072	0.0194
98	3.5265	0.0193
99	3.5457	0.0192
100	3.5648	0.0191
101	3.5839	0.0190
102	3.6028	0.0190
103	3.6217	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6778	0.0186
107	3.6963	0.0185
108	3.7147	0.0185
109	3.7331	0.0184
110	3.7514	0.0183
111	3.7696	0.0182
112	3.7878	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8418	0.0179
116	3.8596	0.0178
117	3.8774	0.0178
118	3.8951	0.0177
119	3.9127	0.0176
120	3.9303	0.0176
121	3.9478	0.0175
122	3.9652	0.0174
123	3.9826	0.0174
124	3.9999	0.0173
125	4.0171	0.0172
126	4.0343	0.0172
127	4.0514	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1192	0.0169
132	4.1360	0.0168
133	4.1528	0.0167
134	4.1694	0.0167
135	4.1861	0.0166
136	4.2026	0.0166
137	4.2192	0.0165
138	4.2356	0.0165
139	4.2520	0.0164
140	4.2684	0.0163
141	4.2847	0.0163
142	4.3009	0.0162
143	4.3171	0.0162
144	4.3332	0.0161
145	4.3493	0.0161
146	4.3653	0.0160
147	4.3813	0.0160
148	4.3972	0.0159
149	4.4131	0.0159
150	4.4290	0.0158

151	4.4447	0.0158
152	4.4605	0.0157
153	4.4762	0.0157
154	4.4918	0.0156
155	4.5074	0.0156
156	4.5229	0.0155
157	4.5384	0.0155
158	4.5539	0.0155
159	4.5693	0.0154
160	4.5846	0.0154
161	4.6000	0.0153
162	4.6152	0.0153
163	4.6305	0.0152
164	4.6456	0.0152
165	4.6608	0.0151
166	4.6759	0.0151
167	4.6909	0.0151
168	4.7060	0.0150
169	4.7209	0.0150
170	4.7359	0.0149
171	4.7508	0.0149
172	4.7656	0.0149
173	4.7804	0.0148
174	4.7952	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8393	0.0147
178	4.8539	0.0146
179	4.8685	0.0146
180	4.8830	0.0145
181	4.8975	0.0145
182	4.9120	0.0145
183	4.9264	0.0144
184	4.9408	0.0144
185	4.9552	0.0144
186	4.9695	0.0143
187	4.9838	0.0143
188	4.9980	0.0142
189	5.0122	0.0142
190	5.0264	0.0142
191	5.0406	0.0141
192	5.0547	0.0141
193	5.0687	0.0141
194	5.0828	0.0140
195	5.0968	0.0140
196	5.1108	0.0140
197	5.1247	0.0139
198	5.1386	0.0139
199	5.1525	0.0139
200	5.1663	0.0138
201	5.1802	0.0138
202	5.1939	0.0138
203	5.2077	0.0137
204	5.2214	0.0137
205	5.2351	0.0137
206	5.2487	0.0137

207	5.2624	0.0136
208	5.2760	0.0136
209	5.2895	0.0136
210	5.3031	0.0135
211	5.3166	0.0135
212	5.3300	0.0135
213	5.3435	0.0134
214	5.3569	0.0134
215	5.3703	0.0134
216	5.3836	0.0134
217	5.3970	0.0133
218	5.4103	0.0133
219	5.4235	0.0133
220	5.4368	0.0132
221	5.4500	0.0132
222	5.4632	0.0132
223	5.4763	0.0132
224	5.4895	0.0131
225	5.5026	0.0131
226	5.5156	0.0131
227	5.5287	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5677	0.0130
231	5.5806	0.0129
232	5.5936	0.0129
233	5.6065	0.0129
234	5.6193	0.0129
235	5.6322	0.0128
236	5.6450	0.0128
237	5.6578	0.0128
238	5.6705	0.0128
239	5.6833	0.0127
240	5.6960	0.0127
241	5.7087	0.0127
242	5.7214	0.0127
243	5.7340	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7718	0.0126
247	5.7843	0.0125
248	5.7969	0.0125
249	5.8094	0.0125
250	5.8218	0.0125
251	5.8343	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8839	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9454	0.0123
261	5.9576	0.0122
262	5.9698	0.0122

263	5.9820	0.0122
264	5.9942	0.0122
265	6.0063	0.0121
266	6.0184	0.0121
267	6.0305	0.0121
268	6.0426	0.0121
269	6.0547	0.0121
270	6.0667	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1027	0.0120
274	6.1147	0.0120
275	6.1266	0.0119
276	6.1385	0.0119
277	6.1504	0.0119
278	6.1623	0.0119
279	6.1741	0.0119
280	6.1860	0.0118
281	6.1978	0.0118
282	6.2096	0.0118
283	6.2214	0.0118
284	6.2331	0.0118
285	6.2449	0.0117
286	6.2566	0.0117
287	6.2683	0.0117
288	6.2800	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110

26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133

82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184

138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0294
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0361	0.0040	0.0321
179	0.0380	0.0042	0.0337
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0399
189	0.0558	0.0062	0.0496
190	0.0642	0.0065	0.0577
191	0.0975	0.0065	0.0909
192	0.1415	0.0065	0.1349
193	0.6120	0.0065	0.6054

194	0.0767	0.0065	0.0702
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0440	0.0049	0.0391
199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0345	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0307	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133

250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0108
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 17.16(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0003	0.04	Q	|	|	|	|
0+10	0.0021	0.27	Q	|	|	|	|

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0+15       0.0051      0.43  Q          |          |          |          |
0+20       0.0086      0.50  VQ         |          |          |          |
0+25       0.0123      0.54  VQ         |          |          |          |
0+30       0.0163      0.57  VQ         |          |          |          |
0+35       0.0203      0.59  VQ         |          |          |          |
0+40       0.0245      0.60  VQ         |          |          |          |
0+45       0.0287      0.61  VQ         |          |          |          |
0+50       0.0330      0.62  VQ         |          |          |          |
0+55       0.0373      0.63  VQ         |          |          |          |
1+ 0       0.0416      0.63  VQ         |          |          |          |
1+ 5       0.0460      0.64  VQ         |          |          |          |
1+10       0.0504      0.64  VQ         |          |          |          |
1+15       0.0548      0.64  VQ         |          |          |          |
1+20       0.0592      0.64  |Q         |          |          |          |
1+25       0.0637      0.64  |Q         |          |          |          |
1+30       0.0681      0.64  |Q         |          |          |          |
1+35       0.0726      0.65  |Q         |          |          |          |
1+40       0.0770      0.65  |Q         |          |          |          |
1+45       0.0815      0.65  |Q         |          |          |          |
1+50       0.0860      0.65  |Q         |          |          |          |
1+55       0.0905      0.65  |Q         |          |          |          |
2+ 0       0.0950      0.66  |Q         |          |          |          |
2+ 5       0.0995      0.66  |Q         |          |          |          |
2+10       0.1041      0.66  |Q         |          |          |          |
2+15       0.1086      0.66  |Q         |          |          |          |
2+20       0.1132      0.66  |Q         |          |          |          |
2+25       0.1177      0.66  |QV        |          |          |          |
2+30       0.1223      0.67  |QV        |          |          |          |
2+35       0.1269      0.67  |QV        |          |          |          |
2+40       0.1315      0.67  |QV        |          |          |          |
2+45       0.1362      0.67  |QV        |          |          |          |
2+50       0.1408      0.67  |QV        |          |          |          |
2+55       0.1455      0.68  |QV        |          |          |          |
3+ 0       0.1501      0.68  |QV        |          |          |          |
3+ 5       0.1548      0.68  |QV        |          |          |          |
3+10       0.1595      0.68  |QV        |          |          |          |
3+15       0.1642      0.68  |QV        |          |          |          |
3+20       0.1689      0.69  |QV        |          |          |          |
3+25       0.1737      0.69  |QV        |          |          |          |
3+30       0.1784      0.69  |Q V       |          |          |          |
3+35       0.1832      0.69  |Q V       |          |          |          |
3+40       0.1880      0.69  |Q V       |          |          |          |
3+45       0.1928      0.70  |Q V       |          |          |          |
3+50       0.1976      0.70  |Q V       |          |          |          |
3+55       0.2024      0.70  |Q V       |          |          |          |
4+ 0       0.2072      0.70  |Q V       |          |          |          |
4+ 5       0.2121      0.70  |Q V       |          |          |          |
4+10       0.2170      0.71  |Q V       |          |          |          |
4+15       0.2218      0.71  |Q V       |          |          |          |
4+20       0.2267      0.71  |Q V       |          |          |          |
4+25       0.2317      0.71  |Q V       |          |          |          |
4+30       0.2366      0.72  |Q  V      |          |          |          |
4+35       0.2415      0.72  |Q  V      |          |          |          |
4+40       0.2465      0.72  |Q  V      |          |          |          |
4+45       0.2515      0.72  |Q  V      |          |          |          |
4+50       0.2565      0.73  |Q  V      |          |          |          |
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4+55	0.2615	0.73	|Q V	|	|	|	|
5+ 0	0.2665	0.73	|Q V	|	|	|	|
5+ 5	0.2716	0.73	|Q V	|	|	|	|
5+10	0.2767	0.74	|Q V	|	|	|	|
5+15	0.2818	0.74	|Q V	|	|	|	|
5+20	0.2869	0.74	|Q V	|	|	|	|
5+25	0.2920	0.74	|Q V	|	|	|	|
5+30	0.2971	0.75	|Q V	|	|	|	|
5+35	0.3023	0.75	|Q V	|	|	|	|
5+40	0.3075	0.75	|Q V	|	|	|	|
5+45	0.3127	0.75	|Q V	|	|	|	|
5+50	0.3179	0.76	|Q V	|	|	|	|
5+55	0.3231	0.76	|Q V	|	|	|	|
6+ 0	0.3284	0.76	|Q V	|	|	|	|
6+ 5	0.3336	0.77	|Q V	|	|	|	|
6+10	0.3389	0.77	|Q V	|	|	|	|
6+15	0.3443	0.77	|Q V	|	|	|	|
6+20	0.3496	0.78	|Q V	|	|	|	|
6+25	0.3550	0.78	|Q V	|	|	|	|
6+30	0.3603	0.78	|Q V	|	|	|	|
6+35	0.3657	0.78	|Q V	|	|	|	|
6+40	0.3712	0.79	|Q V	|	|	|	|
6+45	0.3766	0.79	|Q V	|	|	|	|
6+50	0.3821	0.79	|Q V	|	|	|	|
6+55	0.3876	0.80	|Q V	|	|	|	|
7+ 0	0.3931	0.80	|Q V	|	|	|	|
7+ 5	0.3986	0.80	|Q V	|	|	|	|
7+10	0.4042	0.81	|Q V	|	|	|	|
7+15	0.4098	0.81	|Q V	|	|	|	|
7+20	0.4154	0.81	|Q V	|	|	|	|
7+25	0.4210	0.82	|Q V	|	|	|	|
7+30	0.4267	0.82	|Q V	|	|	|	|
7+35	0.4323	0.83	|Q V	|	|	|	|
7+40	0.4381	0.83	|Q V	|	|	|	|
7+45	0.4438	0.83	|Q V	|	|	|	|
7+50	0.4495	0.84	|Q V	|	|	|	|
7+55	0.4553	0.84	|Q V	|	|	|	|
8+ 0	0.4611	0.84	|Q V	|	|	|	|
8+ 5	0.4670	0.85	|Q V	|	|	|	|
8+10	0.4729	0.85	|Q V	|	|	|	|
8+15	0.4788	0.86	|Q V	|	|	|	|
8+20	0.4847	0.86	|Q V	|	|	|	|
8+25	0.4906	0.86	|Q V	|	|	|	|
8+30	0.4966	0.87	|Q V	|	|	|	|
8+35	0.5026	0.87	|Q V	|	|	|	|
8+40	0.5087	0.88	|Q V	|	|	|	|
8+45	0.5148	0.88	|Q V	|	|	|	|
8+50	0.5209	0.89	|Q V	|	|	|	|
8+55	0.5270	0.89	|Q V|	|	|	|	|
9+ 0	0.5332	0.90	|Q V|	|	|	|	|
9+ 5	0.5394	0.90	|Q V|	|	|	|	|
9+10	0.5456	0.91	|Q V|	|	|	|	|
9+15	0.5519	0.91	|Q V|	|	|	|	|
9+20	0.5582	0.92	|Q V|	|	|	|	|
9+25	0.5646	0.92	|Q V|	|	|	|	|
9+30	0.5709	0.93	|Q V|	|	|	|	|

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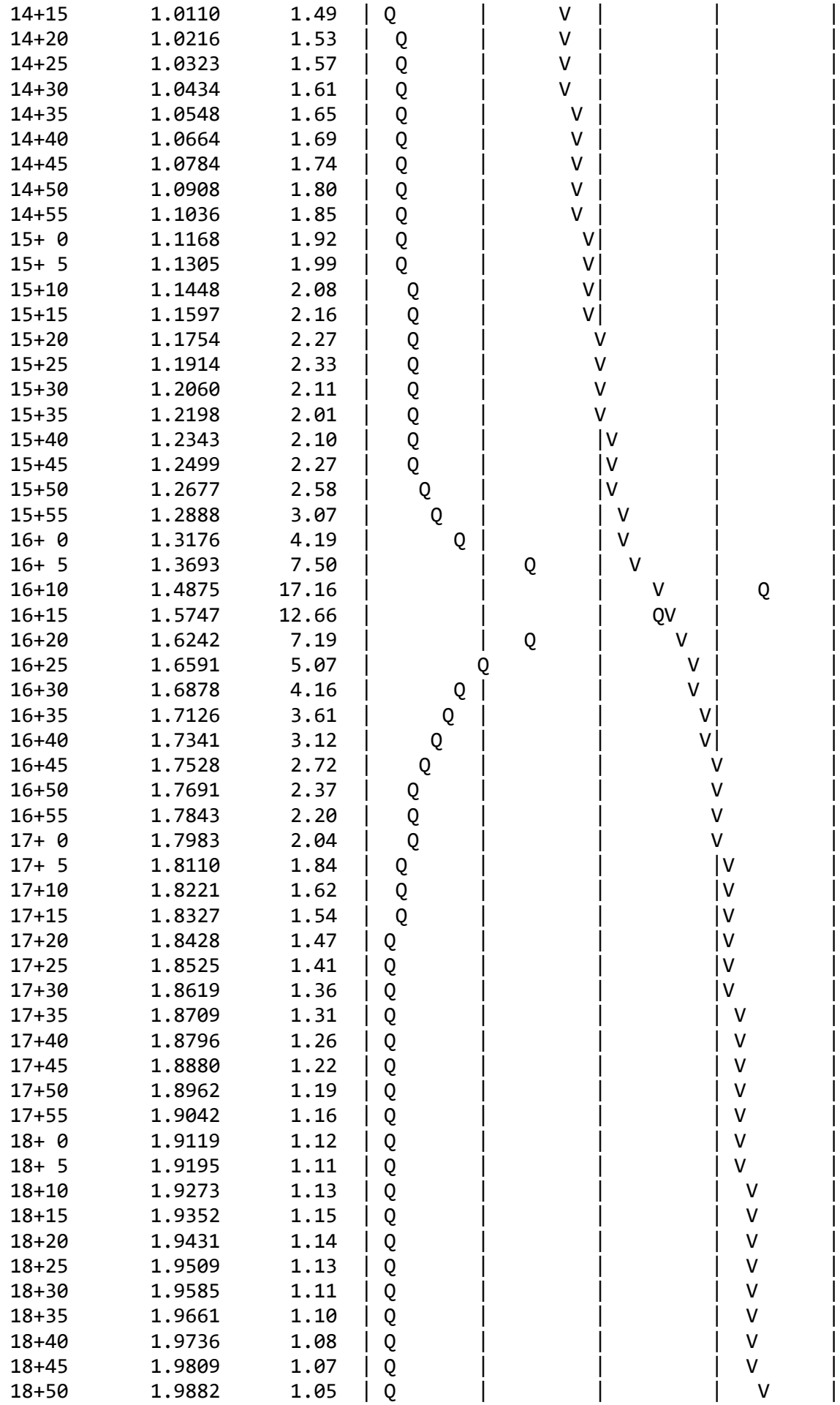
 9+35       0.5774      0.93  |Q       V|          |          |          |
 9+40       0.5838      0.94  |Q        V          |          |          |
 9+45       0.5903      0.94  |Q        V          |          |          |
 9+50       0.5968      0.95  |Q        V          |          |          |
 9+55       0.6034      0.95  |Q        V          |          |          |
10+ 0       0.6100      0.96  |Q        V          |          |          |
10+ 5       0.6167      0.97  |Q        V          |          |          |
10+10       0.6234      0.97  |Q        V          |          |          |
10+15       0.6301      0.98  |Q        V          |          |          |
10+20       0.6369      0.99  |Q        V          |          |          |
10+25       0.6437      0.99  |Q        |V          |          |          |
10+30       0.6506      1.00  |Q        |V          |          |          |
10+35       0.6575      1.00  | Q       |V          |          |          |
10+40       0.6645      1.01  | Q       |V          |          |          |
10+45       0.6715      1.02  | Q       |V          |          |          |
10+50       0.6786      1.03  | Q       |V          |          |          |
10+55       0.6857      1.03  | Q       |V          |          |          |
11+ 0       0.6929      1.04  | Q       |V          |          |          |
11+ 5       0.7001      1.05  | Q       | V         |          |          |
11+10       0.7074      1.06  | Q       | V         |          |          |
11+15       0.7147      1.06  | Q       | V         |          |          |
11+20       0.7221      1.07  | Q       | V         |          |          |
11+25       0.7295      1.08  | Q       | V         |          |          |
11+30       0.7370      1.09  | Q       | V         |          |          |
11+35       0.7446      1.10  | Q       | V         |          |          |
11+40       0.7523      1.11  | Q       | V         |          |          |
11+45       0.7600      1.12  | Q       |  V        |          |          |
11+50       0.7677      1.13  | Q       |  V        |          |          |
11+55       0.7756      1.14  | Q       |  V        |          |          |
12+ 0       0.7835      1.15  | Q       |  V        |          |          |
12+ 5       0.7914      1.15  | Q       |  V        |          |          |
12+10       0.7990      1.11  | Q       |  V        |          |          |
12+15       0.8064      1.08  | Q       |  V        |          |          |
12+20       0.8138      1.08  | Q       |  V        |          |          |
12+25       0.8213      1.08  | Q       |   V       |          |          |
12+30       0.8287      1.08  | Q       |   V       |          |          |
12+35       0.8363      1.09  | Q       |   V       |          |          |
12+40       0.8439      1.10  | Q       |   V       |          |          |
12+45       0.8515      1.11  | Q       |   V       |          |          |
12+50       0.8593      1.13  | Q       |   V       |          |          |
12+55       0.8672      1.14  | Q       |   V       |          |          |
13+ 0       0.8751      1.16  | Q       |    V      |          |          |
13+ 5       0.8832      1.17  | Q       |    V      |          |          |
13+10       0.8914      1.19  | Q       |    V      |          |          |
13+15       0.8997      1.21  | Q       |    V      |          |          |
13+20       0.9081      1.22  | Q       |    V      |          |          |
13+25       0.9167      1.24  | Q       |    V      |          |          |
13+30       0.9254      1.26  | Q       |    V      |          |          |
13+35       0.9342      1.28  | Q       |     V     |          |          |
13+40       0.9432      1.31  | Q       |     V     |          |          |
13+45       0.9523      1.33  | Q       |     V     |          |          |
13+50       0.9616      1.35  | Q       |     V     |          |          |
13+55       0.9711      1.38  | Q       |     V     |          |          |
14+ 0       0.9808      1.40  | Q       |     V     |          |          |
14+ 5       0.9907      1.43  | Q       |     V     |          |          |
14+10       1.0007      1.46  | Q       |      V    |          |          |
```



```
18+55       1.9953      1.04  | Q       |         |         |   V     |
19+ 0       2.0024      1.02  | Q       |         |         |   V     |
19+ 5       2.0093      1.01  | Q       |         |         |   V     |
19+10       2.0162      1.00  |Q        |         |         |   V     |
19+15       2.0230      0.98  |Q        |         |         |   V     |
19+20       2.0296      0.97  |Q        |         |         |   V     |
19+25       2.0362      0.96  |Q        |         |         |   V     |
19+30       2.0428      0.95  |Q        |         |         |    V    |
19+35       2.0492      0.94  |Q        |         |         |    V    |
19+40       2.0556      0.93  |Q        |         |         |    V    |
19+45       2.0619      0.91  |Q        |         |         |    V    |
19+50       2.0681      0.90  |Q        |         |         |    V    |
19+55       2.0743      0.90  |Q        |         |         |    V    |
20+ 0       2.0804      0.89  |Q        |         |         |    V    |
20+ 5       2.0864      0.88  |Q        |         |         |    V    |
20+10       2.0924      0.87  |Q        |         |         |    V    |
20+15       2.0983      0.86  |Q        |         |         |    V    |
20+20       2.1042      0.85  |Q        |         |         |     V   |
20+25       2.1100      0.84  |Q        |         |         |     V   |
20+30       2.1157      0.84  |Q        |         |         |     V   |
20+35       2.1214      0.83  |Q        |         |         |     V   |
20+40       2.1271      0.82  |Q        |         |         |     V   |
20+45       2.1327      0.81  |Q        |         |         |     V   |
20+50       2.1383      0.81  |Q        |         |         |     V   |
20+55       2.1438      0.80  |Q        |         |         |     V   |
21+ 0       2.1492      0.79  |Q        |         |         |     V   |
21+ 5       2.1546      0.79  |Q        |         |         |     V   |
21+10       2.1600      0.78  |Q        |         |         |      V  |
21+15       2.1653      0.77  |Q        |         |         |      V  |
21+20       2.1706      0.77  |Q        |         |         |      V  |
21+25       2.1759      0.76  |Q        |         |         |      V  |
21+30       2.1811      0.76  |Q        |         |         |      V  |
21+35       2.1863      0.75  |Q        |         |         |      V  |
21+40       2.1914      0.75  |Q        |         |         |      V  |
21+45       2.1965      0.74  |Q        |         |         |      V  |
21+50       2.2016      0.74  |Q        |         |         |      V  |
21+55       2.2066      0.73  |Q        |         |         |      V  |
22+ 0       2.2116      0.73  |Q        |         |         |      V  |
22+ 5       2.2166      0.72  |Q        |         |         |       V |
22+10       2.2215      0.72  |Q        |         |         |       V |
22+15       2.2264      0.71  |Q        |         |         |       V |
22+20       2.2312      0.71  |Q        |         |         |       V |
22+25       2.2361      0.70  |Q        |         |         |       V |
22+30       2.2409      0.70  |Q        |         |         |       V |
22+35       2.2457      0.69  |Q        |         |         |       V |
22+40       2.2504      0.69  |Q        |         |         |       V |
22+45       2.2551      0.68  |Q        |         |         |       V |
22+50       2.2598      0.68  |Q        |         |         |       V |
22+55       2.2645      0.68  |Q        |         |         |       V |
23+ 0       2.2691      0.67  |Q        |         |         |       V |
23+ 5       2.2737      0.67  |Q        |         |         |       V |
23+10       2.2783      0.67  |Q        |         |         |        V|
23+15       2.2829      0.66  |Q        |         |         |        V|
23+20       2.2874      0.66  |Q        |         |         |        V|
23+25       2.2919      0.65  |Q        |         |         |        V|
23+30       2.2964      0.65  |Q        |         |         |        V|
```

```
   23+35       2.3008      0.65  |Q        |         |         |        V|
   23+40       2.3053      0.64  |Q        |         |         |        V|
   23+45       2.3097      0.64  |Q        |         |         |        V|
   23+50       2.3141      0.64  |Q        |         |         |        V|
   23+55       2.3185      0.63  |Q        |         |         |        V|
   24+ 0       2.3228      0.63  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA E

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
10.28	1	0.77
Rainfall data for year 2		
10.28	6	1.08
Rainfall data for year 2		
10.28	24	2.03
Rainfall data for year 100		
10.28	1	1.29
Rainfall data for year 100		
10.28	6	2.99
Rainfall data for year 100		

```
            10.28           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         10.28      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.03   0.100         32.0      52.0       9.23     0.229
     9.25   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.168 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      10.28(Ac.)
Catchment Lag time =   0.134 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 62.0040
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      10.28(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.047(In)
1-hour factor = 1.000       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 124.32 (CFS))

1	5.972	7.424
2	43.460	46.607
3	69.299	32.123
4	80.386	13.784
5	86.911	8.112
6	91.059	5.157
7	93.939	3.581
8	95.974	2.530
9	97.381	1.749
10	98.197	1.014
11	98.912	0.890
12	99.567	0.813
13	100.000	0.539

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6118	0.6118
2	0.7532	0.1414
3	0.8507	0.0974
4	0.9274	0.0767
5	0.9916	0.0642
6	1.0473	0.0557
7	1.0969	0.0496
8	1.1417	0.0448
9	1.1828	0.0411
10	1.2207	0.0380
11	1.2562	0.0354
12	1.2894	0.0332
13	1.3388	0.0494
14	1.3862	0.0474
15	1.4318	0.0456
16	1.4759	0.0441
17	1.5185	0.0426
18	1.5598	0.0413
19	1.5999	0.0401
20	1.6389	0.0390
21	1.6769	0.0380
22	1.7139	0.0370
23	1.7500	0.0361
24	1.7854	0.0353
25	1.8199	0.0346
26	1.8537	0.0338
27	1.8869	0.0331
28	1.9194	0.0325
29	1.9513	0.0319
30	1.9826	0.0313
31	2.0133	0.0308
32	2.0436	0.0302
33	2.0733	0.0297
34	2.1026	0.0293
35	2.1314	0.0288
36	2.1598	0.0284
37	2.1877	0.0279
38	2.2153	0.0275

39	2.2424	0.0272
40	2.2692	0.0268
41	2.2957	0.0264
42	2.3218	0.0261
43	2.3476	0.0258
44	2.3730	0.0255
45	2.3982	0.0252
46	2.4230	0.0249
47	2.4476	0.0246
48	2.4719	0.0243
49	2.4959	0.0240
50	2.5197	0.0238
51	2.5432	0.0235
52	2.5665	0.0233
53	2.5896	0.0230
54	2.6124	0.0228
55	2.6350	0.0226
56	2.6573	0.0224
57	2.6795	0.0222
58	2.7014	0.0220
59	2.7232	0.0218
60	2.7448	0.0216
61	2.7661	0.0214
62	2.7873	0.0212
63	2.8083	0.0210
64	2.8292	0.0208
65	2.8498	0.0207
66	2.8703	0.0205
67	2.8906	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9506	0.0199
71	2.9703	0.0197
72	2.9899	0.0196
73	3.0121	0.0222
74	3.0341	0.0220
75	3.0560	0.0219
76	3.0777	0.0217
77	3.0993	0.0216
78	3.1208	0.0215
79	3.1422	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2263	0.0209
84	3.2471	0.0208
85	3.2677	0.0206
86	3.2883	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3693	0.0201
91	3.3893	0.0200
92	3.4091	0.0199
93	3.4289	0.0198
94	3.4486	0.0197

95	3.4682	0.0196
96	3.4877	0.0195
97	3.5071	0.0194
98	3.5264	0.0193
99	3.5456	0.0192
100	3.5648	0.0191
101	3.5838	0.0190
102	3.6028	0.0190
103	3.6216	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6777	0.0186
107	3.6962	0.0185
108	3.7147	0.0185
109	3.7331	0.0184
110	3.7514	0.0183
111	3.7696	0.0182
112	3.7877	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8417	0.0179
116	3.8595	0.0178
117	3.8773	0.0178
118	3.8950	0.0177
119	3.9127	0.0176
120	3.9302	0.0176
121	3.9477	0.0175
122	3.9652	0.0174
123	3.9825	0.0174
124	3.9998	0.0173
125	4.0171	0.0172
126	4.0342	0.0172
127	4.0513	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1192	0.0169
132	4.1360	0.0168
133	4.1527	0.0167
134	4.1694	0.0167
135	4.1860	0.0166
136	4.2026	0.0166
137	4.2191	0.0165
138	4.2356	0.0165
139	4.2520	0.0164
140	4.2683	0.0163
141	4.2846	0.0163
142	4.3008	0.0162
143	4.3170	0.0162
144	4.3332	0.0161
145	4.3493	0.0161
146	4.3653	0.0160
147	4.3813	0.0160
148	4.3972	0.0159
149	4.4131	0.0159
150	4.4289	0.0158

151	4.4447	0.0158
152	4.4604	0.0157
153	4.4761	0.0157
154	4.4917	0.0156
155	4.5073	0.0156
156	4.5229	0.0155
157	4.5384	0.0155
158	4.5538	0.0155
159	4.5692	0.0154
160	4.5846	0.0154
161	4.5999	0.0153
162	4.6152	0.0153
163	4.6304	0.0152
164	4.6456	0.0152
165	4.6607	0.0151
166	4.6758	0.0151
167	4.6909	0.0151
168	4.7059	0.0150
169	4.7209	0.0150
170	4.7358	0.0149
171	4.7507	0.0149
172	4.7656	0.0149
173	4.7804	0.0148
174	4.7951	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8392	0.0147
178	4.8538	0.0146
179	4.8684	0.0146
180	4.8830	0.0145
181	4.8975	0.0145
182	4.9119	0.0145
183	4.9264	0.0144
184	4.9408	0.0144
185	4.9551	0.0144
186	4.9694	0.0143
187	4.9837	0.0143
188	4.9980	0.0142
189	5.0122	0.0142
190	5.0264	0.0142
191	5.0405	0.0141
192	5.0546	0.0141
193	5.0687	0.0141
194	5.0827	0.0140
195	5.0967	0.0140
196	5.1107	0.0140
197	5.1247	0.0139
198	5.1386	0.0139
199	5.1524	0.0139
200	5.1663	0.0138
201	5.1801	0.0138
202	5.1939	0.0138
203	5.2076	0.0137
204	5.2213	0.0137
205	5.2350	0.0137
206	5.2487	0.0137

207	5.2623	0.0136
208	5.2759	0.0136
209	5.2895	0.0136
210	5.3030	0.0135
211	5.3165	0.0135
212	5.3300	0.0135
213	5.3434	0.0134
214	5.3568	0.0134
215	5.3702	0.0134
216	5.3836	0.0134
217	5.3969	0.0133
218	5.4102	0.0133
219	5.4235	0.0133
220	5.4367	0.0132
221	5.4499	0.0132
222	5.4631	0.0132
223	5.4763	0.0132
224	5.4894	0.0131
225	5.5025	0.0131
226	5.5156	0.0131
227	5.5287	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5676	0.0130
231	5.5806	0.0129
232	5.5935	0.0129
233	5.6064	0.0129
234	5.6193	0.0129
235	5.6321	0.0128
236	5.6449	0.0128
237	5.6577	0.0128
238	5.6705	0.0128
239	5.6832	0.0127
240	5.6960	0.0127
241	5.7086	0.0127
242	5.7213	0.0127
243	5.7340	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7717	0.0126
247	5.7843	0.0125
248	5.7968	0.0125
249	5.8093	0.0125
250	5.8218	0.0125
251	5.8343	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8838	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9453	0.0123
261	5.9576	0.0122
262	5.9698	0.0122

263	5.9819	0.0122
264	5.9941	0.0122
265	6.0063	0.0121
266	6.0184	0.0121
267	6.0305	0.0121
268	6.0426	0.0121
269	6.0546	0.0121
270	6.0667	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1027	0.0120
274	6.1146	0.0120
275	6.1265	0.0119
276	6.1385	0.0119
277	6.1504	0.0119
278	6.1622	0.0119
279	6.1741	0.0119
280	6.1859	0.0118
281	6.1977	0.0118
282	6.2095	0.0118
283	6.2213	0.0118
284	6.2331	0.0118
285	6.2448	0.0117
286	6.2565	0.0117
287	6.2682	0.0117
288	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110

26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133

82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184

138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0295
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0361	0.0040	0.0321
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0577
191	0.0974	0.0065	0.0909
192	0.1414	0.0065	0.1349
193	0.6118	0.0065	0.6053

194	0.0767	0.0065	0.0701
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133

250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 35.45(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	10.0	20.0	30.0	40.0
0+ 5	0.0005	0.08	Q	|	|	|	|
0+10	0.0044	0.56	Q	|	|	|	|

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0+15       0.0106      0.90  Q        |         |         |         |
0+20       0.0177      1.04  VQ       |         |         |         |
0+25       0.0255      1.13  VQ       |         |         |         |
0+30       0.0337      1.18  VQ       |         |         |         |
0+35       0.0421      1.22  VQ       |         |         |         |
0+40       0.0507      1.25  VQ       |         |         |         |
0+45       0.0595      1.27  VQ       |         |         |         |
0+50       0.0684      1.29  VQ       |         |         |         |
0+55       0.0773      1.30  VQ       |         |         |         |
1+ 0       0.0864      1.31  VQ       |         |         |         |
1+ 5       0.0955      1.32  VQ       |         |         |         |
1+10       0.1046      1.32  VQ       |         |         |         |
1+15       0.1137      1.33  VQ       |         |         |         |
1+20       0.1229      1.33  |Q       |         |         |         |
1+25       0.1321      1.34  |Q       |         |         |         |
1+30       0.1413      1.34  |Q       |         |         |         |
1+35       0.1506      1.34  |Q       |         |         |         |
1+40       0.1598      1.35  |Q       |         |         |         |
1+45       0.1691      1.35  |Q       |         |         |         |
1+50       0.1785      1.35  |Q       |         |         |         |
1+55       0.1878      1.36  |Q       |         |         |         |
2+ 0       0.1972      1.36  |Q       |         |         |         |
2+ 5       0.2066      1.36  |Q       |         |         |         |
2+10       0.2160      1.37  |Q       |         |         |         |
2+15       0.2254      1.37  |Q       |         |         |         |
2+20       0.2349      1.38  |Q       |         |         |         |
2+25       0.2444      1.38  |QV      |         |         |         |
2+30       0.2539      1.38  |QV      |         |         |         |
2+35       0.2635      1.39  |QV      |         |         |         |
2+40       0.2731      1.39  |QV      |         |         |         |
2+45       0.2827      1.39  |QV      |         |         |         |
2+50       0.2923      1.40  |QV      |         |         |         |
2+55       0.3020      1.40  |QV      |         |         |         |
3+ 0       0.3116      1.41  |QV      |         |         |         |
3+ 5       0.3214      1.41  |QV      |         |         |         |
3+10       0.3311      1.42  |QV      |         |         |         |
3+15       0.3409      1.42  |QV      |         |         |         |
3+20       0.3507      1.42  |QV      |         |         |         |
3+25       0.3605      1.43  |QV      |         |         |         |
3+30       0.3704      1.43  |Q V     |         |         |         |
3+35       0.3803      1.44  |Q V     |         |         |         |
3+40       0.3902      1.44  |Q V     |         |         |         |
3+45       0.4002      1.45  |Q V     |         |         |         |
3+50       0.4102      1.45  |Q V     |         |         |         |
3+55       0.4202      1.45  |Q V     |         |         |         |
4+ 0       0.4302      1.46  |Q V     |         |         |         |
4+ 5       0.4403      1.46  |Q V     |         |         |         |
4+10       0.4504      1.47  |Q V     |         |         |         |
4+15       0.4606      1.47  |Q V     |         |         |         |
4+20       0.4707      1.48  |Q V     |         |         |         |
4+25       0.4810      1.48  |Q V     |         |         |         |
4+30       0.4912      1.49  |Q  V    |         |         |         |
4+35       0.5015      1.49  |Q  V    |         |         |         |
4+40       0.5118      1.50  |Q  V    |         |         |         |
4+45       0.5221      1.50  |Q  V    |         |         |         |
4+50       0.5325      1.51  |Q  V    |         |         |         |
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4+55	0.5430	1.51	|Q V	|	|	|	|
5+ 0	0.5534	1.52	|Q V	|	|	|	|
5+ 5	0.5639	1.52	|Q V	|	|	|	|
5+10	0.5744	1.53	|Q V	|	|	|	|
5+15	0.5850	1.53	|Q V	|	|	|	|
5+20	0.5956	1.54	|Q V	|	|	|	|
5+25	0.6062	1.54	|Q V	|	|	|	|
5+30	0.6169	1.55	|Q V	|	|	|	|
5+35	0.6276	1.56	|Q V	|	|	|	|
5+40	0.6384	1.56	|Q V	|	|	|	|
5+45	0.6492	1.57	|Q V	|	|	|	|
5+50	0.6600	1.57	|Q V	|	|	|	|
5+55	0.6709	1.58	|Q V	|	|	|	|
6+ 0	0.6818	1.59	|Q V	|	|	|	|
6+ 5	0.6928	1.59	|Q V	|	|	|	|
6+10	0.7038	1.60	|Q V	|	|	|	|
6+15	0.7148	1.60	|Q V	|	|	|	|
6+20	0.7259	1.61	|Q V	|	|	|	|
6+25	0.7370	1.62	|Q V	|	|	|	|
6+30	0.7482	1.62	|Q V	|	|	|	|
6+35	0.7594	1.63	|Q V	|	|	|	|
6+40	0.7707	1.64	|Q V	|	|	|	|
6+45	0.7820	1.64	|Q V	|	|	|	|
6+50	0.7933	1.65	|Q V	|	|	|	|
6+55	0.8047	1.66	|Q V	|	|	|	|
7+ 0	0.8162	1.66	|Q V	|	|	|	|
7+ 5	0.8277	1.67	|Q V	|	|	|	|
7+10	0.8392	1.68	|Q V	|	|	|	|
7+15	0.8508	1.68	|Q V	|	|	|	|
7+20	0.8625	1.69	|Q V	|	|	|	|
7+25	0.8742	1.70	|Q V	|	|	|	|
7+30	0.8859	1.71	|Q V	|	|	|	|
7+35	0.8977	1.71	|Q V	|	|	|	|
7+40	0.9096	1.72	|Q V	|	|	|	|
7+45	0.9215	1.73	|Q V	|	|	|	|
7+50	0.9334	1.74	|Q V	|	|	|	|
7+55	0.9455	1.74	|Q V	|	|	|	|
8+ 0	0.9575	1.75	|Q V	|	|	|	|
8+ 5	0.9697	1.76	|Q V	|	|	|	|
8+10	0.9818	1.77	|Q V	|	|	|	|
8+15	0.9941	1.78	|Q V	|	|	|	|
8+20	1.0064	1.79	|Q V	|	|	|	|
8+25	1.0188	1.80	|Q V	|	|	|	|
8+30	1.0312	1.80	|Q V	|	|	|	|
8+35	1.0437	1.81	|Q V	|	|	|	|
8+40	1.0562	1.82	|Q V	|	|	|	|
8+45	1.0689	1.83	|Q V	|	|	|	|
8+50	1.0815	1.84	|Q V	|	|	|	|
8+55	1.0943	1.85	|Q V|	|	|	|	|
9+ 0	1.1071	1.86	|Q V|	|	|	|	|
9+ 5	1.1200	1.87	|Q V|	|	|	|	|
9+10	1.1330	1.88	|Q V|	|	|	|	|
9+15	1.1460	1.89	|Q V|	|	|	|	|
9+20	1.1591	1.90	|Q V|	|	|	|	|
9+25	1.1723	1.91	|Q V|	|	|	|	|
9+30	1.1855	1.92	|Q V|	|	|	|	|

9+35	1.1988	1.93	Q	V			
9+40	1.2123	1.95	Q	V			
9+45	1.2257	1.96	Q	V			
9+50	1.2393	1.97	Q	V			
9+55	1.2530	1.98	Q	V			
10+ 0	1.2667	1.99	Q	V			
10+ 5	1.2805	2.01	Q	V			
10+10	1.2944	2.02	Q	V			
10+15	1.3084	2.03	Q	V			
10+20	1.3225	2.05	Q	V			
10+25	1.3367	2.06	Q	V			
10+30	1.3509	2.07	Q	V			
10+35	1.3653	2.09	Q	V			
10+40	1.3798	2.10	Q	V			
10+45	1.3944	2.12	Q	V			
10+50	1.4090	2.13	Q	V			
10+55	1.4238	2.15	Q	V			
11+ 0	1.4387	2.16	Q	V			
11+ 5	1.4537	2.18	Q	V			
11+10	1.4688	2.19	Q	V			
11+15	1.4840	2.21	Q	V			
11+20	1.4994	2.23	Q	V			
11+25	1.5149	2.25	Q	V			
11+30	1.5305	2.27	Q	V			
11+35	1.5462	2.28	Q	V			
11+40	1.5620	2.30	Q	V			
11+45	1.5780	2.32	Q	V			
11+50	1.5942	2.34	Q	V			
11+55	1.6104	2.36	Q	V			
12+ 0	1.6269	2.38	Q	V			
12+ 5	1.6433	2.39	Q	V			
12+10	1.6591	2.30	Q	V			
12+15	1.6746	2.24	Q	V			
12+20	1.6900	2.23	Q	V			
12+25	1.7054	2.24	Q	V			
12+30	1.7209	2.25	Q	V			
12+35	1.7365	2.27	Q	V			
12+40	1.7523	2.29	Q	V			
12+45	1.7682	2.31	Q	V			
12+50	1.7843	2.34	Q	V			
12+55	1.8007	2.37	Q	V			
13+ 0	1.8172	2.40	Q	V			
13+ 5	1.8339	2.43	Q	V			
13+10	1.8509	2.47	Q	V			
13+15	1.8682	2.50	Q	V			
13+20	1.8857	2.54	Q	V			
13+25	1.9034	2.58	Q	V			
13+30	1.9215	2.62	Q	V			
13+35	1.9398	2.66	Q	V			
13+40	1.9585	2.71	Q	V			
13+45	1.9775	2.76	Q	V			
13+50	1.9968	2.81	Q	V			
13+55	2.0165	2.86	Q	V			
14+ 0	2.0366	2.92	Q	V			
14+ 5	2.0571	2.97	Q	V			
14+10	2.0780	3.04	Q	V			

14+15	2.0994	3.10	Q	V			
14+20	2.1213	3.18	Q	V			
14+25	2.1437	3.25	Q	V			
14+30	2.1667	3.34	Q	V			
14+35	2.1902	3.42	Q	V			
14+40	2.2144	3.52	Q	V			
14+45	2.2394	3.62	Q	V			
14+50	2.2651	3.73	Q	V			
14+55	2.2916	3.85	Q	V			
15+ 0	2.3191	3.99	Q	V			
15+ 5	2.3476	4.14	Q	V			
15+10	2.3773	4.31	Q	V			
15+15	2.4082	4.49	Q	V			
15+20	2.4407	4.72	Q	V			
15+25	2.4740	4.84	Q	V			
15+30	2.5042	4.38	Q	V			
15+35	2.5329	4.17	Q	V			
15+40	2.5630	4.36	Q	V			
15+45	2.5953	4.70	Q	V			
15+50	2.6323	5.36	Q	V			
15+55	2.6761	6.36	Q	V			
16+ 0	2.7358	8.67	Q	V			
16+ 5	2.8425	15.49	Q	V			
16+10	3.0866	35.45	V	Q			
16+15	3.2684	26.39	Q	V			
16+20	3.3715	14.98	Q	V			
16+25	3.4442	10.56	Q	V			
16+30	3.5039	8.66	Q	V			
16+35	3.5556	7.51	Q	V			
16+40	3.6003	6.49	Q	V			
16+45	3.6393	5.66	Q	V			
16+50	3.6733	4.93	Q	V			
16+55	3.7047	4.57	Q	V			
17+ 0	3.7340	4.25	Q	V			
17+ 5	3.7605	3.85	Q	V			
17+10	3.7837	3.36	Q	V			
17+15	3.8057	3.19	Q	V			
17+20	3.8267	3.05	Q	V			
17+25	3.8469	2.93	Q	V			
17+30	3.8664	2.82	Q	V			
17+35	3.8851	2.72	Q	V			
17+40	3.9032	2.63	Q	V			
17+45	3.9207	2.54	Q	V			
17+50	3.9377	2.47	Q	V			
17+55	3.9542	2.40	Q	V			
18+ 0	3.9703	2.34	Q	V			
18+ 5	3.9861	2.30	Q	V			
18+10	4.0023	2.35	Q	V			
18+15	4.0187	2.38	Q	V			
18+20	4.0351	2.37	Q	V			
18+25	4.0512	2.34	Q	V			
18+30	4.0671	2.31	Q	V			
18+35	4.0828	2.28	Q	V			
18+40	4.0983	2.25	Q	V			
18+45	4.1136	2.22	Q	V			
18+50	4.1287	2.19	Q	V			

18+55	4.1435	2.16	Q				V
19+ 0	4.1582	2.13	Q				V
19+ 5	4.1726	2.10	Q				V
19+10	4.1869	2.07	Q				V
19+15	4.2010	2.04	Q				V
19+20	4.2148	2.02	Q				V
19+25	4.2286	1.99	Q				V
19+30	4.2421	1.97	Q				V
19+35	4.2555	1.94	Q				V
19+40	4.2687	1.92	Q				V
19+45	4.2818	1.90	Q				V
19+50	4.2948	1.88	Q				V
19+55	4.3076	1.86	Q				V
20+ 0	4.3202	1.84	Q				V
20+ 5	4.3328	1.82	Q				V
20+10	4.3452	1.80	Q				V
20+15	4.3575	1.79	Q				V
20+20	4.3697	1.77	Q				V
20+25	4.3817	1.75	Q				V
20+30	4.3937	1.74	Q				V
20+35	4.4055	1.72	Q				V
20+40	4.4173	1.70	Q				V
20+45	4.4289	1.69	Q				V
20+50	4.4404	1.67	Q				V
20+55	4.4519	1.66	Q				V
21+ 0	4.4632	1.65	Q				V
21+ 5	4.4745	1.63	Q				V
21+10	4.4856	1.62	Q				V
21+15	4.4967	1.61	Q				V
21+20	4.5077	1.60	Q				V
21+25	4.5186	1.58	Q				V
21+30	4.5294	1.57	Q				V
21+35	4.5402	1.56	Q				V
21+40	4.5508	1.55	Q				V
21+45	4.5614	1.54	Q				V
21+50	4.5719	1.53	Q				V
21+55	4.5824	1.52	Q				V
22+ 0	4.5928	1.51	Q				V
22+ 5	4.6031	1.50	Q				V
22+10	4.6133	1.49	Q				V
22+15	4.6235	1.48	Q				V
22+20	4.6336	1.47	Q				V
22+25	4.6436	1.46	Q				V
22+30	4.6536	1.45	Q				V
22+35	4.6635	1.44	Q				V
22+40	4.6734	1.43	Q				V
22+45	4.6832	1.42	Q				V
22+50	4.6929	1.41	Q				V
22+55	4.7026	1.41	Q				V
23+ 0	4.7122	1.40	Q				V
23+ 5	4.7218	1.39	Q				V
23+10	4.7313	1.38	Q				V
23+15	4.7408	1.37	Q				V
23+20	4.7502	1.37	Q				V
23+25	4.7596	1.36	Q				V
23+30	4.7689	1.35	Q				V

```
   23+35       4.7781      1.34  |Q        |         |         |        V|
   23+40       4.7873      1.34  |Q        |         |         |        V|
   23+45       4.7965      1.33  |Q        |         |         |        V|
   23+50       4.8056      1.32  |Q        |         |         |        V|
   23+55       4.8147      1.32  |Q        |         |         |        V|
   24+ 0       4.8237      1.31  |Q        |         |         |        V|
-------------------------------------------------------------------------
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U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA F

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
29.35	1	0.77
Rainfall data for year 2		
29.35	6	1.08
Rainfall data for year 2		
29.35	24	2.03
Rainfall data for year 100		
29.35	1	1.29
Rainfall data for year 100		
29.35	6	2.99
Rainfall data for year 100		

```
            29.35           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         29.35      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     2.94   0.100         32.0      52.0       9.23     0.229
    26.42   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.207 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      29.35(Ac.)
Catchment Lag time =   0.166 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 50.3221
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      29.35(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.611(In)
30-minute factor = 0.999    Adjusted rainfall =  1.046(In)
1-hour factor = 0.999       Adjusted rainfall =  1.288(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 354.95 (CFS))

1	4.005	14.216
2	30.892	95.434
3	60.850	106.339
4	73.992	46.647
5	81.622	27.083
6	86.754	18.216
7	90.296	12.571
8	92.885	9.191
9	94.842	6.948
10	96.329	5.276
11	97.410	3.838
12	98.087	2.405
13	98.648	1.991
14	99.251	2.139
15	99.685	1.542
16	100.000	1.117

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6113	0.6113
2	0.7526	0.1413
3	0.8499	0.0973
4	0.9265	0.0766
5	0.9907	0.0641
6	1.0464	0.0557
7	1.0959	0.0495
8	1.1407	0.0448
9	1.1817	0.0410
10	1.2197	0.0379
11	1.2550	0.0354
12	1.2882	0.0332
13	1.3376	0.0494
14	1.3851	0.0474
15	1.4308	0.0457
16	1.4748	0.0441
17	1.5175	0.0427
18	1.5588	0.0413
19	1.5990	0.0401
20	1.6380	0.0390
21	1.6760	0.0380
22	1.7131	0.0371
23	1.7493	0.0362
24	1.7847	0.0354
25	1.8192	0.0346
26	1.8531	0.0339
27	1.8863	0.0332
28	1.9188	0.0325
29	1.9508	0.0319
30	1.9821	0.0313
31	2.0129	0.0308
32	2.0432	0.0303
33	2.0730	0.0298
34	2.1023	0.0293
35	2.1311	0.0289

36	2.1595	0.0284
37	2.1875	0.0279
38	2.2150	0.0275
39	2.2422	0.0272
40	2.2690	0.0268
41	2.2955	0.0264
42	2.3216	0.0261
43	2.3473	0.0258
44	2.3728	0.0255
45	2.3980	0.0252
46	2.4228	0.0249
47	2.4474	0.0246
48	2.4717	0.0243
49	2.4957	0.0240
50	2.5195	0.0238
51	2.5430	0.0235
52	2.5663	0.0233
53	2.5893	0.0230
54	2.6122	0.0228
55	2.6347	0.0226
56	2.6571	0.0224
57	2.6793	0.0222
58	2.7012	0.0220
59	2.7230	0.0218
60	2.7446	0.0216
61	2.7659	0.0214
62	2.7871	0.0212
63	2.8081	0.0210
64	2.8290	0.0208
65	2.8496	0.0207
66	2.8701	0.0205
67	2.8904	0.0203
68	2.9106	0.0202
69	2.9306	0.0200
70	2.9505	0.0199
71	2.9702	0.0197
72	2.9897	0.0196
73	3.0119	0.0222
74	3.0339	0.0220
75	3.0558	0.0219
76	3.0775	0.0217
77	3.0991	0.0216
78	3.1206	0.0215
79	3.1420	0.0214
80	3.1632	0.0212
81	3.1843	0.0211
82	3.2053	0.0210
83	3.2262	0.0209
84	3.2469	0.0208
85	3.2676	0.0206
86	3.2881	0.0205
87	3.3085	0.0204
88	3.3288	0.0203
89	3.3490	0.0202
90	3.3691	0.0201
91	3.3891	0.0200

92	3.4090	0.0199
93	3.4287	0.0198
94	3.4484	0.0197
95	3.4680	0.0196
96	3.4875	0.0195
97	3.5069	0.0194
98	3.5262	0.0193
99	3.5455	0.0192
100	3.5646	0.0191
101	3.5836	0.0190
102	3.6026	0.0190
103	3.6214	0.0189
104	3.6402	0.0188
105	3.6589	0.0187
106	3.6775	0.0186
107	3.6961	0.0185
108	3.7145	0.0185
109	3.7329	0.0184
110	3.7512	0.0183
111	3.7694	0.0182
112	3.7875	0.0181
113	3.8056	0.0181
114	3.8236	0.0180
115	3.8415	0.0179
116	3.8594	0.0178
117	3.8771	0.0178
118	3.8948	0.0177
119	3.9125	0.0176
120	3.9300	0.0176
121	3.9475	0.0175
122	3.9650	0.0174
123	3.9823	0.0174
124	3.9996	0.0173
125	4.0169	0.0172
126	4.0341	0.0172
127	4.0512	0.0171
128	4.0682	0.0170
129	4.0852	0.0170
130	4.1021	0.0169
131	4.1190	0.0169
132	4.1358	0.0168
133	4.1525	0.0167
134	4.1692	0.0167
135	4.1858	0.0166
136	4.2024	0.0166
137	4.2189	0.0165
138	4.2354	0.0165
139	4.2518	0.0164
140	4.2681	0.0163
141	4.2844	0.0163
142	4.3007	0.0162
143	4.3169	0.0162
144	4.3330	0.0161
145	4.3491	0.0161
146	4.3651	0.0160
147	4.3811	0.0160

148	4.3970	0.0159
149	4.4129	0.0159
150	4.4287	0.0158
151	4.4445	0.0158
152	4.4602	0.0157
153	4.4759	0.0157
154	4.4916	0.0156
155	4.5072	0.0156
156	4.5227	0.0155
157	4.5382	0.0155
158	4.5536	0.0155
159	4.5691	0.0154
160	4.5844	0.0154
161	4.5997	0.0153
162	4.6150	0.0153
163	4.6302	0.0152
164	4.6454	0.0152
165	4.6606	0.0151
166	4.6757	0.0151
167	4.6907	0.0151
168	4.7057	0.0150
169	4.7207	0.0150
170	4.7356	0.0149
171	4.7505	0.0149
172	4.7654	0.0149
173	4.7802	0.0148
174	4.7950	0.0148
175	4.8097	0.0147
176	4.8244	0.0147
177	4.8391	0.0147
178	4.8537	0.0146
179	4.8683	0.0146
180	4.8828	0.0145
181	4.8973	0.0145
182	4.9118	0.0145
183	4.9262	0.0144
184	4.9406	0.0144
185	4.9549	0.0144
186	4.9693	0.0143
187	4.9835	0.0143
188	4.9978	0.0142
189	5.0120	0.0142
190	5.0262	0.0142
191	5.0403	0.0141
192	5.0544	0.0141
193	5.0685	0.0141
194	5.0826	0.0140
195	5.0966	0.0140
196	5.1105	0.0140
197	5.1245	0.0139
198	5.1384	0.0139
199	5.1523	0.0139
200	5.1661	0.0138
201	5.1799	0.0138
202	5.1937	0.0138
203	5.2075	0.0137

204	5.2212	0.0137
205	5.2349	0.0137
206	5.2485	0.0137
207	5.2621	0.0136
208	5.2757	0.0136
209	5.2893	0.0136
210	5.3028	0.0135
211	5.3163	0.0135
212	5.3298	0.0135
213	5.3433	0.0134
214	5.3567	0.0134
215	5.3701	0.0134
216	5.3834	0.0134
217	5.3967	0.0133
218	5.4100	0.0133
219	5.4233	0.0133
220	5.4366	0.0132
221	5.4498	0.0132
222	5.4630	0.0132
223	5.4761	0.0132
224	5.4893	0.0131
225	5.5024	0.0131
226	5.5154	0.0131
227	5.5285	0.0131
228	5.5415	0.0130
229	5.5545	0.0130
230	5.5675	0.0130
231	5.5804	0.0129
232	5.5934	0.0129
233	5.6062	0.0129
234	5.6191	0.0129
235	5.6320	0.0128
236	5.6448	0.0128
237	5.6576	0.0128
238	5.6703	0.0128
239	5.6831	0.0127
240	5.6958	0.0127
241	5.7085	0.0127
242	5.7212	0.0127
243	5.7338	0.0126
244	5.7464	0.0126
245	5.7590	0.0126
246	5.7716	0.0126
247	5.7841	0.0125
248	5.7967	0.0125
249	5.8092	0.0125
250	5.8216	0.0125
251	5.8341	0.0125
252	5.8465	0.0124
253	5.8589	0.0124
254	5.8713	0.0124
255	5.8837	0.0124
256	5.8960	0.0123
257	5.9083	0.0123
258	5.9206	0.0123
259	5.9329	0.0123

260	5.9452	0.0123
261	5.9574	0.0122
262	5.9696	0.0122
263	5.9818	0.0122
264	5.9940	0.0122
265	6.0061	0.0121
266	6.0182	0.0121
267	6.0303	0.0121
268	6.0424	0.0121
269	6.0545	0.0121
270	6.0665	0.0120
271	6.0785	0.0120
272	6.0905	0.0120
273	6.1025	0.0120
274	6.1145	0.0120
275	6.1264	0.0119
276	6.1383	0.0119
277	6.1502	0.0119
278	6.1621	0.0119
279	6.1739	0.0119
280	6.1858	0.0118
281	6.1976	0.0118
282	6.2094	0.0118
283	6.2212	0.0118
284	6.2329	0.0118
285	6.2447	0.0117
286	6.2564	0.0117
287	6.2681	0.0117
288	6.2798	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109

23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132

79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180

135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0253
170	0.0289	0.0032	0.0256
171	0.0298	0.0033	0.0265
172	0.0303	0.0034	0.0269
173	0.0313	0.0035	0.0279
174	0.0319	0.0036	0.0284
175	0.0332	0.0037	0.0295
176	0.0339	0.0038	0.0301
177	0.0354	0.0039	0.0314
178	0.0362	0.0040	0.0322
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0427	0.0047	0.0379
183	0.0457	0.0051	0.0406
184	0.0474	0.0053	0.0422
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0314
187	0.0410	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0641	0.0065	0.0576

191	0.0973	0.0065	0.0908
192	0.1413	0.0065	0.1348
193	0.6113	0.0065	0.6047
194	0.0766	0.0065	0.0701
195	0.0495	0.0055	0.0440
196	0.0379	0.0042	0.0337
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0357
200	0.0371	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0274
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137

247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 83.29(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

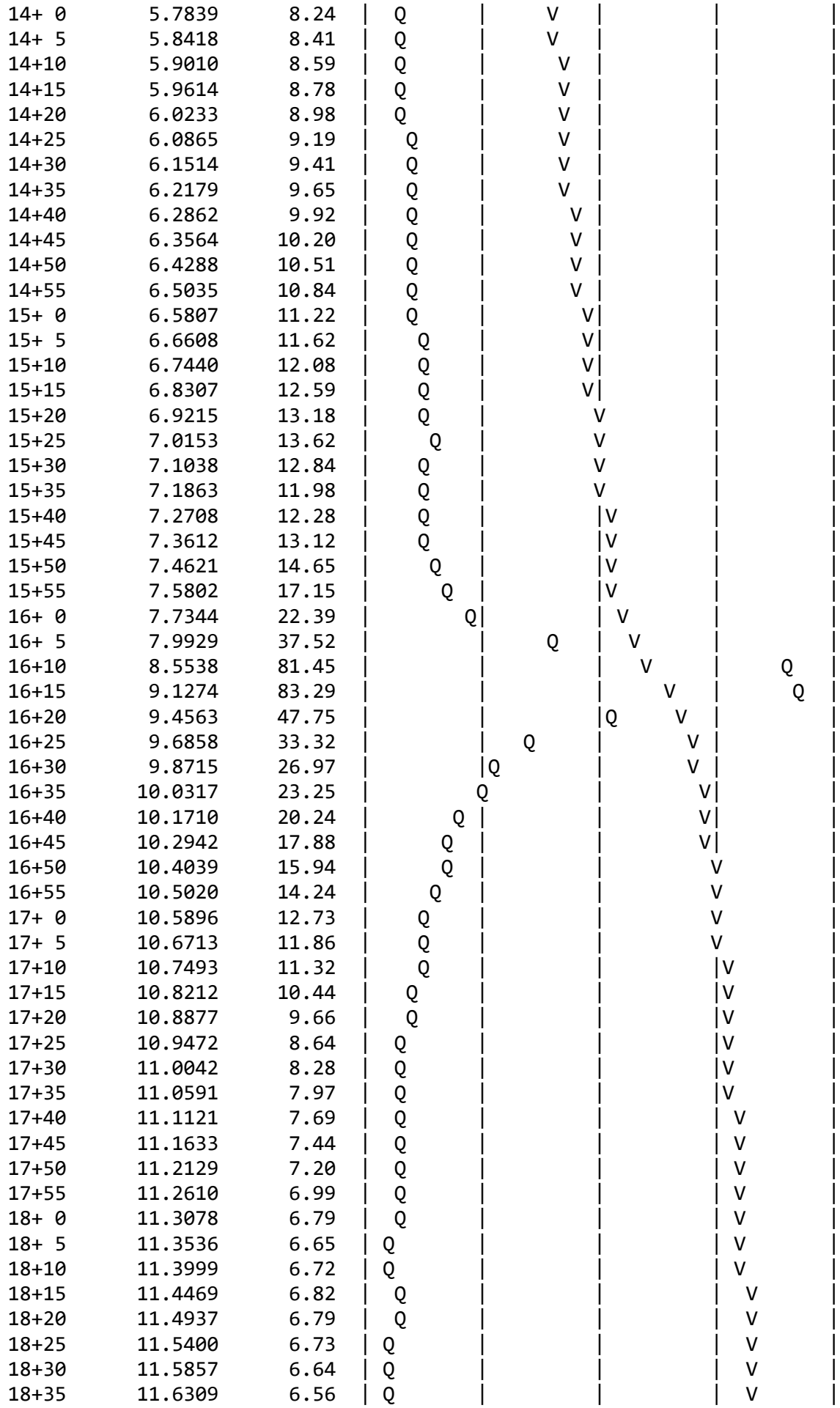
Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 22.5 45.0 67.5 90.0

0+ 5	0.0010	0.15	Q				
0+10	0.0089	1.14	Q				
0+15	0.0243	2.24	Q				
0+20	0.0432	2.73	VQ				
0+25	0.0640	3.02	VQ				
0+30	0.0861	3.22	VQ				
0+35	0.1093	3.36	VQ				
0+40	0.1331	3.46	VQ				
0+45	0.1575	3.54	VQ				
0+50	0.1823	3.61	VQ				
0+55	0.2075	3.65	VQ				
1+ 0	0.2329	3.69	VQ				
1+ 5	0.2585	3.72	VQ				
1+10	0.2843	3.75	VQ				
1+15	0.3103	3.78	VQ				
1+20	0.3365	3.80	VQ				
1+25	0.3627	3.81	|Q				
1+30	0.3890	3.82	|Q				
1+35	0.4153	3.83	|Q				
1+40	0.4417	3.84	|Q				
1+45	0.4682	3.85	|Q				
1+50	0.4948	3.86	|Q				
1+55	0.5214	3.87	|Q				
2+ 0	0.5482	3.88	|Q				
2+ 5	0.5749	3.89	|Q				
2+10	0.6018	3.90	|Q				
2+15	0.6287	3.91	|Q				
2+20	0.6557	3.92	|Q				
2+25	0.6828	3.93	|Q				
2+30	0.7100	3.94	|QV				
2+35	0.7372	3.95	|QV				
2+40	0.7645	3.97	|QV				
2+45	0.7919	3.98	|QV				
2+50	0.8193	3.99	|QV				
2+55	0.8469	4.00	|QV				
3+ 0	0.8745	4.01	|QV				
3+ 5	0.9022	4.02	|QV				
3+10	0.9300	4.03	|QV				
3+15	0.9579	4.05	|QV				
3+20	0.9858	4.06	|QV				
3+25	1.0138	4.07	|QV				
3+30	1.0420	4.08	|Q V				
3+35	1.0702	4.10	|Q V				
3+40	1.0985	4.11	|Q V				
3+45	1.1268	4.12	|Q V				
3+50	1.1553	4.13	|Q V				
3+55	1.1839	4.15	|Q V				
4+ 0	1.2125	4.16	|Q V				
4+ 5	1.2412	4.17	|Q V				
4+10	1.2701	4.19	|Q V				
4+15	1.2990	4.20	|Q V				
4+20	1.3280	4.21	|Q V				
4+25	1.3571	4.23	|Q V				
4+30	1.3863	4.24	|Q V				
4+35	1.4156	4.25	|Q V				

4+40	1.4450	4.27	|Q V |	|	|	|
4+45	1.4745	4.28	|Q V |	|	|	|
4+50	1.5041	4.30	|Q V |	|	|	|
4+55	1.5338	4.31	|Q V |	|	|	|
5+ 0	1.5636	4.33	|Q V |	|	|	|
5+ 5	1.5935	4.34	|Q V |	|	|	|
5+10	1.6235	4.36	|Q V |	|	|	|
5+15	1.6536	4.37	|Q V |	|	|	|
5+20	1.6838	4.39	|Q V |	|	|	|
5+25	1.7141	4.40	|Q V |	|	|	|
5+30	1.7445	4.42	|Q V |	|	|	|
5+35	1.7751	4.43	|Q V |	|	|	|
5+40	1.8057	4.45	|Q V |	|	|	|
5+45	1.8365	4.47	|Q V |	|	|	|
5+50	1.8673	4.48	|Q V |	|	|	|
5+55	1.8983	4.50	|Q V |	|	|	|
6+ 0	1.9294	4.52	| Q V |	|	|	|
6+ 5	1.9607	4.53	| Q V |	|	|	|
6+10	1.9920	4.55	| Q V |	|	|	|
6+15	2.0235	4.57	| Q V |	|	|	|
6+20	2.0550	4.59	| Q V |	|	|	|
6+25	2.0868	4.60	| Q V |	|	|	|
6+30	2.1186	4.62	| Q V |	|	|	|
6+35	2.1505	4.64	| Q V |	|	|	|
6+40	2.1826	4.66	| Q V |	|	|	|
6+45	2.2148	4.68	| Q V |	|	|	|
6+50	2.2472	4.70	| Q V |	|	|	|
6+55	2.2797	4.72	| Q V |	|	|	|
7+ 0	2.3123	4.74	| Q V |	|	|	|
7+ 5	2.3450	4.76	| Q V |	|	|	|
7+10	2.3779	4.78	| Q V |	|	|	|
7+15	2.4110	4.80	| Q V |	|	|	|
7+20	2.4441	4.82	| Q V |	|	|	|
7+25	2.4774	4.84	| Q V |	|	|	|
7+30	2.5109	4.86	| Q V |	|	|	|
7+35	2.5445	4.88	| Q V |	|	|	|
7+40	2.5783	4.90	| Q V |	|	|	|
7+45	2.6122	4.92	| Q V |	|	|	|
7+50	2.6463	4.95	| Q V |	|	|	|
7+55	2.6805	4.97	| Q V |	|	|	|
8+ 0	2.7149	4.99	| Q V |	|	|	|
8+ 5	2.7494	5.02	| Q V |	|	|	|
8+10	2.7841	5.04	| Q V |	|	|	|
8+15	2.8190	5.06	| Q V |	|	|	|
8+20	2.8540	5.09	| Q V |	|	|	|
8+25	2.8892	5.11	| Q V |	|	|	|
8+30	2.9246	5.14	| Q V |	|	|	|
8+35	2.9602	5.16	| Q V |	|	|	|
8+40	2.9960	5.19	| Q V |	|	|	|
8+45	3.0319	5.22	| Q V |	|	|	|
8+50	3.0680	5.24	| Q V |	|	|	|
8+55	3.1043	5.27	| Q V |	|	|	|
9+ 0	3.1408	5.30	| Q V|	|	|	|
9+ 5	3.1775	5.33	| Q V|	|	|	|
9+10	3.2144	5.36	| Q V|	|	|	|
9+15	3.2515	5.39	| Q V|	|	|	|

9+20	3.2888	5.42	Q	V			
9+25	3.3263	5.45	Q	V			
9+30	3.3640	5.48	Q	V			
9+35	3.4019	5.51	Q	V			
9+40	3.4401	5.54	Q	V			
9+45	3.4784	5.57	Q	V			
9+50	3.5171	5.61	Q	V			
9+55	3.5559	5.64	Q	V			
10+ 0	3.5950	5.67	Q	V			
10+ 5	3.6343	5.71	Q	V			
10+10	3.6739	5.75	Q	V			
10+15	3.7137	5.78	Q	V			
10+20	3.7538	5.82	Q	V			
10+25	3.7941	5.86	Q	V			
10+30	3.8347	5.90	Q	V			
10+35	3.8756	5.94	Q	V			
10+40	3.9168	5.98	Q	V			
10+45	3.9582	6.02	Q	V			
10+50	3.9999	6.06	Q	V			
10+55	4.0420	6.10	Q	V			
11+ 0	4.0843	6.15	Q	V			
11+ 5	4.1270	6.19	Q	V			
11+10	4.1700	6.24	Q	V			
11+15	4.2133	6.29	Q	V			
11+20	4.2569	6.34	Q	V			
11+25	4.3009	6.39	Q	V			
11+30	4.3452	6.44	Q	V			
11+35	4.3899	6.49	Q	V			
11+40	4.4350	6.54	Q	V			
11+45	4.4805	6.60	Q	V			
11+50	4.5263	6.66	Q	V			
11+55	4.5725	6.72	Q	V			
12+ 0	4.6192	6.78	Q	V			
12+ 5	4.6661	6.80	Q	V			
12+10	4.7118	6.63	Q	V			
12+15	4.7561	6.44	Q	V			
12+20	4.8001	6.39	Q	V			
12+25	4.8442	6.40	Q	V			
12+30	4.8885	6.43	Q	V			
12+35	4.9330	6.47	Q	V			
12+40	4.9780	6.53	Q	V			
12+45	5.0233	6.59	Q	V			
12+50	5.0692	6.66	Q	V			
12+55	5.1156	6.74	Q	V			
13+ 0	5.1625	6.82	Q	V			
13+ 5	5.2101	6.91	Q	V			
13+10	5.2583	7.00	Q	V			
13+15	5.3072	7.10	Q	V			
13+20	5.3568	7.20	Q	V			
13+25	5.4071	7.31	Q	V			
13+30	5.4582	7.42	Q	V			
13+35	5.5102	7.54	Q	V			
13+40	5.5630	7.67	Q	V			
13+45	5.6168	7.80	Q	V			
13+50	5.6715	7.94	Q	V			
13+55	5.7272	8.09	Q	V			



18+40	11.6754	6.47	Q				V
18+45	11.7193	6.38	Q				V
18+50	11.7626	6.29	Q				V
18+55	11.8053	6.20	Q				V
19+ 0	11.8474	6.11	Q				V
19+ 5	11.8890	6.03	Q				V
19+10	11.9300	5.95	Q				V
19+15	11.9705	5.88	Q				V
19+20	12.0104	5.80	Q				V
19+25	12.0499	5.73	Q				V
19+30	12.0889	5.66	Q				V
19+35	12.1274	5.59	Q				V
19+40	12.1654	5.53	Q				V
19+45	12.2031	5.46	Q				V
19+50	12.2403	5.40	Q				V
19+55	12.2771	5.34	Q				V
20+ 0	12.3135	5.29	Q				V
20+ 5	12.3495	5.23	Q				V
20+10	12.3852	5.18	Q				V
20+15	12.4205	5.13	Q				V
20+20	12.4554	5.08	Q				V
20+25	12.4900	5.03	Q				V
20+30	12.5243	4.98	Q				V
20+35	12.5583	4.94	Q				V
20+40	12.5920	4.89	Q				V
20+45	12.6254	4.85	Q				V
20+50	12.6585	4.81	Q				V
20+55	12.6913	4.77	Q				V
21+ 0	12.7239	4.73	Q				V
21+ 5	12.7561	4.69	Q				V
21+10	12.7882	4.65	Q				V
21+15	12.8199	4.61	Q				V
21+20	12.8515	4.58	Q				V
21+25	12.8827	4.54	Q				V
21+30	12.9138	4.51	Q				V
21+35	12.9446	4.47	Q				V
21+40	12.9752	4.44	Q				V
21+45	13.0055	4.41	Q				V
21+50	13.0357	4.38	Q				V
21+55	13.0656	4.35	Q				V
22+ 0	13.0954	4.32	Q				V
22+ 5	13.1249	4.29	Q				V
22+10	13.1543	4.26	Q				V
22+15	13.1834	4.23	Q				V
22+20	13.2124	4.21	Q				V
22+25	13.2411	4.18	Q				V
22+30	13.2697	4.15	Q				V
22+35	13.2981	4.13	Q				V
22+40	13.3264	4.10	Q				V
22+45	13.3545	4.08	Q				V
22+50	13.3824	4.05	Q				V
22+55	13.4101	4.03	Q				V
23+ 0	13.4377	4.00	Q				V
23+ 5	13.4651	3.98	Q				V
23+10	13.4924	3.96	Q				V
23+15	13.5195	3.94	Q				V

```
   23+20      13.5464      3.91  |Q        |         |         |        V|
   23+25      13.5733      3.89  |Q        |         |         |        V|
   23+30      13.5999      3.87  |Q        |         |         |        V|
   23+35      13.6264      3.85  |Q        |         |         |        V|
   23+40      13.6528      3.83  |Q        |         |         |        V|
   23+45      13.6791      3.81  |Q        |         |         |        V|
   23+50      13.7052      3.79  |Q        |         |         |        V|
   23+55      13.7312      3.77  |Q        |         |         |        V|
   24+ 0      13.7570      3.75  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2004, Version 7.0

Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA G

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
52.08	1	0.77
Rainfall data for year 2		
52.08	6	1.08
Rainfall data for year 2		
52.08	24	2.03
Rainfall data for year 100		
52.08	1	1.29
Rainfall data for year 100		
52.08	6	2.99
Rainfall data for year 100		

```
            52.08           24           6.28
----------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         52.08      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     5.21   0.100         32.0      52.0       9.23     0.229
    46.87   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.209 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      52.08(Ac.)
Catchment Lag time =   0.167 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 49.8405
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      52.08(Ac.) (Ref: fig. E-4)

5-minute factor = 0.998     Adjusted rainfall =  0.611(In)
30-minute factor = 0.998    Adjusted rainfall =  1.045(In)
1-hour factor = 0.998       Adjusted rainfall =  1.287(In)
3-hour factor = 1.000       Adjusted rainfall =  2.159(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
----------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
----------------------------------------------------------------------
```

(K = 629.84 (CFS))

1	3.942	24.826
2	30.324	166.169
3	60.419	189.547
4	73.667	83.441
5	81.364	48.483
6	86.523	32.493
7	90.115	22.623
8	92.720	16.408
9	94.704	12.495
10	96.210	9.490
11	97.320	6.986
12	98.031	4.483
13	98.576	3.431
14	99.174	3.767
15	99.642	2.944
16	100.000	2.258

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6106	0.6106
2	0.7518	0.1411
3	0.8490	0.0972
4	0.9255	0.0765
5	0.9896	0.0641
6	1.0452	0.0556
7	1.0947	0.0495
8	1.1395	0.0447
9	1.1804	0.0410
10	1.2184	0.0379
11	1.2537	0.0353
12	1.2869	0.0332
13	1.3363	0.0495
14	1.3838	0.0475
15	1.4295	0.0457
16	1.4736	0.0441
17	1.5163	0.0427
18	1.5577	0.0414
19	1.5979	0.0402
20	1.6370	0.0391
21	1.6750	0.0381
22	1.7122	0.0371
23	1.7484	0.0362
24	1.7838	0.0354
25	1.8184	0.0346
26	1.8523	0.0339
27	1.8856	0.0332
28	1.9182	0.0326
29	1.9501	0.0320
30	1.9815	0.0314
31	2.0124	0.0308
32	2.0427	0.0303
33	2.0725	0.0298
34	2.1019	0.0294
35	2.1308	0.0289

36	2.1593	0.0285
37	2.1872	0.0279
38	2.2148	0.0276
39	2.2419	0.0272
40	2.2687	0.0268
41	2.2952	0.0264
42	2.3213	0.0261
43	2.3471	0.0258
44	2.3725	0.0255
45	2.3977	0.0252
46	2.4225	0.0249
47	2.4471	0.0246
48	2.4714	0.0243
49	2.4955	0.0240
50	2.5192	0.0238
51	2.5428	0.0235
52	2.5660	0.0233
53	2.5891	0.0230
54	2.6119	0.0228
55	2.6345	0.0226
56	2.6569	0.0224
57	2.6790	0.0222
58	2.7010	0.0220
59	2.7228	0.0218
60	2.7443	0.0216
61	2.7657	0.0214
62	2.7869	0.0212
63	2.8079	0.0210
64	2.8287	0.0208
65	2.8494	0.0207
66	2.8699	0.0205
67	2.8902	0.0203
68	2.9104	0.0202
69	2.9304	0.0200
70	2.9502	0.0199
71	2.9700	0.0197
72	2.9895	0.0196
73	3.0117	0.0222
74	3.0337	0.0220
75	3.0556	0.0219
76	3.0773	0.0217
77	3.0989	0.0216
78	3.1204	0.0215
79	3.1418	0.0214
80	3.1630	0.0212
81	3.1841	0.0211
82	3.2051	0.0210
83	3.2260	0.0209
84	3.2467	0.0208
85	3.2673	0.0206
86	3.2879	0.0205
87	3.3083	0.0204
88	3.3286	0.0203
89	3.3488	0.0202
90	3.3689	0.0201
91	3.3889	0.0200

92	3.4087	0.0199
93	3.4285	0.0198
94	3.4482	0.0197
95	3.4678	0.0196
96	3.4873	0.0195
97	3.5067	0.0194
98	3.5260	0.0193
99	3.5452	0.0192
100	3.5644	0.0191
101	3.5834	0.0190
102	3.6024	0.0190
103	3.6212	0.0189
104	3.6400	0.0188
105	3.6587	0.0187
106	3.6773	0.0186
107	3.6958	0.0185
108	3.7143	0.0185
109	3.7327	0.0184
110	3.7510	0.0183
111	3.7692	0.0182
112	3.7873	0.0181
113	3.8054	0.0181
114	3.8234	0.0180
115	3.8413	0.0179
116	3.8591	0.0178
117	3.8769	0.0178
118	3.8946	0.0177
119	3.9123	0.0176
120	3.9298	0.0176
121	3.9473	0.0175
122	3.9648	0.0174
123	3.9821	0.0174
124	3.9994	0.0173
125	4.0167	0.0172
126	4.0338	0.0172
127	4.0509	0.0171
128	4.0680	0.0170
129	4.0850	0.0170
130	4.1019	0.0169
131	4.1188	0.0169
132	4.1356	0.0168
133	4.1523	0.0167
134	4.1690	0.0167
135	4.1856	0.0166
136	4.2022	0.0166
137	4.2187	0.0165
138	4.2352	0.0165
139	4.2516	0.0164
140	4.2679	0.0163
141	4.2842	0.0163
142	4.3005	0.0162
143	4.3166	0.0162
144	4.3328	0.0161
145	4.3489	0.0161
146	4.3649	0.0160
147	4.3809	0.0160

148	4.3968	0.0159
149	4.4127	0.0159
150	4.4285	0.0158
151	4.4443	0.0158
152	4.4600	0.0157
153	4.4757	0.0157
154	4.4913	0.0156
155	4.5069	0.0156
156	4.5225	0.0155
157	4.5380	0.0155
158	4.5534	0.0155
159	4.5688	0.0154
160	4.5842	0.0154
161	4.5995	0.0153
162	4.6148	0.0153
163	4.6300	0.0152
164	4.6452	0.0152
165	4.6603	0.0151
166	4.6754	0.0151
167	4.6905	0.0151
168	4.7055	0.0150
169	4.7205	0.0150
170	4.7354	0.0149
171	4.7503	0.0149
172	4.7652	0.0149
173	4.7800	0.0148
174	4.7948	0.0148
175	4.8095	0.0147
176	4.8242	0.0147
177	4.8388	0.0147
178	4.8535	0.0146
179	4.8680	0.0146
180	4.8826	0.0145
181	4.8971	0.0145
182	4.9116	0.0145
183	4.9260	0.0144
184	4.9404	0.0144
185	4.9547	0.0144
186	4.9691	0.0143
187	4.9833	0.0143
188	4.9976	0.0142
189	5.0118	0.0142
190	5.0260	0.0142
191	5.0401	0.0141
192	5.0542	0.0141
193	5.0683	0.0141
194	5.0824	0.0140
195	5.0964	0.0140
196	5.1103	0.0140
197	5.1243	0.0139
198	5.1382	0.0139
199	5.1521	0.0139
200	5.1659	0.0138
201	5.1797	0.0138
202	5.1935	0.0138
203	5.2073	0.0137

204	5.2210	0.0137
205	5.2347	0.0137
206	5.2483	0.0137
207	5.2619	0.0136
208	5.2755	0.0136
209	5.2891	0.0136
210	5.3026	0.0135
211	5.3161	0.0135
212	5.3296	0.0135
213	5.3431	0.0134
214	5.3565	0.0134
215	5.3699	0.0134
216	5.3832	0.0134
217	5.3965	0.0133
218	5.4098	0.0133
219	5.4231	0.0133
220	5.4364	0.0132
221	5.4496	0.0132
222	5.4628	0.0132
223	5.4759	0.0132
224	5.4891	0.0131
225	5.5022	0.0131
226	5.5152	0.0131
227	5.5283	0.0131
228	5.5413	0.0130
229	5.5543	0.0130
230	5.5673	0.0130
231	5.5802	0.0129
232	5.5932	0.0129
233	5.6060	0.0129
234	5.6189	0.0129
235	5.6318	0.0128
236	5.6446	0.0128
237	5.6574	0.0128
238	5.6701	0.0128
239	5.6829	0.0127
240	5.6956	0.0127
241	5.7083	0.0127
242	5.7210	0.0127
243	5.7336	0.0126
244	5.7462	0.0126
245	5.7588	0.0126
246	5.7714	0.0126
247	5.7839	0.0125
248	5.7965	0.0125
249	5.8090	0.0125
250	5.8214	0.0125
251	5.8339	0.0125
252	5.8463	0.0124
253	5.8587	0.0124
254	5.8711	0.0124
255	5.8835	0.0124
256	5.8958	0.0123
257	5.9082	0.0123
258	5.9205	0.0123
259	5.9327	0.0123

260	5.9450	0.0123
261	5.9572	0.0122
262	5.9694	0.0122
263	5.9816	0.0122
264	5.9938	0.0122
265	6.0059	0.0121
266	6.0180	0.0121
267	6.0301	0.0121
268	6.0422	0.0121
269	6.0543	0.0121
270	6.0663	0.0120
271	6.0783	0.0120
272	6.0903	0.0120
273	6.1023	0.0120
274	6.1143	0.0120
275	6.1262	0.0119
276	6.1381	0.0119
277	6.1500	0.0119
278	6.1619	0.0119
279	6.1738	0.0119
280	6.1856	0.0118
281	6.1974	0.0118
282	6.2092	0.0118
283	6.2210	0.0118
284	6.2327	0.0118
285	6.2445	0.0117
286	6.2562	0.0117
287	6.2679	0.0117
288	6.2796	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109

23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132

79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180

135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0276	0.0031	0.0245
169	0.0285	0.0032	0.0253
170	0.0289	0.0032	0.0257
171	0.0298	0.0033	0.0265
172	0.0303	0.0034	0.0270
173	0.0314	0.0035	0.0279
174	0.0320	0.0036	0.0284
175	0.0332	0.0037	0.0295
176	0.0339	0.0038	0.0301
177	0.0354	0.0039	0.0315
178	0.0362	0.0040	0.0322
179	0.0381	0.0042	0.0338
180	0.0391	0.0043	0.0347
181	0.0414	0.0046	0.0368
182	0.0427	0.0048	0.0379
183	0.0457	0.0051	0.0406
184	0.0475	0.0053	0.0422
185	0.0332	0.0037	0.0295
186	0.0353	0.0039	0.0314
187	0.0410	0.0046	0.0364
188	0.0447	0.0050	0.0398
189	0.0556	0.0062	0.0494
190	0.0641	0.0065	0.0575

191	0.0972	0.0065	0.0907
192	0.1411	0.0065	0.1346
193	0.6106	0.0065	0.6041
194	0.0765	0.0065	0.0700
195	0.0495	0.0055	0.0440
196	0.0379	0.0042	0.0337
197	0.0495	0.0055	0.0440
198	0.0441	0.0049	0.0392
199	0.0402	0.0045	0.0357
200	0.0371	0.0041	0.0330
201	0.0346	0.0039	0.0308
202	0.0326	0.0036	0.0290
203	0.0308	0.0034	0.0274
204	0.0294	0.0033	0.0261
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137

247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 148.11(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

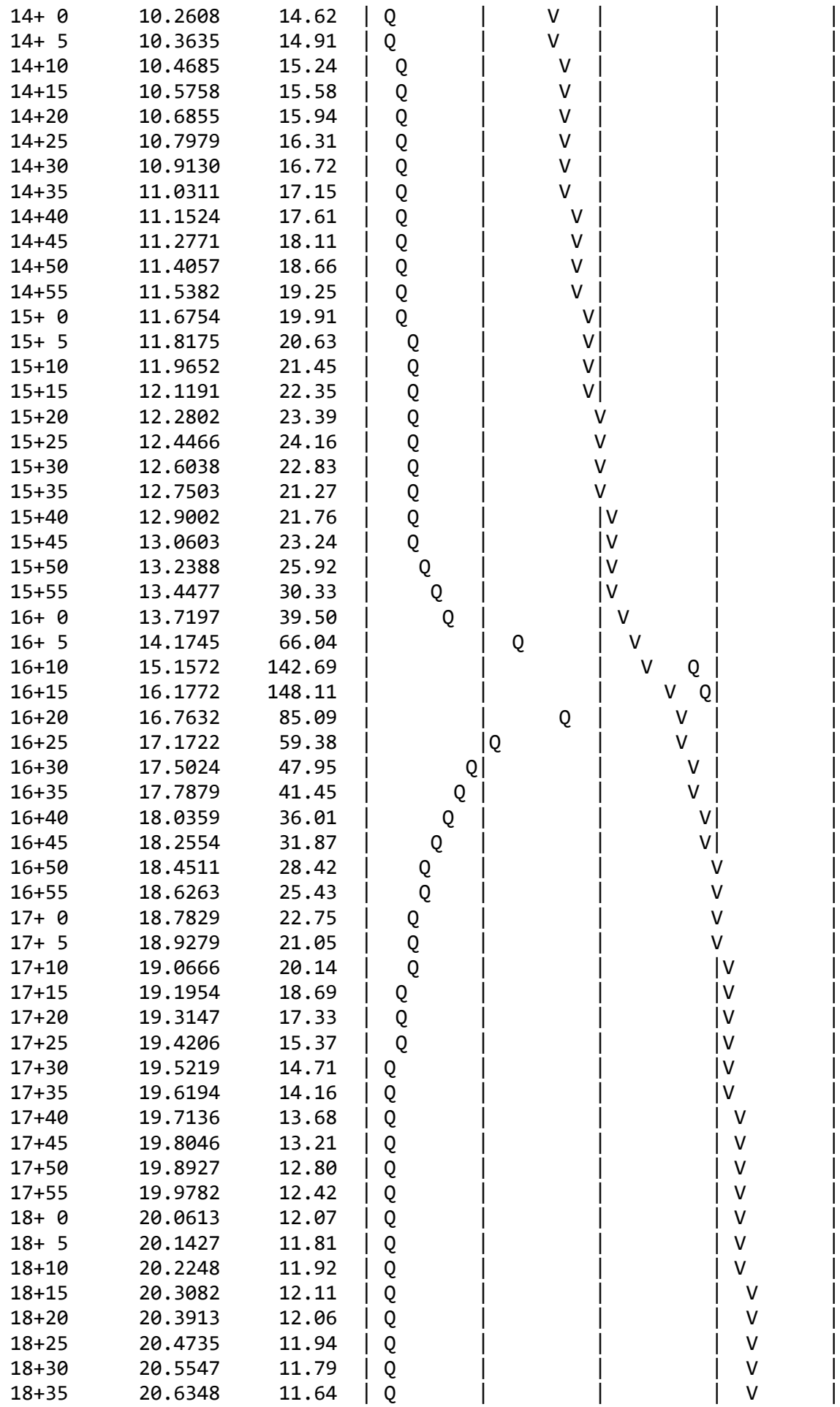
Hydrograph in 5 Minute intervals ((CFS))

Time(h+m) Volume Ac.Ft Q(CFS) 0 50.0 100.0 150.0 200.0

0+ 5	0.0018	0.26	Q				
0+10	0.0154	1.98	Q				
0+15	0.0427	3.96	Q				
0+20	0.0759	4.83	Q				
0+25	0.1128	5.35	VQ				
0+30	0.1520	5.70	VQ				
0+35	0.1929	5.94	VQ				
0+40	0.2352	6.13	VQ				
0+45	0.2784	6.27	VQ				
0+50	0.3224	6.39	VQ				
0+55	0.3670	6.48	VQ				
1+ 0	0.4120	6.54	VQ				
1+ 5	0.4574	6.59	VQ				
1+10	0.5032	6.65	VQ				
1+15	0.5493	6.70	VQ				
1+20	0.5957	6.74	VQ				
1+25	0.6423	6.75	|Q				
1+30	0.6889	6.77	|Q				
1+35	0.7357	6.79	|Q				
1+40	0.7826	6.81	|Q				
1+45	0.8296	6.83	|Q				
1+50	0.8767	6.84	|Q				
1+55	0.9240	6.86	|Q				
2+ 0	0.9714	6.88	|Q				
2+ 5	1.0189	6.90	|Q				
2+10	1.0665	6.92	|Q				
2+15	1.1143	6.94	|Q				
2+20	1.1622	6.96	|Q				
2+25	1.2103	6.98	|Q				
2+30	1.2585	7.00	|QV				
2+35	1.3068	7.02	|QV				
2+40	1.3552	7.04	|QV				
2+45	1.4038	7.06	|QV				
2+50	1.4525	7.08	|QV				
2+55	1.5014	7.10	|QV				
3+ 0	1.5504	7.12	|QV				
3+ 5	1.5996	7.14	|QV				
3+10	1.6489	7.16	|QV				
3+15	1.6983	7.18	|QV				
3+20	1.7479	7.20	|QV				
3+25	1.7977	7.22	|QV				
3+30	1.8476	7.24	|Q V				
3+35	1.8976	7.27	|Q V				
3+40	1.9478	7.29	|Q V				
3+45	1.9982	7.31	|Q V				
3+50	2.0487	7.33	|Q V				
3+55	2.0993	7.36	|Q V				
4+ 0	2.1502	7.38	|Q V				
4+ 5	2.2011	7.40	|Q V				
4+10	2.2523	7.43	|Q V				
4+15	2.3036	7.45	|Q V				
4+20	2.3551	7.47	|Q V				
4+25	2.4067	7.50	|Q V				
4+30	2.4585	7.52	|Q V				
4+35	2.5105	7.55	|Q V				

4+40	2.5627	7.57	|Q V	|	|	|	|
4+45	2.6150	7.60	|Q V	|	|	|	|
4+50	2.6675	7.62	|Q V	|	|	|	|
4+55	2.7202	7.65	|Q V	|	|	|	|
5+ 0	2.7731	7.68	|Q V	|	|	|	|
5+ 5	2.8261	7.70	|Q V	|	|	|	|
5+10	2.8793	7.73	|Q V	|	|	|	|
5+15	2.9327	7.76	|Q V	|	|	|	|
5+20	2.9864	7.78	|Q V	|	|	|	|
5+25	3.0401	7.81	|Q V	|	|	|	|
5+30	3.0941	7.84	|Q V	|	|	|	|
5+35	3.1483	7.87	|Q V	|	|	|	|
5+40	3.2027	7.90	|Q V	|	|	|	|
5+45	3.2573	7.92	|Q V	|	|	|	|
5+50	3.3121	7.95	|Q V	|	|	|	|
5+55	3.3670	7.98	|Q V	|	|	|	|
6+ 0	3.4222	8.01	|Q V	|	|	|	|
6+ 5	3.4776	8.04	|Q V	|	|	|	|
6+10	3.5332	8.07	|Q V	|	|	|	|
6+15	3.5890	8.11	|Q V	|	|	|	|
6+20	3.6451	8.14	|Q V	|	|	|	|
6+25	3.7013	8.17	|Q V	|	|	|	|
6+30	3.7578	8.20	|Q V	|	|	|	|
6+35	3.8145	8.23	|Q V	|	|	|	|
6+40	3.8714	8.27	|Q V	|	|	|	|
6+45	3.9286	8.30	|Q V	|	|	|	|
6+50	3.9860	8.33	|Q V	|	|	|	|
6+55	4.0436	8.37	|Q V	|	|	|	|
7+ 0	4.1015	8.40	|Q V	|	|	|	|
7+ 5	4.1596	8.44	|Q V	|	|	|	|
7+10	4.2180	8.47	|Q V	|	|	|	|
7+15	4.2766	8.51	|Q V	|	|	|	|
7+20	4.3354	8.55	|Q V	|	|	|	|
7+25	4.3945	8.58	|Q V	|	|	|	|
7+30	4.4539	8.62	|Q V	|	|	|	|
7+35	4.5135	8.66	|Q V	|	|	|	|
7+40	4.5734	8.70	|Q V	|	|	|	|
7+45	4.6336	8.74	|Q V	|	|	|	|
7+50	4.6940	8.78	|Q V	|	|	|	|
7+55	4.7548	8.82	|Q V	|	|	|	|
8+ 0	4.8158	8.86	|Q V	|	|	|	|
8+ 5	4.8771	8.90	|Q V	|	|	|	|
8+10	4.9386	8.94	|Q V	|	|	|	|
8+15	5.0005	8.98	|Q V	|	|	|	|
8+20	5.0627	9.03	|Q V	|	|	|	|
8+25	5.1252	9.07	|Q V	|	|	|	|
8+30	5.1880	9.12	|Q V	|	|	|	|
8+35	5.2511	9.16	|Q V	|	|	|	|
8+40	5.3145	9.21	|Q V	|	|	|	|
8+45	5.3782	9.26	|Q V	|	|	|	|
8+50	5.4423	9.30	|Q V	|	|	|	|
8+55	5.5067	9.35	|Q V	|	|	|	|
9+ 0	5.5715	9.40	|Q V|	|	|	|	|
9+ 5	5.6366	9.45	|Q V|	|	|	|	|
9+10	5.7020	9.50	|Q V|	|	|	|	|
9+15	5.7678	9.55	|Q V|	|	|	|	|

9+20	5.8340	9.61	Q	V			
9+25	5.9005	9.66	Q	V			
9+30	5.9674	9.72	Q	V			
9+35	6.0347	9.77	Q	V			
9+40	6.1024	9.83	Q	V			
9+45	6.1705	9.89	Q	V			
9+50	6.2390	9.95	Q	V			
9+55	6.3079	10.01	Q	V			
10+ 0	6.3773	10.07	Q	V			
10+ 5	6.4470	10.13	Q	V			
10+10	6.5172	10.19	Q	V			
10+15	6.5879	10.26	Q	V			
10+20	6.6590	10.32	Q	V			
10+25	6.7305	10.39	Q	V			
10+30	6.8026	10.46	Q	V			
10+35	6.8751	10.53	Q	V			
10+40	6.9481	10.60	Q	V			
10+45	7.0217	10.68	Q	V			
10+50	7.0957	10.75	Q	V			
10+55	7.1703	10.83	Q	V			
11+ 0	7.2454	10.91	Q	V			
11+ 5	7.3211	10.99	Q	V			
11+10	7.3973	11.07	Q	V			
11+15	7.4742	11.16	Q	V			
11+20	7.5516	11.24	Q	V			
11+25	7.6296	11.33	Q	V			
11+30	7.7083	11.42	Q	V			
11+35	7.7876	11.51	Q	V			
11+40	7.8675	11.61	Q	V			
11+45	7.9482	11.71	Q	V			
11+50	8.0295	11.81	Q	V			
11+55	8.1116	11.91	Q	V			
12+ 0	8.1943	12.02	Q	V			
12+ 5	8.2775	12.07	Q	V			
12+10	8.3586	11.78	Q	V			
12+15	8.4373	11.43	Q	V			
12+20	8.5155	11.35	Q	V			
12+25	8.5937	11.35	Q	V			
12+30	8.6722	11.40	Q	V			
12+35	8.7513	11.48	Q	V			
12+40	8.8310	11.58	Q	V			
12+45	8.9115	11.69	Q	V			
12+50	8.9929	11.81	Q	V			
12+55	9.0752	11.95	Q	V			
13+ 0	9.1585	12.10	Q	V			
13+ 5	9.2429	12.25	Q	V			
13+10	9.3284	12.42	Q	V			
13+15	9.4151	12.59	Q	V			
13+20	9.5031	12.77	Q	V			
13+25	9.5924	12.96	Q	V			
13+30	9.6831	13.17	Q	V			
13+35	9.7752	13.38	Q	V			
13+40	9.8689	13.61	Q	V			
13+45	9.9643	13.84	Q	V			
13+50	10.0613	14.09	Q	V			
13+55	10.1601	14.35	Q	V			



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18+40      20.7139     11.48  | Q       |         |         |  V      |
18+45      20.7918     11.32  | Q       |         |         |  V      |
18+50      20.8687     11.16  | Q       |         |         |   V     |
18+55      20.9445     11.01  | Q       |         |         |   V     |
19+ 0      21.0193     10.85  | Q       |         |         |   V     |
19+ 5      21.0930     10.71  | Q       |         |         |   V     |
19+10      21.1658     10.57  | Q       |         |         |   V     |
19+15      21.2376     10.43  | Q       |         |         |   V     |
19+20      21.3086     10.30  | Q       |         |         |   V     |
19+25      21.3786     10.17  | Q       |         |         |   V     |
19+30      21.4478     10.05  | Q       |         |         |   V     |
19+35      21.5162      9.92  |Q        |         |         |    V    |
19+40      21.5837      9.81  |Q        |         |         |    V    |
19+45      21.6505      9.70  |Q        |         |         |    V    |
19+50      21.7165      9.59  |Q        |         |         |    V    |
19+55      21.7819      9.48  |Q        |         |         |    V    |
20+ 0      21.8465      9.38  |Q        |         |         |    V    |
20+ 5      21.9104      9.29  |Q        |         |         |    V    |
20+10      21.9737      9.19  |Q        |         |         |    V    |
20+15      22.0364      9.10  |Q        |         |         |    V    |
20+20      22.0984      9.01  |Q        |         |         |     V   |
20+25      22.1599      8.92  |Q        |         |         |     V   |
20+30      22.2208      8.84  |Q        |         |         |     V   |
20+35      22.2811      8.76  |Q        |         |         |     V   |
20+40      22.3409      8.68  |Q        |         |         |     V   |
20+45      22.4002      8.60  |Q        |         |         |     V   |
20+50      22.4589      8.53  |Q        |         |         |     V   |
20+55      22.5172      8.46  |Q        |         |         |     V   |
21+ 0      22.5749      8.39  |Q        |         |         |     V   |
21+ 5      22.6322      8.32  |Q        |         |         |     V   |
21+10      22.6891      8.25  |Q        |         |         |     V   |
21+15      22.7454      8.19  |Q        |         |         |      V  |
21+20      22.8014      8.12  |Q        |         |         |      V  |
21+25      22.8569      8.06  |Q        |         |         |      V  |
21+30      22.9120      8.00  |Q        |         |         |      V  |
21+35      22.9667      7.94  |Q        |         |         |      V  |
21+40      23.0210      7.88  |Q        |         |         |      V  |
21+45      23.0749      7.83  |Q        |         |         |      V  |
21+50      23.1284      7.77  |Q        |         |         |      V  |
21+55      23.1815      7.72  |Q        |         |         |      V  |
22+ 0      23.2343      7.66  |Q        |         |         |      V  |
22+ 5      23.2867      7.61  |Q        |         |         |      V  |
22+10      23.3388      7.56  |Q        |         |         |       V |
22+15      23.3905      7.51  |Q        |         |         |       V |
22+20      23.4419      7.46  |Q        |         |         |       V |
22+25      23.4930      7.42  |Q        |         |         |       V |
22+30      23.5438      7.37  |Q        |         |         |       V |
22+35      23.5942      7.32  |Q        |         |         |       V |
22+40      23.6443      7.28  |Q        |         |         |       V |
22+45      23.6941      7.23  |Q        |         |         |       V |
22+50      23.7437      7.19  |Q        |         |         |       V |
22+55      23.7929      7.15  |Q        |         |         |       V |
23+ 0      23.8418      7.11  |Q        |         |         |       V |
23+ 5      23.8905      7.07  |Q        |         |         |       V |
23+10      23.9389      7.03  |Q        |         |         |        V|
23+15      23.9870      6.99  |Q        |         |         |        V|
```

```
   23+20      24.0349      6.95  |Q        |         |         |        V|
   23+25      24.0824      6.91  |Q        |         |         |        V|
   23+30      24.1298      6.87  |Q        |         |         |        V|
   23+35      24.1768      6.84  |Q        |         |         |        V|
   23+40      24.2237      6.80  |Q        |         |         |        V|
   23+45      24.2703      6.76  |Q        |         |         |        V|
   23+50      24.3166      6.73  |Q        |         |         |        V|
   23+55      24.3627      6.69  |Q        |         |         |        V|
   24+ 0      24.4086      6.66  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA H

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
12.29	1	0.77
Rainfall data for year 2		
12.29	6	1.08
Rainfall data for year 2		
12.29	24	2.03
Rainfall data for year 100		
12.29	1	1.29
Rainfall data for year 100		
12.29	6	2.99
Rainfall data for year 100		

```
            12.29           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         12.29      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.23   0.100         32.0      52.0       9.23     0.229
    11.06   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.095 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      12.29(Ac.)
Catchment Lag time =   0.076 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 109.6491
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      12.29(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.612(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 148.63 (CFS))

1	20.341	30.234
2	70.642	74.763
3	86.272	23.230
4	93.063	10.094
5	96.639	5.315
6	98.361	2.559
7	99.533	1.742
8	100.000	0.694

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6118	0.6118
2	0.7532	0.1414
3	0.8506	0.0974
4	0.9273	0.0767
5	0.9915	0.0642
6	1.0472	0.0557
7	1.0968	0.0496
8	1.1416	0.0448
9	1.1827	0.0411
10	1.2206	0.0380
11	1.2560	0.0354
12	1.2893	0.0332
13	1.3386	0.0494
14	1.3861	0.0474
15	1.4317	0.0456
16	1.4758	0.0441
17	1.5184	0.0426
18	1.5597	0.0413
19	1.5998	0.0401
20	1.6388	0.0390
21	1.6768	0.0380
22	1.7138	0.0370
23	1.7500	0.0362
24	1.7853	0.0353
25	1.8199	0.0346
26	1.8537	0.0338
27	1.8868	0.0331
28	1.9193	0.0325
29	1.9512	0.0319
30	1.9825	0.0313
31	2.0133	0.0308
32	2.0435	0.0302
33	2.0733	0.0297
34	2.1026	0.0293
35	2.1314	0.0288
36	2.1598	0.0284
37	2.1877	0.0279
38	2.2153	0.0275
39	2.2424	0.0272
40	2.2692	0.0268
41	2.2957	0.0264
42	2.3218	0.0261
43	2.3475	0.0258

44	2.3730	0.0255
45	2.3982	0.0252
46	2.4230	0.0249
47	2.4476	0.0246
48	2.4719	0.0243
49	2.4959	0.0240
50	2.5197	0.0238
51	2.5432	0.0235
52	2.5665	0.0233
53	2.5895	0.0230
54	2.6124	0.0228
55	2.6349	0.0226
56	2.6573	0.0224
57	2.6795	0.0222
58	2.7014	0.0220
59	2.7232	0.0218
60	2.7447	0.0216
61	2.7661	0.0214
62	2.7873	0.0212
63	2.8083	0.0210
64	2.8291	0.0208
65	2.8498	0.0207
66	2.8703	0.0205
67	2.8906	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9506	0.0199
71	2.9703	0.0197
72	2.9899	0.0196
73	3.0120	0.0222
74	3.0341	0.0220
75	3.0559	0.0219
76	3.0777	0.0217
77	3.0993	0.0216
78	3.1208	0.0215
79	3.1421	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2263	0.0209
84	3.2471	0.0208
85	3.2677	0.0206
86	3.2882	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3692	0.0201
91	3.3892	0.0200
92	3.4091	0.0199
93	3.4289	0.0198
94	3.4486	0.0197
95	3.4682	0.0196
96	3.4877	0.0195
97	3.5071	0.0194
98	3.5264	0.0193
99	3.5456	0.0192

100	3.5647	0.0191
101	3.5838	0.0190
102	3.6027	0.0190
103	3.6216	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6777	0.0186
107	3.6962	0.0185
108	3.7147	0.0185
109	3.7330	0.0184
110	3.7513	0.0183
111	3.7696	0.0182
112	3.7877	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8417	0.0179
116	3.8595	0.0178
117	3.8773	0.0178
118	3.8950	0.0177
119	3.9126	0.0176
120	3.9302	0.0176
121	3.9477	0.0175
122	3.9651	0.0174
123	3.9825	0.0174
124	3.9998	0.0173
125	4.0170	0.0172
126	4.0342	0.0172
127	4.0513	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1191	0.0169
132	4.1359	0.0168
133	4.1527	0.0167
134	4.1694	0.0167
135	4.1860	0.0166
136	4.2026	0.0166
137	4.2191	0.0165
138	4.2355	0.0165
139	4.2519	0.0164
140	4.2683	0.0163
141	4.2846	0.0163
142	4.3008	0.0162
143	4.3170	0.0162
144	4.3332	0.0161
145	4.3492	0.0161
146	4.3653	0.0160
147	4.3812	0.0160
148	4.3972	0.0159
149	4.4131	0.0159
150	4.4289	0.0158
151	4.4447	0.0158
152	4.4604	0.0157
153	4.4761	0.0157
154	4.4917	0.0156
155	4.5073	0.0156

156	4.5229	0.0155
157	4.5384	0.0155
158	4.5538	0.0155
159	4.5692	0.0154
160	4.5846	0.0154
161	4.5999	0.0153
162	4.6152	0.0153
163	4.6304	0.0152
164	4.6456	0.0152
165	4.6607	0.0151
166	4.6758	0.0151
167	4.6909	0.0151
168	4.7059	0.0150
169	4.7209	0.0150
170	4.7358	0.0149
171	4.7507	0.0149
172	4.7655	0.0149
173	4.7804	0.0148
174	4.7951	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8392	0.0147
178	4.8538	0.0146
179	4.8684	0.0146
180	4.8829	0.0145
181	4.8975	0.0145
182	4.9119	0.0145
183	4.9263	0.0144
184	4.9407	0.0144
185	4.9551	0.0144
186	4.9694	0.0143
187	4.9837	0.0143
188	4.9980	0.0142
189	5.0122	0.0142
190	5.0263	0.0142
191	5.0405	0.0141
192	5.0546	0.0141
193	5.0687	0.0141
194	5.0827	0.0140
195	5.0967	0.0140
196	5.1107	0.0140
197	5.1246	0.0139
198	5.1386	0.0139
199	5.1524	0.0139
200	5.1663	0.0138
201	5.1801	0.0138
202	5.1939	0.0138
203	5.2076	0.0137
204	5.2213	0.0137
205	5.2350	0.0137
206	5.2487	0.0137
207	5.2623	0.0136
208	5.2759	0.0136
209	5.2895	0.0136
210	5.3030	0.0135
211	5.3165	0.0135

212	5.3300	0.0135
213	5.3434	0.0134
214	5.3568	0.0134
215	5.3702	0.0134
216	5.3836	0.0134
217	5.3969	0.0133
218	5.4102	0.0133
219	5.4235	0.0133
220	5.4367	0.0132
221	5.4499	0.0132
222	5.4631	0.0132
223	5.4763	0.0132
224	5.4894	0.0131
225	5.5025	0.0131
226	5.5156	0.0131
227	5.5286	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5676	0.0130
231	5.5806	0.0129
232	5.5935	0.0129
233	5.6064	0.0129
234	5.6193	0.0129
235	5.6321	0.0128
236	5.6449	0.0128
237	5.6577	0.0128
238	5.6705	0.0128
239	5.6832	0.0127
240	5.6959	0.0127
241	5.7086	0.0127
242	5.7213	0.0127
243	5.7339	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7717	0.0126
247	5.7843	0.0125
248	5.7968	0.0125
249	5.8093	0.0125
250	5.8218	0.0125
251	5.8342	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8838	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9453	0.0123
261	5.9575	0.0122
262	5.9697	0.0122
263	5.9819	0.0122
264	5.9941	0.0122
265	6.0062	0.0121
266	6.0184	0.0121
267	6.0305	0.0121

268	6.0425	0.0121
269	6.0546	0.0121
270	6.0666	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1026	0.0120
274	6.1146	0.0120
275	6.1265	0.0119
276	6.1384	0.0119
277	6.1503	0.0119
278	6.1622	0.0119
279	6.1741	0.0119
280	6.1859	0.0118
281	6.1977	0.0118
282	6.2095	0.0118
283	6.2213	0.0118
284	6.2331	0.0118
285	6.2448	0.0117
286	6.2565	0.0117
287	6.2682	0.0117
288	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112

31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136

87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192

143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0295
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0362	0.0040	0.0321
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0577
191	0.0974	0.0065	0.0909
192	0.1414	0.0065	0.1349
193	0.6118	0.0065	0.6052
194	0.0767	0.0065	0.0701
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392

199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128

255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 51.95(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	15.0	30.0	45.0	60.0
0+ 5	0.0022	0.31	Q	|	|	|	|
0+10	0.0097	1.09	Q	|	|	|	|
0+15	0.0189	1.33	Q	|	|	|	|
0+20	0.0288	1.44	Q	|	|	|	|
0+25	0.0391	1.50	VQ	|	|	|	|
0+30	0.0497	1.53	VQ	|	|	|	|
0+35	0.0604	1.55	VQ	|	|	|	|

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0+40       0.0711      1.56  VQ        |         |         |         |
0+45       0.0819      1.57  VQ        |         |         |         |
0+50       0.0928      1.57  VQ        |         |         |         |
0+55       0.1036      1.58  VQ        |         |         |         |
1+ 0       0.1145      1.58  VQ        |         |         |         |
1+ 5       0.1254      1.58  VQ        |         |         |         |
1+10       0.1364      1.59  VQ        |         |         |         |
1+15       0.1473      1.59  |Q        |         |         |         |
1+20       0.1583      1.60  |Q        |         |         |         |
1+25       0.1693      1.60  |Q        |         |         |         |
1+30       0.1804      1.60  |Q        |         |         |         |
1+35       0.1915      1.61  |Q        |         |         |         |
1+40       0.2026      1.61  |Q        |         |         |         |
1+45       0.2137      1.62  |Q        |         |         |         |
1+50       0.2249      1.62  |Q        |         |         |         |
1+55       0.2361      1.63  |Q        |         |         |         |
2+ 0       0.2473      1.63  |Q        |         |         |         |
2+ 5       0.2586      1.64  |Q        |         |         |         |
2+10       0.2699      1.64  |Q        |         |         |         |
2+15       0.2812      1.64  |Q        |         |         |         |
2+20       0.2926      1.65  |QV       |         |         |         |
2+25       0.3040      1.65  |QV       |         |         |         |
2+30       0.3154      1.66  |QV       |         |         |         |
2+35       0.3268      1.66  |QV       |         |         |         |
2+40       0.3383      1.67  |QV       |         |         |         |
2+45       0.3498      1.67  |QV       |         |         |         |
2+50       0.3614      1.68  |QV       |         |         |         |
2+55       0.3730      1.68  |QV       |         |         |         |
3+ 0       0.3846      1.69  |QV       |         |         |         |
3+ 5       0.3962      1.69  |QV       |         |         |         |
3+10       0.4079      1.70  |QV       |         |         |         |
3+15       0.4197      1.70  |QV       |         |         |         |
3+20       0.4314      1.71  |QV       |         |         |         |
3+25       0.4432      1.71  |Q V      |         |         |         |
3+30       0.4550      1.72  |Q V      |         |         |         |
3+35       0.4669      1.72  |Q V      |         |         |         |
3+40       0.4788      1.73  |Q V      |         |         |         |
3+45       0.4908      1.73  |Q V      |         |         |         |
3+50       0.5027      1.74  |Q V      |         |         |         |
3+55       0.5147      1.74  |Q V      |         |         |         |
4+ 0       0.5268      1.75  |Q V      |         |         |         |
4+ 5       0.5389      1.76  |Q V      |         |         |         |
4+10       0.5510      1.76  |Q V      |         |         |         |
4+15       0.5632      1.77  |Q V      |         |         |         |
4+20       0.5754      1.77  |Q V      |         |         |         |
4+25       0.5877      1.78  |Q  V     |         |         |         |
4+30       0.5999      1.78  |Q  V     |         |         |         |
4+35       0.6123      1.79  |Q  V     |         |         |         |
4+40       0.6247      1.80  |Q  V     |         |         |         |
4+45       0.6371      1.80  |Q  V     |         |         |         |
4+50       0.6495      1.81  |Q  V     |         |         |         |
4+55       0.6620      1.81  |Q  V     |         |         |         |
5+ 0       0.6746      1.82  |Q  V     |         |         |         |
5+ 5       0.6872      1.83  |Q  V     |         |         |         |
5+10       0.6998      1.83  |Q  V     |         |         |         |
5+15       0.7125      1.84  |Q  V     |         |         |         |
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5+20       0.7252      1.85  |Q   V    |          |          |          |
5+25       0.7380      1.85  |Q   V    |          |          |          |
5+30       0.7508      1.86  |Q   V    |          |          |          |
5+35       0.7636      1.87  |Q   V    |          |          |          |
5+40       0.7765      1.87  |Q   V    |          |          |          |
5+45       0.7895      1.88  |Q   V    |          |          |          |
5+50       0.8025      1.89  |Q   V    |          |          |          |
5+55       0.8155      1.89  |Q   V    |          |          |          |
6+ 0       0.8286      1.90  |Q   V    |          |          |          |
6+ 5       0.8418      1.91  |Q   V    |          |          |          |
6+10       0.8550      1.92  |Q   V    |          |          |          |
6+15       0.8682      1.92  |Q   V    |          |          |          |
6+20       0.8816      1.93  |Q    V   |          |          |          |
6+25       0.8949      1.94  |Q    V   |          |          |          |
6+30       0.9083      1.95  |Q    V   |          |          |          |
6+35       0.9218      1.95  |Q    V   |          |          |          |
6+40       0.9353      1.96  |Q    V   |          |          |          |
6+45       0.9489      1.97  |Q    V   |          |          |          |
6+50       0.9625      1.98  |Q    V   |          |          |          |
6+55       0.9762      1.99  |Q    V   |          |          |          |
7+ 0       0.9900      2.00  |Q    V   |          |          |          |
7+ 5       1.0038      2.00  |Q    V   |          |          |          |
7+10       1.0176      2.01  |Q     V  |          |          |          |
7+15       1.0315      2.02  |Q     V  |          |          |          |
7+20       1.0455      2.03  |Q     V  |          |          |          |
7+25       1.0596      2.04  |Q     V  |          |          |          |
7+30       1.0737      2.05  |Q     V  |          |          |          |
7+35       1.0879      2.06  |Q     V  |          |          |          |
7+40       1.1021      2.07  |Q     V  |          |          |          |
7+45       1.1164      2.08  |Q     V  |          |          |          |
7+50       1.1308      2.09  |Q     V  |          |          |          |
7+55       1.1452      2.10  |Q     V  |          |          |          |
8+ 0       1.1597      2.11  |Q      V |          |          |          |
8+ 5       1.1743      2.12  |Q      V |          |          |          |
8+10       1.1889      2.13  |Q      V |          |          |          |
8+15       1.2036      2.14  |Q      V |          |          |          |
8+20       1.2184      2.15  |Q      V |          |          |          |
8+25       1.2333      2.16  |Q      V |          |          |          |
8+30       1.2482      2.17  |Q      V |          |          |          |
8+35       1.2632      2.18  |Q      V |          |          |          |
8+40       1.2783      2.19  |Q      V |          |          |          |
8+45       1.2935      2.20  |Q      V |          |          |          |
8+50       1.3087      2.21  |Q       V|          |          |          |
8+55       1.3240      2.23  |Q       V|          |          |          |
9+ 0       1.3395      2.24  |Q       V|          |          |          |
9+ 5       1.3550      2.25  |Q       V|          |          |          |
9+10       1.3705      2.26  |Q       V|          |          |          |
9+15       1.3862      2.27  |Q       V|          |          |          |
9+20       1.4019      2.29  |Q       V|          |          |          |
9+25       1.4178      2.30  |Q       V|          |          |          |
9+30       1.4337      2.31  |Q       V|          |          |          |
9+35       1.4498      2.33  |Q        V          |          |          |
9+40       1.4659      2.34  |Q        V          |          |          |
9+45       1.4821      2.35  |Q        V          |          |          |
9+50       1.4984      2.37  |Q        V          |          |          |
9+55       1.5148      2.38  |Q        V          |          |          |
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10+ 0       1.5314      2.40  |Q        V         |         |         |
10+ 5       1.5480      2.41  |Q        V         |         |         |
10+10       1.5647      2.43  |Q        V         |         |         |
10+15       1.5816      2.44  |Q        V         |         |         |
10+20       1.5985      2.46  |Q        |V        |         |         |
10+25       1.6156      2.48  |Q        |V        |         |         |
10+30       1.6328      2.50  |Q        |V        |         |         |
10+35       1.6501      2.51  |Q        |V        |         |         |
10+40       1.6675      2.53  |Q        |V        |         |         |
10+45       1.6850      2.55  |Q        |V        |         |         |
10+50       1.7027      2.57  |Q        |V        |         |         |
10+55       1.7205      2.58  |Q        |V        |         |         |
11+ 0       1.7384      2.60  |Q        | V       |         |         |
11+ 5       1.7565      2.62  |Q        | V       |         |         |
11+10       1.7747      2.64  |Q        | V       |         |         |
11+15       1.7931      2.66  |Q        | V       |         |         |
11+20       1.8116      2.69  |Q        | V       |         |         |
11+25       1.8302      2.71  |Q        | V       |         |         |
11+30       1.8490      2.73  |Q        | V       |         |         |
11+35       1.8680      2.75  |Q        | V       |         |         |
11+40       1.8871      2.78  |Q        |  V      |         |         |
11+45       1.9064      2.80  |Q        |  V      |         |         |
11+50       1.9258      2.83  |Q        |  V      |         |         |
11+55       1.9455      2.85  |Q        |  V      |         |         |
12+ 0       1.9653      2.88  |Q        |  V      |         |         |
12+ 5       1.9848      2.83  |Q        |  V      |         |         |
12+10       2.0032      2.68  |Q        |  V      |         |         |
12+15       2.0214      2.65  |Q        |  V      |         |         |
12+20       2.0397      2.65  |Q        |   V     |         |         |
12+25       2.0581      2.67  |Q        |   V     |         |         |
12+30       2.0767      2.70  |Q        |   V     |         |         |
12+35       2.0954      2.72  |Q        |   V     |         |         |
12+40       2.1144      2.76  |Q        |   V     |         |         |
12+45       2.1336      2.79  |Q        |   V     |         |         |
12+50       2.1531      2.83  |Q        |   V     |         |         |
12+55       2.1729      2.87  |Q        |    V    |         |         |
13+ 0       2.1929      2.91  |Q        |    V    |         |         |
13+ 5       2.2132      2.95  |Q        |    V    |         |         |
13+10       2.2338      2.99  |Q        |    V    |         |         |
13+15       2.2547      3.04  | Q       |    V    |         |         |
13+20       2.2760      3.09  | Q       |    V    |         |         |
13+25       2.2975      3.13  | Q       |    V    |         |         |
13+30       2.3195      3.19  | Q       |     V   |         |         |
13+35       2.3418      3.24  | Q       |     V   |         |         |
13+40       2.3645      3.30  | Q       |     V   |         |         |
13+45       2.3876      3.35  | Q       |     V   |         |         |
13+50       2.4111      3.42  | Q       |     V   |         |         |
13+55       2.4351      3.48  | Q       |     V   |         |         |
14+ 0       2.4596      3.56  | Q       |     V   |         |         |
14+ 5       2.4846      3.63  | Q       |      V  |         |         |
14+10       2.5101      3.71  | Q       |      V  |         |         |
14+15       2.5362      3.79  | Q       |      V  |         |         |
14+20       2.5630      3.89  | Q       |      V  |         |         |
14+25       2.5904      3.98  | Q       |      V  |         |         |
14+30       2.6186      4.09  | Q       |       V |         |         |
14+35       2.6475      4.19  | Q       |       V |         |         |
```

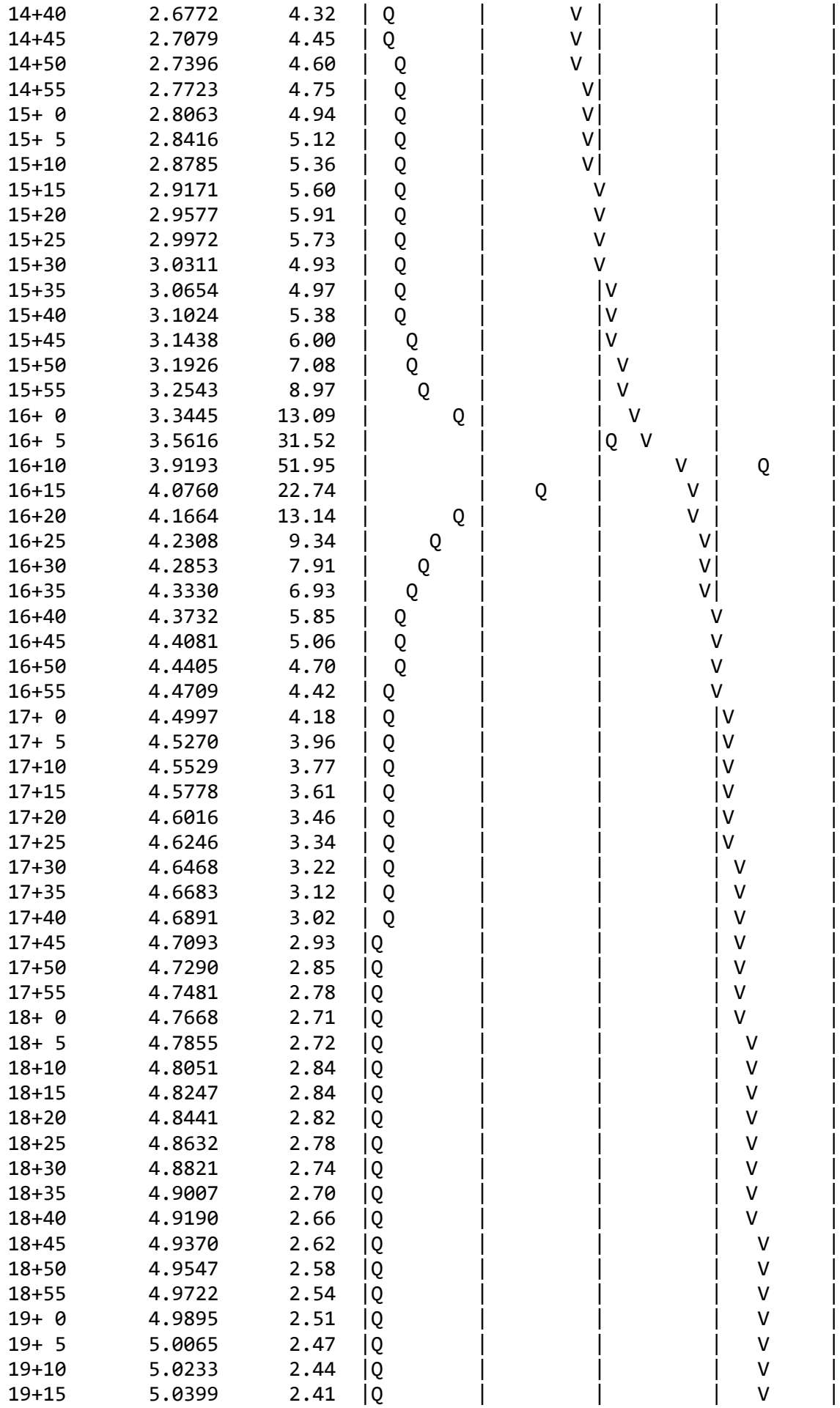

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19+20       5.0563      2.38  |Q        |         |         |   V     |
19+25       5.0724      2.35  |Q        |         |         |    V    |
19+30       5.0884      2.32  |Q        |         |         |    V    |
19+35       5.1042      2.30  |Q        |         |         |    V    |
19+40       5.1199      2.27  |Q        |         |         |    V    |
19+45       5.1353      2.24  |Q        |         |         |    V    |
19+50       5.1506      2.22  |Q        |         |         |    V    |
19+55       5.1658      2.20  |Q        |         |         |    V    |
20+ 0       5.1807      2.18  |Q        |         |         |    V    |
20+ 5       5.1956      2.15  |Q        |         |         |    V    |
20+10       5.2102      2.13  |Q        |         |         |    V    |
20+15       5.2248      2.11  |Q        |         |         |     V   |
20+20       5.2392      2.09  |Q        |         |         |     V   |
20+25       5.2535      2.07  |Q        |         |         |     V   |
20+30       5.2676      2.05  |Q        |         |         |     V   |
20+35       5.2816      2.04  |Q        |         |         |     V   |
20+40       5.2955      2.02  |Q        |         |         |     V   |
20+45       5.3093      2.00  |Q        |         |         |     V   |
20+50       5.3230      1.98  |Q        |         |         |     V   |
20+55       5.3365      1.97  |Q        |         |         |     V   |
21+ 0       5.3500      1.95  |Q        |         |         |     V   |
21+ 5       5.3633      1.94  |Q        |         |         |      V  |
21+10       5.3765      1.92  |Q        |         |         |      V  |
21+15       5.3897      1.91  |Q        |         |         |      V  |
21+20       5.4027      1.89  |Q        |         |         |      V  |
21+25       5.4156      1.88  |Q        |         |         |      V  |
21+30       5.4285      1.86  |Q        |         |         |      V  |
21+35       5.4412      1.85  |Q        |         |         |      V  |
21+40       5.4539      1.84  |Q        |         |         |      V  |
21+45       5.4665      1.82  |Q        |         |         |      V  |
21+50       5.4789      1.81  |Q        |         |         |      V  |
21+55       5.4913      1.80  |Q        |         |         |      V  |
22+ 0       5.5037      1.79  |Q        |         |         |       V |
22+ 5       5.5159      1.78  |Q        |         |         |       V |
22+10       5.5280      1.76  |Q        |         |         |       V |
22+15       5.5401      1.75  |Q        |         |         |       V |
22+20       5.5521      1.74  |Q        |         |         |       V |
22+25       5.5640      1.73  |Q        |         |         |       V |
22+30       5.5759      1.72  |Q        |         |         |       V |
22+35       5.5877      1.71  |Q        |         |         |       V |
22+40       5.5994      1.70  |Q        |         |         |       V |
22+45       5.6110      1.69  |Q        |         |         |       V |
22+50       5.6226      1.68  |Q        |         |         |       V |
22+55       5.6341      1.67  |Q        |         |         |       V |
23+ 0       5.6455      1.66  |Q        |         |         |       V |
23+ 5       5.6569      1.65  |Q        |         |         |        V|
23+10       5.6682      1.64  |Q        |         |         |        V|
23+15       5.6795      1.63  |Q        |         |         |        V|
23+20       5.6907      1.62  |Q        |         |         |        V|
23+25       5.7018      1.62  |Q        |         |         |        V|
23+30       5.7129      1.61  |Q        |         |         |        V|
23+35       5.7239      1.60  |Q        |         |         |        V|
23+40       5.7348      1.59  |Q        |         |         |        V|
23+45       5.7457      1.58  |Q        |         |         |        V|
23+50       5.7566      1.57  |Q        |         |         |        V|
23+55       5.7674      1.57  |Q        |         |         |        V|
```

```
   24+ 0       5.7781      1.56  |Q        |         |         V|
-------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA I

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
27.38	1	0.77
Rainfall data for year 2		
27.38	6	1.08
Rainfall data for year 2		
27.38	24	2.03
Rainfall data for year 100		
27.38	1	1.29
Rainfall data for year 100		
27.38	6	2.99
Rainfall data for year 100		

```
            27.38           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         27.38      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     2.74   0.100         32.0      52.0       9.23     0.229
    24.64   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.163 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =      27.38(Ac.)
Catchment Lag time =   0.130 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 63.9059
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      27.38(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.611(In)
30-minute factor = 0.999    Adjusted rainfall =  1.046(In)
1-hour factor = 0.999       Adjusted rainfall =  1.288(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 331.13 (CFS))

1	6.359	21.057
2	45.267	128.834
3	70.395	83.206
4	81.226	35.865
5	87.599	21.104
6	91.610	13.280
7	94.402	9.245
8	96.353	6.462
9	97.638	4.254
10	98.395	2.506
11	99.152	2.506
12	99.718	1.876
13	100.000	0.933

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6113	0.6113
2	0.7526	0.1413
3	0.8500	0.0974
4	0.9266	0.0766
5	0.9908	0.0642
6	1.0465	0.0557
7	1.0960	0.0495
8	1.1408	0.0448
9	1.1818	0.0410
10	1.2198	0.0380
11	1.2551	0.0354
12	1.2883	0.0332
13	1.3378	0.0494
14	1.3852	0.0474
15	1.4309	0.0457
16	1.4749	0.0441
17	1.5176	0.0426
18	1.5589	0.0413
19	1.5991	0.0401
20	1.6381	0.0390
21	1.6761	0.0380
22	1.7132	0.0371
23	1.7494	0.0362
24	1.7847	0.0354
25	1.8193	0.0346
26	1.8532	0.0339
27	1.8864	0.0332
28	1.9189	0.0325
29	1.9508	0.0319
30	1.9822	0.0313
31	2.0130	0.0308
32	2.0432	0.0303
33	2.0730	0.0298
34	2.1023	0.0293
35	2.1312	0.0288
36	2.1596	0.0284
37	2.1875	0.0279
38	2.2151	0.0275

39	2.2422	0.0272
40	2.2690	0.0268
41	2.2955	0.0264
42	2.3216	0.0261
43	2.3474	0.0258
44	2.3728	0.0255
45	2.3980	0.0252
46	2.4228	0.0249
47	2.4474	0.0246
48	2.4717	0.0243
49	2.4957	0.0240
50	2.5195	0.0238
51	2.5430	0.0235
52	2.5663	0.0233
53	2.5894	0.0230
54	2.6122	0.0228
55	2.6348	0.0226
56	2.6571	0.0224
57	2.6793	0.0222
58	2.7013	0.0220
59	2.7230	0.0218
60	2.7446	0.0216
61	2.7660	0.0214
62	2.7871	0.0212
63	2.8081	0.0210
64	2.8290	0.0208
65	2.8496	0.0207
66	2.8701	0.0205
67	2.8905	0.0203
68	2.9106	0.0202
69	2.9306	0.0200
70	2.9505	0.0199
71	2.9702	0.0197
72	2.9897	0.0196
73	3.0119	0.0222
74	3.0339	0.0220
75	3.0558	0.0219
76	3.0775	0.0217
77	3.0992	0.0216
78	3.1206	0.0215
79	3.1420	0.0214
80	3.1632	0.0212
81	3.1843	0.0211
82	3.2053	0.0210
83	3.2262	0.0209
84	3.2469	0.0208
85	3.2676	0.0206
86	3.2881	0.0205
87	3.3085	0.0204
88	3.3288	0.0203
89	3.3490	0.0202
90	3.3691	0.0201
91	3.3891	0.0200
92	3.4090	0.0199
93	3.4288	0.0198
94	3.4485	0.0197

95	3.4680	0.0196
96	3.4875	0.0195
97	3.5069	0.0194
98	3.5263	0.0193
99	3.5455	0.0192
100	3.5646	0.0191
101	3.5836	0.0190
102	3.6026	0.0190
103	3.6215	0.0189
104	3.6402	0.0188
105	3.6589	0.0187
106	3.6775	0.0186
107	3.6961	0.0185
108	3.7145	0.0185
109	3.7329	0.0184
110	3.7512	0.0183
111	3.7694	0.0182
112	3.7876	0.0181
113	3.8056	0.0181
114	3.8236	0.0180
115	3.8415	0.0179
116	3.8594	0.0178
117	3.8772	0.0178
118	3.8949	0.0177
119	3.9125	0.0176
120	3.9301	0.0176
121	3.9476	0.0175
122	3.9650	0.0174
123	3.9824	0.0174
124	3.9997	0.0173
125	4.0169	0.0172
126	4.0341	0.0172
127	4.0512	0.0171
128	4.0682	0.0170
129	4.0852	0.0170
130	4.1021	0.0169
131	4.1190	0.0169
132	4.1358	0.0168
133	4.1525	0.0167
134	4.1692	0.0167
135	4.1859	0.0166
136	4.2024	0.0166
137	4.2189	0.0165
138	4.2354	0.0165
139	4.2518	0.0164
140	4.2682	0.0163
141	4.2844	0.0163
142	4.3007	0.0162
143	4.3169	0.0162
144	4.3330	0.0161
145	4.3491	0.0161
146	4.3651	0.0160
147	4.3811	0.0160
148	4.3970	0.0159
149	4.4129	0.0159
150	4.4287	0.0158

151	4.4445	0.0158
152	4.4603	0.0157
153	4.4759	0.0157
154	4.4916	0.0156
155	4.5072	0.0156
156	4.5227	0.0155
157	4.5382	0.0155
158	4.5537	0.0155
159	4.5691	0.0154
160	4.5844	0.0154
161	4.5997	0.0153
162	4.6150	0.0153
163	4.6303	0.0152
164	4.6454	0.0152
165	4.6606	0.0151
166	4.6757	0.0151
167	4.6907	0.0151
168	4.7058	0.0150
169	4.7207	0.0150
170	4.7357	0.0149
171	4.7506	0.0149
172	4.7654	0.0149
173	4.7802	0.0148
174	4.7950	0.0148
175	4.8097	0.0147
176	4.8244	0.0147
177	4.8391	0.0147
178	4.8537	0.0146
179	4.8683	0.0146
180	4.8828	0.0145
181	4.8973	0.0145
182	4.9118	0.0145
183	4.9262	0.0144
184	4.9406	0.0144
185	4.9550	0.0144
186	4.9693	0.0143
187	4.9836	0.0143
188	4.9978	0.0142
189	5.0120	0.0142
190	5.0262	0.0142
191	5.0404	0.0141
192	5.0545	0.0141
193	5.0685	0.0141
194	5.0826	0.0140
195	5.0966	0.0140
196	5.1106	0.0140
197	5.1245	0.0139
198	5.1384	0.0139
199	5.1523	0.0139
200	5.1661	0.0138
201	5.1799	0.0138
202	5.1937	0.0138
203	5.2075	0.0137
204	5.2212	0.0137
205	5.2349	0.0137
206	5.2485	0.0137

207	5.2622	0.0136
208	5.2758	0.0136
209	5.2893	0.0136
210	5.3029	0.0135
211	5.3164	0.0135
212	5.3298	0.0135
213	5.3433	0.0134
214	5.3567	0.0134
215	5.3701	0.0134
216	5.3834	0.0134
217	5.3968	0.0133
218	5.4101	0.0133
219	5.4233	0.0133
220	5.4366	0.0132
221	5.4498	0.0132
222	5.4630	0.0132
223	5.4761	0.0132
224	5.4893	0.0131
225	5.5024	0.0131
226	5.5155	0.0131
227	5.5285	0.0131
228	5.5415	0.0130
229	5.5545	0.0130
230	5.5675	0.0130
231	5.5804	0.0129
232	5.5934	0.0129
233	5.6063	0.0129
234	5.6191	0.0129
235	5.6320	0.0128
236	5.6448	0.0128
237	5.6576	0.0128
238	5.6703	0.0128
239	5.6831	0.0127
240	5.6958	0.0127
241	5.7085	0.0127
242	5.7212	0.0127
243	5.7338	0.0126
244	5.7464	0.0126
245	5.7590	0.0126
246	5.7716	0.0126
247	5.7842	0.0125
248	5.7967	0.0125
249	5.8092	0.0125
250	5.8217	0.0125
251	5.8341	0.0125
252	5.8465	0.0124
253	5.8589	0.0124
254	5.8713	0.0124
255	5.8837	0.0124
256	5.8960	0.0123
257	5.9084	0.0123
258	5.9207	0.0123
259	5.9329	0.0123
260	5.9452	0.0123
261	5.9574	0.0122
262	5.9696	0.0122

263	5.9818	0.0122
264	5.9940	0.0122
265	6.0061	0.0121
266	6.0182	0.0121
267	6.0303	0.0121
268	6.0424	0.0121
269	6.0545	0.0121
270	6.0665	0.0120
271	6.0785	0.0120
272	6.0905	0.0120
273	6.1025	0.0120
274	6.1145	0.0120
275	6.1264	0.0119
276	6.1383	0.0119
277	6.1502	0.0119
278	6.1621	0.0119
279	6.1740	0.0119
280	6.1858	0.0118
281	6.1976	0.0118
282	6.2094	0.0118
283	6.2212	0.0118
284	6.2329	0.0118
285	6.2447	0.0117
286	6.2564	0.0117
287	6.2681	0.0117
288	6.2798	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110

26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133

82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184

138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0253
170	0.0288	0.0032	0.0256
171	0.0298	0.0033	0.0265
172	0.0303	0.0034	0.0269
173	0.0313	0.0035	0.0279
174	0.0319	0.0036	0.0284
175	0.0332	0.0037	0.0295
176	0.0339	0.0038	0.0301
177	0.0354	0.0039	0.0314
178	0.0362	0.0040	0.0322
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0457	0.0051	0.0406
184	0.0474	0.0053	0.0422
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0314
187	0.0410	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0576
191	0.0974	0.0065	0.0908
192	0.1413	0.0065	0.1348
193	0.6113	0.0065	0.6048

194	0.0766	0.0065	0.0701
195	0.0495	0.0055	0.0440
196	0.0380	0.0042	0.0337
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0357
200	0.0371	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0274
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133

250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 96.76(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

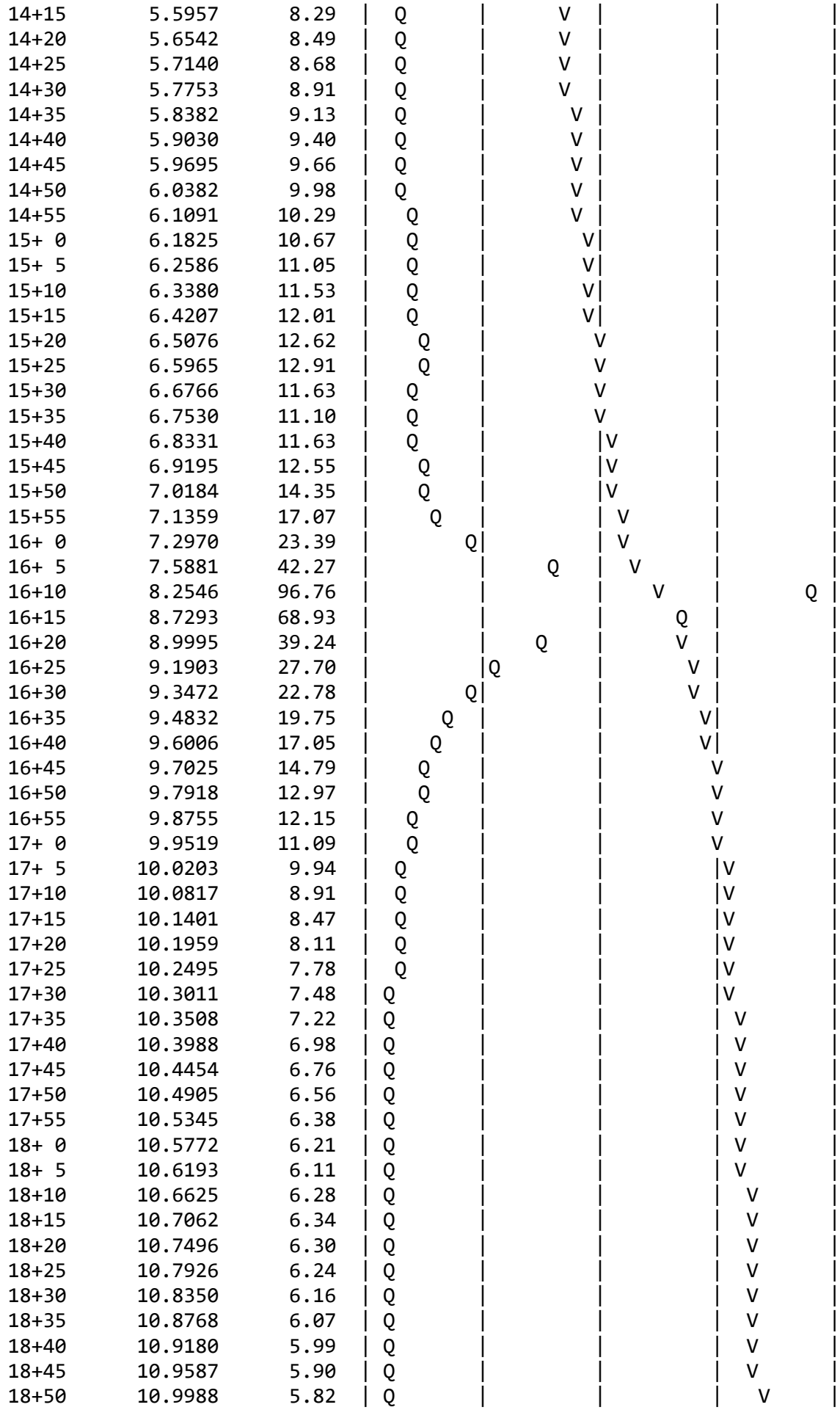
Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	25.0	50.0	75.0	100.0
0+ 5	0.0015	0.22	Q	|	|	|	|
0+10	0.0122	1.56	Q	|	|	|	|

0+15	0.0289	2.42	Q	|	|	|	|
0+20	0.0482	2.80	VQ	|	|	|	|
0+25	0.0691	3.03	VQ	|	|	|	|
0+30	0.0909	3.17	VQ	|	|	|	|
0+35	0.1135	3.28	VQ	|	|	|	|
0+40	0.1366	3.35	VQ	|	|	|	|
0+45	0.1600	3.40	VQ	|	|	|	|
0+50	0.1837	3.44	VQ	|	|	|	|
0+55	0.2076	3.47	VQ	|	|	|	|
1+ 0	0.2317	3.50	VQ	|	|	|	|
1+ 5	0.2560	3.52	VQ	|	|	|	|
1+10	0.2803	3.53	VQ	|	|	|	|
1+15	0.3047	3.54	VQ	|	|	|	|
1+20	0.3291	3.55	|Q	|	|	|	|
1+25	0.3536	3.56	|Q	|	|	|	|
1+30	0.3782	3.57	|Q	|	|	|	|
1+35	0.4028	3.58	|Q	|	|	|	|
1+40	0.4275	3.59	|Q	|	|	|	|
1+45	0.4522	3.59	|Q	|	|	|	|
1+50	0.4771	3.60	|Q	|	|	|	|
1+55	0.5019	3.61	|Q	|	|	|	|
2+ 0	0.5269	3.62	|Q	|	|	|	|
2+ 5	0.5519	3.63	|Q	|	|	|	|
2+10	0.5770	3.64	|Q	|	|	|	|
2+15	0.6022	3.65	|Q	|	|	|	|
2+20	0.6274	3.66	|Q	|	|	|	|
2+25	0.6527	3.67	|QV	|	|	|	|
2+30	0.6781	3.68	|QV	|	|	|	|
2+35	0.7035	3.69	|QV	|	|	|	|
2+40	0.7291	3.71	|QV	|	|	|	|
2+45	0.7547	3.72	|QV	|	|	|	|
2+50	0.7803	3.73	|QV	|	|	|	|
2+55	0.8061	3.74	|QV	|	|	|	|
3+ 0	0.8319	3.75	|QV	|	|	|	|
3+ 5	0.8578	3.76	|QV	|	|	|	|
3+10	0.8837	3.77	|QV	|	|	|	|
3+15	0.9098	3.78	|QV	|	|	|	|
3+20	0.9359	3.79	|QV	|	|	|	|
3+25	0.9621	3.80	|QV	|	|	|	|
3+30	0.9884	3.82	|Q V	|	|	|	|
3+35	1.0147	3.83	|Q V	|	|	|	|
3+40	1.0412	3.84	|Q V	|	|	|	|
3+45	1.0677	3.85	|Q V	|	|	|	|
3+50	1.0943	3.86	|Q V	|	|	|	|
3+55	1.1210	3.87	|Q V	|	|	|	|
4+ 0	1.1478	3.89	|Q V	|	|	|	|
4+ 5	1.1746	3.90	|Q V	|	|	|	|
4+10	1.2016	3.91	|Q V	|	|	|	|
4+15	1.2286	3.92	|Q V	|	|	|	|
4+20	1.2557	3.94	|Q V	|	|	|	|
4+25	1.2829	3.95	|Q V	|	|	|	|
4+30	1.3102	3.96	|Q V	|	|	|	|
4+35	1.3376	3.98	|Q V	|	|	|	|
4+40	1.3651	3.99	|Q V	|	|	|	|
4+45	1.3927	4.00	|Q V	|	|	|	|
4+50	1.4203	4.02	|Q V	|	|	|	|

4+55	1.4481	4.03	|Q V |	|	|	|
5+ 0	1.4759	4.04	|Q V |	|	|	|
5+ 5	1.5039	4.06	|Q V |	|	|	|
5+10	1.5319	4.07	|Q V |	|	|	|
5+15	1.5601	4.09	|Q V |	|	|	|
5+20	1.5883	4.10	|Q V |	|	|	|
5+25	1.6167	4.12	|Q V |	|	|	|
5+30	1.6451	4.13	|Q V |	|	|	|
5+35	1.6737	4.15	|Q V |	|	|	|
5+40	1.7023	4.16	|Q V |	|	|	|
5+45	1.7311	4.18	|Q V |	|	|	|
5+50	1.7600	4.19	|Q V |	|	|	|
5+55	1.7889	4.21	|Q V |	|	|	|
6+ 0	1.8180	4.22	|Q V |	|	|	|
6+ 5	1.8472	4.24	|Q V |	|	|	|
6+10	1.8765	4.26	|Q V |	|	|	|
6+15	1.9059	4.27	|Q V |	|	|	|
6+20	1.9355	4.29	|Q V |	|	|	|
6+25	1.9651	4.30	|Q V |	|	|	|
6+30	1.9949	4.32	|Q V |	|	|	|
6+35	2.0248	4.34	|Q V |	|	|	|
6+40	2.0548	4.36	|Q V |	|	|	|
6+45	2.0849	4.37	|Q V |	|	|	|
6+50	2.1151	4.39	|Q V |	|	|	|
6+55	2.1455	4.41	|Q V |	|	|	|
7+ 0	2.1760	4.43	|Q V |	|	|	|
7+ 5	2.2067	4.45	|Q V |	|	|	|
7+10	2.2374	4.47	|Q V |	|	|	|
7+15	2.2683	4.49	|Q V |	|	|	|
7+20	2.2993	4.51	|Q V |	|	|	|
7+25	2.3305	4.52	|Q V |	|	|	|
7+30	2.3618	4.55	|Q V |	|	|	|
7+35	2.3932	4.56	|Q V |	|	|	|
7+40	2.4248	4.59	|Q V |	|	|	|
7+45	2.4565	4.61	|Q V |	|	|	|
7+50	2.4884	4.63	|Q V |	|	|	|
7+55	2.5204	4.65	|Q V |	|	|	|
8+ 0	2.5526	4.67	|Q V |	|	|	|
8+ 5	2.5849	4.69	|Q V |	|	|	|
8+10	2.6174	4.72	|Q V |	|	|	|
8+15	2.6500	4.74	|Q V |	|	|	|
8+20	2.6828	4.76	|Q V |	|	|	|
8+25	2.7158	4.78	|Q V |	|	|	|
8+30	2.7489	4.81	|Q V |	|	|	|
8+35	2.7821	4.83	|Q V |	|	|	|
8+40	2.8156	4.86	|Q V |	|	|	|
8+45	2.8492	4.88	|Q V |	|	|	|
8+50	2.8830	4.91	|Q V |	|	|	|
8+55	2.9170	4.93	|Q V|	|	|	|
9+ 0	2.9511	4.96	|Q V|	|	|	|
9+ 5	2.9855	4.99	|Q V|	|	|	|
9+10	3.0200	5.01	| Q V|	|	|	|
9+15	3.0547	5.04	| Q V|	|	|	|
9+20	3.0896	5.07	| Q V|	|	|	|
9+25	3.1247	5.10	| Q V|	|	|	|
9+30	3.1601	5.13	| Q V|	|	|	|

9+35	3.1956	5.16	Q	V			
9+40	3.2313	5.19	Q	V			
9+45	3.2672	5.22	Q	V			
9+50	3.3034	5.25	Q	V			
9+55	3.3397	5.28	Q	V			
10+ 0	3.3763	5.31	Q	V			
10+ 5	3.4131	5.35	Q	V			
10+10	3.4502	5.38	Q	V			
10+15	3.4875	5.41	Q	V			
10+20	3.5250	5.45	Q	V			
10+25	3.5628	5.49	Q	V			
10+30	3.6008	5.52	Q	V			
10+35	3.6391	5.56	Q	V			
10+40	3.6777	5.60	Q	V			
10+45	3.7165	5.64	Q	V			
10+50	3.7556	5.68	Q	V			
10+55	3.7950	5.72	Q	V			
11+ 0	3.8347	5.76	Q	V			
11+ 5	3.8747	5.80	Q	V			
11+10	3.9149	5.85	Q	V			
11+15	3.9555	5.89	Q	V			
11+20	3.9964	5.94	Q	V			
11+25	4.0376	5.99	Q	V			
11+30	4.0792	6.04	Q	V			
11+35	4.1211	6.08	Q	V			
11+40	4.1634	6.14	Q	V			
11+45	4.2060	6.19	Q	V			
11+50	4.2490	6.24	Q	V			
11+55	4.2924	6.30	Q	V			
12+ 0	4.3361	6.36	Q	V			
12+ 5	4.3799	6.36	Q	V			
12+10	4.4220	6.11	Q	V			
12+15	4.4631	5.97	Q	V			
12+20	4.5041	5.95	Q	V			
12+25	4.5451	5.96	Q	V			
12+30	4.5864	6.00	Q	V			
12+35	4.6280	6.04	Q	V			
12+40	4.6701	6.10	Q	V			
12+45	4.7125	6.17	Q	V			
12+50	4.7555	6.24	Q	V			
12+55	4.7990	6.32	Q	V			
13+ 0	4.8431	6.40	Q	V			
13+ 5	4.8878	6.48	Q	V			
13+10	4.9331	6.58	Q	V			
13+15	4.9790	6.67	Q	V			
13+20	5.0257	6.78	Q	V			
13+25	5.0731	6.88	Q	V			
13+30	5.1212	6.99	Q	V			
13+35	5.1701	7.10	Q	V			
13+40	5.2199	7.23	Q	V			
13+45	5.2705	7.35	Q	V			
13+50	5.3221	7.49	Q	V			
13+55	5.3746	7.62	Q	V			
14+ 0	5.4282	7.78	Q	V			
14+ 5	5.4828	7.93	Q	V			
14+10	5.5387	8.11	Q	V			



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18+55      11.0383      5.74  | Q       |         |         |   V     |
19+ 0      11.0773      5.66  | Q       |         |         |   V     |
19+ 5      11.1157      5.58  | Q       |         |         |   V     |
19+10      11.1537      5.51  | Q       |         |         |   V     |
19+15      11.1911      5.44  | Q       |         |         |   V     |
19+20      11.2281      5.37  | Q       |         |         |   V     |
19+25      11.2646      5.30  | Q       |         |         |   V     |
19+30      11.3006      5.24  | Q       |         |         |    V    |
19+35      11.3363      5.17  | Q       |         |         |    V    |
19+40      11.3715      5.11  | Q       |         |         |    V    |
19+45      11.4063      5.06  | Q       |         |         |    V    |
19+50      11.4408      5.00  | Q       |         |         |    V    |
19+55      11.4748      4.95  |Q        |         |         |    V    |
20+ 0      11.5086      4.90  |Q        |         |         |    V    |
20+ 5      11.5419      4.85  |Q        |         |         |    V    |
20+10      11.5750      4.80  |Q        |         |         |    V    |
20+15      11.6077      4.75  |Q        |         |         |    V    |
20+20      11.6401      4.71  |Q        |         |         |     V   |
20+25      11.6722      4.66  |Q        |         |         |     V   |
20+30      11.7040      4.62  |Q        |         |         |     V   |
20+35      11.7355      4.58  |Q        |         |         |     V   |
20+40      11.7668      4.54  |Q        |         |         |     V   |
20+45      11.7977      4.50  |Q        |         |         |     V   |
20+50      11.8284      4.46  |Q        |         |         |     V   |
20+55      11.8589      4.42  |Q        |         |         |     V   |
21+ 0      11.8891      4.38  |Q        |         |         |     V   |
21+ 5      11.9190      4.35  |Q        |         |         |     V   |
21+10      11.9487      4.31  |Q        |         |         |      V  |
21+15      11.9782      4.28  |Q        |         |         |      V  |
21+20      12.0075      4.25  |Q        |         |         |      V  |
21+25      12.0365      4.22  |Q        |         |         |      V  |
21+30      12.0653      4.18  |Q        |         |         |      V  |
21+35      12.0939      4.15  |Q        |         |         |      V  |
21+40      12.1223      4.12  |Q        |         |         |      V  |
21+45      12.1505      4.09  |Q        |         |         |      V  |
21+50      12.1785      4.07  |Q        |         |         |      V  |
21+55      12.2063      4.04  |Q        |         |         |      V  |
22+ 0      12.2340      4.01  |Q        |         |         |      V  |
22+ 5      12.2614      3.98  |Q        |         |         |       V |
22+10      12.2887      3.96  |Q        |         |         |       V |
22+15      12.3157      3.93  |Q        |         |         |       V |
22+20      12.3426      3.91  |Q        |         |         |       V |
22+25      12.3694      3.88  |Q        |         |         |       V |
22+30      12.3959      3.86  |Q        |         |         |       V |
22+35      12.4223      3.83  |Q        |         |         |       V |
22+40      12.4486      3.81  |Q        |         |         |       V |
22+45      12.4747      3.79  |Q        |         |         |       V |
22+50      12.5006      3.77  |Q        |         |         |       V |
22+55      12.5264      3.74  |Q        |         |         |       V |
23+ 0      12.5520      3.72  |Q        |         |         |       V |
23+ 5      12.5775      3.70  |Q        |         |         |       V |
23+10      12.6028      3.68  |Q        |         |         |        V|
23+15      12.6280      3.66  |Q        |         |         |        V|
23+20      12.6531      3.64  |Q        |         |         |        V|
23+25      12.6780      3.62  |Q        |         |         |        V|
23+30      12.7028      3.60  |Q        |         |         |        V|
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   23+35      12.7275      3.58  |Q        |         |         |        V|
   23+40      12.7520      3.56  |Q        |         |         |        V|
   23+45      12.7764      3.54  |Q        |         |         |        V|
   23+50      12.8007      3.53  |Q        |         |         |        V|
   23+55      12.8248      3.51  |Q        |         |         |        V|
   24+ 0      12.8489      3.49  |Q        |         |         |        V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA J

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
2.55	1	0.77
Rainfall data for year 2		
2.55	6	1.08
Rainfall data for year 2		
2.55	24	2.03
Rainfall data for year 100		
2.55	1	1.29
Rainfall data for year 100		
2.55	6	2.99
Rainfall data for year 100		

```
             2.55           24           6.28
------------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0          2.55      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     0.26   0.100         32.0      52.0       9.23     0.229
     2.29   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.091 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =       2.55(Ac.)
Catchment Lag time =   0.073 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 114.4689
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of       2.55(Ac.) (Ref: fig. E-4)

5-minute factor = 1.000     Adjusted rainfall =  0.612(In)
30-minute factor = 1.000    Adjusted rainfall =  1.048(In)
1-hour factor = 1.000       Adjusted rainfall =  1.290(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
------------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
------------------------------------------------------------------------
```

(K = 30.84 (CFS))

1	21.852	6.739
2	72.161	15.515
3	87.252	4.654
4	93.761	2.007
5	97.093	1.027
6	98.662	0.484
7	100.000	0.413

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6120	0.6120
2	0.7535	0.1415
3	0.8510	0.0975
4	0.9277	0.0767
5	0.9919	0.0642
6	1.0477	0.0558
7	1.0973	0.0496
8	1.1421	0.0448
9	1.1832	0.0411
10	1.2212	0.0380
11	1.2566	0.0354
12	1.2898	0.0332
13	1.3392	0.0494
14	1.3866	0.0474
15	1.4322	0.0456
16	1.4763	0.0440
17	1.5189	0.0426
18	1.5602	0.0413
19	1.6003	0.0401
20	1.6392	0.0390
21	1.6772	0.0380
22	1.7142	0.0370
23	1.7504	0.0361
24	1.7857	0.0353
25	1.8202	0.0345
26	1.8540	0.0338
27	1.8871	0.0331
28	1.9196	0.0325
29	1.9515	0.0319
30	1.9828	0.0313
31	2.0135	0.0307
32	2.0438	0.0302
33	2.0735	0.0297
34	2.1027	0.0293
35	2.1315	0.0288
36	2.1599	0.0284
37	2.1878	0.0279
38	2.2154	0.0275
39	2.2425	0.0272
40	2.2693	0.0268
41	2.2958	0.0264
42	2.3219	0.0261
43	2.3477	0.0258
44	2.3731	0.0255

45	2.3983	0.0252
46	2.4231	0.0249
47	2.4477	0.0246
48	2.4720	0.0243
49	2.4960	0.0240
50	2.5198	0.0238
51	2.5433	0.0235
52	2.5666	0.0233
53	2.5896	0.0230
54	2.6125	0.0228
55	2.6350	0.0226
56	2.6574	0.0224
57	2.6796	0.0222
58	2.7015	0.0220
59	2.7233	0.0218
60	2.7448	0.0216
61	2.7662	0.0214
62	2.7874	0.0212
63	2.8084	0.0210
64	2.8292	0.0208
65	2.8499	0.0207
66	2.8704	0.0205
67	2.8907	0.0203
68	2.9109	0.0202
69	2.9309	0.0200
70	2.9507	0.0199
71	2.9704	0.0197
72	2.9900	0.0196
73	3.0121	0.0222
74	3.0342	0.0220
75	3.0560	0.0219
76	3.0778	0.0217
77	3.0994	0.0216
78	3.1209	0.0215
79	3.1422	0.0214
80	3.1635	0.0212
81	3.1846	0.0211
82	3.2056	0.0210
83	3.2264	0.0209
84	3.2472	0.0208
85	3.2678	0.0206
86	3.2883	0.0205
87	3.3087	0.0204
88	3.3291	0.0203
89	3.3492	0.0202
90	3.3693	0.0201
91	3.3893	0.0200
92	3.4092	0.0199
93	3.4290	0.0198
94	3.4487	0.0197
95	3.4683	0.0196
96	3.4878	0.0195
97	3.5072	0.0194
98	3.5265	0.0193
99	3.5457	0.0192
100	3.5648	0.0191

101	3.5839	0.0190
102	3.6028	0.0190
103	3.6217	0.0189
104	3.6405	0.0188
105	3.6592	0.0187
106	3.6778	0.0186
107	3.6963	0.0185
108	3.7148	0.0185
109	3.7331	0.0184
110	3.7514	0.0183
111	3.7697	0.0182
112	3.7878	0.0181
113	3.8059	0.0181
114	3.8239	0.0180
115	3.8418	0.0179
116	3.8596	0.0178
117	3.8774	0.0178
118	3.8951	0.0177
119	3.9127	0.0176
120	3.9303	0.0176
121	3.9478	0.0175
122	3.9652	0.0174
123	3.9826	0.0174
124	3.9999	0.0173
125	4.0171	0.0172
126	4.0343	0.0172
127	4.0514	0.0171
128	4.0685	0.0170
129	4.0854	0.0170
130	4.1024	0.0169
131	4.1192	0.0169
132	4.1360	0.0168
133	4.1528	0.0167
134	4.1695	0.0167
135	4.1861	0.0166
136	4.2027	0.0166
137	4.2192	0.0165
138	4.2356	0.0165
139	4.2520	0.0164
140	4.2684	0.0163
141	4.2847	0.0163
142	4.3009	0.0162
143	4.3171	0.0162
144	4.3332	0.0161
145	4.3493	0.0161
146	4.3654	0.0160
147	4.3813	0.0160
148	4.3973	0.0159
149	4.4131	0.0159
150	4.4290	0.0158
151	4.4448	0.0158
152	4.4605	0.0157
153	4.4762	0.0157
154	4.4918	0.0156
155	4.5074	0.0156
156	4.5229	0.0155

157	4.5384	0.0155
158	4.5539	0.0155
159	4.5693	0.0154
160	4.5847	0.0154
161	4.6000	0.0153
162	4.6153	0.0153
163	4.6305	0.0152
164	4.6457	0.0152
165	4.6608	0.0151
166	4.6759	0.0151
167	4.6910	0.0151
168	4.7060	0.0150
169	4.7210	0.0150
170	4.7359	0.0149
171	4.7508	0.0149
172	4.7656	0.0149
173	4.7804	0.0148
174	4.7952	0.0148
175	4.8100	0.0147
176	4.8246	0.0147
177	4.8393	0.0147
178	4.8539	0.0146
179	4.8685	0.0146
180	4.8830	0.0145
181	4.8975	0.0145
182	4.9120	0.0145
183	4.9264	0.0144
184	4.9408	0.0144
185	4.9552	0.0144
186	4.9695	0.0143
187	4.9838	0.0143
188	4.9980	0.0142
189	5.0123	0.0142
190	5.0264	0.0142
191	5.0406	0.0141
192	5.0547	0.0141
193	5.0688	0.0141
194	5.0828	0.0140
195	5.0968	0.0140
196	5.1108	0.0140
197	5.1247	0.0139
198	5.1386	0.0139
199	5.1525	0.0139
200	5.1664	0.0138
201	5.1802	0.0138
202	5.1940	0.0138
203	5.2077	0.0137
204	5.2214	0.0137
205	5.2351	0.0137
206	5.2488	0.0137
207	5.2624	0.0136
208	5.2760	0.0136
209	5.2895	0.0136
210	5.3031	0.0135
211	5.3166	0.0135
212	5.3301	0.0135

213	5.3435	0.0134
214	5.3569	0.0134
215	5.3703	0.0134
216	5.3837	0.0134
217	5.3970	0.0133
218	5.4103	0.0133
219	5.4236	0.0133
220	5.4368	0.0132
221	5.4500	0.0132
222	5.4632	0.0132
223	5.4764	0.0132
224	5.4895	0.0131
225	5.5026	0.0131
226	5.5157	0.0131
227	5.5287	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5677	0.0130
231	5.5807	0.0129
232	5.5936	0.0129
233	5.6065	0.0129
234	5.6193	0.0129
235	5.6322	0.0128
236	5.6450	0.0128
237	5.6578	0.0128
238	5.6706	0.0128
239	5.6833	0.0127
240	5.6960	0.0127
241	5.7087	0.0127
242	5.7214	0.0127
243	5.7340	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7718	0.0126
247	5.7844	0.0125
248	5.7969	0.0125
249	5.8094	0.0125
250	5.8219	0.0125
251	5.8343	0.0125
252	5.8467	0.0124
253	5.8592	0.0124
254	5.8715	0.0124
255	5.8839	0.0124
256	5.8962	0.0123
257	5.9086	0.0123
258	5.9209	0.0123
259	5.9331	0.0123
260	5.9454	0.0123
261	5.9576	0.0122
262	5.9698	0.0122
263	5.9820	0.0122
264	5.9942	0.0122
265	6.0063	0.0121
266	6.0184	0.0121
267	6.0305	0.0121
268	6.0426	0.0121

269	6.0547	0.0121
270	6.0667	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1027	0.0120
274	6.1147	0.0120
275	6.1266	0.0119
276	6.1385	0.0119
277	6.1504	0.0119
278	6.1623	0.0119
279	6.1742	0.0119
280	6.1860	0.0118
281	6.1978	0.0118
282	6.2096	0.0118
283	6.2214	0.0118
284	6.2331	0.0118
285	6.2449	0.0117
286	6.2566	0.0117
287	6.2683	0.0117
288	6.2800	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112

32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137

88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194

144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0294
176	0.0338	0.0038	0.0300
177	0.0353	0.0039	0.0314
178	0.0361	0.0040	0.0321
179	0.0380	0.0042	0.0337
180	0.0390	0.0043	0.0346
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0399
189	0.0558	0.0062	0.0496
190	0.0642	0.0065	0.0577
191	0.0975	0.0065	0.0909
192	0.1415	0.0065	0.1349
193	0.6120	0.0065	0.6055
194	0.0767	0.0065	0.0702
195	0.0496	0.0055	0.0441
196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0440	0.0049	0.0391
199	0.0401	0.0045	0.0356

200	0.0370	0.0041	0.0329
201	0.0345	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0307	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127

256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0108
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 10.78(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

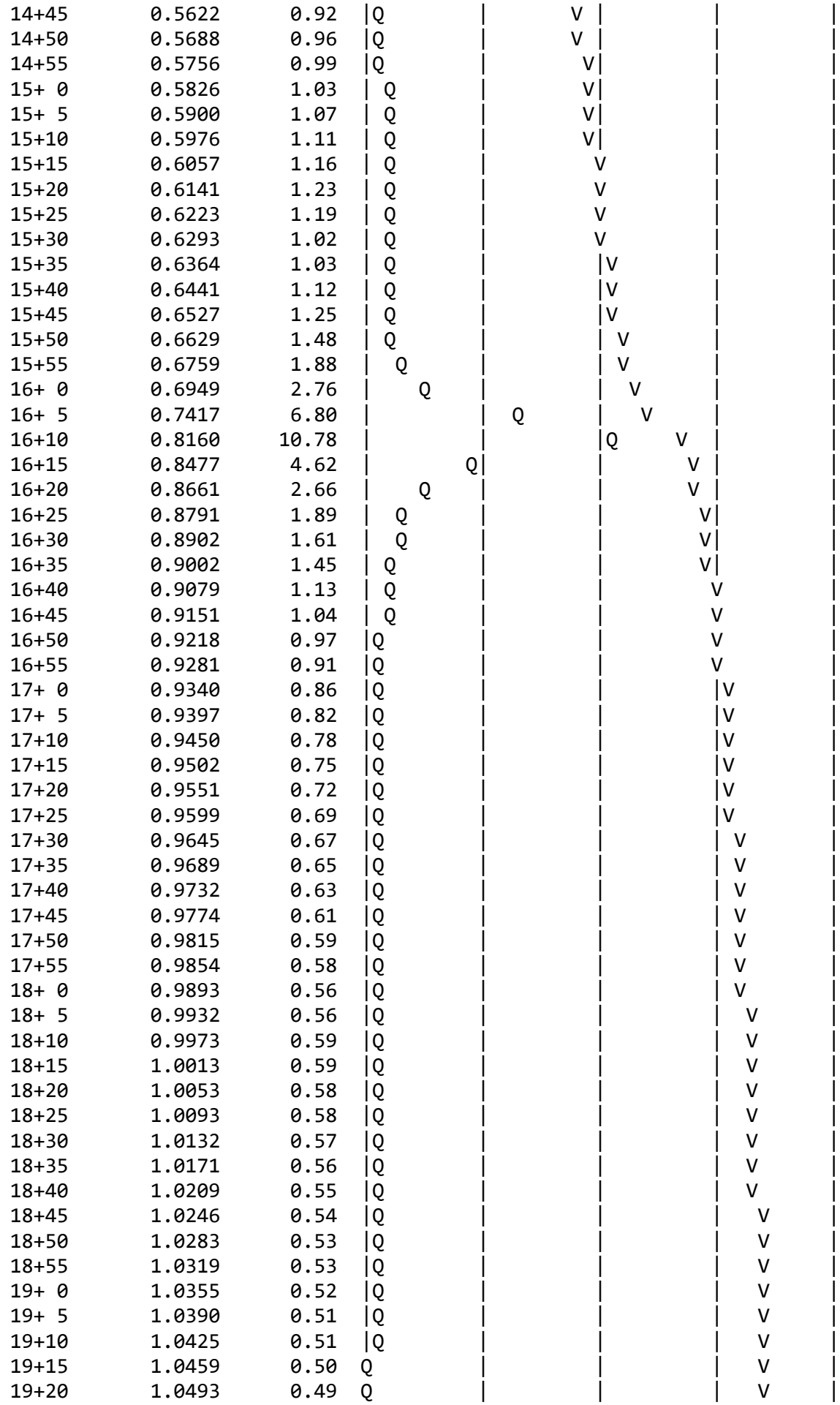
Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	5.0	10.0	15.0	20.0
0+ 5	0.0005	0.07	Q	|	|	|	|
0+10	0.0021	0.23	Q	|	|	|	|
0+15	0.0040	0.28	Q	|	|	|	|
0+20	0.0061	0.30	Q	|	|	|	|
0+25	0.0082	0.31	Q	|	|	|	|
0+30	0.0104	0.32	Q	|	|	|	|
0+35	0.0127	0.32	Q	|	|	|	|
0+40	0.0149	0.32	Q	|	|	|	|

0+45	0.0171	0.33	Q	|	|	|	|
0+50	0.0194	0.33	Q	|	|	|	|
0+55	0.0216	0.33	Q	|	|	|	|
1+ 0	0.0239	0.33	Q	|	|	|	|
1+ 5	0.0262	0.33	Q	|	|	|	|
1+10	0.0284	0.33	Q	|	|	|	|
1+15	0.0307	0.33	QV	|	|	|	|
1+20	0.0330	0.33	QV	|	|	|	|
1+25	0.0353	0.33	QV	|	|	|	|
1+30	0.0376	0.33	QV	|	|	|	|
1+35	0.0399	0.33	QV	|	|	|	|
1+40	0.0422	0.33	QV	|	|	|	|
1+45	0.0445	0.34	QV	|	|	|	|
1+50	0.0468	0.34	QV	|	|	|	|
1+55	0.0491	0.34	QV	|	|	|	|
2+ 0	0.0515	0.34	QV	|	|	|	|
2+ 5	0.0538	0.34	QV	|	|	|	|
2+10	0.0561	0.34	QV	|	|	|	|
2+15	0.0585	0.34	QV	|	|	|	|
2+20	0.0608	0.34	Q V	|	|	|	|
2+25	0.0632	0.34	Q V	|	|	|	|
2+30	0.0656	0.34	Q V	|	|	|	|
2+35	0.0680	0.35	Q V	|	|	|	|
2+40	0.0703	0.35	Q V	|	|	|	|
2+45	0.0727	0.35	Q V	|	|	|	|
2+50	0.0751	0.35	Q V	|	|	|	|
2+55	0.0775	0.35	Q V	|	|	|	|
3+ 0	0.0799	0.35	Q V	|	|	|	|
3+ 5	0.0824	0.35	Q V	|	|	|	|
3+10	0.0848	0.35	Q V	|	|	|	|
3+15	0.0872	0.35	Q V	|	|	|	|
3+20	0.0897	0.35	Q V	|	|	|	|
3+25	0.0921	0.36	Q V	|	|	|	|
3+30	0.0946	0.36	Q V	|	|	|	|
3+35	0.0970	0.36	Q V	|	|	|	|
3+40	0.0995	0.36	Q V	|	|	|	|
3+45	0.1020	0.36	Q V	|	|	|	|
3+50	0.1045	0.36	Q V	|	|	|	|
3+55	0.1069	0.36	Q V	|	|	|	|
4+ 0	0.1095	0.36	Q V	|	|	|	|
4+ 5	0.1120	0.36	Q V	|	|	|	|
4+10	0.1145	0.37	Q V	|	|	|	|
4+15	0.1170	0.37	Q V	|	|	|	|
4+20	0.1195	0.37	Q V	|	|	|	|
4+25	0.1221	0.37	Q V	|	|	|	|
4+30	0.1246	0.37	Q V	|	|	|	|
4+35	0.1272	0.37	Q V	|	|	|	|
4+40	0.1298	0.37	Q V	|	|	|	|
4+45	0.1323	0.37	Q V	|	|	|	|
4+50	0.1349	0.38	Q V	|	|	|	|
4+55	0.1375	0.38	Q V	|	|	|	|
5+ 0	0.1401	0.38	Q V	|	|	|	|
5+ 5	0.1427	0.38	Q V	|	|	|	|
5+10	0.1453	0.38	Q V	|	|	|	|
5+15	0.1480	0.38	Q V	|	|	|	|
5+20	0.1506	0.38	Q V	|	|	|	|

5+25	0.1533	0.38	Q	V	|	|	|	|
5+30	0.1559	0.39	Q	V	|	|	|	|
5+35	0.1586	0.39	Q	V	|	|	|	|
5+40	0.1613	0.39	Q	V	|	|	|	|
5+45	0.1640	0.39	Q	V	|	|	|	|
5+50	0.1667	0.39	Q	V	|	|	|	|
5+55	0.1694	0.39	Q	V	|	|	|	|
6+ 0	0.1721	0.39	Q	V	|	|	|	|
6+ 5	0.1748	0.40	Q	V	|	|	|	|
6+10	0.1776	0.40	Q	V	|	|	|	|
6+15	0.1803	0.40	Q	V	|	|	|	|
6+20	0.1831	0.40	Q	V	|	|	|	|
6+25	0.1858	0.40	Q	V	|	|	|	|
6+30	0.1886	0.40	Q	V	|	|	|	|
6+35	0.1914	0.41	Q	V	|	|	|	|
6+40	0.1942	0.41	Q	V	|	|	|	|
6+45	0.1970	0.41	Q	V	|	|	|	|
6+50	0.1999	0.41	Q	V	|	|	|	|
6+55	0.2027	0.41	Q	V	|	|	|	|
7+ 0	0.2056	0.41	Q	V	|	|	|	|
7+ 5	0.2084	0.42	Q	V	|	|	|	|
7+10	0.2113	0.42	Q	V	|	|	|	|
7+15	0.2142	0.42	Q	V	|	|	|	|
7+20	0.2171	0.42	Q	V	|	|	|	|
7+25	0.2200	0.42	Q	V	|	|	|	|
7+30	0.2229	0.43	Q	V	|	|	|	|
7+35	0.2259	0.43	Q	V	|	|	|	|
7+40	0.2288	0.43	Q	V	|	|	|	|
7+45	0.2318	0.43	Q	V	|	|	|	|
7+50	0.2348	0.43	Q	V	|	|	|	|
7+55	0.2378	0.43	Q	V	|	|	|	|
8+ 0	0.2408	0.44	Q	V	|	|	|	|
8+ 5	0.2438	0.44	Q	V	|	|	|	|
8+10	0.2469	0.44	Q	V	|	|	|	|
8+15	0.2499	0.44	Q	V	|	|	|	|
8+20	0.2530	0.45	Q	V	|	|	|	|
8+25	0.2561	0.45	Q	V	|	|	|	|
8+30	0.2592	0.45	Q	V	|	|	|	|
8+35	0.2623	0.45	Q	V	|	|	|	|
8+40	0.2654	0.45	Q	V	|	|	|	|
8+45	0.2686	0.46	Q	V	|	|	|	|
8+50	0.2717	0.46	Q	V	|	|	|	|
8+55	0.2749	0.46	Q	V	|	|	|	|
9+ 0	0.2781	0.46	Q	V	|	|	|	|
9+ 5	0.2813	0.47	Q	V	|	|	|	|
9+10	0.2846	0.47	Q	V	|	|	|	|
9+15	0.2878	0.47	Q	V	|	|	|	|
9+20	0.2911	0.47	Q	V	|	|	|	|
9+25	0.2944	0.48	Q	V	|	|	|	|
9+30	0.2977	0.48	Q	V	|	|	|	|
9+35	0.3010	0.48	Q	V	|	|	|	|
9+40	0.3043	0.49	Q	V	|	|	|	|
9+45	0.3077	0.49	Q	V	|	|	|	|
9+50	0.3111	0.49	Q	V	|	|	|	|
9+55	0.3145	0.49	Q	V	|	|	|	|
10+ 0	0.3179	0.50	Q	V	|	|	|	|

```
10+ 5       0.3214      0.50  |Q        V         |         |         |
10+10       0.3249      0.50  |Q        V         |         |         |
10+15       0.3284      0.51  |Q        V         |         |         |
10+20       0.3319      0.51  |Q        |V        |         |         |
10+25       0.3354      0.51  |Q        |V        |         |         |
10+30       0.3390      0.52  |Q        |V        |         |         |
10+35       0.3426      0.52  |Q        |V        |         |         |
10+40       0.3462      0.53  |Q        |V        |         |         |
10+45       0.3498      0.53  |Q        |V        |         |         |
10+50       0.3535      0.53  |Q        |V        |         |         |
10+55       0.3572      0.54  |Q        |V        |         |         |
11+ 0       0.3609      0.54  |Q        | V       |         |         |
11+ 5       0.3647      0.54  |Q        | V       |         |         |
11+10       0.3684      0.55  |Q        | V       |         |         |
11+15       0.3723      0.55  |Q        | V       |         |         |
11+20       0.3761      0.56  |Q        | V       |         |         |
11+25       0.3800      0.56  |Q        | V       |         |         |
11+30       0.3839      0.57  |Q        | V       |         |         |
11+35       0.3878      0.57  |Q        | V       |         |         |
11+40       0.3918      0.58  |Q        |  V      |         |         |
11+45       0.3958      0.58  |Q        |  V      |         |         |
11+50       0.3998      0.59  |Q        |  V      |         |         |
11+55       0.4039      0.59  |Q        |  V      |         |         |
12+ 0       0.4080      0.60  |Q        |  V      |         |         |
12+ 5       0.4120      0.59  |Q        |  V      |         |         |
12+10       0.4159      0.55  |Q        |  V      |         |         |
12+15       0.4196      0.55  |Q        |  V      |         |         |
12+20       0.4234      0.55  |Q        |   V     |         |         |
12+25       0.4272      0.55  |Q        |   V     |         |         |
12+30       0.4311      0.56  |Q        |   V     |         |         |
12+35       0.4350      0.57  |Q        |   V     |         |         |
12+40       0.4389      0.57  |Q        |   V     |         |         |
12+45       0.4429      0.58  |Q        |   V     |         |         |
12+50       0.4470      0.59  |Q        |   V     |         |         |
12+55       0.4511      0.60  |Q        |    V    |         |         |
13+ 0       0.4552      0.60  |Q        |    V    |         |         |
13+ 5       0.4595      0.61  |Q        |    V    |         |         |
13+10       0.4637      0.62  |Q        |    V    |         |         |
13+15       0.4681      0.63  |Q        |    V    |         |         |
13+20       0.4725      0.64  |Q        |    V    |         |         |
13+25       0.4770      0.65  |Q        |    V    |         |         |
13+30       0.4815      0.66  |Q        |     V   |         |         |
13+35       0.4862      0.67  |Q        |     V   |         |         |
13+40       0.4909      0.68  |Q        |     V   |         |         |
13+45       0.4957      0.70  |Q        |     V   |         |         |
13+50       0.5006      0.71  |Q        |     V   |         |         |
13+55       0.5055      0.72  |Q        |     V   |         |         |
14+ 0       0.5106      0.74  |Q        |     V   |         |         |
14+ 5       0.5158      0.75  |Q        |      V  |         |         |
14+10       0.5211      0.77  |Q        |      V  |         |         |
14+15       0.5265      0.79  |Q        |      V  |         |         |
14+20       0.5321      0.81  |Q        |      V  |         |         |
14+25       0.5378      0.83  |Q        |      V  |         |         |
14+30       0.5436      0.85  |Q        |       V |         |         |
14+35       0.5496      0.87  |Q        |       V |         |         |
14+40       0.5558      0.90  |Q        |       V |         |         |
```



19+25	1.0527	0.49	Q	|	|	|	V |
19+30	1.0560	0.48	Q	|	|	|	V |
19+35	1.0593	0.48	Q	|	|	|	V |
19+40	1.0625	0.47	Q	|	|	|	V |
19+45	1.0657	0.47	Q	|	|	|	V |
19+50	1.0689	0.46	Q	|	|	|	V |
19+55	1.0720	0.46	Q	|	|	|	V |
20+ 0	1.0751	0.45	Q	|	|	|	V |
20+ 5	1.0782	0.45	Q	|	|	|	V |
20+10	1.0813	0.44	Q	|	|	|	V |
20+15	1.0843	0.44	Q	|	|	|	V |
20+20	1.0873	0.43	Q	|	|	|	V |
20+25	1.0902	0.43	Q	|	|	|	V |
20+30	1.0932	0.43	Q	|	|	|	V |
20+35	1.0961	0.42	Q	|	|	|	V |
20+40	1.0989	0.42	Q	|	|	|	V |
20+45	1.1018	0.41	Q	|	|	|	V |
20+50	1.1046	0.41	Q	|	|	|	V |
20+55	1.1074	0.41	Q	|	|	|	V |
21+ 0	1.1102	0.40	Q	|	|	|	V |
21+ 5	1.1130	0.40	Q	|	|	|	V |
21+10	1.1157	0.40	Q	|	|	|	V |
21+15	1.1185	0.40	Q	|	|	|	V |
21+20	1.1212	0.39	Q	|	|	|	V |
21+25	1.1239	0.39	Q	|	|	|	V |
21+30	1.1265	0.39	Q	|	|	|	V |
21+35	1.1292	0.38	Q	|	|	|	V |
21+40	1.1318	0.38	Q	|	|	|	V |
21+45	1.1344	0.38	Q	|	|	|	V |
21+50	1.1370	0.38	Q	|	|	|	V |
21+55	1.1396	0.37	Q	|	|	|	V |
22+ 0	1.1421	0.37	Q	|	|	|	V |
22+ 5	1.1446	0.37	Q	|	|	|	V |
22+10	1.1472	0.37	Q	|	|	|	V |
22+15	1.1497	0.36	Q	|	|	|	V |
22+20	1.1522	0.36	Q	|	|	|	V |
22+25	1.1546	0.36	Q	|	|	|	V |
22+30	1.1571	0.36	Q	|	|	|	V |
22+35	1.1595	0.35	Q	|	|	|	V |
22+40	1.1620	0.35	Q	|	|	|	V |
22+45	1.1644	0.35	Q	|	|	|	V |
22+50	1.1668	0.35	Q	|	|	|	V |
22+55	1.1692	0.35	Q	|	|	|	V |
23+ 0	1.1715	0.34	Q	|	|	|	V |
23+ 5	1.1739	0.34	Q	|	|	|	V|
23+10	1.1762	0.34	Q	|	|	|	V|
23+15	1.1786	0.34	Q	|	|	|	V|
23+20	1.1809	0.34	Q	|	|	|	V|
23+25	1.1832	0.34	Q	|	|	|	V|
23+30	1.1855	0.33	Q	|	|	|	V|
23+35	1.1878	0.33	Q	|	|	|	V|
23+40	1.1901	0.33	Q	|	|	|	V|
23+45	1.1923	0.33	Q	|	|	|	V|
23+50	1.1946	0.33	Q	|	|	|	V|
23+55	1.1968	0.32	Q	|	|	|	V|
24+ 0	1.1990	0.32	Q	|	|	|	V|

U n i t H y d r o g r a p h A n a l y s i s

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Study date 11/15/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
DMA K

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
12.57	1	0.77
Rainfall data for year 2		
12.57	6	1.08
Rainfall data for year 2		
12.57	24	2.03
Rainfall data for year 100		
12.57	1	1.29
Rainfall data for year 100		
12.57	6	2.99
Rainfall data for year 100		

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            12.57           24           6.28
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******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0         12.57      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
     1.26   0.100         32.0      52.0       9.23     0.229
    11.31   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.141 (hours)
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Watershed area =      12.57(Ac.)
Catchment Lag time =   0.113 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 73.8771
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of      12.57(Ac.) (Ref: fig. E-4)

5-minute factor = 0.999     Adjusted rainfall =  0.612(In)
30-minute factor = 0.999    Adjusted rainfall =  1.047(In)
1-hour factor = 0.999       Adjusted rainfall =  1.289(In)
3-hour factor = 1.000       Adjusted rainfall =  2.160(In)
6-hour factor = 1.000       Adjusted rainfall =  2.990(In)
24-hour factor = 1.000      Adjusted rainfall =  6.280(In)
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                      U n i t  H y d r o g r a p h
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Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
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(K = 152.02 (CFS))

1	8.881	13.501
2	53.367	67.626
3	75.349	33.416
4	85.010	14.687
5	90.570	8.453
6	94.051	5.291
7	96.367	3.521
8	97.782	2.152
9	98.637	1.299
10	99.463	1.257
11	100.000	0.816

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6118	0.6118
2	0.7532	0.1414
3	0.8506	0.0974
4	0.9273	0.0767
5	0.9914	0.0642
6	1.0472	0.0557
7	1.0968	0.0496
8	1.1416	0.0448
9	1.1826	0.0411
10	1.2206	0.0380
11	1.2560	0.0354
12	1.2892	0.0332
13	1.3386	0.0494
14	1.3860	0.0474
15	1.4317	0.0456
16	1.4757	0.0441
17	1.5184	0.0426
18	1.5597	0.0413
19	1.5998	0.0401
20	1.6388	0.0390
21	1.6768	0.0380
22	1.7138	0.0370
23	1.7500	0.0362
24	1.7853	0.0353
25	1.8198	0.0346
26	1.8537	0.0338
27	1.8868	0.0331
28	1.9193	0.0325
29	1.9512	0.0319
30	1.9825	0.0313
31	2.0133	0.0308
32	2.0435	0.0302
33	2.0733	0.0297
34	2.1026	0.0293
35	2.1314	0.0288
36	2.1598	0.0284
37	2.1877	0.0279
38	2.2153	0.0275
39	2.2424	0.0272
40	2.2692	0.0268

41	2.2957	0.0264
42	2.3218	0.0261
43	2.3475	0.0258
44	2.3730	0.0255
45	2.3982	0.0252
46	2.4230	0.0249
47	2.4476	0.0246
48	2.4719	0.0243
49	2.4959	0.0240
50	2.5197	0.0238
51	2.5432	0.0235
52	2.5665	0.0233
53	2.5895	0.0230
54	2.6123	0.0228
55	2.6349	0.0226
56	2.6573	0.0224
57	2.6795	0.0222
58	2.7014	0.0220
59	2.7232	0.0218
60	2.7447	0.0216
61	2.7661	0.0214
62	2.7873	0.0212
63	2.8083	0.0210
64	2.8291	0.0208
65	2.8498	0.0207
66	2.8703	0.0205
67	2.8906	0.0203
68	2.9108	0.0202
69	2.9308	0.0200
70	2.9506	0.0199
71	2.9703	0.0197
72	2.9899	0.0196
73	3.0120	0.0222
74	3.0341	0.0220
75	3.0559	0.0219
76	3.0777	0.0217
77	3.0993	0.0216
78	3.1208	0.0215
79	3.1421	0.0214
80	3.1634	0.0212
81	3.1845	0.0211
82	3.2055	0.0210
83	3.2263	0.0209
84	3.2471	0.0208
85	3.2677	0.0206
86	3.2882	0.0205
87	3.3087	0.0204
88	3.3290	0.0203
89	3.3492	0.0202
90	3.3692	0.0201
91	3.3892	0.0200
92	3.4091	0.0199
93	3.4289	0.0198
94	3.4486	0.0197
95	3.4682	0.0196
96	3.4877	0.0195

97	3.5071	0.0194
98	3.5264	0.0193
99	3.5456	0.0192
100	3.5647	0.0191
101	3.5838	0.0190
102	3.6027	0.0190
103	3.6216	0.0189
104	3.6404	0.0188
105	3.6591	0.0187
106	3.6777	0.0186
107	3.6962	0.0185
108	3.7147	0.0185
109	3.7330	0.0184
110	3.7513	0.0183
111	3.7696	0.0182
112	3.7877	0.0181
113	3.8058	0.0181
114	3.8238	0.0180
115	3.8417	0.0179
116	3.8595	0.0178
117	3.8773	0.0178
118	3.8950	0.0177
119	3.9126	0.0176
120	3.9302	0.0176
121	3.9477	0.0175
122	3.9651	0.0174
123	3.9825	0.0174
124	3.9998	0.0173
125	4.0170	0.0172
126	4.0342	0.0172
127	4.0513	0.0171
128	4.0684	0.0170
129	4.0854	0.0170
130	4.1023	0.0169
131	4.1191	0.0169
132	4.1359	0.0168
133	4.1527	0.0167
134	4.1694	0.0167
135	4.1860	0.0166
136	4.2026	0.0166
137	4.2191	0.0165
138	4.2355	0.0165
139	4.2519	0.0164
140	4.2683	0.0163
141	4.2846	0.0163
142	4.3008	0.0162
143	4.3170	0.0162
144	4.3331	0.0161
145	4.3492	0.0161
146	4.3653	0.0160
147	4.3812	0.0160
148	4.3972	0.0159
149	4.4131	0.0159
150	4.4289	0.0158
151	4.4447	0.0158
152	4.4604	0.0157

153	4.4761	0.0157
154	4.4917	0.0156
155	4.5073	0.0156
156	4.5229	0.0155
157	4.5384	0.0155
158	4.5538	0.0155
159	4.5692	0.0154
160	4.5846	0.0154
161	4.5999	0.0153
162	4.6152	0.0153
163	4.6304	0.0152
164	4.6456	0.0152
165	4.6607	0.0151
166	4.6758	0.0151
167	4.6909	0.0151
168	4.7059	0.0150
169	4.7209	0.0150
170	4.7358	0.0149
171	4.7507	0.0149
172	4.7655	0.0149
173	4.7804	0.0148
174	4.7951	0.0148
175	4.8099	0.0147
176	4.8246	0.0147
177	4.8392	0.0147
178	4.8538	0.0146
179	4.8684	0.0146
180	4.8829	0.0145
181	4.8974	0.0145
182	4.9119	0.0145
183	4.9263	0.0144
184	4.9407	0.0144
185	4.9551	0.0144
186	4.9694	0.0143
187	4.9837	0.0143
188	4.9979	0.0142
189	5.0122	0.0142
190	5.0263	0.0142
191	5.0405	0.0141
192	5.0546	0.0141
193	5.0687	0.0141
194	5.0827	0.0140
195	5.0967	0.0140
196	5.1107	0.0140
197	5.1246	0.0139
198	5.1385	0.0139
199	5.1524	0.0139
200	5.1663	0.0138
201	5.1801	0.0138
202	5.1939	0.0138
203	5.2076	0.0137
204	5.2213	0.0137
205	5.2350	0.0137
206	5.2487	0.0137
207	5.2623	0.0136
208	5.2759	0.0136

209	5.2895	0.0136
210	5.3030	0.0135
211	5.3165	0.0135
212	5.3300	0.0135
213	5.3434	0.0134
214	5.3568	0.0134
215	5.3702	0.0134
216	5.3836	0.0134
217	5.3969	0.0133
218	5.4102	0.0133
219	5.4235	0.0133
220	5.4367	0.0132
221	5.4499	0.0132
222	5.4631	0.0132
223	5.4763	0.0132
224	5.4894	0.0131
225	5.5025	0.0131
226	5.5156	0.0131
227	5.5286	0.0131
228	5.5417	0.0130
229	5.5547	0.0130
230	5.5676	0.0130
231	5.5806	0.0129
232	5.5935	0.0129
233	5.6064	0.0129
234	5.6193	0.0129
235	5.6321	0.0128
236	5.6449	0.0128
237	5.6577	0.0128
238	5.6705	0.0128
239	5.6832	0.0127
240	5.6959	0.0127
241	5.7086	0.0127
242	5.7213	0.0127
243	5.7339	0.0126
244	5.7466	0.0126
245	5.7592	0.0126
246	5.7717	0.0126
247	5.7843	0.0125
248	5.7968	0.0125
249	5.8093	0.0125
250	5.8218	0.0125
251	5.8342	0.0125
252	5.8467	0.0124
253	5.8591	0.0124
254	5.8715	0.0124
255	5.8838	0.0124
256	5.8962	0.0123
257	5.9085	0.0123
258	5.9208	0.0123
259	5.9331	0.0123
260	5.9453	0.0123
261	5.9575	0.0122
262	5.9697	0.0122
263	5.9819	0.0122
264	5.9941	0.0122

265	6.0062	0.0121
266	6.0184	0.0121
267	6.0305	0.0121
268	6.0425	0.0121
269	6.0546	0.0121
270	6.0666	0.0120
271	6.0787	0.0120
272	6.0907	0.0120
273	6.1026	0.0120
274	6.1146	0.0120
275	6.1265	0.0119
276	6.1384	0.0119
277	6.1503	0.0119
278	6.1622	0.0119
279	6.1741	0.0119
280	6.1859	0.0118
281	6.1977	0.0118
282	6.2095	0.0118
283	6.2213	0.0118
284	6.2331	0.0118
285	6.2448	0.0117
286	6.2565	0.0117
287	6.2682	0.0117
288	6.2799	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108
19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0109
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0110
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111

28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0119
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0137	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0124
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0142	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130
75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135

84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174
131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0180
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0208	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188

140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0193
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0230	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0218
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0264	0.0029	0.0235
167	0.0272	0.0030	0.0241
168	0.0275	0.0031	0.0245
169	0.0284	0.0032	0.0252
170	0.0288	0.0032	0.0256
171	0.0297	0.0033	0.0264
172	0.0302	0.0034	0.0269
173	0.0313	0.0035	0.0278
174	0.0319	0.0035	0.0283
175	0.0331	0.0037	0.0295
176	0.0338	0.0038	0.0301
177	0.0353	0.0039	0.0314
178	0.0362	0.0040	0.0321
179	0.0380	0.0042	0.0338
180	0.0390	0.0043	0.0347
181	0.0413	0.0046	0.0367
182	0.0426	0.0047	0.0379
183	0.0456	0.0051	0.0406
184	0.0474	0.0053	0.0421
185	0.0332	0.0037	0.0295
186	0.0354	0.0039	0.0315
187	0.0411	0.0046	0.0365
188	0.0448	0.0050	0.0398
189	0.0557	0.0062	0.0495
190	0.0642	0.0065	0.0577
191	0.0974	0.0065	0.0909
192	0.1414	0.0065	0.1349
193	0.6118	0.0065	0.6052
194	0.0767	0.0065	0.0701
195	0.0496	0.0055	0.0441

196	0.0380	0.0042	0.0338
197	0.0494	0.0055	0.0439
198	0.0441	0.0049	0.0392
199	0.0401	0.0045	0.0356
200	0.0370	0.0041	0.0329
201	0.0346	0.0038	0.0307
202	0.0325	0.0036	0.0289
203	0.0308	0.0034	0.0273
204	0.0293	0.0033	0.0260
205	0.0279	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0176
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0187
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142
243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131

252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0125	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 48.80(CFS)

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24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	12.5	25.0	37.5	50.0
0+ 5	0.0010	0.14	Q	|	|	|	|
0+10	0.0068	0.84	Q	|	|	|	|
0+15	0.0150	1.19	Q	|	|	|	|
0+20	0.0242	1.35	VQ	|	|	|	|

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0+25       0.0341      1.44  VQ        |         |         |         |
0+30       0.0444      1.50  VQ        |         |         |         |
0+35       0.0550      1.54  VQ        |         |         |         |
0+40       0.0658      1.56  VQ        |         |         |         |
0+45       0.0767      1.58  VQ        |         |         |         |
0+50       0.0877      1.60  VQ        |         |         |         |
0+55       0.0987      1.61  VQ        |         |         |         |
1+ 0       0.1099      1.61  VQ        |         |         |         |
1+ 5       0.1210      1.62  VQ        |         |         |         |
1+10       0.1322      1.62  VQ        |         |         |         |
1+15       0.1434      1.63  VQ        |         |         |         |
1+20       0.1546      1.63  |Q        |         |         |         |
1+25       0.1658      1.63  |Q        |         |         |         |
1+30       0.1771      1.64  |Q        |         |         |         |
1+35       0.1884      1.64  |Q        |         |         |         |
1+40       0.1998      1.65  |Q        |         |         |         |
1+45       0.2112      1.65  |Q        |         |         |         |
1+50       0.2226      1.66  |Q        |         |         |         |
1+55       0.2340      1.66  |Q        |         |         |         |
2+ 0       0.2455      1.67  |Q        |         |         |         |
2+ 5       0.2570      1.67  |Q        |         |         |         |
2+10       0.2685      1.67  |Q        |         |         |         |
2+15       0.2801      1.68  |Q        |         |         |         |
2+20       0.2917      1.68  |Q        |         |         |         |
2+25       0.3033      1.69  |QV       |         |         |         |
2+30       0.3149      1.69  |QV       |         |         |         |
2+35       0.3266      1.70  |QV       |         |         |         |
2+40       0.3384      1.70  |QV       |         |         |         |
2+45       0.3501      1.71  |QV       |         |         |         |
2+50       0.3619      1.71  |QV       |         |         |         |
2+55       0.3737      1.72  |QV       |         |         |         |
3+ 0       0.3856      1.72  |QV       |         |         |         |
3+ 5       0.3975      1.73  |QV       |         |         |         |
3+10       0.4094      1.73  |QV       |         |         |         |
3+15       0.4214      1.74  |QV       |         |         |         |
3+20       0.4334      1.74  |QV       |         |         |         |
3+25       0.4454      1.75  |Q V      |         |         |         |
3+30       0.4575      1.75  |Q V      |         |         |         |
3+35       0.4696      1.76  |Q V      |         |         |         |
3+40       0.4818      1.76  |Q V      |         |         |         |
3+45       0.4940      1.77  |Q V      |         |         |         |
3+50       0.5062      1.78  |Q V      |         |         |         |
3+55       0.5185      1.78  |Q V      |         |         |         |
4+ 0       0.5308      1.79  |Q V      |         |         |         |
4+ 5       0.5431      1.79  |Q V      |         |         |         |
4+10       0.5555      1.80  |Q V      |         |         |         |
4+15       0.5679      1.80  |Q V      |         |         |         |
4+20       0.5804      1.81  |Q V      |         |         |         |
4+25       0.5929      1.82  |Q  V     |         |         |         |
4+30       0.6054      1.82  |Q  V     |         |         |         |
4+35       0.6180      1.83  |Q  V     |         |         |         |
4+40       0.6306      1.83  |Q  V     |         |         |         |
4+45       0.6433      1.84  |Q  V     |         |         |         |
4+50       0.6560      1.85  |Q  V     |         |         |         |
4+55       0.6688      1.85  |Q  V     |         |         |         |
5+ 0       0.6816      1.86  |Q  V     |         |         |         |
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5+ 5       0.6944      1.86  |Q  V     |          |          |          |
5+10       0.7073      1.87  |Q  V     |          |          |          |
5+15       0.7203      1.88  |Q  V     |          |          |          |
5+20       0.7332      1.89  |Q  V     |          |          |          |
5+25       0.7463      1.89  |Q   V    |          |          |          |
5+30       0.7593      1.90  |Q   V    |          |          |          |
5+35       0.7725      1.91  |Q   V    |          |          |          |
5+40       0.7856      1.91  |Q   V    |          |          |          |
5+45       0.7988      1.92  |Q   V    |          |          |          |
5+50       0.8121      1.93  |Q   V    |          |          |          |
5+55       0.8254      1.93  |Q   V    |          |          |          |
6+ 0       0.8388      1.94  |Q   V    |          |          |          |
6+ 5       0.8522      1.95  |Q   V    |          |          |          |
6+10       0.8657      1.96  |Q   V    |          |          |          |
6+15       0.8792      1.96  |Q   V    |          |          |          |
6+20       0.8928      1.97  |Q    V   |          |          |          |
6+25       0.9064      1.98  |Q    V   |          |          |          |
6+30       0.9201      1.99  |Q    V   |          |          |          |
6+35       0.9338      1.99  |Q    V   |          |          |          |
6+40       0.9476      2.00  |Q    V   |          |          |          |
6+45       0.9615      2.01  |Q    V   |          |          |          |
6+50       0.9754      2.02  |Q    V   |          |          |          |
6+55       0.9893      2.03  |Q    V   |          |          |          |
7+ 0       1.0034      2.04  |Q    V   |          |          |          |
7+ 5       1.0174      2.04  |Q    V   |          |          |          |
7+10       1.0316      2.05  |Q    V   |          |          |          |
7+15       1.0458      2.06  |Q     V  |          |          |          |
7+20       1.0600      2.07  |Q     V  |          |          |          |
7+25       1.0744      2.08  |Q     V  |          |          |          |
7+30       1.0888      2.09  |Q     V  |          |          |          |
7+35       1.1032      2.10  |Q     V  |          |          |          |
7+40       1.1177      2.11  |Q     V  |          |          |          |
7+45       1.1323      2.12  |Q     V  |          |          |          |
7+50       1.1470      2.13  |Q     V  |          |          |          |
7+55       1.1617      2.14  |Q     V  |          |          |          |
8+ 0       1.1765      2.15  |Q     V  |          |          |          |
8+ 5       1.1913      2.16  |Q      V |          |          |          |
8+10       1.2063      2.17  |Q      V |          |          |          |
8+15       1.2213      2.18  |Q      V |          |          |          |
8+20       1.2363      2.19  |Q      V |          |          |          |
8+25       1.2515      2.20  |Q      V |          |          |          |
8+30       1.2667      2.21  |Q      V |          |          |          |
8+35       1.2820      2.22  |Q      V |          |          |          |
8+40       1.2974      2.23  |Q      V |          |          |          |
8+45       1.3129      2.24  |Q      V |          |          |          |
8+50       1.3284      2.26  |Q      V |          |          |          |
8+55       1.3440      2.27  |Q       V|          |          |          |
9+ 0       1.3597      2.28  |Q       V|          |          |          |
9+ 5       1.3755      2.29  |Q       V|          |          |          |
9+10       1.3914      2.31  |Q       V|          |          |          |
9+15       1.4074      2.32  |Q       V|          |          |          |
9+20       1.4234      2.33  |Q       V|          |          |          |
9+25       1.4396      2.34  |Q       V|          |          |          |
9+30       1.4558      2.36  |Q       V|          |          |          |
9+35       1.4721      2.37  |Q       V|          |          |          |
9+40       1.4886      2.39  |Q        V          |          |          |
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9+45	1.5051	2.40	Q	V			
9+50	1.5217	2.41	Q	V			
9+55	1.5384	2.43	Q	V			
10+ 0	1.5553	2.44	Q	V			
10+ 5	1.5722	2.46	Q	V			
10+10	1.5893	2.48	Q	V			
10+15	1.6064	2.49	Q	V			
10+20	1.6237	2.51	Q	V			
10+25	1.6410	2.52	Q	V			
10+30	1.6585	2.54	Q	V			
10+35	1.6762	2.56	Q	V			
10+40	1.6939	2.58	Q	V			
10+45	1.7118	2.59	Q	V			
10+50	1.7298	2.61	Q	V			
10+55	1.7479	2.63	Q	V			
11+ 0	1.7661	2.65	Q	V			
11+ 5	1.7845	2.67	Q	V			
11+10	1.8031	2.69	Q	V			
11+15	1.8217	2.71	Q	V			
11+20	1.8406	2.73	Q	V			
11+25	1.8595	2.75	Q	V			
11+30	1.8787	2.78	Q	V			
11+35	1.8979	2.80	Q	V			
11+40	1.9174	2.82	Q	V			
11+45	1.9370	2.85	Q	V			
11+50	1.9568	2.87	Q	V			
11+55	1.9768	2.90	Q	V			
12+ 0	1.9969	2.93	Q	V			
12+ 5	2.0170	2.92	Q	V			
12+10	2.0362	2.78	Q	V			
12+15	2.0550	2.73	Q	V			
12+20	2.0738	2.73	Q	V			
12+25	2.0926	2.73	Q	V			
12+30	2.1116	2.75	Q	V			
12+35	2.1307	2.78	Q	V			
12+40	2.1500	2.81	Q	V			
12+45	2.1696	2.84	Q	V			
12+50	2.1893	2.87	Q	V			
12+55	2.2094	2.91	Q	V			
13+ 0	2.2297	2.95	Q	V			
13+ 5	2.2503	2.99	Q	V			
13+10	2.2712	3.03	Q	V			
13+15	2.2923	3.08	Q	V			
13+20	2.3139	3.13	Q	V			
13+25	2.3357	3.17	Q	V			
13+30	2.3579	3.23	Q	V			
13+35	2.3805	3.28	Q	V			
13+40	2.4034	3.34	Q	V			
13+45	2.4268	3.39	Q	V			
13+50	2.4506	3.46	Q	V			
13+55	2.4748	3.52	Q	V			
14+ 0	2.4996	3.59	Q	V			
14+ 5	2.5248	3.66	Q	V			
14+10	2.5506	3.75	Q	V			
14+15	2.5769	3.82	Q	V			
14+20	2.6039	3.92	Q	V			

14+25	2.6315	4.01	Q		V			
14+30	2.6599	4.12	Q		V			
14+35	2.6890	4.22	Q		V			
14+40	2.7189	4.35	Q		V			
14+45	2.7497	4.47	Q		V			
14+50	2.7815	4.62	Q		V			
14+55	2.8142	4.76	Q		V			
15+ 0	2.8483	4.94	Q		V			
15+ 5	2.8836	5.12	Q		V			
15+10	2.9204	5.35	Q		V			
15+15	2.9588	5.57	Q		V			
15+20	2.9992	5.87	Q		V			
15+25	3.0401	5.94	Q		V			
15+30	3.0762	5.24	Q		V			
15+35	3.1112	5.08	Q		V			
15+40	3.1483	5.39	Q		V			
15+45	3.1887	5.86	Q		V			
15+50	3.2354	6.78	Q		V			
15+55	3.2916	8.17	Q		V			
16+ 0	3.3705	11.46	Q		V			
16+ 5	3.5229	22.12		Q	V			
16+10	3.8590	48.80			V			Q
16+15	4.0586	28.99			Q	V		
16+20	4.1738	16.72	Q		V			
16+25	4.2550	11.79	Q		V			
16+30	4.3232	9.91	Q		V			
16+35	4.3817	8.49	Q		V			
16+40	4.4314	7.21	Q		V			
16+45	4.4747	6.29	Q		V			
16+50	4.5148	5.83	Q		V			
16+55	4.5507	5.21	Q		V			
17+ 0	4.5815	4.47	Q		V			
17+ 5	4.6105	4.21	Q		V			
17+10	4.6381	4.00	Q		V			
17+15	4.6644	3.83	Q		V			
17+20	4.6896	3.66	Q		V			
17+25	4.7138	3.51	Q		V			
17+30	4.7371	3.38	Q		V			
17+35	4.7597	3.27	Q		V			
17+40	4.7814	3.16	Q		V			
17+45	4.8026	3.07	Q		V			
17+50	4.8231	2.98	Q		V			
17+55	4.8430	2.90	Q		V			
18+ 0	4.8625	2.82	Q		V			
18+ 5	4.8817	2.79	Q		V			
18+10	4.9016	2.89	Q		V			
18+15	4.9216	2.91	Q		V			
18+20	4.9415	2.89	Q		V			
18+25	4.9612	2.86	Q		V			
18+30	4.9806	2.82	Q		V			
18+35	4.9997	2.78	Q		V			
18+40	5.0186	2.74	Q		V			
18+45	5.0372	2.70	Q		V			
18+50	5.0555	2.66	Q		V			
18+55	5.0736	2.62	Q		V			
19+ 0	5.0914	2.59	Q		V			

19+ 5	5.1090	2.55	Q				V
19+10	5.1263	2.52	Q				V
19+15	5.1434	2.48	Q				V
19+20	5.1603	2.45	Q				V
19+25	5.1770	2.42	Q				V
19+30	5.1935	2.39	Q				V
19+35	5.2098	2.37	Q				V
19+40	5.2259	2.34	Q				V
19+45	5.2418	2.31	Q				V
19+50	5.2576	2.29	Q				V
19+55	5.2732	2.26	Q				V
20+ 0	5.2886	2.24	Q				V
20+ 5	5.3039	2.22	Q				V
20+10	5.3190	2.20	Q				V
20+15	5.3340	2.17	Q				V
20+20	5.3488	2.15	Q				V
20+25	5.3635	2.13	Q				V
20+30	5.3781	2.11	Q				V
20+35	5.3925	2.09	Q				V
20+40	5.4068	2.08	Q				V
20+45	5.4210	2.06	Q				V
20+50	5.4350	2.04	Q				V
20+55	5.4490	2.02	Q				V
21+ 0	5.4628	2.01	Q				V
21+ 5	5.4765	1.99	Q				V
21+10	5.4901	1.98	Q				V
21+15	5.5036	1.96	Q				V
21+20	5.5170	1.95	Q				V
21+25	5.5303	1.93	Q				V
21+30	5.5435	1.92	Q				V
21+35	5.5566	1.90	Q				V
21+40	5.5696	1.89	Q				V
21+45	5.5825	1.88	Q				V
21+50	5.5954	1.86	Q				V
21+55	5.6081	1.85	Q				V
22+ 0	5.6207	1.84	Q				V
22+ 5	5.6333	1.82	Q				V
22+10	5.6458	1.81	Q				V
22+15	5.6582	1.80	Q				V
22+20	5.6705	1.79	Q				V
22+25	5.6828	1.78	Q				V
22+30	5.6949	1.77	Q				V
22+35	5.7070	1.76	Q				V
22+40	5.7191	1.75	Q				V
22+45	5.7310	1.74	Q				V
22+50	5.7429	1.73	Q				V
22+55	5.7547	1.72	Q				V
23+ 0	5.7665	1.71	Q				V
23+ 5	5.7781	1.70	Q				V
23+10	5.7897	1.69	Q				V
23+15	5.8013	1.68	Q				V
23+20	5.8128	1.67	Q				V
23+25	5.8242	1.66	Q				V
23+30	5.8356	1.65	Q				V
23+35	5.8469	1.64	Q				V
23+40	5.8581	1.63	Q				V

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   23+45       5.8693      1.62  |Q        |         |         |        V|
   23+50       5.8804      1.62  |Q        |         |         |        V|
   23+55       5.8915      1.61  |Q        |         |         |        V|
   24+ 0       5.9025      1.60  |Q        |         |         |        V|
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U n i t H y d r o g r a p h A n a l y s i s

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Study date 12/06/21

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San Bernardino County Synthetic Unit Hydrology Method
Manual date - August 1986

Program License Serial Number 6277

2019-185 HCC II
Post-Developed Conditions
Unit Hydrograph Method - 100yr Storm
Entire Site

Storm Event Year = 100

Antecedent Moisture Condition = 3

English (in-lb) Input Units Used

English Rainfall Data (Inches) Input Values Used

English Units used in output format

Area averaged rainfall intensity isohyetal data:

Sub-Area (Ac.)	Duration (hours)	Isohyetal (In)
Rainfall data for year 10		
193.82	1	0.77
Rainfall data for year 2		
193.82	6	1.08
Rainfall data for year 2		
193.82	24	2.03
Rainfall data for year 100		
193.82	1	1.29
Rainfall data for year 100		
193.82	6	2.99
Rainfall data for year 100		

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           193.82           24           6.28
--------------------------------------------------------------------
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

******** Area-averaged max loss rate, Fm ********


SCS curve  SCS curve     Area     Area     Fp(Fig C6)    Ap      Fm
No.(AMCII) NO.(AMC 3)    (Ac.)    Fraction     (In/Hr)  (dec.)   (In/Hr)
 32.0      52.0        193.82      1.000     0.785    0.100    0.079

Area-averaged adjusted loss rate Fm (In/Hr) =  0.079

********* Area-Averaged low loss rate fraction, Yb **********

Area       Area          SCS CN    SCS CN      S     Pervious
 (Ac.)      Fract         (AMC2)    (AMC3)           Yield Fr
    19.38   0.100         32.0      52.0       9.23     0.229
   174.44   0.900         98.0      98.0       0.20     0.962

Area-averaged catchment yield fraction, Y =  0.889
Area-averaged low loss fraction, Yb =  0.111
User entry of time of concentration  =   0.254 (hours)
++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Watershed area =     193.82(Ac.)
Catchment Lag time =   0.203 hours
Unit interval =   5.000 minutes
Unit interval percentage of lag time = 41.0105
Hydrograph baseflow =     0.00(CFS)
Average maximum watershed loss rate(Fm) =  0.079(In/Hr)
Average low loss rate fraction (Yb) = 0.111 (decimal)
DESERT S-Graph Selected
Computed peak 5-minute rainfall =  0.612(In)
Computed peak 30-minute rainfall =  1.048(In)
Specified peak 1-hour rainfall =  1.290(In)
Computed peak 3-hour rainfall =  2.160(In)
Specified peak 6-hour rainfall =  2.990(In)
Specified peak 24-hour rainfall =  6.280(In)


Rainfall depth area reduction factors:
Using a total area of     193.82(Ac.) (Ref: fig. E-4)

5-minute factor = 0.991     Adjusted rainfall =  0.607(In)
30-minute factor = 0.991    Adjusted rainfall =  1.038(In)
1-hour factor = 0.991       Adjusted rainfall =  1.278(In)
3-hour factor = 0.999       Adjusted rainfall =  2.157(In)
6-hour factor = 0.999       Adjusted rainfall =  2.988(In)
24-hour factor = 1.000      Adjusted rainfall =  6.278(In)
--------------------------------------------------------------------

                      U n i t  H y d r o g r a p h
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Interval          'S' Graph          Unit Hydrograph
Number            Mean values             ((CFS))
--------------------------------------------------------------------
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(K = 2344.01 (CFS))

1	2.861	67.051
2	19.853	398.298
3	50.578	720.199
4	66.609	375.772
5	75.604	210.843
6	81.544	139.231
7	85.860	101.168
8	89.114	76.266
9	91.485	55.598
10	93.428	45.539
11	94.941	35.451
12	96.162	28.632
13	97.121	22.483
14	97.809	16.112
15	98.252	10.394
16	98.728	11.153
17	99.220	11.535
18	99.610	9.139
19	99.867	6.021
20	100.000	3.121

Peak Unit Number	Adjusted mass rainfall (In)	Unit rainfall (In)
1	0.6066	0.6066
2	0.7468	0.1402
3	0.8434	0.0966
4	0.9194	0.0760
5	0.9830	0.0637
6	1.0383	0.0553
7	1.0874	0.0491
8	1.1319	0.0444
9	1.1726	0.0407
10	1.2102	0.0377
11	1.2453	0.0351
12	1.2783	0.0329
13	1.3280	0.0497
14	1.3757	0.0477
15	1.4217	0.0460
16	1.4661	0.0444
17	1.5090	0.0430
18	1.5507	0.0417
19	1.5911	0.0405
20	1.6305	0.0394
21	1.6688	0.0383
22	1.7062	0.0374
23	1.7428	0.0365
24	1.7785	0.0357
25	1.8134	0.0349
26	1.8476	0.0342
27	1.8811	0.0335
28	1.9140	0.0329
29	1.9463	0.0323
30	1.9779	0.0317
31	2.0091	0.0311

32	2.0397	0.0306
33	2.0698	0.0301
34	2.0995	0.0296
35	2.1287	0.0292
36	2.1574	0.0288
37	2.1854	0.0280
38	2.2130	0.0276
39	2.2401	0.0272
40	2.2670	0.0268
41	2.2934	0.0265
42	2.3195	0.0261
43	2.3453	0.0258
44	2.3708	0.0255
45	2.3960	0.0252
46	2.4208	0.0249
47	2.4454	0.0246
48	2.4698	0.0243
49	2.4938	0.0240
50	2.5176	0.0238
51	2.5411	0.0235
52	2.5644	0.0233
53	2.5875	0.0231
54	2.6103	0.0228
55	2.6329	0.0226
56	2.6553	0.0224
57	2.6775	0.0222
58	2.6995	0.0220
59	2.7212	0.0218
60	2.7428	0.0216
61	2.7642	0.0214
62	2.7854	0.0212
63	2.8064	0.0210
64	2.8273	0.0208
65	2.8480	0.0207
66	2.8685	0.0205
67	2.8888	0.0203
68	2.9090	0.0202
69	2.9290	0.0200
70	2.9489	0.0199
71	2.9686	0.0197
72	2.9882	0.0196
73	3.0103	0.0222
74	3.0324	0.0220
75	3.0542	0.0219
76	3.0760	0.0217
77	3.0976	0.0216
78	3.1191	0.0215
79	3.1404	0.0214
80	3.1617	0.0212
81	3.1828	0.0211
82	3.2037	0.0210
83	3.2246	0.0209
84	3.2454	0.0207
85	3.2660	0.0206
86	3.2865	0.0205
87	3.3069	0.0204

88	3.3272	0.0203
89	3.3474	0.0202
90	3.3675	0.0201
91	3.3875	0.0200
92	3.4074	0.0199
93	3.4272	0.0198
94	3.4469	0.0197
95	3.4665	0.0196
96	3.4860	0.0195
97	3.5054	0.0194
98	3.5247	0.0193
99	3.5439	0.0192
100	3.5630	0.0191
101	3.5820	0.0190
102	3.6010	0.0190
103	3.6199	0.0189
104	3.6386	0.0188
105	3.6573	0.0187
106	3.6760	0.0186
107	3.6945	0.0185
108	3.7129	0.0185
109	3.7313	0.0184
110	3.7496	0.0183
111	3.7678	0.0182
112	3.7860	0.0181
113	3.8040	0.0181
114	3.8220	0.0180
115	3.8399	0.0179
116	3.8578	0.0178
117	3.8756	0.0178
118	3.8933	0.0177
119	3.9109	0.0176
120	3.9285	0.0176
121	3.9460	0.0175
122	3.9634	0.0174
123	3.9808	0.0174
124	3.9981	0.0173
125	4.0153	0.0172
126	4.0325	0.0172
127	4.0496	0.0171
128	4.0666	0.0170
129	4.0836	0.0170
130	4.1005	0.0169
131	4.1174	0.0169
132	4.1342	0.0168
133	4.1510	0.0167
134	4.1676	0.0167
135	4.1843	0.0166
136	4.2008	0.0166
137	4.2174	0.0165
138	4.2338	0.0165
139	4.2502	0.0164
140	4.2666	0.0163
141	4.2829	0.0163
142	4.2991	0.0162
143	4.3153	0.0162

144	4.3314	0.0161
145	4.3475	0.0161
146	4.3635	0.0160
147	4.3795	0.0160
148	4.3955	0.0159
149	4.4113	0.0159
150	4.4272	0.0158
151	4.4430	0.0158
152	4.4587	0.0157
153	4.4744	0.0157
154	4.4900	0.0156
155	4.5056	0.0156
156	4.5211	0.0155
157	4.5366	0.0155
158	4.5521	0.0155
159	4.5675	0.0154
160	4.5829	0.0154
161	4.5982	0.0153
162	4.6135	0.0153
163	4.6287	0.0152
164	4.6439	0.0152
165	4.6590	0.0151
166	4.6741	0.0151
167	4.6892	0.0151
168	4.7042	0.0150
169	4.7192	0.0150
170	4.7341	0.0149
171	4.7490	0.0149
172	4.7639	0.0149
173	4.7787	0.0148
174	4.7934	0.0148
175	4.8082	0.0147
176	4.8229	0.0147
177	4.8375	0.0147
178	4.8522	0.0146
179	4.8667	0.0146
180	4.8813	0.0145
181	4.8958	0.0145
182	4.9103	0.0145
183	4.9247	0.0144
184	4.9391	0.0144
185	4.9534	0.0144
186	4.9678	0.0143
187	4.9820	0.0143
188	4.9963	0.0143
189	5.0105	0.0142
190	5.0247	0.0142
191	5.0388	0.0141
192	5.0529	0.0141
193	5.0670	0.0141
194	5.0811	0.0140
195	5.0951	0.0140
196	5.1091	0.0140
197	5.1230	0.0139
198	5.1369	0.0139
199	5.1508	0.0139

200	5.1646	0.0138
201	5.1785	0.0138
202	5.1922	0.0138
203	5.2060	0.0138
204	5.2197	0.0137
205	5.2334	0.0137
206	5.2470	0.0137
207	5.2607	0.0136
208	5.2743	0.0136
209	5.2878	0.0136
210	5.3014	0.0135
211	5.3149	0.0135
212	5.3284	0.0135
213	5.3418	0.0134
214	5.3552	0.0134
215	5.3686	0.0134
216	5.3820	0.0134
217	5.3953	0.0133
218	5.4086	0.0133
219	5.4219	0.0133
220	5.4351	0.0132
221	5.4483	0.0132
222	5.4615	0.0132
223	5.4747	0.0132
224	5.4878	0.0131
225	5.5009	0.0131
226	5.5140	0.0131
227	5.5271	0.0131
228	5.5401	0.0130
229	5.5531	0.0130
230	5.5661	0.0130
231	5.5790	0.0129
232	5.5919	0.0129
233	5.6048	0.0129
234	5.6177	0.0129
235	5.6305	0.0128
236	5.6434	0.0128
237	5.6562	0.0128
238	5.6689	0.0128
239	5.6817	0.0127
240	5.6944	0.0127
241	5.7071	0.0127
242	5.7198	0.0127
243	5.7324	0.0126
244	5.7450	0.0126
245	5.7576	0.0126
246	5.7702	0.0126
247	5.7827	0.0126
248	5.7953	0.0125
249	5.8078	0.0125
250	5.8203	0.0125
251	5.8327	0.0125
252	5.8451	0.0124
253	5.8576	0.0124
254	5.8699	0.0124
255	5.8823	0.0124

256	5.8947	0.0123
257	5.9070	0.0123
258	5.9193	0.0123
259	5.9316	0.0123
260	5.9438	0.0123
261	5.9560	0.0122
262	5.9683	0.0122
263	5.9804	0.0122
264	5.9926	0.0122
265	6.0048	0.0121
266	6.0169	0.0121
267	6.0290	0.0121
268	6.0411	0.0121
269	6.0531	0.0121
270	6.0652	0.0120
271	6.0772	0.0120
272	6.0892	0.0120
273	6.1012	0.0120
274	6.1131	0.0120
275	6.1251	0.0119
276	6.1370	0.0119
277	6.1489	0.0119
278	6.1608	0.0119
279	6.1726	0.0119
280	6.1845	0.0118
281	6.1963	0.0118
282	6.2081	0.0118
283	6.2199	0.0118
284	6.2316	0.0118
285	6.2434	0.0117
286	6.2551	0.0117
287	6.2668	0.0117
288	6.2785	0.0117

Unit Period (number)	Unit Rainfall (In)	Unit Soil-Loss (In)	Effective Rainfall (In)
1	0.0117	0.0013	0.0104
2	0.0117	0.0013	0.0104
3	0.0117	0.0013	0.0104
4	0.0118	0.0013	0.0105
5	0.0118	0.0013	0.0105
6	0.0118	0.0013	0.0105
7	0.0119	0.0013	0.0105
8	0.0119	0.0013	0.0106
9	0.0119	0.0013	0.0106
10	0.0119	0.0013	0.0106
11	0.0120	0.0013	0.0106
12	0.0120	0.0013	0.0107
13	0.0120	0.0013	0.0107
14	0.0121	0.0013	0.0107
15	0.0121	0.0013	0.0108
16	0.0121	0.0013	0.0108
17	0.0122	0.0014	0.0108
18	0.0122	0.0014	0.0108

19	0.0122	0.0014	0.0109
20	0.0123	0.0014	0.0109
21	0.0123	0.0014	0.0109
22	0.0123	0.0014	0.0110
23	0.0124	0.0014	0.0110
24	0.0124	0.0014	0.0110
25	0.0124	0.0014	0.0111
26	0.0125	0.0014	0.0111
27	0.0125	0.0014	0.0111
28	0.0125	0.0014	0.0111
29	0.0126	0.0014	0.0112
30	0.0126	0.0014	0.0112
31	0.0126	0.0014	0.0112
32	0.0127	0.0014	0.0113
33	0.0127	0.0014	0.0113
34	0.0127	0.0014	0.0113
35	0.0128	0.0014	0.0114
36	0.0128	0.0014	0.0114
37	0.0129	0.0014	0.0114
38	0.0129	0.0014	0.0115
39	0.0129	0.0014	0.0115
40	0.0130	0.0014	0.0115
41	0.0130	0.0014	0.0116
42	0.0131	0.0015	0.0116
43	0.0131	0.0015	0.0116
44	0.0131	0.0015	0.0117
45	0.0132	0.0015	0.0117
46	0.0132	0.0015	0.0117
47	0.0133	0.0015	0.0118
48	0.0133	0.0015	0.0118
49	0.0134	0.0015	0.0119
50	0.0134	0.0015	0.0119
51	0.0134	0.0015	0.0120
52	0.0135	0.0015	0.0120
53	0.0135	0.0015	0.0120
54	0.0136	0.0015	0.0121
55	0.0136	0.0015	0.0121
56	0.0137	0.0015	0.0121
57	0.0137	0.0015	0.0122
58	0.0138	0.0015	0.0122
59	0.0138	0.0015	0.0123
60	0.0138	0.0015	0.0123
61	0.0139	0.0015	0.0124
62	0.0139	0.0016	0.0124
63	0.0140	0.0016	0.0125
64	0.0140	0.0016	0.0125
65	0.0141	0.0016	0.0125
66	0.0141	0.0016	0.0126
67	0.0142	0.0016	0.0126
68	0.0143	0.0016	0.0127
69	0.0143	0.0016	0.0127
70	0.0144	0.0016	0.0128
71	0.0144	0.0016	0.0128
72	0.0145	0.0016	0.0129
73	0.0145	0.0016	0.0129
74	0.0146	0.0016	0.0130

75	0.0147	0.0016	0.0130
76	0.0147	0.0016	0.0131
77	0.0148	0.0016	0.0131
78	0.0148	0.0016	0.0132
79	0.0149	0.0017	0.0132
80	0.0149	0.0017	0.0133
81	0.0150	0.0017	0.0133
82	0.0151	0.0017	0.0134
83	0.0151	0.0017	0.0135
84	0.0152	0.0017	0.0135
85	0.0153	0.0017	0.0136
86	0.0153	0.0017	0.0136
87	0.0154	0.0017	0.0137
88	0.0155	0.0017	0.0137
89	0.0155	0.0017	0.0138
90	0.0156	0.0017	0.0139
91	0.0157	0.0017	0.0139
92	0.0157	0.0018	0.0140
93	0.0158	0.0018	0.0141
94	0.0159	0.0018	0.0141
95	0.0160	0.0018	0.0142
96	0.0160	0.0018	0.0142
97	0.0161	0.0018	0.0143
98	0.0162	0.0018	0.0144
99	0.0163	0.0018	0.0145
100	0.0163	0.0018	0.0145
101	0.0165	0.0018	0.0146
102	0.0165	0.0018	0.0147
103	0.0166	0.0019	0.0148
104	0.0167	0.0019	0.0148
105	0.0168	0.0019	0.0149
106	0.0169	0.0019	0.0150
107	0.0170	0.0019	0.0151
108	0.0170	0.0019	0.0151
109	0.0172	0.0019	0.0153
110	0.0172	0.0019	0.0153
111	0.0174	0.0019	0.0154
112	0.0174	0.0019	0.0155
113	0.0176	0.0020	0.0156
114	0.0176	0.0020	0.0157
115	0.0178	0.0020	0.0158
116	0.0178	0.0020	0.0159
117	0.0180	0.0020	0.0160
118	0.0181	0.0020	0.0161
119	0.0182	0.0020	0.0162
120	0.0183	0.0020	0.0163
121	0.0185	0.0021	0.0164
122	0.0185	0.0021	0.0165
123	0.0187	0.0021	0.0166
124	0.0188	0.0021	0.0167
125	0.0190	0.0021	0.0168
126	0.0190	0.0021	0.0169
127	0.0192	0.0021	0.0171
128	0.0193	0.0021	0.0172
129	0.0195	0.0022	0.0173
130	0.0196	0.0022	0.0174

131	0.0198	0.0022	0.0176
132	0.0199	0.0022	0.0177
133	0.0201	0.0022	0.0179
134	0.0202	0.0022	0.0179
135	0.0204	0.0023	0.0181
136	0.0205	0.0023	0.0182
137	0.0207	0.0023	0.0184
138	0.0209	0.0023	0.0185
139	0.0211	0.0023	0.0188
140	0.0212	0.0024	0.0189
141	0.0215	0.0024	0.0191
142	0.0216	0.0024	0.0192
143	0.0219	0.0024	0.0194
144	0.0220	0.0024	0.0196
145	0.0196	0.0022	0.0174
146	0.0197	0.0022	0.0175
147	0.0200	0.0022	0.0178
148	0.0202	0.0022	0.0179
149	0.0205	0.0023	0.0182
150	0.0207	0.0023	0.0184
151	0.0210	0.0023	0.0187
152	0.0212	0.0024	0.0188
153	0.0216	0.0024	0.0192
154	0.0218	0.0024	0.0194
155	0.0222	0.0025	0.0197
156	0.0224	0.0025	0.0199
157	0.0228	0.0025	0.0203
158	0.0231	0.0026	0.0205
159	0.0235	0.0026	0.0209
160	0.0238	0.0026	0.0211
161	0.0243	0.0027	0.0216
162	0.0246	0.0027	0.0219
163	0.0252	0.0028	0.0224
164	0.0255	0.0028	0.0226
165	0.0261	0.0029	0.0232
166	0.0265	0.0029	0.0235
167	0.0272	0.0030	0.0242
168	0.0276	0.0031	0.0245
169	0.0288	0.0032	0.0256
170	0.0292	0.0032	0.0259
171	0.0301	0.0034	0.0268
172	0.0306	0.0034	0.0272
173	0.0317	0.0035	0.0282
174	0.0323	0.0036	0.0287
175	0.0335	0.0037	0.0298
176	0.0342	0.0038	0.0304
177	0.0357	0.0040	0.0317
178	0.0365	0.0041	0.0325
179	0.0383	0.0043	0.0341
180	0.0394	0.0044	0.0350
181	0.0417	0.0046	0.0370
182	0.0430	0.0048	0.0382
183	0.0460	0.0051	0.0409
184	0.0477	0.0053	0.0424
185	0.0329	0.0037	0.0293
186	0.0351	0.0039	0.0312

187	0.0407	0.0045	0.0362
188	0.0444	0.0049	0.0395
189	0.0553	0.0061	0.0491
190	0.0637	0.0065	0.0571
191	0.0966	0.0065	0.0900
192	0.1402	0.0065	0.1337
193	0.6066	0.0065	0.6000
194	0.0760	0.0065	0.0695
195	0.0491	0.0055	0.0437
196	0.0377	0.0042	0.0335
197	0.0497	0.0055	0.0442
198	0.0444	0.0049	0.0395
199	0.0405	0.0045	0.0360
200	0.0374	0.0042	0.0332
201	0.0349	0.0039	0.0310
202	0.0329	0.0037	0.0292
203	0.0311	0.0035	0.0277
204	0.0296	0.0033	0.0264
205	0.0280	0.0031	0.0248
206	0.0268	0.0030	0.0238
207	0.0258	0.0029	0.0229
208	0.0249	0.0028	0.0221
209	0.0240	0.0027	0.0214
210	0.0233	0.0026	0.0207
211	0.0226	0.0025	0.0201
212	0.0220	0.0024	0.0195
213	0.0214	0.0024	0.0190
214	0.0208	0.0023	0.0185
215	0.0203	0.0023	0.0181
216	0.0199	0.0022	0.0177
217	0.0222	0.0025	0.0197
218	0.0217	0.0024	0.0193
219	0.0214	0.0024	0.0190
220	0.0210	0.0023	0.0186
221	0.0206	0.0023	0.0183
222	0.0203	0.0023	0.0180
223	0.0200	0.0022	0.0178
224	0.0197	0.0022	0.0175
225	0.0194	0.0022	0.0172
226	0.0191	0.0021	0.0170
227	0.0189	0.0021	0.0168
228	0.0186	0.0021	0.0165
229	0.0184	0.0020	0.0163
230	0.0181	0.0020	0.0161
231	0.0179	0.0020	0.0159
232	0.0177	0.0020	0.0157
233	0.0175	0.0019	0.0156
234	0.0173	0.0019	0.0154
235	0.0171	0.0019	0.0152
236	0.0169	0.0019	0.0150
237	0.0167	0.0019	0.0149
238	0.0166	0.0018	0.0147
239	0.0164	0.0018	0.0146
240	0.0162	0.0018	0.0144
241	0.0161	0.0018	0.0143
242	0.0159	0.0018	0.0142

243	0.0158	0.0018	0.0140
244	0.0156	0.0017	0.0139
245	0.0155	0.0017	0.0138
246	0.0154	0.0017	0.0137
247	0.0152	0.0017	0.0135
248	0.0151	0.0017	0.0134
249	0.0150	0.0017	0.0133
250	0.0149	0.0017	0.0132
251	0.0147	0.0016	0.0131
252	0.0146	0.0016	0.0130
253	0.0145	0.0016	0.0129
254	0.0144	0.0016	0.0128
255	0.0143	0.0016	0.0127
256	0.0142	0.0016	0.0126
257	0.0141	0.0016	0.0125
258	0.0140	0.0016	0.0124
259	0.0139	0.0015	0.0123
260	0.0138	0.0015	0.0122
261	0.0137	0.0015	0.0122
262	0.0136	0.0015	0.0121
263	0.0135	0.0015	0.0120
264	0.0134	0.0015	0.0119
265	0.0133	0.0015	0.0118
266	0.0132	0.0015	0.0118
267	0.0132	0.0015	0.0117
268	0.0131	0.0015	0.0116
269	0.0130	0.0014	0.0116
270	0.0129	0.0014	0.0115
271	0.0128	0.0014	0.0114
272	0.0128	0.0014	0.0113
273	0.0127	0.0014	0.0113
274	0.0126	0.0014	0.0112
275	0.0126	0.0014	0.0112
276	0.0125	0.0014	0.0111
277	0.0124	0.0014	0.0110
278	0.0123	0.0014	0.0110
279	0.0123	0.0014	0.0109
280	0.0122	0.0014	0.0109
281	0.0121	0.0014	0.0108
282	0.0121	0.0013	0.0107
283	0.0120	0.0013	0.0107
284	0.0120	0.0013	0.0106
285	0.0119	0.0013	0.0106
286	0.0118	0.0013	0.0105
287	0.0118	0.0013	0.0105
288	0.0117	0.0013	0.0104

Total soil rain loss = 0.62(In)
Total effective rainfall = 5.66(In)
Peak flow rate in flood hydrograph = 556.84(CFS)

++

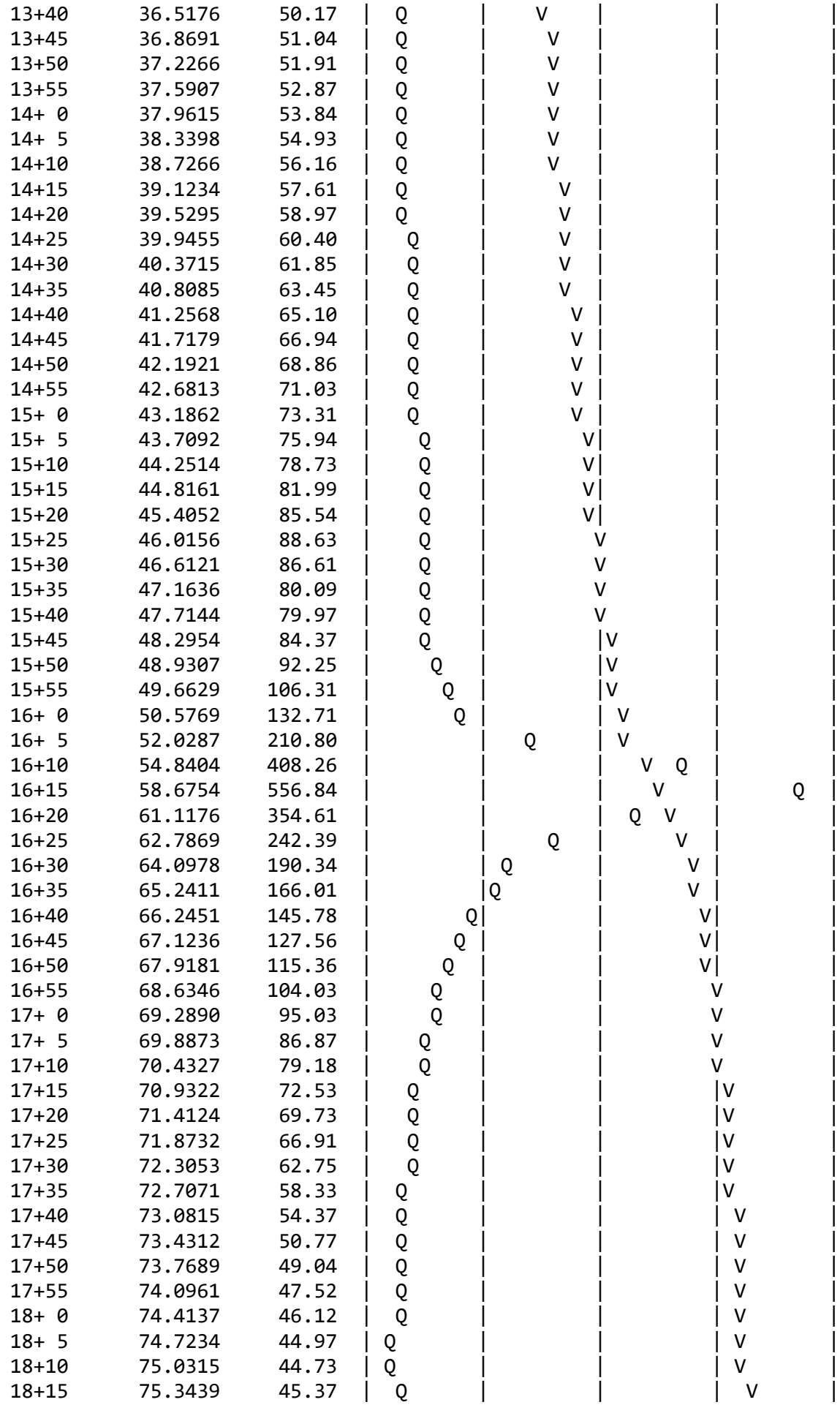
24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	150.0	300.0	450.0	600.0
0+ 5	0.0048	0.70	Q				
0+10	0.0381	4.83	Q				
0+15	0.1229	12.32	Q				
0+20	0.2349	16.25	VQ				
0+25	0.3621	18.48	VQ				
0+30	0.4997	19.97	VQ				
0+35	0.6448	21.07	VQ				
0+40	0.7957	21.91	VQ				
0+45	0.9510	22.55	VQ				
0+50	1.1099	23.07	VQ				
0+55	1.2717	23.50	VQ				
1+ 0	1.4360	23.86	VQ				
1+ 5	1.6024	24.15	VQ				
1+10	1.7703	24.38	VQ				
1+15	1.9394	24.55	VQ				
1+20	2.1097	24.73	VQ				
1+25	2.2812	24.91	VQ				
1+30	2.4539	25.07	|Q				
1+35	2.6275	25.20	|Q				
1+40	2.8017	25.30	|Q				
1+45	2.9764	25.37	|Q				
1+50	3.1515	25.43	|Q				
1+55	3.3272	25.50	|Q				
2+ 0	3.5033	25.57	|Q				
2+ 5	3.6798	25.64	|Q				
2+10	3.8569	25.71	|Q				
2+15	4.0344	25.78	|Q				
2+20	4.2125	25.85	|Q				
2+25	4.3910	25.92	|Q				
2+30	4.5700	25.99	|QV				
2+35	4.7495	26.07	|QV				
2+40	4.9296	26.14	|QV				
2+45	5.1101	26.22	|QV				
2+50	5.2912	26.29	|QV				
2+55	5.4728	26.37	|QV				
3+ 0	5.6548	26.44	|QV				
3+ 5	5.8375	26.52	|QV				
3+10	6.0206	26.60	|QV				
3+15	6.2044	26.67	|QV				
3+20	6.3886	26.75	|QV				
3+25	6.5734	26.83	|QV				
3+30	6.7588	26.91	|QV				
3+35	6.9447	27.00	|Q V				
3+40	7.1312	27.08	|Q V				
3+45	7.3182	27.16	|Q V				
3+50	7.5058	27.24	|Q V				
3+55	7.6941	27.33	|Q V				
4+ 0	7.8829	27.41	|Q V				
4+ 5	8.0723	27.50	|Q V				
4+10	8.2622	27.59	|Q V				
4+15	8.4529	27.68	|Q V				

4+20	8.6441	27.76	Q V			
4+25	8.8359	27.85	Q V			
4+30	9.0283	27.94	Q V			
4+35	9.2214	28.04	Q V			
4+40	9.4152	28.13	Q V			
4+45	9.6095	28.22	Q V			
4+50	9.8045	28.32	Q V			
4+55	10.0002	28.41	Q V			
5+ 0	10.1966	28.51	Q V			
5+ 5	10.3936	28.61	Q V			
5+10	10.5913	28.70	Q V			
5+15	10.7897	28.81	Q V			
5+20	10.9887	28.91	Q V			
5+25	11.1885	29.01	Q V			
5+30	11.3890	29.11	Q V			
5+35	11.5902	29.22	Q V			
5+40	11.7922	29.32	Q V			
5+45	11.9948	29.43	Q V			
5+50	12.1982	29.53	Q V			
5+55	12.4024	29.65	Q V			
6+ 0	12.6073	29.75	Q V			
6+ 5	12.8130	29.87	Q V			
6+10	13.0195	29.98	Q V			
6+15	13.2268	30.10	Q V			
6+20	13.4348	30.21	Q V			
6+25	13.6437	30.33	Q V			
6+30	13.8534	30.45	Q V			
6+35	14.0639	30.57	Q V			
6+40	14.2753	30.69	Q V			
6+45	14.4875	30.81	Q V			
6+50	14.7005	30.94	Q V			
6+55	14.9145	31.06	Q V			
7+ 0	15.1293	31.19	Q V			
7+ 5	15.3450	31.32	Q V			
7+10	15.5616	31.45	Q V			
7+15	15.7792	31.59	Q V			
7+20	15.9976	31.72	Q V			
7+25	16.2170	31.86	Q V			
7+30	16.4374	32.00	Q V			
7+35	16.6587	32.14	Q V			
7+40	16.8811	32.28	Q V			
7+45	17.1044	32.43	Q V			
7+50	17.3287	32.57	Q V			
7+55	17.5541	32.72	Q V			
8+ 0	17.7804	32.87	Q V			
8+ 5	18.0079	33.03	Q V			
8+10	18.2364	33.18	Q V			
8+15	18.4660	33.34	Q V			
8+20	18.6967	33.50	Q V			
8+25	18.9286	33.66	Q V			
8+30	19.1615	33.83	Q V			
8+35	19.3957	34.00	Q V			
8+40	19.6310	34.16	Q V			
8+45	19.8675	34.34	Q V			
8+50	20.1052	34.51	Q V			
8+55	20.3441	34.70	Q V			

9+ 0	20.5843	34.87	Q	V			
9+ 5	20.8258	35.06	Q	V			
9+10	21.0685	35.25	Q	V			
9+15	21.3126	35.44	Q	V			
9+20	21.5580	35.63	Q	V			
9+25	21.8048	35.84	Q	V			
9+30	22.0530	36.03	Q	V			
9+35	22.3026	36.24	Q	V			
9+40	22.5536	36.45	Q	V			
9+45	22.8061	36.66	Q	V			
9+50	23.0601	36.88	Q	V			
9+55	23.3156	37.10	Q	V			
10+ 0	23.5727	37.32	Q	V			
10+ 5	23.8313	37.56	Q	V			
10+10	24.0916	37.79	Q	V			
10+15	24.3535	38.03	Q	V			
10+20	24.6170	38.27	Q	V			
10+25	24.8823	38.52	Q	V			
10+30	25.1493	38.77	Q	V			
10+35	25.4182	39.03	Q	V			
10+40	25.6888	39.29	Q	V			
10+45	25.9613	39.57	Q	V			
10+50	26.2357	39.84	Q	V			
10+55	26.5121	40.13	Q	V			
11+ 0	26.7904	40.41	Q	V			
11+ 5	27.0708	40.71	Q	V			
11+10	27.3532	41.01	Q	V			
11+15	27.6378	41.33	Q	V			
11+20	27.9246	41.64	Q	V			
11+25	28.2136	41.97	Q	V			
11+30	28.5049	42.29	Q	V			
11+35	28.7986	42.64	Q	V			
11+40	29.0946	42.99	Q	V			
11+45	29.3932	43.35	Q	V			
11+50	29.6943	43.72	Q	V			
11+55	29.9980	44.10	Q	V			
12+ 0	30.3044	44.49	Q	V			
12+ 5	30.6124	44.73	Q	V			
12+10	30.9167	44.17	Q	V			
12+15	31.2119	42.86	Q	V			
12+20	31.5038	42.39	Q	V			
12+25	31.7954	42.34	Q	V			
12+30	32.0878	42.46	Q	V			
12+35	32.3819	42.71	Q	V			
12+40	32.6782	43.01	Q	V			
12+45	32.9771	43.41	Q	V			
12+50	33.2789	43.82	Q	V			
12+55	33.5841	44.31	Q	V			
13+ 0	33.8926	44.80	Q	V			
13+ 5	34.2051	45.36	Q	V			
13+10	34.5214	45.94	Q	V			
13+15	34.8422	46.57	Q	V			
13+20	35.1673	47.21	Q	V			
13+25	35.4972	47.90	Q	V			
13+30	35.8320	48.61	Q	V			
13+35	36.1721	49.38	Q	V			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13+45 36.8691 51.04
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13+55 37.5907 52.87
14+ 0 37.9615 53.84
14+ 5 38.3398 54.93
14+10 38.7266 56.16
14+15 39.1234 57.61
14+20 39.5295 58.97
14+25 39.9455 60.40
14+30 40.3715 61.85
14+35 40.8085 63.45
14+40 41.2568 65.10
14+45 41.7179 66.94
14+50 42.1921 68.86
14+55 42.6813 71.03
15+ 0 43.1862 73.31
15+ 5 43.7092 75.94
15+10 44.2514 78.73
15+15 44.8161 81.99
15+20 45.4052 85.54
15+25 46.0156 88.63
15+30 46.6121 86.61
15+35 47.1636 80.09
15+40 47.7144 79.97
15+45 48.2954 84.37
15+50 48.9307 92.25
15+55 49.6629 106.31
16+ 0 50.5769 132.71
16+ 5 52.0287 210.80
16+10 54.8404 408.26
16+15 58.6754 556.84
16+20 61.1176 354.61
16+25 62.7869 242.39
16+30 64.0978 190.34
16+35 65.2411 166.01
16+40 66.2451 145.78
16+45 67.1236 127.56
16+50 67.9181 115.36
16+55 68.6346 104.03
17+ 0 69.2890 95.03
17+ 5 69.8873 86.87
17+10 70.4327 79.18
17+15 70.9322 72.53
17+20 71.4124 69.73
17+25 71.8732 66.91
17+30 72.3053 62.75
17+35 72.7071 58.33
17+40 73.0815 54.37
17+45 73.4312 50.77
17+50 73.7689 49.04
17+55 74.0961 47.52
18+ 0 74.4137 46.12
18+ 5 74.7234 44.97
18+10 75.0315 44.73
18+15 75.3439 45.37

18+20	75.6556	45.26	| Q	|	|	|	V |
18+25	75.9643	44.82	| Q	|	|	|	V |
18+30	76.2691	44.26	| Q	|	|	|	V |
18+35	76.5699	43.68	| Q	|	|	|	V |
18+40	76.8666	43.08	| Q	|	|	|	V |
18+45	77.1591	42.47	| Q	|	|	|	V |
18+50	77.4475	41.88	| Q	|	|	|	V |
18+55	77.7320	41.30	| Q	|	|	|	V |
19+ 0	78.0125	40.74	| Q	|	|	|	V |
19+ 5	78.2893	40.19	| Q	|	|	|	V |
19+10	78.5624	39.66	| Q	|	|	|	V |
19+15	78.8320	39.13	| Q	|	|	|	V |
19+20	79.0980	38.64	| Q	|	|	|	V |
19+25	79.3608	38.16	| Q	|	|	|	V |
19+30	79.6205	37.70	| Q	|	|	|	V |
19+35	79.8770	37.25	| Q	|	|	|	V |
19+40	80.1306	36.81	| Q	|	|	|	V |
19+45	80.3811	36.38	| Q	|	|	|	V |
19+50	80.6288	35.97	| Q	|	|	|	V |
19+55	80.8738	35.57	| Q	|	|	|	V |
20+ 0	81.1161	35.18	| Q	|	|	|	V |
20+ 5	81.3559	34.81	| Q	|	|	|	V |
20+10	81.5931	34.45	| Q	|	|	|	V |
20+15	81.8280	34.10	| Q	|	|	|	V |
20+20	82.0605	33.76	| Q	|	|	|	V |
20+25	82.2908	33.44	| Q	|	|	|	V |
20+30	82.5189	33.12	| Q	|	|	|	V |
20+35	82.7449	32.81	| Q	|	|	|	V |
20+40	82.9688	32.51	| Q	|	|	|	V |
20+45	83.1907	32.22	| Q	|	|	|	V |
20+50	83.4107	31.94	| Q	|	|	|	V |
20+55	83.6288	31.66	| Q	|	|	|	V |
21+ 0	83.8450	31.40	| Q	|	|	|	V |
21+ 5	84.0594	31.14	| Q	|	|	|	V |
21+10	84.2721	30.88	| Q	|	|	|	V |
21+15	84.4831	30.64	| Q	|	|	|	V |
21+20	84.6924	30.39	| Q	|	|	|	V |
21+25	84.9001	30.16	| Q	|	|	|	V |
21+30	85.1063	29.93	|Q	|	|	|	V |
21+35	85.3108	29.70	|Q	|	|	|	V |
21+40	85.5139	29.49	|Q	|	|	|	V |
21+45	85.7155	29.27	|Q	|	|	|	V |
21+50	85.9157	29.06	|Q	|	|	|	V |
21+55	86.1144	28.86	|Q	|	|	|	V |
22+ 0	86.3118	28.66	|Q	|	|	|	V |
22+ 5	86.5078	28.46	|Q	|	|	|	V |
22+10	86.7025	28.27	|Q	|	|	|	V |
22+15	86.8959	28.08	|Q	|	|	|	V |
22+20	87.0881	27.90	|Q	|	|	|	V |
22+25	87.2790	27.72	|Q	|	|	|	V |
22+30	87.4687	27.54	|Q	|	|	|	V |
22+35	87.6572	27.37	|Q	|	|	|	V |
22+40	87.8445	27.20	|Q	|	|	|	V |
22+45	88.0307	27.04	|Q	|	|	|	V |
22+50	88.2158	26.87	|Q	|	|	|	V |
22+55	88.3998	26.71	|Q	|	|	|	V |

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   23+ 0      88.5827     26.56  |Q        |         |         |       V |
   23+ 5      88.7645     26.40  |Q        |         |         |       V |
   23+10      88.9453     26.25  |Q        |         |         |       V |
   23+15      89.1251     26.10  |Q        |         |         |        V|
   23+20      89.3039     25.96  |Q        |         |         |        V|
   23+25      89.4816     25.81  |Q        |         |         |        V|
   23+30      89.6585     25.67  |Q        |         |         |        V|
   23+35      89.8343     25.53  |Q        |         |         |        V|
   23+40      90.0092     25.40  |Q        |         |         |        V|
   23+45      90.1832     25.26  |Q        |         |         |        V|
   23+50      90.3563     25.13  |Q        |         |         |        V|
   23+55      90.5285     25.00  |Q        |         |         |        V|
   24+ 0      90.6998     24.88  |Q        |         |         |        V|
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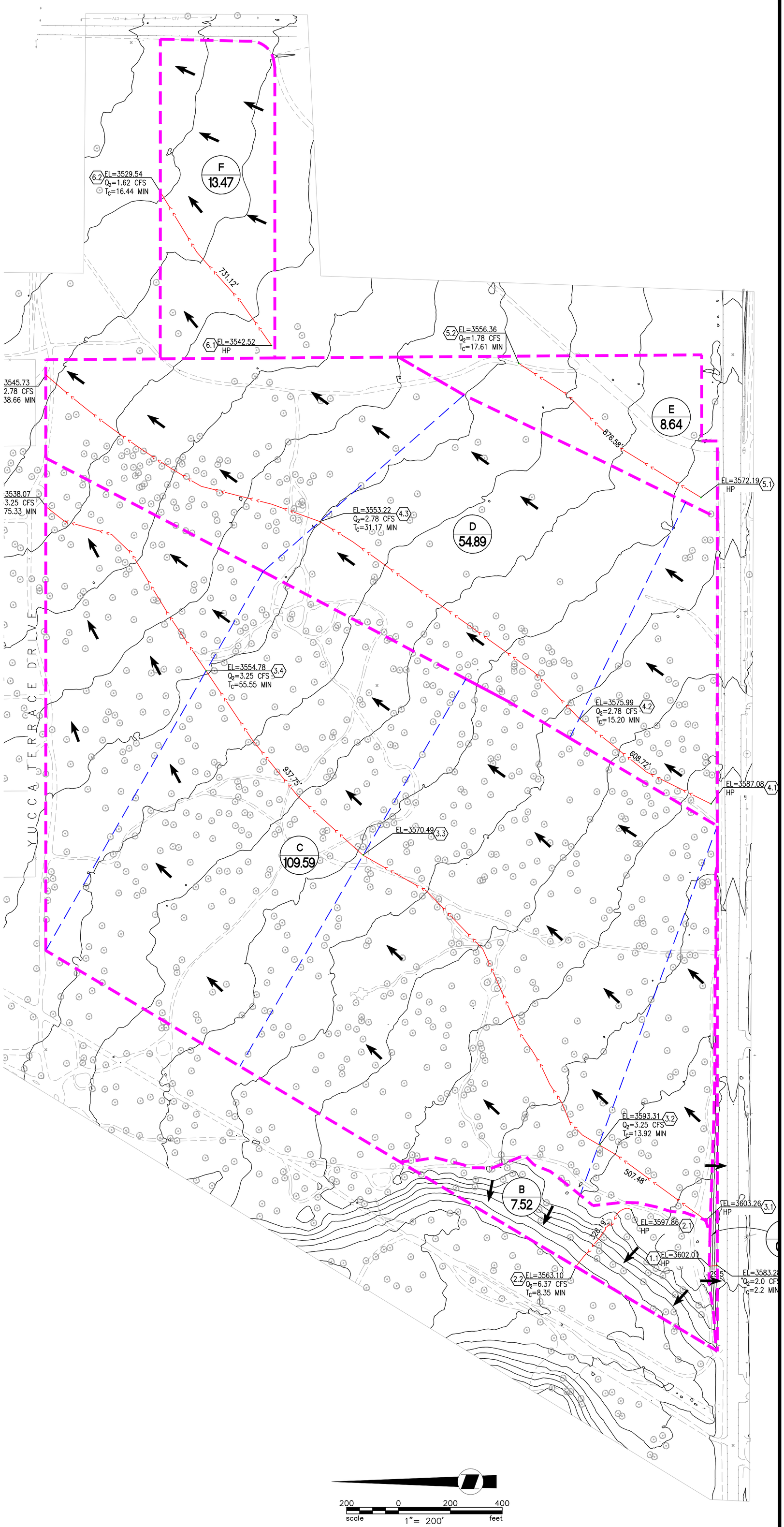
Appendix C – Exhibits

CITY OF HESPERIA
PRE_DEVELOPMENT EXHIBIT
FOR
HCC2 INDUSTRIAL PARK



200 0 200 400
scale 1"= 200' feet

LEGEND:

- DRAINAGE AREA BOUNDARY
- SUB DRAINAGE AREA BOUNDARY
- FLOW PATH
- PROPOSED FLOW DIRECTION ARROW
- A=3.0 — SUB-DRAINAGE AREA (AC)
- X / XXX — DRAINAGE AREA DESIGNATION / AREA (AC)
- 1.0 — REACH NUMBER
- HP — HIGHT POINT

HYDROLOGY INFORMATION

SITE AREA 1: 193.63 ACRE
SOIL GROUP: A (PER SBC SOIL GROUP MAP FIGURE C-15)
ISOHYETALS: 1.29" (100-YEAR 1 HOUR)
0.77" (10-YEAR 1 HOUR)
CN NUMBER: 67 (SOIL GROUP A)

FREQUENCY: 100 YEAR (FOR STORM DRAIN DESIGN)
2 YEAR (FOR STORMWATER QUALITY)

METHOD: SAN BERNARDINO COUNTY HYDROLOGY MANUAL

HYDROLOGY SUMMARY

DRAINAGE AREA No.	TRIBUTARY AREA (AC)	PERVIOUS RATIO	VOLUME (CFT)
AREA A	0.61	1.00	8,346
AREA B	7.52	1.00	102,728
AREA C	109.58	1.00	1,477,133
AREA D	54.90	1.00	743,887
AREA E	8.64	1.00	117,559
AREA F	6.72	1.00	183,366
TOTAL	193.63		2,633,019

PREPARED BY:
WestLAND Group, Inc. Land Surveyors • Civil Engineers • GIS
4150 CONCOURS, ONTARIO, CA 91764
PHONE: (909) 989-9789 FAX: (909) 989-9660
JOB NO: 2017-289

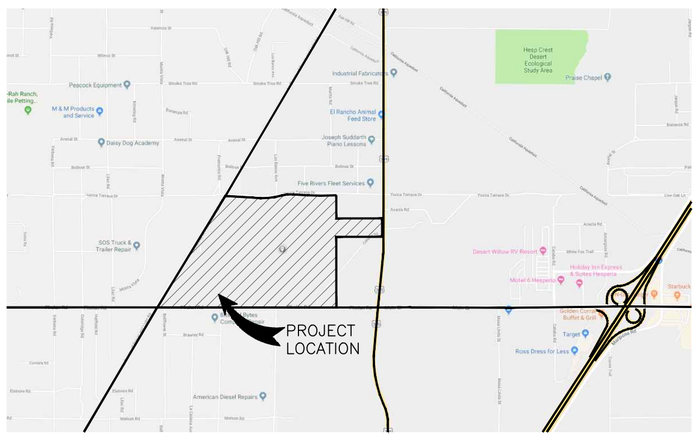
HCCII INDUSTRIAL PARK
WQMP EXHIBIT

CITY OF HESPERIA

DATE: OCT 2019
SHEET 1 OF 2

CITY OF HESPERIA

POST DEVELOPMENT EXHIBIT FOR HCCII INDUSTRIAL PARK



VICINITY MAP
NOT TO SCALE

HYDROLOGY INFORMATION

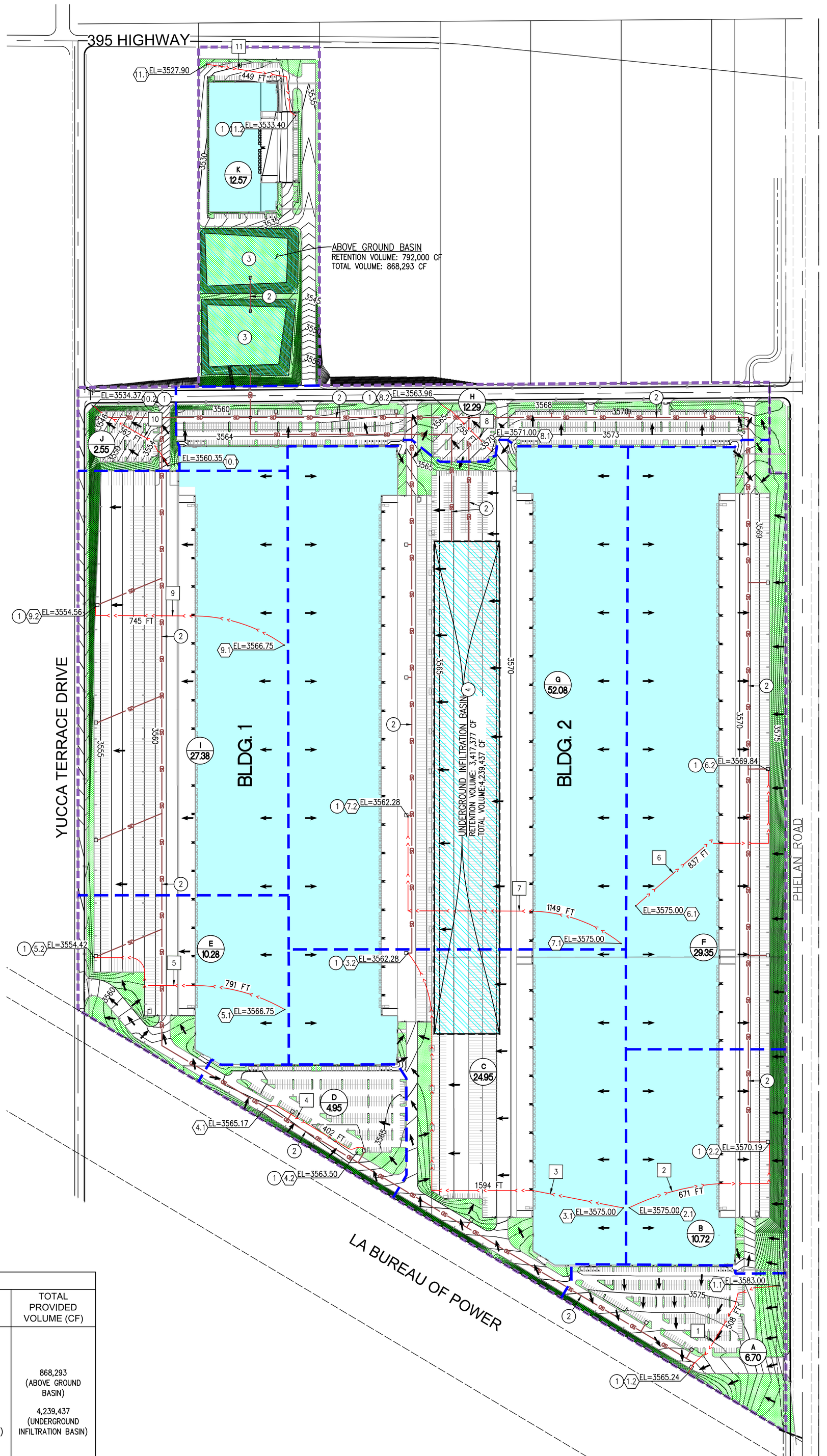
SITE AREA:	193.82 ACRE	
SOIL GROUP:	A	(PER USDA WEB SOIL SURVEY)
IMPERVIOUS:	89.1%	(PER CALCULATIONS)
ISOHYETALS:	0.448" 1.26"	(2–YEAR 1 HOUR) (100–YEAR 1 HOUR)
CN NUMBER:	32	(SOIL GROUP A)
FREQUENCY:	100 YEAR 2/10 YEAR	(FOR STORM DRAIN DESIGN) (FOR WATER QUALITY)
METHOD:	SAN BERNARDINO COUNTY HYDROLOGY MANUAL	

LEGEND:

- DRAINAGE AREA/SITE BOUNDARY
- DRAINAGE SUB–AREA BOUNDARY
- STORM WATER FLOW PATH
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOW DIRECTION ARROW
- DRAINAGE AREA DESIGNATION (X / XXX) AREA(AC)
- NODE (US/DS) (X.X)
- STREAM # (3)
- PROPOSED UNDERGROUND INFILTRATION/DETENTION
- PROPOSED BUILDING
- PROPOSED LANDSCAPING

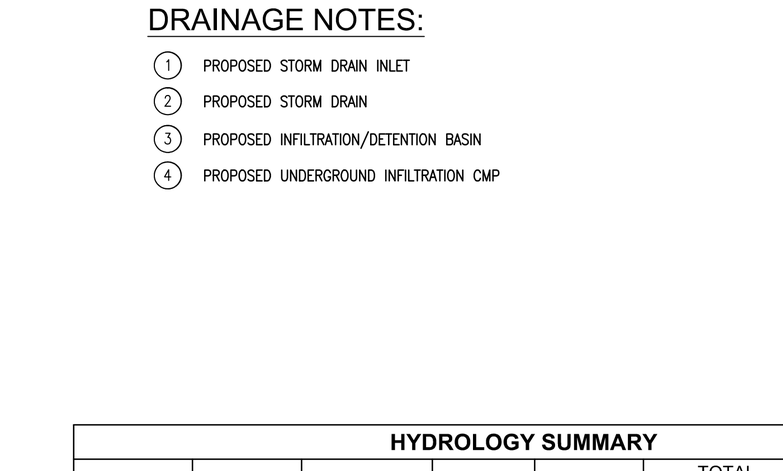
DRAINAGE NOTES:

1. PROPOSED STORM DRAIN INLET
2. PROPOSED STORM DRAIN
3. PROPOSED INFILTRATION/DETENTION BASIN
4. PROPOSED UNDERGROUND INFILTRATION CMP



HYDROLOGY SUMMARY

DRAINAGE SUB AREA	AREA (AC)	IMPERVIOUS RATIO	DCV (CF)	V100 (CF)	TOTAL RETENTION VOLUME (CF)	TOTAL PROVIDED VOLUME (CF)
A	6.70	0.90	558,982	136,334	792,000 (ABOVE GROUND BASIN) 3,417,377 (UNDERGROUND INFILTRATION BASIN)	868,293 (ABOVE GROUND BASIN) 4,239,437 (UNDERGROUND INFILTRATION BASIN)
B	10.72			219,020		
C	24.95			508,776		
D	4.95			101,181		
E	10.28			210,120		
F	29.35			599,255		
G	52.08			1,063,239		
H	12.29			251,694		
I	27.38			559,698		
J	2.55			52,228		
K	12.57			257,113		
TOTAL	193.82			3,958,659	4,209,377	5,107,731



INFILTRATION/DETENTION DETAIL
N.T.S

200 0 200 400
scale 1"= 200' feet

PREPARED BY:
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PHONE: (909) 989–9789 FAX: (909) 989–9660
JOB NO: 2019–185

HCCII INDUSTRIAL PARK
HYDROLOGY EXHIBIT

CITY OF HESPERIA

DATE: DEC 2021
SHEET 2 OF 2

Appendix D – WSPG Calculations

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line A - Above Ground Basin to Diversion Structure
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3529.500	1	3530.650

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1168.220	3540.230	1	.013	.000	.000	.000	0

ELEMENT NO 3 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1168.220	3540.230	1	3540.230

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time:11:46:57

2019-185 Hesperia Commerce Center II

Line A - Above Ground Basin to Diversion Structure

WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1000.000	3529.500	4.117	3533.617	743.11	31.57	15.47	3549.09	.00	6.63	6.89	7.000	.000	.00	1 .0
32.900	.0638					.0302	.99	4.12	3.01	3.34	.013	.00	.00	PIPE
1032.900	3531.599	4.265	3535.864	743.11	30.26	14.22	3550.09	.00	6.63	6.83	7.000	.000	.00	1 .0
30.339	.0638					.0270	.82	4.26	2.81	3.34	.013	.00	.00	PIPE
1063.239	3533.534	4.441	3537.975	743.11	28.86	12.93	3550.91	.00	6.63	6.74	7.000	.000	.00	1 .0
24.781	.0638					.0239	.59	4.44	2.60	3.34	.013	.00	.00	PIPE
1088.020	3535.114	4.629	3539.744	743.11	27.51	11.75	3551.50	.00	6.63	6.63	7.000	.000	.00	1 .0
20.407	.0638					.0213	.43	4.63	2.40	3.34	.013	.00	.00	PIPE
1108.427	3536.416	4.831	3541.247	743.11	26.23	10.69	3551.93	.00	6.63	6.47	7.000	.000	.00	1 .0
16.841	.0638					.0190	.32	4.83	2.21	3.34	.013	.00	.00	PIPE
1125.267	3537.490	5.047	3542.538	743.11	25.01	9.71	3552.25	.00	6.63	6.28	7.000	.000	.00	1 .0
13.831	.0638					.0170	.23	5.05	2.03	3.34	.013	.00	.00	PIPE
1139.098	3538.372	5.283	3543.655	743.11	23.85	8.83	3552.49	.00	6.63	6.02	7.000	.000	.00	1 .0
11.192	.0638					.0152	.17	5.28	1.85	3.34	.013	.00	.00	PIPE
1150.290	3539.086	5.543	3544.629	743.11	22.74	8.03	3552.66	.00	6.63	5.68	7.000	.000	.00	1 .0
8.756	.0638					.0138	.12	5.54	1.67	3.34	.013	.00	.00	PIPE
1159.046	3539.645	5.835	3545.479	743.11	21.68	7.30	3552.78	.00	6.63	5.22	7.000	.000	.00	1 .0
6.267	.0638					.0126	.08	5.83	1.49	3.34	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time:11:46:57

2019-185 Hesperia Commerce Center II

Line A - Above Ground Basin to Diversion Structure
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
1165.313	3540.044	6.178	3546.222	743.11	20.67	6.64	3552.86	.00	6.63	4.51	7.000	.000	.00	1 .0
2.907	.0638					.0119	.03	6.18	1.29	3.34	.013	.00	.00	PIPE
1168.220	3540.230	6.631	3546.861	743.11	19.71	6.03	3552.89	.00	6.63	3.13	7.000	.000	.00	1 .0

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line B - Diversion Structure to North CB
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3540.230	1	3546.860

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1323.730	3541.530	1	.013	.000	.000	90.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	3620.830	3550.710	1	.013	.000	.000	-90.000	0

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5886.230	3559.780	1	.013	.000	.000	-59.000	0

ELEMENT NO 5 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5898.230	3559.820	1	.013	.000	.000	90.000	0

ELEMENT NO 6 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	5898.230	3559.820	1	3559.820

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:11:45

2019-185 Hesperia Commerce Center II

Line B - Diversion Structure to North CB

WSPG Analysis

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3540.230	6.630	3546.860	371.55	9.85	1.51	3548.37	.00	5.08	3.13	7.000	.000	.00	1 .0
291.343	.0040					.0030	.87	6.63	.50	5.28	.013	.00	.00	PIPE
1291.343	3541.400	6.178	3547.578	371.55	10.34	1.66	3549.24	.00	5.08	4.51	7.000	.000	.00	1 .0
32.387	.0040					.0030	.10	6.18	.64	5.28	.013	.00	.00	PIPE
1323.730	3541.530	6.124	3547.654	371.55	10.41	1.68	3549.34	.00	5.08	4.63	7.000	.000	.00	1 .0
207.137	.0040					.0032	.66	6.12	.66	5.29	.013	.00	.00	PIPE
1530.867	3542.358	5.790	3548.148	371.55	10.91	1.85	3550.00	.00	5.08	5.29	7.000	.000	.00	1 .0
204.078	.0040					.0035	.71	5.79	.76	5.29	.013	.00	.00	PIPE
1734.945	3543.174	5.503	3548.677	371.55	11.45	2.03	3550.71	.00	5.08	5.74	7.000	.000	.00	1 .0
274.215	.0040					.0038	1.05	5.50	.85	5.29	.013	.00	.00	PIPE
2009.159	3544.270	5.291	3549.560	371.55	11.91	2.20	3551.76	.00	5.08	6.01	7.000	.000	.00	1 .0
1611.671	.0040					.0040	6.43	5.29	.92	5.29	.013	.00	.00	PIPE
3620.830	3550.710	5.291	3556.001	371.55	11.91	2.20	3558.20	.00	5.08	6.01	7.000	.000	.00	1 .0
81.397	.0040					.0040	.33	5.29	.92	5.29	.013	.00	.00	PIPE
3702.227	3551.036	5.286	3556.322	371.55	11.92	2.20	3558.53	.00	5.08	6.02	7.000	.000	.00	1 .0
2184.003	.0040					.0040	8.73	5.29	.92	5.29	.013	.00	.00	PIPE
5886.230	3559.780	5.286	3565.066	371.55	11.92	2.20	3567.27	.00	5.08	6.02	7.000	.000	.00	1 .0
12.000	.0033					.0040	.05	5.29	.92	5.78	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:11:45

2019-185 Hesperia Commerce Center II

Line B - Diversion Structure to North CB
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5898.230	3559.820	5.333	3565.153	371.55	11.81	2.17	3567.32	.00	5.08	5.96	7.000	.000	.00	1 .0

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PIER/PIP	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4	1		7.000														

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
2019-185 Hesperia Commerce Center II
HEADING LINE NO 2 IS -
Line C - Diversion Structure to South CB
HEADING LINE NO 3 IS -
WSPG Analysis

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET * * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	1000.000	3540.230	1	3546.860

ELEMENT NO 2 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2820.250	3547.930	1	.013	.000	.000	-90.000	0

ELEMENT NO 3 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5469.540	3559.130	1	.013	.000	.000	90.000	0

ELEMENT NO 4 IS A REACH * * *

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	5535.540	3559.400	1	.013	.000	.000	-90.000	0

ELEMENT NO 5 IS A SYSTEM HEADWORKS * *

U/S DATA	STATION	INVERT	SECT	W S ELEV
	5535.540	3559.400	1	3559.400

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:36: 3

2019-185 Hesperia Commerce Center II

Line C - Diversion Structure to South CB

WSPG Analysis

Station / L/Elem	Invert Elev / Ch Slope	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head / SF Ave	Energy Grd.El. / HF	Super Elev / SE Dpth	Critical Depth / Froude N	Flow Top Width / Norm Dp	Height/Dia.-FT / "N"	Base Wt or I.D. / X-Fall	ZL / ZR	No Wth Prs/Pip / Type Ch
1000.000	3540.230	6.630	3546.860	371.55	9.85	1.51	3548.37	.00	5.08	3.13	7.000	.000	.00	1 .0
241.375	.0042					.0030	.72	6.63	.50	5.16	.013	.00	.00	PIPE
1241.375	3541.251	6.178	3547.429	371.55	10.34	1.66	3549.09	.00	5.08	4.51	7.000	.000	.00	1 .0
165.494	.0042					.0032	.52	6.18	.64	5.16	.013	.00	.00	PIPE
1406.869	3541.951	5.835	3547.786	371.55	10.84	1.82	3549.61	.00	5.08	5.22	7.000	.000	.00	1 .0
140.630	.0042					.0034	.49	5.83	.75	5.16	.013	.00	.00	PIPE
1547.498	3542.546	5.543	3548.088	371.55	11.37	2.01	3550.10	.00	5.08	5.68	7.000	.000	.00	1 .0
140.781	.0042					.0038	.54	5.54	.84	5.16	.013	.00	.00	PIPE
1688.280	3543.141	5.283	3548.424	371.55	11.92	2.21	3550.63	.00	5.08	6.02	7.000	.000	.00	1 .0
109.042	.0042					.0041	.45	5.28	.92	5.16	.013	.00	.00	PIPE
1797.322	3543.603	5.164	3548.766	371.55	12.21	2.31	3551.08	.00	5.08	6.16	7.000	.000	.00	1 .0
1022.928	.0042					.0042	4.32	5.16	.97	5.16	.013	.00	.00	PIPE
2820.250	3547.930	5.164	3553.094	371.55	12.21	2.31	3555.41	.00	5.08	6.16	7.000	.000	.00	1 .0
27.638	.0042					.0042	.12	5.16	.97	5.17	.013	.00	.00	PIPE
2847.888	3548.047	5.165	3553.212	371.55	12.20	2.31	3555.53	.00	5.08	6.16	7.000	.000	.00	1 .0
2621.652	.0042					.0042	11.06	5.17	.97	5.17	.013	.00	.00	PIPE
5469.540	3559.130	5.165	3564.295	371.55	12.20	2.31	3566.61	.00	5.08	6.16	7.000	.000	.00	1 .0
66.000	.0041					.0042	.28	5.17	.97	5.24	.013	.00	.00	PIPE

Program Package Serial Number: 7232

WATER SURFACE PROFILE LISTING Date:12- 7-2021 Time: 1:36: 3

2019-185 Hesperia Commerce Center II

Line C - Diversion Structure to South CB
WSPG Analysis

Station	Invert Elev	Depth (FT)	Water Elev	Q (CFS)	Vel (FPS)	Vel Head	Energy Grd.El.	Super Elev	Critical Depth	Flow Top Width	Height/ Dia.-FT	Base Wt or I.D.	ZL	No Wth Prs/Pip
L/Elem	Ch Slope					SF Ave	HF	SE Dpth	Froude N	Norm Dp	"N"	X-Fall	ZR	Type Ch
5535.540	3559.400	5.226	3564.626	371.55	12.06	2.26	3566.88	.00	5.08	6.09	7.000	.000	.00	1 .0

Appendix E – Basin Summary

Above Ground Basin 1 Stage Storage Calculations								
Elevation	**Surface Area (SF)**	**Depth (ft)**	**Volume Engineered Soil (CF)**	**Above Ground Volume (CF)**	**Upstream Storage Volume (CF)**	**Total Volume (CF)**	**Total Volume (Ac-Ft)**	**Outflow (cfs)**
3525	52,859	0	74,002	0	3,417,377	3,491,379	80.15	0.00
3526	55,740	1	74,002	54,293	3,417,377	3,545,671	81.40	0.00
3527	58,681	2	74,002	111,497	3,417,377	3,602,876	82.71	0.00
3528	61,683	3	74,002	171,673	3,417,377	3,663,052	84.09	0.00
3529	123,931	4	156,862	234,881	3,417,377	3,809,120	87.45	0.00
3530	130,024	5	156,862	361,847	3,417,377	3,936,086	90.36	0.00
3531	133,056	6	156,862	425,512	3,417,377	3,999,751	91.82	0.00
3532	136,151	7	156,862	492,241	3,417,377	4,066,480	93.35	0.00
3533	139,308	8	156,862	562,096	3,417,377	4,136,334	94.96	0.00
3534	142,527	9	156,862	635,138	3,417,377	4,209,377	96.63	0.00
3535	145,809	10	156,862	711,432	3,417,377	4,285,670	98.39	0.00

CONTECH ENGINEERED SOLUTIONS

Date: 7/18/2021
Project Name: Underground Infiltration CMP #1 - 7614 (7-18-2021 0-14-3

City / County:
State:

Designed By:
Company:
Telephone:

CMP: Underground Detention System
Storage Volume Estimation

=Adjustable Input Cells

Contech Engineered Solutions, LLC is pleased to offer the following estimate of storage volume for the above named project. The results are submitted as an estimate only, without liability on the part of Contech Engineered Solutions, LLC for accuracy or suitability to any particular applicaton and are subject to verification of the Engineer of Record. **This tool is only applicable for rectangular shaped systems.**

Summary of Inputs

System Information		Backfill Information		Pipe & Analysis Information	
Out-to-out length (ft):	1,800.0	Backfill Porosity (%):	40%	System Diameter (in):	144
Out-to-out width (ft):	237.0	Depth Above Pipe (in):	6.0	Pipe Spacing (in):	36
Number of Manifolds (ea):	1.0	Depth Below Pipe (in):	6.0	Incremental Analysis (in):	2
Number of Barrels (ea):	16.0	Width At Ends (ft):	3.0	System Invert (Elevation):	0
		Width At Sides (ft):	3.0		

Storage Volume Estimation

System		Pipe		Stone		Total System		Miscellaneous	
Depth (ft)	Elevation (ft)	Incremental Storage (cf)	Cumulative Storage (cf)	Incremental Storage (cf)	Cumulative Storage (cf)	Incremental Storage (cf)	Cumulative Storage (cf)	Percent Open Storage (%)	Ave. Surface Area (sf)
0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0%	175,543.2
0.17	0.16	0.0	0.0	29,257.2	29,257.2	29,257.2	29,257.2	0.0%	175,543.2
0.33	0.33	0.0	0.0	29,257.2	58,514.4	29,257.2	58,514.4	0.0%	175,543.2
0.50	0.50	0.0	0.0	29,257.2	87,771.6	29,257.2	87,771.6	0.0%	175,543.2
0.67	0.66	9,027.2	9,027.2	25,646.3	113,417.9	34,673.5	122,445.1	7.4%	224,153.7
0.83	0.83	16,398.0	25,425.3	22,698.0	136,115.9	39,096.0	161,541.2	15.7%	243,802.9
1.00	1.00	21,085.2	46,510.4	20,823.1	156,939.0	41,908.3	203,449.5	22.9%	258,544.7
1.17	1.16	24,789.5	71,299.9	19,341.4	176,280.4	44,130.9	247,580.4	28.8%	270,688.0
1.33	1.33	27,912.7	99,212.6	18,092.1	194,372.6	46,004.8	293,585.2	33.8%	281,133.2
1.50	1.50	30,634.8	129,847.4	17,003.3	211,375.9	47,638.1	341,223.2	38.1%	290,344.9
1.67	1.66	33,055.7	162,903.0	16,034.9	227,410.8	49,090.6	390,313.8	41.7%	298,600.2
1.83	1.83	35,237.8	198,140.8	15,162.1	242,572.9	50,399.9	440,713.7	45.0%	306,080.8
2.00	2.00	37,223.2	235,364.0	14,367.9	256,940.8	51,591.1	492,304.8	47.8%	312,913.3
2.17	2.16	39,042.1	274,406.1	13,640.4	270,581.2	52,682.5	544,987.3	50.4%	319,190.1
2.33	2.33	40,716.8	315,122.9	12,970.5	283,551.6	53,687.3	598,674.6	52.6%	324,981.5
2.50	2.50	42,264.5	357,387.5	12,351.4	295,903.0	54,615.9	653,290.5	54.7%	330,341.7
2.67	2.66	43,698.8	401,086.2	11,777.7	307,680.7	55,476.5	708,766.9	56.6%	335,314.3
2.83	2.83	45,030.3	446,116.6	11,245.1	318,925.8	56,275.4	765,042.4	58.3%	339,934.4
3.00	3.00	46,268.2	492,384.7	10,749.9	329,675.7	57,018.1	822,060.4	59.9%	344,231.0
3.17	3.16	47,419.6	539,804.3	10,289.4	339,965.1	57,708.9	879,769.4	61.4%	348,228.2
3.33	3.33	48,490.7	588,295.0	9,860.9	349,826.0	58,351.6	938,121.0	62.7%	351,946.4
3.50	3.50	49,486.8	637,781.8	9,462.5	359,288.5	58,949.3	997,070.3	64.0%	355,402.8
3.67	3.66	50,412.3	688,194.2	9,092.3	368,380.7	59,504.6	1,056,574.9	65.1%	358,612.4
3.83	3.83	51,271.1	739,465.3	8,748.8	377,129.5	60,019.9	1,116,594.8	66.2%	361,587.9
4.00	4.00	52,066.4	791,531.7	8,430.6	385,560.1	60,497.0	1,177,091.8	67.2%	364,340.3
4.17	4.16	52,801.1	844,332.8	8,136.8	393,696.9	60,937.9	1,238,029.7	68.2%	366,879.3
4.33	4.33	53,477.7	897,810.5	7,866.1	401,563.0	61,343.8	1,299,373.5	69.1%	369,213.3
4.50	4.50	54,098.4	951,909.0	7,617.8	409,180.8	61,716.3	1,361,089.8	69.9%	371,349.6
4.67	4.66	54,665.2	1,006,574.1	7,391.1	416,572.0	62,056.3	1,423,146.1	70.7%	373,294.6
4.83	4.83	55,179.5	1,061,753.6	7,185.4	423,757.3	62,364.9	1,485,511.0	71.5%	375,053.9
5.00	5.00	55,643.0	1,117,396.6	7,000.0	430,757.3	62,643.0	1,548,154.0	72.2%	376,632.4
5.17	5.16	56,056.9	1,173,453.5	6,834.5	437,591.8	62,891.3	1,611,045.3	72.8%	378,034.3
5.33	5.33	56,422.2	1,229,875.7	6,688.3	444,280.1	63,110.5	1,674,155.8	73.5%	379,263.2
5.50	5.50	56,739.9	1,286,615.6	6,561.2	450,841.4	63,301.1	1,737,456.9	74.1%	380,322.4
5.67	5.66	57,010.8	1,343,626.4	6,452.9	457,294.2	63,463.7	1,800,920.6	74.6%	381,214.3
5.83	5.83	57,235.6	1,400,862.0	6,363.0	463,657.2	63,598.6	1,864,519.2	75.1%	381,941.2
6.00	6.00	57,414.8	1,458,276.8	6,291.3	469,948.5	63,706.1	1,928,225.3	75.6%	382,504.8
6.17	6.16	57,548.9	1,515,825.7	6,237.7	476,186.1	63,786.5	1,992,011.8	76.1%	382,906.5

These results are submitted to you as a guideline only, without liability on the part of CONTECH Engineered Solutions, LLC for accuracy or suitability to any particular application, and are subject to your verification.

6.33	6.33	57,638.0	1,573,463.7	6,202.0	482,388.1	63,840.0	2,055,851.8	76.5%	383,147.1
6.50	6.50	57,682.6	1,631,146.3	6,184.2	488,572.3	63,866.7	2,119,718.6	77.0%	383,227.2
6.67	6.66	57,682.6	1,688,828.9	6,184.2	494,756.4	63,866.7	2,183,585.3	77.3%	383,147.1
6.83	6.83	57,638.0	1,746,466.9	6,202.0	500,958.4	63,840.0	2,247,425.4	77.7%	382,906.5
7.00	7.00	57,548.9	1,804,015.8	6,237.7	507,196.1	63,786.5	2,311,211.9	78.1%	382,504.8
7.17	7.16	57,414.8	1,861,430.6	6,291.3	513,487.4	63,706.1	2,374,918.0	78.4%	381,941.2
7.33	7.33	57,235.6	1,918,666.2	6,363.0	519,850.3	63,598.6	2,438,516.5	78.7%	381,214.3
7.50	7.50	57,010.8	1,975,677.1	6,452.9	526,303.2	63,463.7	2,501,980.2	79.0%	380,322.4
7.67	7.66	56,739.9	2,032,417.0	6,561.2	532,864.4	63,301.1	2,565,281.4	79.2%	379,263.2
7.83	7.83	56,422.2	2,088,839.2	6,688.3	539,552.7	63,110.5	2,628,391.9	79.5%	378,034.3
8.00	8.00	56,056.9	2,144,896.0	6,834.5	546,387.2	62,891.3	2,691,283.2	79.7%	376,632.4
8.17	8.16	55,643.0	2,200,539.0	7,000.0	553,387.2	62,643.0	2,753,926.2	79.9%	375,053.9
8.33	8.33	55,179.5	2,255,718.5	7,185.4	560,572.6	62,364.9	2,816,291.1	80.1%	373,294.6
8.50	8.50	54,665.2	2,310,383.7	7,391.1	567,963.7	62,056.3	2,878,347.4	80.3%	371,349.6
8.67	8.66	54,098.4	2,364,482.1	7,617.8	575,581.5	61,716.3	2,940,063.7	80.4%	369,213.3
8.83	8.83	53,477.7	2,417,959.9	7,866.1	583,447.7	61,343.8	3,001,407.5	80.6%	366,879.3
9.00	9.00	52,801.1	2,470,761.0	8,136.8	591,584.4	60,937.9	3,062,345.4	80.7%	364,340.3
9.17	9.16	52,066.4	2,522,827.4	8,430.6	600,015.0	60,497.0	3,122,842.4	80.8%	361,587.9
9.33	9.33	51,271.1	2,574,098.5	8,748.8	608,763.8	60,019.9	3,182,862.3	80.9%	358,612.4
9.50	9.50	50,412.3	2,624,510.8	9,092.3	617,856.1	59,504.6	3,242,366.9	80.9%	355,402.8
9.67	9.66	49,486.8	2,673,997.6	9,462.5	627,318.5	58,949.3	3,301,316.2	81.0%	351,946.4
9.83	9.83	48,490.7	2,722,488.3	9,860.9	637,179.5	58,351.6	3,359,667.8	81.0%	348,228.2
10.00	10.00	47,419.6	2,769,907.9	10,289.4	647,468.8	57,708.9	3,417,376.7	81.1%	344,231.0
10.17	10.16	46,268.2	2,816,176.1	10,749.9	658,218.8	57,018.1	3,474,394.8	81.1%	339,934.4
10.33	10.33	45,030.3	2,861,206.4	11,245.1	669,463.8	56,275.4	3,530,670.2	81.0%	335,314.3
10.50	10.50	43,698.8	2,904,905.2	11,777.7	681,241.5	55,476.5	3,586,146.7	81.0%	330,341.7
10.67	10.66	42,264.5	2,947,169.7	12,351.4	693,592.9	54,615.9	3,640,762.6	80.9%	324,981.5
10.83	10.83	40,716.8	2,987,886.5	12,970.5	706,563.4	53,687.3	3,694,449.9	80.9%	319,190.1
11.00	11.00	39,042.1	3,026,928.6	13,640.4	720,203.7	52,682.5	3,747,132.4	80.8%	312,913.3
11.17	11.16	37,223.2	3,064,151.9	14,367.9	734,571.7	51,591.1	3,798,723.5	80.7%	306,080.8
11.33	11.33	35,237.8	3,099,389.6	15,162.1	749,733.8	50,399.9	3,849,123.4	80.5%	298,600.2
11.50	11.50	33,055.7	3,132,445.3	16,034.9	765,768.7	49,090.6	3,898,214.0	80.4%	290,344.9
11.67	11.66	30,634.8	3,163,080.0	17,003.3	782,772.0	47,638.1	3,945,852.0	80.2%	281,133.2
11.83	11.83	27,912.7	3,190,992.7	18,092.1	800,864.1	46,004.8	3,991,856.8	79.9%	270,688.0
12.00	12.00	24,789.5	3,215,782.2	19,341.4	820,205.5	44,130.9	4,035,987.7	79.7%	258,544.7
12.17	12.16	21,085.2	3,236,867.4	20,823.1	841,028.6	41,908.3	4,077,896.0	79.4%	243,802.9
12.33	12.33	16,398.0	3,253,265.4	22,698.0	863,726.6	39,096.0	4,116,992.0	79.0%	224,153.7
12.50	12.50	9,027.2	3,262,292.6	25,646.3	889,372.9	34,673.5	4,151,665.6	78.6%	175,543.2
12.67	12.66	0.0	3,262,292.6	29,257.2	918,630.1	29,257.2	4,180,922.8	78.0%	175,543.2
12.83	12.83	0.0	3,262,292.6	29,257.2	947,887.3	29,257.2	4,210,180.0	77.5%	175,543.2
13.00	13.00	0.0	3,262,292.6	29,257.2	977,144.5	29,257.2	4,239,437.2	77.0%	175,543.2

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FLOOD HYDROGRAPH ROUTING PROGRAM
Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 2005
Study date: 12/06/21

2019-185 HCC II
Post-Developed Conditions
Basin Analysis - 100yr Storm
Entire Site

Program License Serial Number 6277

********** HYDROGRAPH INFORMATION **********

From study/file name: 2019185HCC2UH100Full.rte
**********HYDROGRAPH DATA**********
Number of intervals = 307
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 556.843 (CFS)
Total volume = 91.316 (Ac.Ft)

Status of hydrographs being held in storage

	Stream 1	Stream 2	Stream 3	Stream 4	Stream 5
Peak (CFS)	0.000	0.000	0.000	0.000	0.000
Vol (Ac.Ft)	0.000	0.000	0.000	0.000	0.000

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Process from Point/Station 0.000 to Point/Station 0.000
**** RETARDING BASIN ROUTING ****

User entry of depth-outflow-storage data

Total number of inflow hydrograph intervals = 307
Hydrograph time unit = 5.000 (Min.)
Initial depth in storage basin = 0.00(Ft.)

Initial basin depth = 0.00 (Ft.)
Initial basin storage = 0.00 (Ac.Ft)
Initial basin outflow = 0.00 (CFS)

Depth vs. Storage and Depth vs. Discharge data:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)

0.000	0.000	0.000	0.000	0.000
1.000	81.400	0.001	81.400	81.400
2.000	82.710	0.001	82.710	82.710
3.000	84.090	0.001	84.090	84.090
4.000	87.450	0.001	87.450	87.450
5.000	90.360	0.001	90.360	90.360
6.000	91.820	0.001	91.820	91.820
7.000	93.350	0.001	93.350	93.350
8.000	94.960	0.001	94.960	94.960
9.000	96.630	0.001	96.630	96.630
10.000	98.390	0.001	98.390	98.390

Hydrograph Detention Basin Routing

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Hours)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0	139.2	278.42	417.63	556.84	Depth (Ft.)
0.083	0.70	0.00	0.002	O	|	|	|	|	0.00
0.167	4.83	0.00	0.021	O	|	|	|	|	0.00
0.250	12.32	0.00	0.081	O	|	|	|	|	0.00
0.333	16.25	0.00	0.179	O	|	|	|	|	0.00
0.417	18.48	0.00	0.299	OI	|	|	|	|	0.00
0.500	19.97	0.00	0.431	OI	|	|	|	|	0.01
0.583	21.07	0.00	0.572	OI	|	|	|	|	0.01
0.667	21.91	0.00	0.720	OI	|	|	|	|	0.01
0.750	22.55	0.00	0.873	OI	|	|	|	|	0.01
0.833	23.07	0.00	1.030	OI	|	|	|	|	0.01
0.917	23.50	0.00	1.191	OI	|	|	|	|	0.01
1.000	23.86	0.00	1.354	OI	|	|	|	|	0.02
1.083	24.15	0.00	1.519	OI	|	|	|	|	0.02
1.167	24.38	0.00	1.686	OI	|	|	|	|	0.02
1.250	24.55	0.00	1.855	OI	|	|	|	|	0.02
1.333	24.73	0.00	2.025	OI	|	|	|	|	0.02
1.417	24.91	0.00	2.195	OI	|	|	|	|	0.03
1.500	25.07	0.00	2.368	OI	|	|	|	|	0.03
1.583	25.20	0.00	2.541	OI	|	|	|	|	0.03
1.667	25.30	0.00	2.715	OI	|	|	|	|	0.03
1.750	25.37	0.00	2.889	OI	|	|	|	|	0.04
1.833	25.43	0.00	3.064	OI	|	|	|	|	0.04
1.917	25.50	0.00	3.239	OI	|	|	|	|	0.04
2.000	25.57	0.00	3.415	OI	|	|	|	|	0.04
2.083	25.64	0.00	3.592	OI	|	|	|	|	0.04
2.167	25.71	0.00	3.768	OI	|	|	|	|	0.05
2.250	25.78	0.00	3.946	OI	|	|	|	|	0.05
2.333	25.85	0.00	4.123	OI	|	|	|	|	0.05
2.417	25.92	0.00	4.302	OI	|	|	|	|	0.05
2.500	25.99	0.00	4.481	OI	|	|	|	|	0.06
2.583	26.07	0.00	4.660	OI	|	|	|	|	0.06
2.667	26.14	0.00	4.840	OI	|	|	|	|	0.06
2.750	26.22	0.00	5.020	OI	|	|	|	|	0.06
2.833	26.29	0.00	5.201	OI	|	|	|	|	0.06
2.917	26.37	0.00	5.382	OI	|	|	|	|	0.07
3.000	26.44	0.00	5.564	OI	|	|	|	|	0.07
3.083	26.52	0.00	5.746	OI	|	|	|	|	0.07

3.167	26.60	0.00	5.929	OI	|	|	|	0.07
3.250	26.67	0.00	6.112	OI	|	|	|	0.08
3.333	26.75	0.00	6.296	OI	|	|	|	0.08
3.417	26.83	0.00	6.481	OI	|	|	|	0.08
3.500	26.91	0.00	6.666	OI	|	|	|	0.08
3.583	27.00	0.00	6.852	OI	|	|	|	0.08
3.667	27.08	0.00	7.038	OI	|	|	|	0.09
3.750	27.16	0.00	7.225	OI	|	|	|	0.09
3.833	27.24	0.00	7.412	OI	|	|	|	0.09
3.917	27.33	0.00	7.600	OI	|	|	|	0.09
4.000	27.41	0.00	7.788	OI	|	|	|	0.10
4.083	27.50	0.00	7.978	OI	|	|	|	0.10
4.167	27.59	0.00	8.167	OI	|	|	|	0.10
4.250	27.68	0.00	8.358	OI	|	|	|	0.10
4.333	27.76	0.00	8.548	OI	|	|	|	0.11
4.417	27.85	0.00	8.740	OI	|	|	|	0.11
4.500	27.94	0.00	8.932	OI	|	|	|	0.11
4.583	28.04	0.00	9.125	OI	|	|	|	0.11
4.667	28.13	0.00	9.318	OI	|	|	|	0.11
4.750	28.22	0.00	9.512	OI	|	|	|	0.12
4.833	28.32	0.00	9.707	OI	|	|	|	0.12
4.917	28.41	0.00	9.902	OI	|	|	|	0.12
5.000	28.51	0.00	10.098	OI	|	|	|	0.12
5.083	28.61	0.00	10.295	OI	|	|	|	0.13
5.167	28.70	0.00	10.492	OI	|	|	|	0.13
5.250	28.81	0.00	10.690	OI	|	|	|	0.13
5.333	28.91	0.00	10.889	OI	|	|	|	0.13
5.417	29.01	0.00	11.089	OI	|	|	|	0.14
5.500	29.11	0.00	11.289	OI	|	|	|	0.14
5.583	29.22	0.00	11.490	OI	|	|	|	0.14
5.667	29.32	0.00	11.691	OI	|	|	|	0.14
5.750	29.43	0.00	11.893	OI	|	|	|	0.15
5.833	29.53	0.00	12.097	OI	|	|	|	0.15
5.917	29.65	0.00	12.300	OI	|	|	|	0.15
6.000	29.75	0.00	12.505	OI	|	|	|	0.15
6.083	29.87	0.00	12.710	OI	|	|	|	0.16
6.167	29.98	0.00	12.916	OI	|	|	|	0.16
6.250	30.10	0.00	13.123	OI	|	|	|	0.16
6.333	30.21	0.00	13.331	OI	|	|	|	0.16
6.417	30.33	0.00	13.539	OI	|	|	|	0.17
6.500	30.45	0.00	13.749	OI	|	|	|	0.17
6.583	30.57	0.00	13.959	OI	|	|	|	0.17
6.667	30.69	0.00	14.170	OI	|	|	|	0.17
6.750	30.81	0.00	14.381	OI	|	|	|	0.18
6.833	30.94	0.00	14.594	OI	|	|	|	0.18
6.917	31.06	0.00	14.807	OI	|	|	|	0.18
7.000	31.19	0.00	15.022	OI	|	|	|	0.18
7.083	31.32	0.00	15.237	OI	|	|	|	0.19
7.167	31.45	0.00	15.453	OI	|	|	|	0.19
7.250	31.59	0.00	15.670	OI	|	|	|	0.19
7.333	31.72	0.00	15.888	OI	|	|	|	0.20
7.417	31.86	0.00	16.107	OI	|	|	|	0.20
7.500	32.00	0.00	16.327	OI	|	|	|	0.20
7.583	32.14	0.00	16.548	OI	|	|	|	0.20
7.667	32.28	0.00	16.770	OI	|	|	|	0.21
7.750	32.43	0.00	16.993	OI	|	|	|	0.21

7.833	32.57	0.00	17.216	OI	|	|	|	0.21
7.917	32.72	0.00	17.441	OI	|	|	|	0.21
8.000	32.87	0.00	17.667	OI	|	|	|	0.22
8.083	33.03	0.00	17.894	OI	|	|	|	0.22
8.167	33.18	0.00	18.122	OI	|	|	|	0.22
8.250	33.34	0.00	18.351	OI	|	|	|	0.23
8.333	33.50	0.00	18.581	OI	|	|	|	0.23
8.417	33.66	0.00	18.813	OI	|	|	|	0.23
8.500	33.83	0.00	19.045	OI	|	|	|	0.23
8.583	34.00	0.00	19.279	OI	|	|	|	0.24
8.667	34.16	0.00	19.513	OI	|	|	|	0.24
8.750	34.34	0.00	19.749	OI	|	|	|	0.24
8.833	34.51	0.00	19.986	OI	|	|	|	0.25
8.917	34.70	0.00	20.225	OI	|	|	|	0.25
9.000	34.87	0.00	20.464	O I	|	|	|	0.25
9.083	35.06	0.00	20.705	O I	|	|	|	0.25
9.167	35.25	0.00	20.947	O I	|	|	|	0.26
9.250	35.44	0.00	21.190	O I	|	|	|	0.26
9.333	35.63	0.00	21.435	O I	|	|	|	0.26
9.417	35.84	0.00	21.681	O I	|	|	|	0.27
9.500	36.03	0.00	21.929	O I	|	|	|	0.27
9.583	36.24	0.00	22.178	O I	|	|	|	0.27
9.667	36.45	0.00	22.428	O I	|	|	|	0.28
9.750	36.66	0.00	22.680	O I	|	|	|	0.28
9.833	36.88	0.00	22.933	O I	|	|	|	0.28
9.917	37.10	0.00	23.188	O I	|	|	|	0.28
10.000	37.32	0.00	23.444	O I	|	|	|	0.29
10.083	37.56	0.00	23.702	O I	|	|	|	0.29
10.167	37.79	0.00	23.961	O I	|	|	|	0.29
10.250	38.03	0.00	24.222	O I	|	|	|	0.30
10.333	38.27	0.00	24.485	O I	|	|	|	0.30
10.417	38.52	0.00	24.750	O I	|	|	|	0.30
10.500	38.77	0.00	25.016	O I	|	|	|	0.31
10.583	39.03	0.00	25.284	O I	|	|	|	0.31
10.667	39.29	0.00	25.553	O I	|	|	|	0.31
10.750	39.57	0.00	25.825	O I	|	|	|	0.32
10.833	39.84	0.00	26.098	O I	|	|	|	0.32
10.917	40.13	0.00	26.374	O I	|	|	|	0.32
11.000	40.41	0.00	26.651	O I	|	|	|	0.33
11.083	40.71	0.00	26.930	O I	|	|	|	0.33
11.167	41.01	0.00	27.212	O I	|	|	|	0.33
11.250	41.33	0.00	27.495	O I	|	|	|	0.34
11.333	41.64	0.00	27.781	O I	|	|	|	0.34
11.417	41.97	0.00	28.069	O I	|	|	|	0.34
11.500	42.29	0.00	28.359	O I	|	|	|	0.35
11.583	42.64	0.00	28.652	O I	|	|	|	0.35
11.667	42.99	0.00	28.946	O I	|	|	|	0.36
11.750	43.35	0.00	29.244	O I	|	|	|	0.36
11.833	43.72	0.00	29.544	O I	|	|	|	0.36
11.917	44.10	0.00	29.846	O I	|	|	|	0.37
12.000	44.49	0.00	30.151	O I	|	|	|	0.37
12.083	44.73	0.00	30.458	O I	|	|	|	0.37
12.167	44.17	0.00	30.764	O I	|	|	|	0.38
12.250	42.86	0.00	31.064	O I	|	|	|	0.38
12.333	42.39	0.00	31.358	O I	|	|	|	0.39
12.417	42.34	0.00	31.649	O I	|	|	|	0.39

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12.500   42.46    0.00     31.941  O I     |       |       |       |     0.39
12.583   42.71    0.00     32.235  O I     |       |       |       |     0.40
12.667   43.01    0.00     32.530  O I     |       |       |       |     0.40
12.750   43.41    0.00     32.827  O I     |       |       |       |     0.40
12.833   43.82    0.00     33.128  O I     |       |       |       |     0.41
12.917   44.31    0.00     33.431  O I     |       |       |       |     0.41
13.000   44.80    0.00     33.738  O I     |       |       |       |     0.41
13.083   45.36    0.00     34.049  O I     |       |       |       |     0.42
13.167   45.94    0.00     34.363  O I     |       |       |       |     0.42
13.250   46.57    0.00     34.682  O I     |       |       |       |     0.43
13.333   47.21    0.00     35.005  O I     |       |       |       |     0.43
13.417   47.90    0.00     35.332  O I     |       |       |       |     0.43
13.500   48.61    0.00     35.664  O I     |       |       |       |     0.44
13.583   49.38    0.00     36.002  O I     |       |       |       |     0.44
13.667   50.17    0.00     36.345  O I     |       |       |       |     0.45
13.750   51.04    0.00     36.693  O I     |       |       |       |     0.45
13.833   51.91    0.00     37.048  O I     |       |       |       |     0.46
13.917   52.87    0.00     37.408  O  I    |       |       |       |     0.46
14.000   53.84    0.00     37.776  O  I    |       |       |       |     0.46
14.083   54.93    0.00     38.150  O  I    |       |       |       |     0.47
14.167   56.16    0.00     38.533  O  I    |       |       |       |     0.47
14.250   57.61    0.00     38.925  O  I    |       |       |       |     0.48
14.333   58.97    0.00     39.326  O  I    |       |       |       |     0.48
14.417   60.40    0.00     39.737  O  I    |       |       |       |     0.49
14.500   61.85    0.00     40.158  O  I    |       |       |       |     0.49
14.583   63.45    0.00     40.590  O  I    |       |       |       |     0.50
14.667   65.10    0.00     41.032  O  I    |       |       |       |     0.50
14.750   66.94    0.00     41.487  O  I    |       |       |       |     0.51
14.833   68.86    0.00     41.955  O  I    |       |       |       |     0.52
14.917   71.03    0.00     42.436  O   I   |       |       |       |     0.52
15.000   73.31    0.00     42.933  O   I   |       |       |       |     0.53
15.083   75.94    0.00     43.447  O   I   |       |       |       |     0.53
15.167   78.73    0.00     43.980  O   I   |       |       |       |     0.54
15.250   81.99    0.00     44.533  O   I   |       |       |       |     0.55
15.333   85.54    0.00     45.110  O   I   |       |       |       |     0.55
15.417   88.63    0.00     45.710  O    I  |       |       |       |     0.56
15.500   86.61    0.00     46.314  O   I   |       |       |       |     0.57
15.583   80.09    0.00     46.888  O   I   |       |       |       |     0.58
15.667   79.97    0.00     47.439  O   I   |       |       |       |     0.58
15.750   84.37    0.00     48.005  O   I   |       |       |       |     0.59
15.833   92.25    0.00     48.613  O    I  |       |       |       |     0.60
15.917  106.31    0.00     49.297  O     I |       |       |       |     0.61
16.000  132.71    0.00     50.120  O      I|       |       |       |     0.62
16.083  210.80    0.00     51.302  O       |   I   |       |       |     0.63
16.167  408.26    0.00     53.434  O       |       |      I|       |     0.66
16.250  556.84    0.00     56.758  O       |       |       |      I|     0.70
16.333  354.61    0.00     59.896  O       |       |   I   |       |     0.74
16.417  242.39    0.00     61.952  O       |    I  |       |       |     0.76
16.500  190.34    0.00     63.442  O       | I     |       |       |     0.78
16.583  166.01    0.00     64.669  O       |I      |       |       |     0.79
16.667  145.78    0.00     65.743  O       I       |       |       |     0.81
16.750  127.56    0.00     66.684  O      I|       |       |       |     0.82
16.833  115.36    0.00     67.520  O     I |       |       |       |     0.83
16.917  104.03    0.00     68.276  O    I  |       |       |       |     0.84
17.000   95.03    0.00     68.961  O    I  |       |       |       |     0.85
17.083   86.87    0.00     69.588  O   I   |       |       |       |     0.85
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17.167	79.18	0.00	70.160	O I				0.86
17.250	72.53	0.00	70.682	O I				0.87
17.333	69.73	0.00	71.172	O I				0.87
17.417	66.91	0.00	71.642	O I				0.88
17.500	62.75	0.00	72.089	O I				0.89
17.583	58.33	0.00	72.506	O I				0.89
17.667	54.37	0.00	72.894	O I				0.90
17.750	50.77	0.00	73.256	O I				0.90
17.833	49.04	0.00	73.600	O I				0.90
17.917	47.52	0.00	73.932	O I				0.91
18.000	46.12	0.00	74.254	O I				0.91
18.083	44.97	0.00	74.568	O I				0.92
18.167	44.73	0.00	74.877	O I				0.92
18.250	45.37	0.00	75.187	O I				0.92
18.333	45.26	0.00	75.499	O I				0.93
18.417	44.82	0.00	75.809	O I				0.93
18.500	44.26	0.00	76.116	O I				0.94
18.583	43.68	0.00	76.419	O I				0.94
18.667	43.08	0.00	76.718	O I				0.94
18.750	42.47	0.00	77.012	O I				0.95
18.833	41.88	0.00	77.303	O I				0.95
18.917	41.30	0.00	77.589	O I				0.95
19.000	40.74	0.00	77.872	O I				0.96
19.083	40.19	0.00	78.150	O I				0.96
19.167	39.66	0.00	78.425	O I				0.96
19.250	39.13	0.00	78.697	O I				0.97
19.333	38.64	0.00	78.964	O I				0.97
19.417	38.16	0.00	79.229	O I				0.97
19.500	37.70	0.00	79.490	O I				0.98
19.583	37.25	0.00	79.748	O I				0.98
19.667	36.81	0.00	80.003	O I				0.98
19.750	36.38	0.00	80.255	O I				0.99
19.833	35.97	0.00	80.504	O I				0.99
19.917	35.57	0.00	80.751	O I				0.99
20.000	35.18	0.00	80.994	O I				1.00
20.083	34.81	0.00	81.235	O I				1.00
20.167	34.45	0.00	81.474	OI				1.06
20.250	34.10	0.00	81.710	OI				1.24
20.333	33.76	0.00	81.944	OI				1.41
20.417	33.44	0.00	82.175	OI				1.59
20.500	33.12	0.00	82.404	OI				1.77
20.583	32.81	0.00	82.631	OI				1.94
20.667	32.51	0.00	82.856	OI				2.11
20.750	32.22	0.00	83.079	OI				2.27
20.833	31.94	0.00	83.300	OI				2.43
20.917	31.66	0.00	83.519	OI				2.59
21.000	31.40	0.00	83.736	OI				2.74
21.083	31.14	0.00	83.952	OI				2.90
21.167	30.88	0.00	84.165	OI				3.02
21.250	30.64	0.00	84.377	OI				3.09
21.333	30.39	0.00	84.587	OI				3.15
21.417	30.16	0.00	84.796	OI				3.21
21.500	29.93	0.00	85.002	OI				3.27
21.583	29.70	0.00	85.208	OI				3.33
21.667	29.49	0.00	85.412	OI				3.39
21.750	29.27	0.00	85.614	OI				3.45

21.833	29.06	0.00	85.815	OI	|	|	|	3.51
21.917	28.86	0.00	86.014	OI	|	|	|	3.57
22.000	28.66	0.00	86.212	OI	|	|	|	3.63
22.083	28.46	0.00	86.409	OI	|	|	|	3.69
22.167	28.27	0.00	86.604	OI	|	|	|	3.75
22.250	28.08	0.00	86.798	OI	|	|	|	3.81
22.333	27.90	0.00	86.991	OI	|	|	|	3.86
22.417	27.72	0.00	87.183	OI	|	|	|	3.92
22.500	27.54	0.00	87.373	OI	|	|	|	3.98
22.583	27.37	0.00	87.562	OI	|	|	|	4.04
22.667	27.20	0.00	87.750	OI	|	|	|	4.10
22.750	27.04	0.00	87.937	OI	|	|	|	4.17
22.833	26.87	0.00	88.122	OI	|	|	|	4.23
22.917	26.71	0.00	88.307	OI	|	|	|	4.29
23.000	26.56	0.00	88.490	OI	|	|	|	4.36
23.083	26.40	0.00	88.673	OI	|	|	|	4.42
23.167	26.25	0.00	88.854	OI	|	|	|	4.48
23.250	26.10	0.00	89.034	OI	|	|	|	4.54
23.333	25.96	0.00	89.214	OI	|	|	|	4.61
23.417	25.81	0.00	89.392	OI	|	|	|	4.67
23.500	25.67	0.00	89.569	OI	|	|	|	4.73
23.583	25.53	0.00	89.745	OI	|	|	|	4.79
23.667	25.40	0.00	89.921	OI	|	|	|	4.85
23.750	25.26	0.00	90.095	OI	|	|	|	4.91
23.833	25.13	0.00	90.269	OI	|	|	|	4.97
23.917	25.00	0.00	90.441	OI	|	|	|	5.06
24.000	24.88	0.00	90.613	OI	|	|	|	5.17
24.083	24.05	0.00	90.782	OI	|	|	|	5.29
24.167	19.80	0.00	90.933	OI	|	|	|	5.39
24.250	12.24	0.00	91.043	O	|	|	|	5.47
24.333	8.28	0.00	91.114	O	|	|	|	5.52
24.417	6.05	0.00	91.163	O	|	|	|	5.55
24.500	4.58	0.00	91.200	O	|	|	|	5.58
24.583	3.51	0.00	91.228	O	|	|	|	5.59
24.667	2.70	0.00	91.249	O	|	|	|	5.61
24.750	2.11	0.00	91.265	O	|	|	|	5.62
24.833	1.63	0.00	91.278	O	|	|	|	5.63
24.917	1.25	0.00	91.288	O	|	|	|	5.64
25.000	0.95	0.00	91.296	O	|	|	|	5.64
25.083	0.71	0.00	91.302	O	|	|	|	5.64
25.167	0.54	0.00	91.306	O	|	|	|	5.65
25.250	0.43	0.00	91.309	O	|	|	|	5.65
25.333	0.31	0.00	91.312	O	|	|	|	5.65
25.417	0.19	0.00	91.313	O	|	|	|	5.65
25.500	0.10	0.00	91.314	O	|	|	|	5.65
25.583	0.03	0.00	91.315	O	|	|	|	5.65
25.667	0.00	0.00	91.315	O	|	|	|	5.65

Remaining water in basin = 91.31 (Ac.Ft)

**********HYDROGRAPH DATA**********

Number of intervals = 308
Time interval = 5.0 (Min.)
Maximum/Peak flow rate = 0.001 (CFS)

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                Total volume =       0.001 (Ac.Ft)
        Status of hydrographs being held in storage
                   Stream 1  Stream 2  Stream 3  Stream 4  Stream 5
        Peak (CFS)      0.000     0.000     0.000     0.000     0.000
        Vol (Ac.Ft)      0.000     0.000     0.000     0.000     0.000
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Appendix F – Reference Documents

NOAA Atlas 14, Volume 6, Version 2
Location name: Hesperia, California, USA*
Latitude: 34.4292°, Longitude: -117.4116°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.084 (0.070-0.103)	0.121 (0.100-0.148)	0.169 (0.139-0.207)	0.208 (0.170-0.257)	0.262 (0.207-0.335)	0.304 (0.235-0.397)	0.347 (0.262-0.464)	0.392 (0.288-0.539)	0.453 (0.319-0.650)	0.502 (0.341-0.745)
10-min	0.121 (0.100-0.148)	0.173 (0.143-0.212)	0.242 (0.199-0.296)	0.298 (0.244-0.369)	0.376 (0.297-0.480)	0.436 (0.337-0.569)	0.497 (0.376-0.665)	0.562 (0.413-0.772)	0.650 (0.458-0.932)	0.719 (0.489-1.07)
15-min	0.146 (0.121-0.178)	0.209 (0.173-0.256)	0.292 (0.241-0.358)	0.361 (0.295-0.446)	0.454 (0.359-0.580)	0.527 (0.408-0.688)	0.602 (0.454-0.804)	0.679 (0.499-0.934)	0.786 (0.554-1.13)	0.870 (0.592-1.29)
30-min	0.222 (0.184-0.271)	0.318 (0.263-0.388)	0.444 (0.366-0.544)	0.548 (0.448-0.677)	0.690 (0.545-0.881)	0.800 (0.620-1.04)	0.914 (0.690-1.22)	1.03 (0.758-1.42)	1.19 (0.841-1.71)	1.32 (0.899-1.96)
60-min	0.313 (0.259-0.382)	0.448 (0.371-0.548)	0.626 (0.516-0.768)	0.773 (0.632-0.955)	0.973 (0.769-1.24)	1.13 (0.874-1.47)	1.29 (0.974-1.72)	1.46 (1.07-2.00)	1.68 (1.19-2.41)	1.86 (1.27-2.77)
2-hr	0.456 (0.377-0.556)	0.619 (0.512-0.757)	0.841 (0.693-1.03)	1.03 (0.840-1.27)	1.29 (1.02-1.65)	1.50 (1.16-1.95)	1.71 (1.30-2.29)	1.95 (1.43-2.68)	2.27 (1.60-3.26)	2.53 (1.72-3.76)
3-hr	0.576 (0.476-0.703)	0.770 (0.636-0.941)	1.04 (0.854-1.27)	1.26 (1.03-1.56)	1.58 (1.25-2.02)	1.84 (1.42-2.40)	2.11 (1.60-2.82)	2.40 (1.77-3.31)	2.82 (1.99-4.04)	3.16 (2.15-4.69)
6-hr	0.814 (0.674-0.994)	1.08 (0.892-1.32)	1.45 (1.19-1.77)	1.76 (1.44-2.18)	2.22 (1.75-2.83)	2.59 (2.00-3.38)	2.99 (2.26-3.99)	3.42 (2.51-4.70)	4.04 (2.85-5.80)	4.56 (3.11-6.77)
12-hr	1.05 (0.872-1.29)	1.44 (1.19-1.76)	1.97 (1.63-2.42)	2.43 (1.99-3.00)	3.09 (2.44-3.95)	3.63 (2.81-4.74)	4.21 (3.18-5.63)	4.84 (3.56-6.66)	5.76 (4.06-8.25)	6.52 (4.43-9.67)
24-hr	1.43 (1.27-1.65)	2.03 (1.79-2.34)	2.85 (2.52-3.29)	3.55 (3.11-4.14)	4.57 (3.87-5.50)	5.40 (4.48-6.64)	6.28 (5.09-7.92)	7.25 (5.71-9.39)	8.64 (6.53-11.7)	9.79 (7.15-13.7)
2-day	1.63 (1.45-1.88)	2.30 (2.04-2.65)	3.24 (2.86-3.74)	4.05 (3.55-4.72)	5.23 (4.43-6.30)	6.21 (5.15-7.64)	7.27 (5.89-9.15)	8.42 (6.64-10.9)	10.1 (7.64-13.6)	11.5 (8.42-16.1)
3-day	1.75 (1.55-2.02)	2.46 (2.18-2.84)	3.46 (3.05-4.00)	4.33 (3.79-5.04)	5.60 (4.75-6.75)	6.66 (5.53-8.19)	7.81 (6.33-9.84)	9.08 (7.15-11.8)	10.9 (8.27-14.8)	12.5 (9.13-17.5)
4-day	1.89 (1.68-2.18)	2.65 (2.35-3.06)	3.72 (3.29-4.30)	4.65 (4.08-5.42)	6.03 (5.11-7.26)	7.17 (5.95-8.81)	8.40 (6.81-10.6)	9.77 (7.70-12.7)	11.8 (8.90-15.9)	13.5 (9.84-18.8)
7-day	2.12 (1.88-2.44)	2.94 (2.61-3.39)	4.09 (3.61-4.73)	5.10 (4.46-5.94)	6.56 (5.56-7.90)	7.78 (6.46-9.57)	9.10 (7.38-11.5)	10.6 (8.32-13.7)	12.7 (9.60-17.1)	14.5 (10.6-20.2)
10-day	2.27 (2.01-2.61)	3.14 (2.78-3.62)	4.34 (3.83-5.02)	5.39 (4.72-6.28)	6.91 (5.86-8.32)	8.18 (6.79-10.1)	9.54 (7.73-12.0)	11.1 (8.71-14.3)	13.2 (10.0-17.9)	15.1 (11.0-21.1)
20-day	2.74 (2.43-3.16)	3.76 (3.33-4.33)	5.17 (4.56-5.97)	6.38 (5.59-7.44)	8.15 (6.90-9.81)	9.60 (7.97-11.8)	11.2 (9.05-14.1)	12.9 (10.2-16.7)	15.4 (11.7-20.8)	17.5 (12.8-24.5)
30-day	3.24 (2.87-3.73)	4.41 (3.91-5.09)	6.02 (5.32-6.96)	7.41 (6.49-8.64)	9.42 (7.98-11.3)	11.1 (9.19-13.6)	12.9 (10.4-16.2)	14.8 (11.7-19.2)	17.7 (13.4-23.9)	20.2 (14.7-28.2)
45-day	3.86 (3.42-4.45)	5.18 (4.59-5.97)	7.00 (6.18-8.08)	8.55 (7.49-9.97)	10.8 (9.15-13.0)	12.7 (10.5-15.6)	14.7 (11.9-18.5)	16.9 (13.3-21.9)	20.1 (15.2-27.2)	22.9 (16.7-32.0)
60-day	4.40 (3.90-5.07)	5.81 (5.15-6.70)	7.75 (6.84-8.95)	9.40 (8.24-11.0)	11.8 (10.00-14.2)	13.8 (11.4-16.9)	15.9 (12.9-20.0)	18.3 (14.4-23.7)	21.8 (16.5-29.4)	24.8 (18.1-34.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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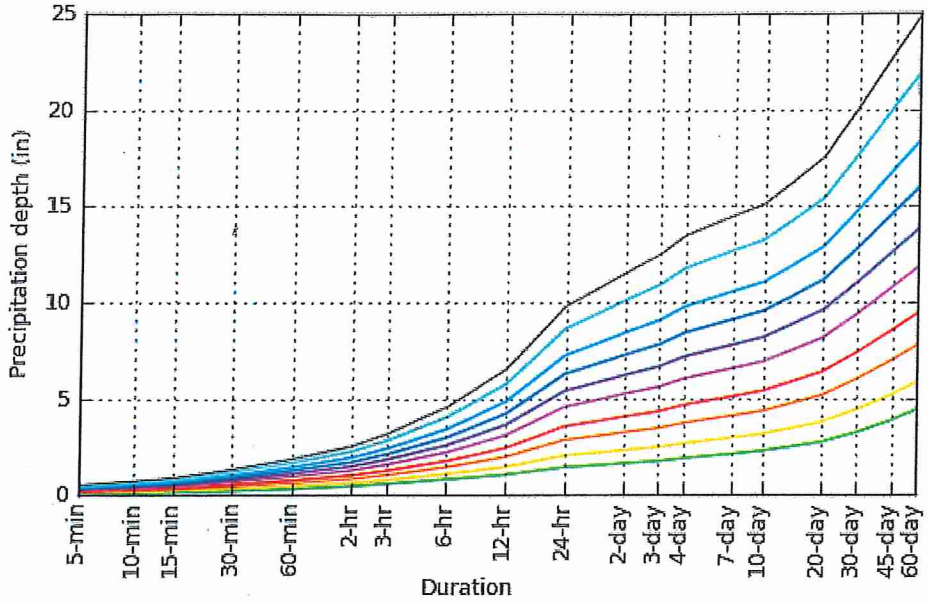
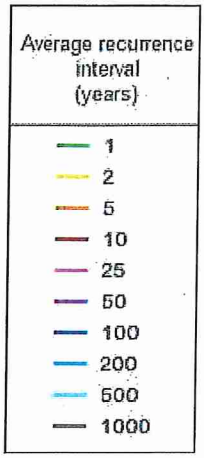
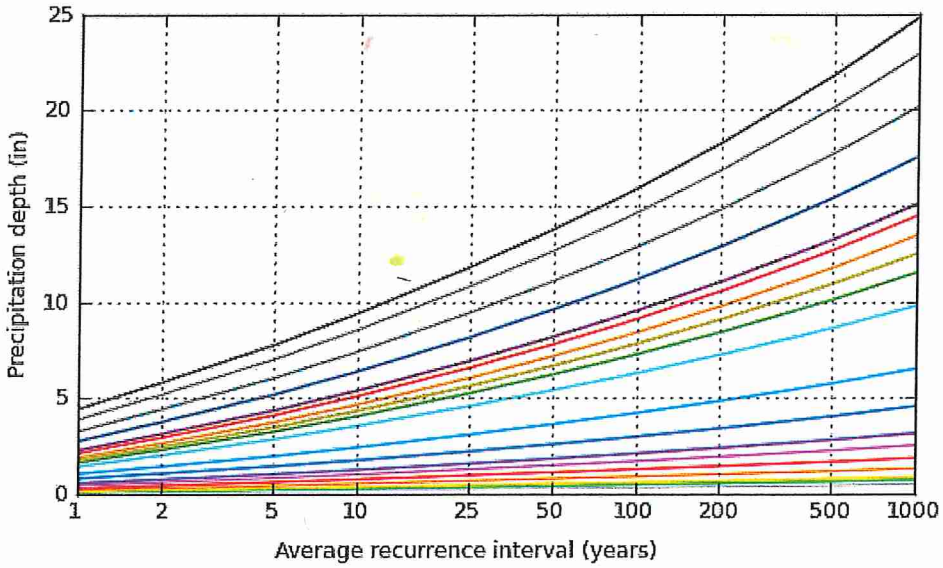
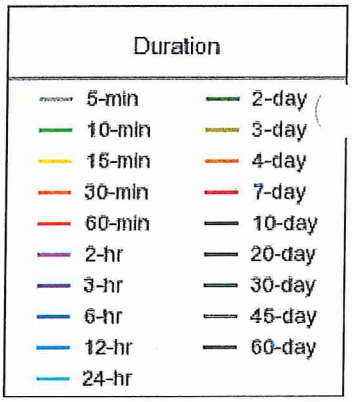
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.4292°, Longitude: -117.4116°









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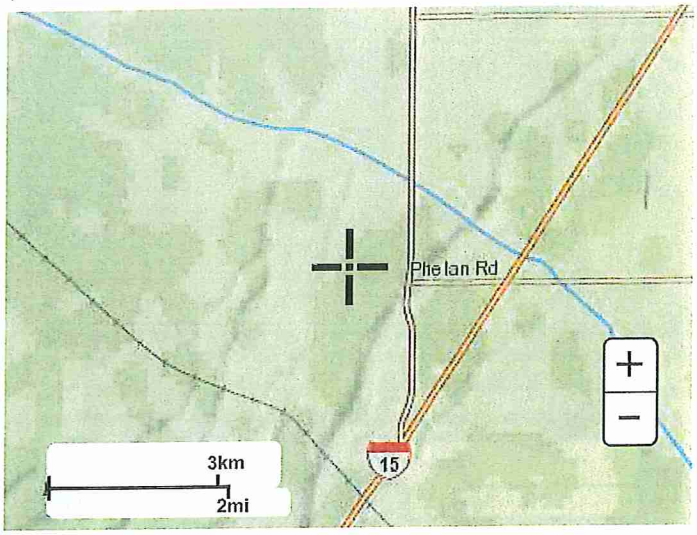
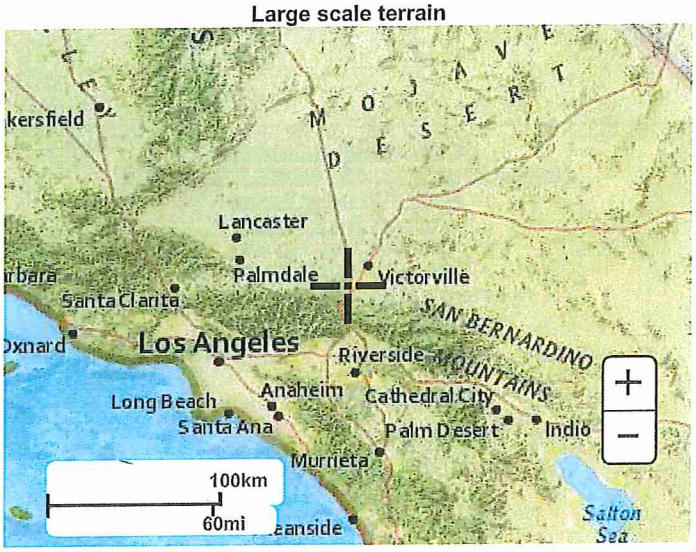
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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Questions?: HDSC.Questions@noaa.gov

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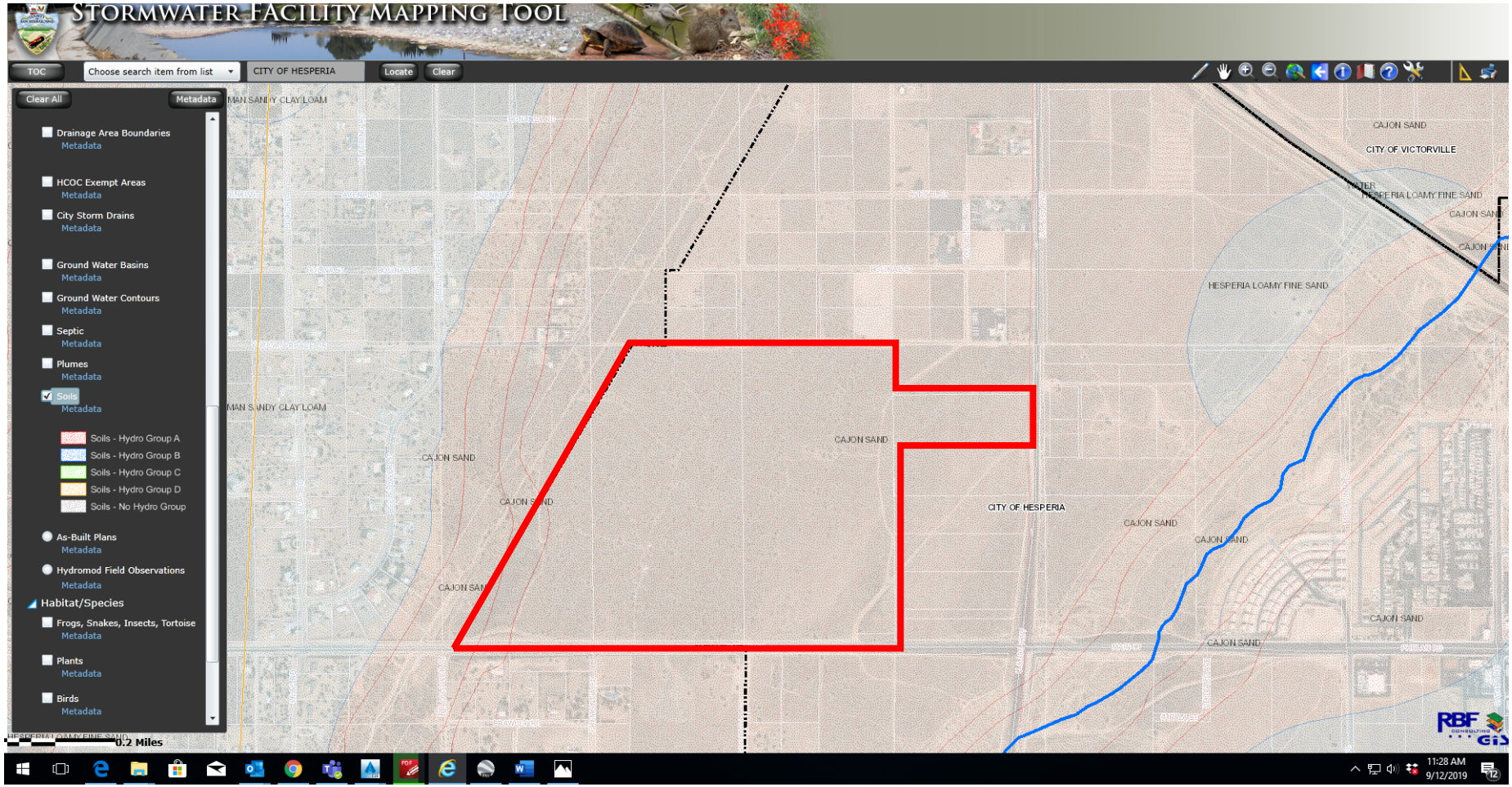
STORMWATER FACILITY MAPPING TOOL
TOC
Choose search item from list
CITY OF HESPERIA
Locate
Clear
Clear All
Metadata
Drainage Area Boundaries
Metadata
HCOC Exempt Areas
Metadata
City Storm Drains
Metadata
Ground Water Basins
Metadata
Ground Water Contours
Metadata
Septic
Metadata
Plumes
Metadata
Soils
Metadata
Soils - Hydro Group A
Soils - Hydro Group B
Soils - Hydro Group C
Soils - Hydro Group D
Soils - No Hydro Group
As-Built Plans
Metadata
Hydromod Field Observations
Metadata
Habitat/Species
Frogs, Snakes, Insects, Tortoise
Metadata
Plants
Metadata
Birds
Metadata
MAN SANDY CLAY LOAM
CAJON SAND
CITY OF VICTORVILLE
HESPERIA LOAMY FINE SAND
CITY OF HESPERIA
0.2 Miles
11:28 AM
9/12/2019

Appendix J

Noise Impact Analysis

Hesperia Commerce Center II

NOISE IMPACT ANALYSIS

CITY OF HESPERIA

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JULY 27, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
ANSI	American National Standards Institute
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Hesperia Commerce Center II
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the potential noise impacts and the necessary noise mitigation measures, if any, for the proposed Hesperia Commerce Center II development ("Project"). The Project is proposed to consist of 2,361,648 square feet of High-Cube Fulfillment Center use and 1,383,781 square feet of General Light Industrial use. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown, and therefore, this noise study includes a conservative analysis of the proposed Project uses. This study has been prepared to satisfy applicable City of Hesperia standards and thresholds of significance based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1)

The results of this Hesperia Commerce Center II Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact under CEQA before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Off-Site Traffic Noise	7	*Potentially Significant*	*Significant and Unavoidable*
Operational Noise	9	*Less Than Significant*	-
Operational Vibration		*Less Than Significant*	-
Construction Noise	10	*Less Than Significant*	-
Construction Vibration		*Less Than Significant*	-

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Hesperia Commerce Center II ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, sets out the local regulatory setting, presents the study methods and procedures for transportation related CNEL traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term stationary-source operational noise and short-term construction noise and vibration impacts.

1.1 SITE LOCATION

The proposed project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. The Project location is shown on Exhibit 1-A. The Project Site is generally located in an undeveloped rural area with some residential homes located to the west and south.

1.2 PROJECT DESCRIPTION

The proposed Project consists of the following uses:

- 2,361,648 square feet of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 square feet of General Light Industrial use; 1,271,656 square feet within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 square feet within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at the Main Street interchange. At the time this noise analysis was prepared, the future tenants of the proposed Project were unknown.

The on-site Project-related noise sources are expected to include: loading dock activity, entry gate & truck movements, roof-top air conditioning units, and trash enclosure activity. This noise analysis is intended to describe noise level impacts associated with the expected typical operational activities at the Project site. To present a conservative approach, this report assumes the Project will operate 24-hours daily for seven days per week.

EXHIBIT 1-A: LOCATION MAP



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS

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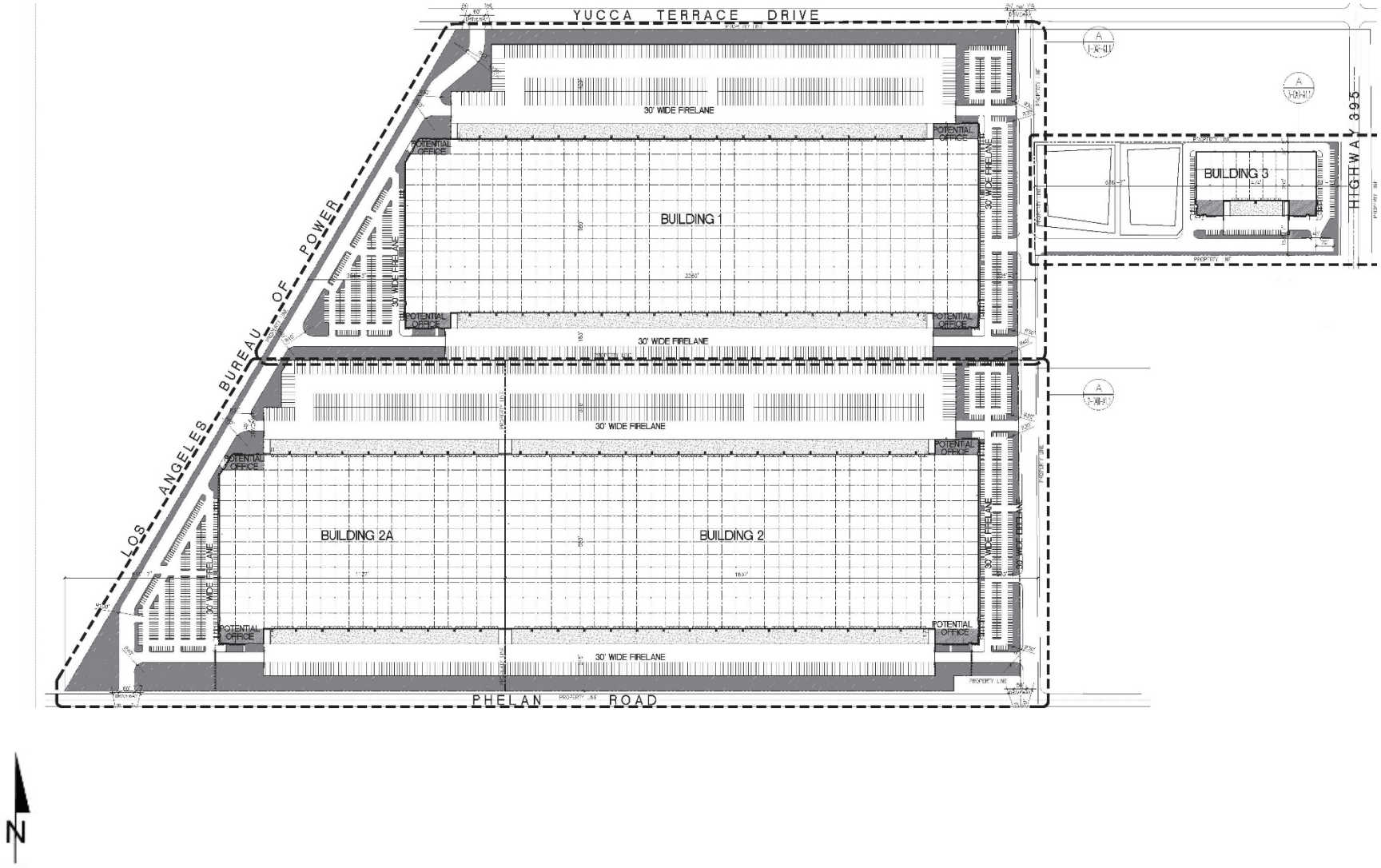
LEGEND:

Site Boundary

EXHIBIT 1-B: SITE PLAN



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2 FUNDAMENTALS

Noise is simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	SLEEP DISTURBANCE
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (2) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (3) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period (typically one hour) and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Hesperia relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (2)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (4)

2.3.3 ATMOSPHERIC EFFECTS

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (2)

2.3.4 SHIELDING

A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby residents. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (4)

2.3.5 REFLECTION

Field studies conducted by the FHWA have shown that the reflection from barriers and buildings does not substantially increase noise levels. (4) If all the noise striking a structure was reflected back to a given receiving point, the increase would be theoretically limited to 3 dBA. Further, not all the acoustical energy is reflected back to same point. Some of the energy would go over the structure, some is reflected to points other than the given receiving point, some is scattered by ground coverings (e.g., grass and other plants), and some is blocked by intervening structures and/or obstacles (e.g., the noise source itself). Additionally, some of the reflected energy is lost due to the longer path that the noise must travel. FHWA measurements made to quantify reflective increases in traffic noise have not shown an increase of greater than 1-2 dBA; an increase that is not perceptible to the average human ear.

2.4 NOISE CONTROL

Noise control is the process of obtaining an acceptable noise environment for an observation point or receiver by controlling the noise source, transmission path, receiver, or all three. This

concept is known as the source-path-receiver concept. In general, noise control measures can be applied to these three elements.

2.5 NOISE BARRIER ATTENUATION

Effective noise barriers can reduce noise levels by up to 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receiver. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (4)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (5)

2.7 COMMUNITY RESPONSE TO NOISE

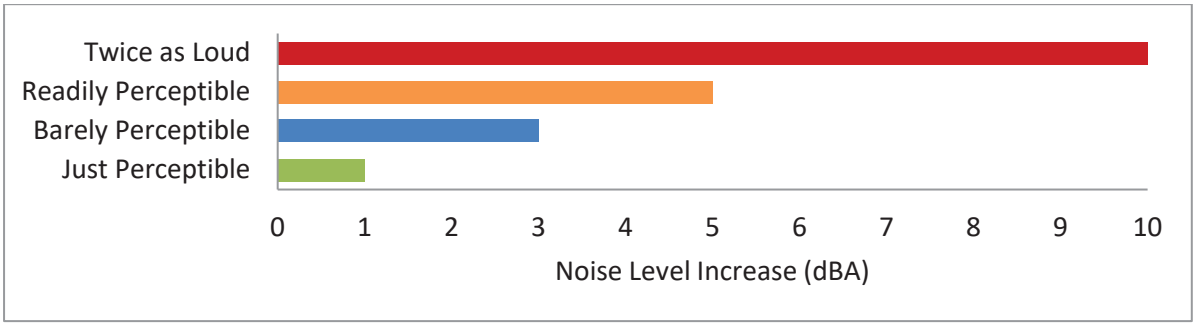
Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (6) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (6) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. A change of

3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (4)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (7)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area.

2.9 VIBRATION

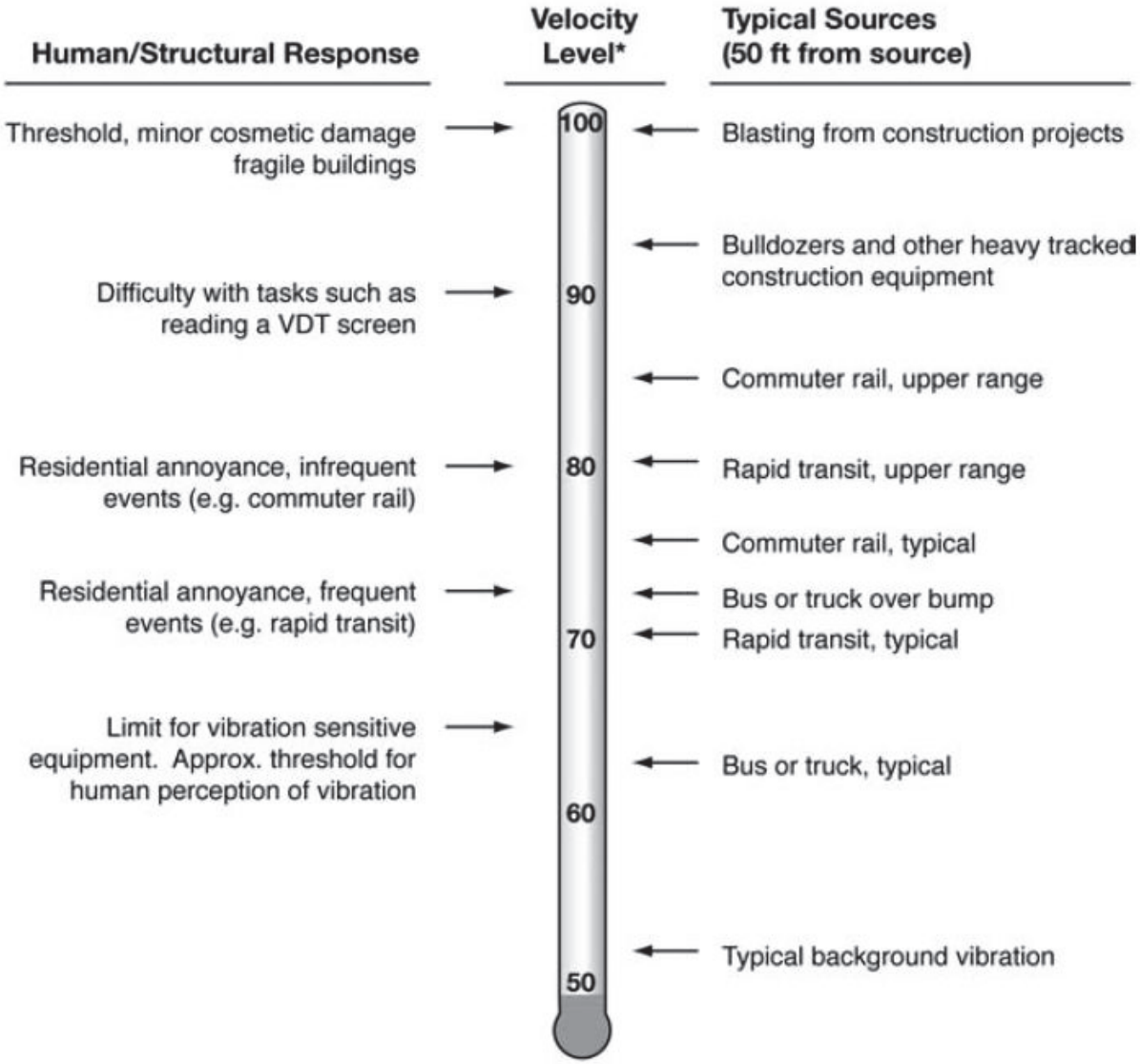
Per the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (8), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction

equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions. As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment and/or activities

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

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3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (9) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels*. In addition, the California Environmental Quality Act (CEQA) requires that all known environmental effects of a project be analyzed, including environmental noise impacts.

3.2 STATE OF CALIFORNIA GREEN BUILDING STANDARDS CODE

The State of California's Green Building Standards Code contains mandatory measures for non-residential building construction in Section 5.507 on Environmental Comfort. (10) These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when non-residential structures are developed in areas where the exterior noise levels exceed 65 dBA CNEL, such as within a noise contour of an airport, freeway, railroad, and other areas where noise contours are not readily available. If the development falls within an airport or freeway 65 dBA CNEL noise contour, the combined sound transmission class (STC) rating of the wall and roof-ceiling assemblies must be at least 50. For those developments in areas where noise contours are not readily available and the noise level exceeds 65 dBA L_{eq} for any hour of operation, a wall and roof-ceiling combined STC rating of 45, and exterior windows with a minimum STC rating of 40 are required (Section 5.507.4.1).

3.3 CITY OF HESPERIA GENERAL PLAN NOISE ELEMENT

The City of Hesperia has adopted a Noise Element of the General Plan (11) to control and abate environmental noise, and to protect the citizens of the City of Hesperia from excessive exposure to noise. The General Plan Noise Element specifies the maximum allowable unmitigated exterior noise levels for new developments impacted by transportation noise sources such as arterial roads, freeways, airports, and railroads. In addition, the City of Hesperia General Plan Noise Element identifies several goals and policies to minimize the impacts of excessive noise levels throughout the community and establishes noise level requirements for all land uses. To limit the exposure of City residents to excessive noise, the City of Hesperia General Plan Noise Element contains the following two goals:

NS-1 *To achieve and maintain an environment which is free from excessive or harmful noise through identification, control, and abatement.*

NS-2 *To achieve and maintain an environment which is free from excessive vibration.*

To satisfy these two overarching goals, the General Plan Noise Element identifies the following implementation policies to reduce noise levels associated with the development of the Project.

NS-1.2 *Control and abate undesirable sounds through the use of the land use compatibility criteria shown in Exhibit NS-1, Table NS-3, and the Municipal Code Section 16.20.125(B).*

NS-1.5 *Require the design and construction of commercial, industrial, office and mixed-use structures developments with noise attenuation methods to minimize excessive noise upon noise-sensitive land uses.*

NS-1.9 *Encourage commercial, industrial, office and mixed-use developments to locate loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noisier components away from noise-sensitive land uses.*

NS-1.10 *Limit the hours of construction activity in, and around, residential areas in order to reduce the intrusion of noise in the early morning and late evening hours and on weekends and holidays.*

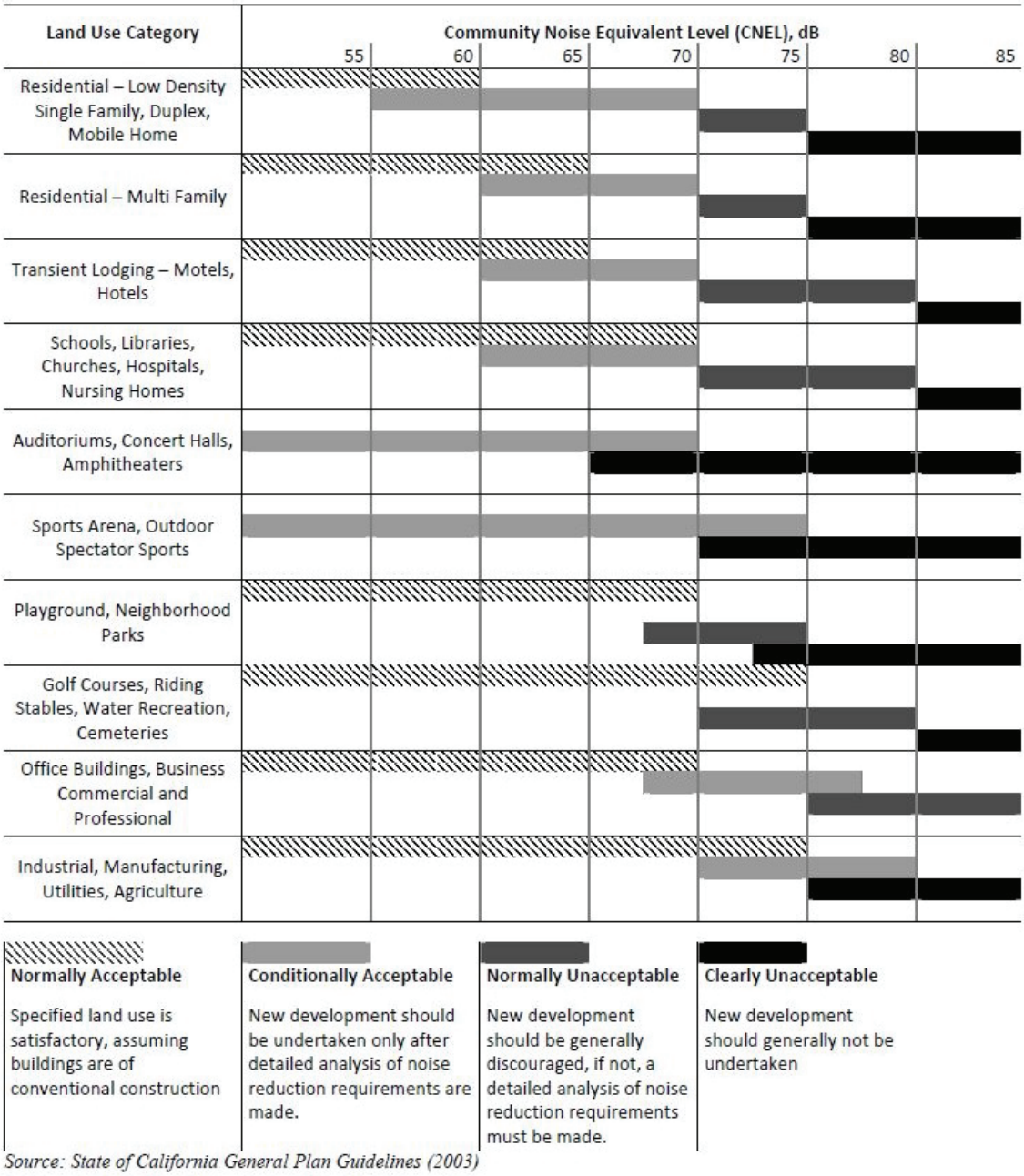
NS-1.11 *Limit delivery hours for businesses with loading areas or docks fronting, siding, or bordering or gaining access on driveways adjacent to noise-sensitive areas.*

NS-1.12 *Implement nighttime and daytime on-site noise level limits to address noise generated by commercial and industrial uses where it affects abutting residential and other noise-sensitive land uses.*

The State of California Land Use Compatibility Plan (Exhibit NS-1) in the City of Hesperia General Plan Noise Element lists land use categories and the acceptable and unacceptable levels of community noise exposure. The compatibility criteria shown on Table NS-1 (and Exhibit 3-A of this report) provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The State of California Land Use Compatibility Plan describes categories of compatibility, but not specific noise standards. According to these categories of transportation-related noise compatibility, the Hesperia Commerce Center II industrial land uses are considered *normally acceptable* with unmitigated exterior noise levels below 75 dBA CNEL and *conditionally acceptable* with noise levels between 70 and 80 dBA CNEL. For *conditionally acceptable* land use, *"new construction or development should be undertaken only after a detailed analysis of noise reduction requirements are made.* (11)

EXHIBIT 3-A: LAND USE NOISE COMPATIBILITY CRITERIA



Source: State of California General Plan Guidelines (2003)

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Hesperia Commerce Center II, stationary-source (operational) noise such as the expected loading dock activity, entry gate & truck movements, roof-top air conditioning units, and trash enclosure activity are typically evaluated against standards established under a jurisdiction's Municipal Code.

Section 16.20.125 of the City of Hesperia Municipal Code included in Appendix 3.1, establishes the noise level standards for stationary noise sources and establishes noise level limits for affected land uses. Since the Project land use will potentially impact a combination of non-noise-sensitive and noise sensitive uses in the Project study area, this noise study relies on the exterior noise level standards for all land uses identified by the City of Hesperia Municipal Code.

For non-noise sensitive industrial uses, the maximum exterior noise level shall not exceed 70 dBA L_{eq} at any time, while the maximum exterior noise level exterior noise levels at non-noise sensitive commercial uses shall not exceed 65 dBA L_{eq} at any time. For noise sensitive residential properties, the maximum exterior noise level shall not exceed 60 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). (12) In addition, except for the nighttime hours from 10:00 p.m. to 7:00 a.m.) the maximum permissible noise levels due to wind noise may be adjusted so that it is no greater than five dB(A) above the ambient noise level. The Municipal Code operational noise level standards are summarized on Table 3-1.

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Receiving Land Use	Time Period	Exterior Noise Level Standard (dBA L_{eq})[2]
City of Hesperia[1]	A-1, A-2, R-1, R-3, and RR Zone Districts	Daytime (7:00 a.m. - 10:00 p.m.)	60
		Nighttime (10:00 p.m. - 7:00 a.m.)	55
	C-1, C-2, C-3, C-4, C-R, AP, and P-I Zone Districts	Anytime	65
	I-1 and I-2 Zone	Anytime	70

[1] Source: City of Hesperia Municipal Code, Section 16.20.125 (Appendix 3.1).
L_{eq} represents a steady state sound level containing the same total energy as a time varying signal over a given sample period.

3.5 CONSTRUCTION NOISE STANDARDS

The City of Hesperia Municipal Code, Section 16.20.125.E.3 exempts construction noise from its stationary-source noise level limits between seven a.m. and seven p.m. and at any time on Sundays and federal holidays. (12) In addition, neither the City of Hesperia General Plan or Municipal Code establish numeric maximum acceptable construction source noise levels at potentially affected receivers for CEQA analysis purposes. Therefore, a numerical construction threshold based on Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* is used for analysis of daytime construction impacts, as discussed below.

According to the FTA, local noise ordinances are typically not very useful in evaluating construction noise. They usually relate to nuisance and hours of allowed activity, and sometimes specify limits in terms of maximum levels, but are generally not practical for assessing the impact of a construction project. Project construction noise criteria should account for the existing noise environment, the absolute noise levels during construction activities, the duration of the construction, and the adjacent land use. Due to the lack of standardized construction noise thresholds, the FTA provides guidelines that can be considered reasonable criteria for construction noise assessment. The FTA considers a daytime exterior construction noise level of 80 dBA L_{eq} as a reasonable threshold for noise sensitive residential land use. (8 p. 179)

3.6 VIBRATION STANDARDS

The City of Hesperia Municipal Code, Section 16.20.130, identifies an operational vibration level threshold of 0.2 in/sec PPV which is used in this report to evaluate potential impacts due to on-site Project related operational vibration level activities at nearby receiver locations. (12) According to Section 16.20.130.C.2, temporary construction, maintenance, or demolition activities are considered exempt provided that construction vibration activity is limited the hours between seven a.m. and seven p.m. including Sundays and federal holidays.

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on currently adopted guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

B. Generation of excessive ground-borne vibration or ground-borne noise levels?

C. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

While the City of Hesperia General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts, they do not define the levels at which increases are considered substantial temporary or permanent for use under Guideline A. CEQA Appendix G Guideline C applies to nearest public and private airports, if any, and the Project's land use compatibility.

4.1 CEQA GUIDELINES NOT FURTHER ANALYZED

The Project site is not located within two miles of a public airport or within an airport land use plan. The closest airport is the Hesperia Airport located approximately 6 miles southeast of the Project site. As such, the Project site would not be exposed to excessive noise levels from airport operations, and therefore, impacts are considered *less than significant,* and no further noise analysis is conducted in relation to CEQA Appendix G Guideline C.

4.2 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the nearest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise level increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (13) Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged.

Since neither the City of Hesperia General Plan Noise Element or Municipal Code identify any noise level increase thresholds, the substantial noise level increase criteria are derived from the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual.* To describe the amount to which a given noise level increase is considered acceptable, the FTA criteria is used to evaluate the incremental noise level increase and establishes a method for comparing future project noise with existing ambient conditions under CEQA Significance Threshold A. I

In effect, the amount to which a given noise level increase is considered acceptable is reduced based on existing ambient noise conditions. Table 4-1 below provides a summary of the allowable criteria used to identify potentially significant incremental noise level increases.

TABLE 4-1: SIGNIFICANCE OF NOISE LEVEL INCREASES

Without Project Noise Level	Potential Significant Impact (dBA CNEL)
< 55 dBA	5 dBA or more
55 - 60 dBA	3 dBA or more
60 - 65 dBA	2 dBA or more
> 65 dBA	1 dBA or more

FTA Transit Noise and Vibration Impact Assessment Manual, 2018 (Table 4-6).

4.3 NON-NOISE-SENSITIVE RECEIVERS

As previously shown on Exhibit 3-A, the *normally acceptable* exterior noise level for non-noise-sensitive land use, such as office, commercial and professional use 70 dBA CNEL and 75 dBA CNEL for industrial uses. Therefore, noise levels greater than 70 dBA CNEL for office, commercial and professional use or 75 dBA CNEL for industrial uses are considered *conditionally acceptable* according to the *State of California Land Use Compatibility Plan*.

To determine if Project-related traffic noise level increases are significant at off-site non-noise-sensitive land uses, a *barely perceptible* 3 dBA criteria is used. (4) When the without Project noise levels are greater than the *normally acceptable* 70 or 75 dBA CNEL land use compatibility criteria, a *barely perceptible* 3 dBA or greater noise level increase is considered a *significant impact* since the noise level criteria is already exceeded.

4.4 SIGNIFICANCE CRITERIA SUMMARY

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Receiving Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
Off-Site Traffic	Noise-Sensitive[1]	If ambient is < 55 dBA CNEL	≥ 5 dBA CNEL Project increase	
		If ambient is 55 - 60 dBA CNEL	≥ 3 dBA CNEL Project increase	
		If ambient is 60 - 65 dBA CNEL	≥ 2 dBA CNEL Project increase	
		If ambient is > 65 dBA CNEL	≥ 1 dBA CNEL Project increase	
	Office[2]	if ambient is > 70 dBA CNEL	≥ 3 dBA CNEL Project increase	
	Industrial[2]	if ambient is > 75 dBA CNEL	≥ 3 dBA CNEL Project increase	
Operational	Multiple	Exterior Noise Level Standards	See Table 3-1.	
	Noise-Sensitive[1]	If ambient is < 55 dBA L_{eq}	≥ 5 dBA L_{eq} Project increase	
		If ambient is 55 - 60 dBA L_{eq}	≥ 3 dBA L_{eq} Project increase	
		If ambient is 60 - 65 dBA L_{eq}	≥ 2 dBA L_{eq} Project increase	
		If ambient is < 65 dBA L_{eq}	≥ 1 dBA L_{eq} Project increase	
		Vibration Level Threshold[3]	0.2 in/sec PPV	
Construction	All	Permitted hours of 7:00 a.m. to7:00 p.m. except Sunday or a federal holiday[4]		
		Noise Level Threshold[1]	80 dBA L_{eq}	n/a
		Vibration Level Threshold[3]	0.2 in/sec PPV	n/a

[1] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[2] City of Hesperia General Plan Noise Element Exhibit NS-1 Land Use Compatibility Criteria.
[3] City of Hesperia Municipal Code, Section 16.20.130.A (Appendix 3.1).
[4] City of Hesperia Municipal Code, Section 16.20.125.E.3 (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.; "PPV" = peak particle velocity.

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5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, 24-hour noise level measurements were taken at six locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on Wednesday, May 20th, 2020. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (14)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources*. (2) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community*. (8)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (8) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby sensitive receiver locations allows for a comparison of the before and after Project noise levels

and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels northwest of the Project site on Yucca Terrace Drive near existing single-family residential home at 10120 Fremontia Road. The noise levels at this location consist primarily of traffic noise from Yucca Terrance Drive and Fremontia Road. The noise level measurements collected show an overall 24-hour exterior noise level of 61.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 54.7 dBA L_{eq} with an average nighttime noise level of 54.9 dBA L_{eq}.
- Location L2 represents the noise levels northeast of the Project site on Bolinas Street near existing Vacant Land. The ambient noise levels at this location account for traffic on Bolinas Street and US-395. The noise level measurements collected show an overall 24-hour exterior noise level of 65.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 58.8 dBA L_{eq} with an average nighttime noise level of 58.9 dBA L_{eq}.
- Location L3 represents the noise levels east of the Project site on Mesa Linda Street near the West Main Villas multi-family homes. The 24-hour CNEL indicates that the overall exterior noise level is 65.5 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 59.1 dBA L_{eq} with an average nighttime noise level of 59.2 dBA L_{eq}. Background traffic noise from Mesa Linda Street and Main Street represent the primary source of noise at this location.
- Location L4 represents the noise levels south of the Project site on Phelan Road near existing single-family residential home at 9565 Fremontia Road. The noise level measurements collected show an overall 24-hour exterior noise level of 75.4 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 70.6 dBA L_{eq} with an average nighttime noise level of 71.6 dBA L_{eq}. The noise levels at this location consist primarily of traffic noise from Phelan Road.
- Location L5 represents the noise levels west of the Project site on Monta Vista near existing single-family residential home at 9751 Monta Vista. The 24-hour CNEL indicates that the overall exterior noise level is 57.2 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 52.8 dBA L_{eq} with an average nighttime noise level of 54.1 dBA L_{eq}. Traffic on Monte Vista represents the primary source of noise at this location.
- Location L6 represents the noise levels west of the Project site on Monta Vista near existing single-family residential home at 10040 Monta Vista. The 24-hour CNEL indicates that the overall exterior noise level is 55.1 dBA CNEL. The energy (logarithmic) average daytime noise level was calculated at 50.4 dBA L_{eq} with an average nighttime noise level of 51.5 dBA L_{eq}. Traffic on Monte Vista represents the primary source of noise at this location.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with surface streets and US-395. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Description	Energy Average Noise Level (dBA L_{eq})[2]		CNEL
		Daytime	Nighttime	
L1	Located northwest of the Project site on Yucca Terrace Drive near existing single-family residential home at 10120 Fremontia Road.	54.7	54.9	61.2
L2	Located northeast of the Project site on Bolinas Street near existing Vacant Land.	58.8	58.9	65.2
L3	Located east of the Project site on Mesa Linda Street near the West Main Villas multi-family homes.	59.1	59.2	65.5
L4	Located south of the Project site on Phelan Road near existing single-family residential home at 9565 Fremontia Road.	70.6	71.6	75.4
L5	Located west of the Project site on Monta Vista near existing single-family residential home at 9751 Monta Vista.	52.8	54.1	57.2
L6	Located west of the Project site on Monta Vista near existing single-family residential home at 10040 Monta Vista.	50.4	51.5	55.1

[1] See Exhibit 5-A for the noise level measurement locations.
[2] Energy (logarithmic) average levels. The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS



6 TRAFFIC NOISE PREDICTION METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment. Consistent with the *Land Use Compatibility Criteria*, all transportation related noise levels are presented in terms of the 24-hour CNEL's.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (15) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (16) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (17)

6.2 OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 6-1 presents the roadway parameters used to assess the Project's off-site dBA CNEL transportation noise impacts. Table 6-1 identifies the 31 study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Hesperia General Plan Circulation Element, and the posted vehicle speeds. The ADT volumes used in this study area presented on Table 6-2 are based on the *Hesperia Commerce Center II Traffic Impact Analysis*, prepared by Urban Crossroads, Inc. for the following traffic scenarios under both Without and With Project alternatives: Existing (2019), Opening Year Cumulative (2021), and Horizon Year (2040). (18)

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of project traffic distributions. This analysis relies on a comparative evaluation of the off-site traffic noise impacts, without and with project ADT traffic volumes from the Project traffic study.

TABLE 6-1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Receiving Land Use[1]	Distance from Centerline to Receiving Land Use (Feet)[2]	Vehicle Speed (mph)[3]
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	62'	55
2	US Hwy. 395	s/o Luna Rd.	Sensitive	62'	55
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	62'	55
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	62'	55
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	52'	55
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	52'	55
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	25'	40
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	65'	55
9	US Hwy. 395	s/o Main St.	Non-Sensitive	65'	55
10	US Hwy. 395	s/o Poplar St.	Sensitive	65'	55
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	65'	55
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	50'	50
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	50'	50
14	Topaz Av.	n/o Main St.	Sensitive	30'	40
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	34'	40
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	62'	55
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	62'	55
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	50'	55
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	52'	55
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	52'	55
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	52'	55
22	Phelan Rd.	e/o Dwy. 1	Sensitive	52'	55
23	Main St.	w/o Mesa Linda St.	Sensitive	60'	50
24	Main St.	w/o Cataba Rd.	Sensitive	60'	50
25	Main St.	e/o Key Point Av.	Non-Sensitive	60'	50
26	Main St.	e/o Mariposa Rd.	Sensitive	60'	50
27	Main St.	w/o Escondido Av.	Non-Sensitive	60'	50
28	Main St.	Escondido Av.	Sensitive	60'	50
29	Main St.	Topaz Av.	Sensitive	65'	55
30	Sultana St.	Escondido Av.	Non-Sensitive	30'	40
31	Joshua St.	US Hwy. 395	Non-Sensitive	40'	55

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] Distance to receiving land use is based upon the right-of-way distances.
[3] Hesperia Commerce Center II Traffic Impact Analysis.

TABLE 6-2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]					
			Existing 2019		Opening Year Cumulative (OYC) 2021		Horizon Year (HY) 2040	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	US Hwy. 395	n/o Luna Rd.	23,862	24,170	28,362	28,670	57,258	57,567
2	US Hwy. 395	s/o Luna Rd.	20,348	20,752	24,674	25,078	55,402	55,806
3	US Hwy. 395	s/o Bear Valley Rd.	22,779	23,564	27,178	27,963	58,992	59,777
4	US Hwy. 395	s/o Eucalyptus St.	23,878	24,949	28,296	29,367	58,413	59,484
5	Baldy Mesa Rd.	n/o Phelan Rd.	6,265	6,551	6,519	6,804	8,855	9,141
6	Baldy Mesa Rd.	s/o Phelan Rd.	2,389	2,579	2,485	2,676	3,376	3,567
7	Verbena Rd.	n/o Phelan Rd.	192	287	200	295	271	367
8	US Hwy. 395	s/o Yucca Terrace Dr.	25,536	28,914	32,744	36,122	39,091	42,469
9	US Hwy. 395	s/o Main St.	22,673	24,579	27,011	28,917	57,363	59,269
10	US Hwy. 395	s/o Poplar St.	22,662	24,568	27,426	29,332	35,235	37,141
11	US Hwy. 395	s/o Joshua St.	24,326	25,851	28,574	30,099	34,380	35,905
12	Escondido Av.	n/o Sultana St.	20,716	21,097	23,770	24,151	29,278	29,659
13	Escondido Av.	s/o Sultana St.	20,716	20,906	23,770	23,960	29,278	29,469
14	Topaz Av.	n/o Main St.	3,199	3,295	3,343	3,438	4,522	4,617
15	Luna Rd.	e/o US Hwy. 395	7,673	7,768	7,999	8,094	10,845	10,940
16	Bear Valley Rd.	e/o US Hwy. 395	12,845	13,227	13,776	14,158	20,088	20,469
17	Eucalyptus St.	w/o US Hwy. 395	320	415	341	436	452	547
18	Eucalyptus St.	e/o US Hwy. 395	1,610	1,801	1,691	1,882	2,276	2,467
19	Phelan Rd.	w/o Baldy Mesa Rd.	15,549	15,930	19,241	19,622	21,976	22,357
20	Phelan Rd.	w/o Verbena Rd.	15,453	16,311	19,141	19,998	21,840	22,698
21	Phelan Rd.	w/o Bellflower St.	15,874	16,827	19,579	20,532	22,435	23,388
22	Phelan Rd.	e/o Dwy. 1	16,327	17,398	20,051	21,122	23,076	24,147
23	Main St.	w/o Mesa Linda St.	17,996	25,964	23,919	31,887	25,435	33,403
24	Main St.	w/o Cataba Rd.	19,799	27,767	26,165	34,133	27,982	35,950
25	Main St.	e/o Key Point Av.	30,634	35,035	38,235	42,637	43,295	47,697
26	Main St.	e/o Mariposa Rd.	39,544	40,497	45,113	46,066	55,888	56,841
27	Main St.	w/o Escondido Av.	41,069	42,022	46,700	47,653	58,044	58,997
28	Main St.	Escondido Av.	33,268	33,840	37,911	38,482	47,018	47,590
29	Main St.	Topaz Av.	30,474	30,760	34,673	34,959	43,069	43,355
30	Sultana St.	Escondido Av.	4,122	4,312	4,456	4,647	5,825	6,016
31	Joshua St.	US Hwy. 395	4,420	4,802	10,141	10,523	11,156	11,537

[1] Hesperia Commerce Center II Traffic Impact Analysis.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

Table 6-3 provides the time of day (daytime, evening, and nighttime) vehicle splits. The daily Project truck trip-ends were assigned to the individual off-site study area roadway segments based on the Project truck trip distribution percentages documented in the *Traffic Impact Analysis*. Using the Project truck trips in combination with the Project trip distribution, Urban Crossroads, Inc. calculated the number of additional Project truck trips and vehicle mix percentages for each of the study area roadway segments. Table 6-4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 6-5 to 6-7 show the vehicle mixes used for the with Project traffic scenarios.

TABLE 6-3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	62.20%	12.75%	25.05%	100.00%
Medium Trucks	67.85%	9.36%	22.79%	100.00%
Heavy Trucks	63.02%	10.79%	26.19%	100.00%

[1] Based on an existing 24-hour count taken at United Stated Highway 395 and Main Street. (Hesperia Commerce Center II Traffic Impact Analysis, Urban Crossroads, Inc.). Values rounded to the nearest one-hundredth.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 6-4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	81.35%	6.69%	11.96%	100.00%

Based on an existing vehicle count taken at United States Highway 395 and Main Street (Hesperia Commerce Center II Traffic Impact Analysis, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 6-5: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	US Hwy. 395	n/o Luna Rd.	83.53%	7.51%	8.95%	100.00%
2	US Hwy. 395	s/o Luna Rd.	83.56%	7.50%	8.93%	100.00%
3	US Hwy. 395	s/o Bear Valley Rd.	83.85%	7.37%	8.78%	100.00%
4	US Hwy. 395	s/o Eucalyptus St.	84.04%	7.28%	8.68%	100.00%
5	Baldy Mesa Rd.	n/o Phelan Rd.	84.52%	7.04%	8.44%	100.00%
6	Baldy Mesa Rd.	s/o Phelan Rd.	85.01%	6.82%	8.17%	100.00%
7	Verbena Rd.	n/o Phelan Rd.	89.18%	4.92%	5.90%	100.00%
8	US Hwy. 395	s/o Yucca Terrace Dr.	82.92%	7.91%	9.17%	100.00%
9	US Hwy. 395	s/o Main St.	85.07%	6.79%	8.14%	100.00%
10	US Hwy. 395	s/o Poplar St.	85.07%	6.79%	8.14%	100.00%
11	US Hwy. 395	s/o Joshua St.	84.77%	6.92%	8.31%	100.00%
12	Escondido Av.	n/o Sultana St.	84.11%	7.23%	8.67%	100.00%
13	Escondido Av.	s/o Sultana St.	83.96%	7.29%	8.75%	100.00%
14	Topaz Av.	n/o Main St.	84.28%	7.15%	8.57%	100.00%
15	Luna Rd.	e/o US Hwy. 395	84.01%	7.27%	8.72%	100.00%
16	Bear Valley Rd.	e/o US Hwy. 395	84.28%	7.15%	8.57%	100.00%
17	Eucalyptus St.	w/o US Hwy. 395	87.53%	5.67%	6.80%	100.00%
18	Eucalyptus St.	e/o US Hwy. 395	85.53%	6.58%	7.89%	100.00%
19	Phelan Rd.	w/o Baldy Mesa Rd.	84.20%	7.18%	8.62%	100.00%
20	Phelan Rd.	w/o Verbena Rd.	84.67%	6.97%	8.36%	100.00%
21	Phelan Rd.	w/o Bellflower St.	84.73%	6.94%	8.33%	100.00%
22	Phelan Rd.	e/o Dwy. 1	84.13%	7.25%	8.62%	100.00%
23	Main St.	w/o Mesa Linda St.	80.12%	9.50%	10.39%	100.00%
24	Main St.	w/o Cataba Rd.	80.36%	9.36%	10.28%	100.00%
25	Main St.	e/o Key Point Av.	82.80%	7.98%	9.22%	100.00%
26	Main St.	e/o Mariposa Rd.	84.19%	7.19%	8.62%	100.00%
27	Main St.	w/o Escondido Av.	84.18%	7.19%	8.63%	100.00%
28	Main St.	Escondido Av.	84.09%	7.23%	8.68%	100.00%
29	Main St.	Topaz Av.	83.96%	7.29%	8.74%	100.00%
30	Sultana St.	Escondido Av.	84.53%	7.03%	8.44%	100.00%
31	Joshua St.	US Hwy. 395	85.10%	6.77%	8.13%	100.00%

[1] Hesperia Commerce Center II Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-6: OPENING YEAR CUMULATIVE (2021) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	US Hwy. 395	n/o Luna Rd.	83.58%	7.49%	8.93%	100.00%
2	US Hwy. 395	s/o Luna Rd.	83.60%	7.48%	8.92%	100.00%
3	US Hwy. 395	s/o Bear Valley Rd.	83.85%	7.37%	8.79%	100.00%
4	US Hwy. 395	s/o Eucalyptus St.	84.00%	7.29%	8.70%	100.00%
5	Baldy Mesa Rd.	n/o Phelan Rd.	84.49%	7.05%	8.46%	100.00%
6	Baldy Mesa Rd.	s/o Phelan Rd.	84.97%	6.83%	8.20%	100.00%
7	Verbena Rd.	n/o Phelan Rd.	89.04%	4.98%	5.98%	100.00%
8	US Hwy. 395	s/o Yucca Terrace Dr.	83.10%	7.80%	9.10%	100.00%
9	US Hwy. 395	s/o Main St.	84.88%	6.87%	8.25%	100.00%
10	US Hwy. 395	s/o Poplar St.	84.87%	6.88%	8.25%	100.00%
11	US Hwy. 395	s/o Joshua St.	84.63%	6.99%	8.38%	100.00%
12	Escondido Av.	n/o Sultana St.	84.07%	7.24%	8.69%	100.00%
13	Escondido Av.	s/o Sultana St.	83.94%	7.30%	8.76%	100.00%
14	Topaz Av.	n/o Main St.	84.26%	7.16%	8.58%	100.00%
15	Luna Rd.	e/o US Hwy. 395	84.00%	7.27%	8.72%	100.00%
16	Bear Valley Rd.	e/o US Hwy. 395	84.25%	7.16%	8.59%	100.00%
17	Eucalyptus St.	w/o US Hwy. 395	87.35%	5.75%	6.90%	100.00%
18	Eucalyptus St.	e/o US Hwy. 395	85.45%	6.61%	7.93%	100.00%
19	Phelan Rd.	w/o Baldy Mesa Rd.	84.13%	7.22%	8.66%	100.00%
20	Phelan Rd.	w/o Verbena Rd.	84.51%	7.04%	8.45%	100.00%
21	Phelan Rd.	w/o Bellflower St.	84.57%	7.02%	8.42%	100.00%
22	Phelan Rd.	e/o Dwy. 1	84.08%	7.27%	8.65%	100.00%
23	Main St.	w/o Mesa Linda St.	80.80%	9.10%	10.10%	100.00%
24	Main St.	w/o Cataba Rd.	81.00%	8.99%	10.01%	100.00%
25	Main St.	e/o Key Point Av.	82.98%	7.87%	9.15%	100.00%
26	Main St.	e/o Mariposa Rd.	84.15%	7.21%	8.64%	100.00%
27	Main St.	w/o Escondido Av.	84.14%	7.21%	8.65%	100.00%
28	Main St.	Escondido Av.	84.05%	7.25%	8.70%	100.00%
29	Main St.	Topaz Av.	83.95%	7.30%	8.75%	100.00%
30	Sultana St.	Escondido Av.	84.48%	7.06%	8.46%	100.00%
31	Joshua St.	US Hwy. 395	84.40%	7.09%	8.51%	100.00%

[1] Hesperia Commerce Center II Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6-7: HORIZON YEAR (2040) WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	US Hwy. 395	n/o Luna Rd.	83.70%	7.42%	8.88%	100.00%
2	US Hwy. 395	s/o Luna Rd.	83.72%	7.41%	8.87%	100.00%
3	US Hwy. 395	s/o Bear Valley Rd.	83.83%	7.36%	8.81%	100.00%
4	US Hwy. 395	s/o Eucalyptus St.	83.91%	7.33%	8.77%	100.00%
5	Baldy Mesa Rd.	n/o Phelan Rd.	84.32%	7.13%	8.55%	100.00%
6	Baldy Mesa Rd.	s/o Phelan Rd.	84.68%	6.97%	8.36%	100.00%
7	Verbena Rd.	n/o Phelan Rd.	88.02%	5.45%	6.53%	100.00%
8	US Hwy. 395	s/o Yucca Terrace Dr.	83.21%	7.74%	9.06%	100.00%
9	US Hwy. 395	s/o Main St.	84.33%	7.12%	8.54%	100.00%
10	US Hwy. 395	s/o Poplar St.	84.64%	6.98%	8.37%	100.00%
11	US Hwy. 395	s/o Joshua St.	84.50%	7.05%	8.45%	100.00%
12	Escondido Av.	n/o Sultana St.	84.02%	7.26%	8.71%	100.00%
13	Escondido Av.	s/o Sultana St.	83.92%	7.31%	8.77%	100.00%
14	Topaz Av.	n/o Main St.	84.15%	7.21%	8.64%	100.00%
15	Luna Rd.	e/o US Hwy. 395	83.96%	7.29%	8.75%	100.00%
16	Bear Valley Rd.	e/o US Hwy. 395	84.12%	7.22%	8.66%	100.00%
17	Eucalyptus St.	w/o US Hwy. 395	86.63%	6.08%	7.29%	100.00%
18	Eucalyptus St.	e/o US Hwy. 395	85.06%	6.79%	8.14%	100.00%
19	Phelan Rd.	w/o Baldy Mesa Rd.	84.09%	7.23%	8.68%	100.00%
20	Phelan Rd.	w/o Verbena Rd.	84.43%	7.08%	8.49%	100.00%
21	Phelan Rd.	w/o Bellflower St.	84.47%	7.06%	8.47%	100.00%
22	Phelan Rd.	e/o Dwy. 1	84.04%	7.28%	8.68%	100.00%
23	Main St.	w/o Mesa Linda St.	80.94%	9.02%	10.04%	100.00%
24	Main St.	w/o Cataba Rd.	81.14%	8.90%	9.95%	100.00%
25	Main St.	e/o Key Point Av.	83.07%	7.81%	9.11%	100.00%
26	Main St.	e/o Mariposa Rd.	84.09%	7.24%	8.68%	100.00%
27	Main St.	w/o Escondido Av.	84.08%	7.24%	8.68%	100.00%
28	Main St.	Escondido Av.	84.01%	7.27%	8.72%	100.00%
29	Main St.	Topaz Av.	83.92%	7.31%	8.77%	100.00%
30	Sultana St.	Escondido Av.	84.33%	7.13%	8.55%	100.00%
31	Joshua St.	US Hwy. 395	84.35%	7.12%	8.54%	100.00%

[1] Hesperia Commerce Center II Traffic Impact Analysis.
[2] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

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7 OFF-SITE TRAFFIC NOISE IMPACTS

To assess the off-site transportation CNEL noise level impacts associated with the proposed Project, noise contours were developed based on the *Hesperia Commerce Center II Traffic Impact Analysis*. (18) Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway.

7.1 TRAFFIC NOISE CONTOURS

Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area.

Tables 7-1 through 7-6 present a summary of the exterior dBA CNEL traffic noise levels without barrier attenuation. Roadway segments are analyzed from the without Project to the with Project conditions in each of the following timeframes: Existing (2019), Opening Year Cumulative (2021), and Horizon Year (2040). Appendix 7.1 includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 7-1: EXISTING WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	79.4	262	565	1218
2	US Hwy. 395	s/o Luna Rd.	Sensitive	78.7	236	508	1095
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	79.2	254	548	1180
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	79.4	262	565	1218
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.2	99	213	458
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.0	52	112	241
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.3	RW	RW	30
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	81.6	385	830	1788
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.1	356	767	1652
10	US Hwy. 395	s/o Poplar St.	Sensitive	81.1	356	767	1651
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	81.4	373	804	1731
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	80.4	248	534	1150
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	80.4	248	534	1150
14	Topaz Av.	n/o Main St.	Sensitive	72.0	41	88	189
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	74.9	72	155	335
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	76.7	174	374	806
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	60.7	RW	RW	69
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	68.7	RW	88	190
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	78.1	181	390	840
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	78.1	180	388	836
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	78.2	183	395	851
22	Phelan Rd.	e/o Dwy. 1	Sensitive	78.3	187	403	867
23	Main St.	w/o Mesa Linda St.	Non-Sensitive	79.1	244	526	1133
24	Main St.	w/o Cataba Rd.	Non-Sensitive	79.6	260	560	1208
25	Main St.	e/o Key Point Av.	Non-Sensitive	81.5	348	750	1615
26	Main St.	e/o Mariposa Rd.	Sensitive	82.2	390	840	1809
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.4	400	861	1856
28	Main St.	e/o Escondido Av.	Sensitive	81.4	347	748	1612
29	Main St.	e/o Topaz Av.	Sensitive	82.4	433	934	2012
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.1	48	104	224
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	75.2	89	191	411

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-2: EXISTING WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	79.5	267	575	1238
2	US Hwy. 395	s/o Luna Rd.	Sensitive	78.8	241	519	1117
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	79.3	260	559	1205
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	79.5	268	578	1245
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.2	99	214	461
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.1	53	113	244
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.6	RW	RW	32
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	82.3	428	923	1988
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.2	361	777	1674
10	US Hwy. 395	s/o Poplar St.	Sensitive	81.2	360	777	1673
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	81.4	377	811	1748
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	80.4	248	535	1153
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	80.4	248	535	1152
14	Topaz Av.	n/o Main St.	Sensitive	72.0	41	88	190
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	74.9	72	156	335
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	76.7	174	376	810
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	61.0	RW	RW	72
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	68.8	RW	90	193
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	78.1	182	391	843
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	78.1	182	391	843
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	78.3	185	399	859
22	Phelan Rd.	e/o Dwy. 1	Sensitive	78.5	193	415	895
23	Main St.	w/o Mesa Linda St.	Non-Sensitive	81.4	343	740	1594
24	Main St.	w/o Cataba Rd.	Non-Sensitive	81.6	357	769	1658
25	Main St.	e/o Key Point Av.	Non-Sensitive	82.2	391	842	1815
26	Main St.	e/o Mariposa Rd.	Sensitive	82.2	391	843	1816
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.4	401	864	1862
28	Main St.	e/o Escondido Av.	Sensitive	81.5	348	750	1616
29	Main St.	e/o Topaz Av.	Sensitive	82.4	434	935	2015
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.1	48	104	225
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	75.3	90	193	417

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-3: OPENING YEAR CUMULATIVE (2021) PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	80.1	294	634	1366
2	US Hwy. 395	s/o Luna Rd.	Sensitive	79.5	268	578	1245
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	80.0	286	616	1328
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	80.1	294	633	1364
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.3	101	218	470
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.2	53	115	247
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.4	RW	RW	31
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	82.7	455	980	2111
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.8	400	862	1856
10	US Hwy. 395	s/o Poplar St.	Sensitive	81.9	404	870	1875
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.1	415	895	1927
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.0	272	585	1261
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.0	272	585	1261
14	Topaz Av.	n/o Main St.	Sensitive	72.2	42	90	194
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	75.1	74	160	344
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	77.0	182	392	844
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	60.9	RW	RW	72
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	68.9	RW	91	196
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.0	208	449	968
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.0	208	448	964
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.1	211	454	979
22	Phelan Rd.	e/o Dwy. 1	Sensitive	79.2	214	462	995
23	Main St.	w/o Mesa Linda St.	Sensitive	80.4	295	636	1370
24	Main St.	w/o Cataba Rd.	Sensitive	80.8	313	675	1454
25	Main St.	e/o Key Point Av.	Non-Sensitive	82.4	403	869	1873
26	Main St.	e/o Mariposa Rd.	Sensitive	82.8	426	917	1975
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.9	436	938	2021
28	Main St.	e/o Escondido Av.	Sensitive	82.0	379	817	1759
29	Main St.	e/o Topaz Av.	Sensitive	82.9	472	1018	2193
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.4	51	109	236
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	78.8	154	332	715

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-4: OPENING YEAR CUMULATIVE (2021) WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	80.2	298	643	1385
2	US Hwy. 395	s/o Luna Rd.	Sensitive	79.7	273	588	1266
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	80.1	291	627	1351
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	80.3	299	645	1389
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.4	102	220	473
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.2	54	116	250
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.8	RW	RW	33
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	83.2	495	1066	2296
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.9	404	871	1877
10	US Hwy. 395	s/o Poplar St.	Sensitive	82.0	408	880	1896
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.1	419	902	1944
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.0	272	587	1264
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.0	272	586	1262
14	Topaz Av.	n/o Main St.	Sensitive	72.2	42	91	195
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	75.1	74	160	345
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	77.0	183	394	848
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	61.2	RW	RW	75
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	69.0	RW	93	199
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.1	209	451	971
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.1	209	451	971
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.2	213	458	986
22	Phelan Rd.	e/o Dwy. 1	Sensitive	79.4	220	474	1020
23	Main St.	w/o Mesa Linda St.	Sensitive	82.1	387	834	1798
24	Main St.	w/o Cataba Rd.	Sensitive	82.4	403	869	1872
25	Main St.	e/o Key Point Av.	Non-Sensitive	83.0	444	956	2059
26	Main St.	e/o Mariposa Rd.	Sensitive	82.8	427	920	1981
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.9	437	941	2027
28	Main St.	e/o Escondido Av.	Sensitive	82.0	380	818	1763
29	Main St.	e/o Topaz Av.	Sensitive	82.9	473	1019	2196
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.5	51	110	237
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	78.8	155	334	719

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-5: HORIZON YEAR (2040) WITHOUT PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	83.2	470	1013	2182
2	US Hwy. 395	s/o Luna Rd.	Sensitive	83.1	460	991	2135
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	83.3	480	1033	2226
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	83.3	476	1027	2212
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	75.7	124	268	577
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	71.5	65	141	303
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	62.8	RW	RW	38
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	83.4	512	1102	2375
9	US Hwy. 395	s/o Main St.	Non-Sensitive	85.1	661	1424	3067
10	US Hwy. 395	s/o Poplar St.	Sensitive	83.0	477	1029	2216
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.9	470	1012	2180
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.9	312	672	1449
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.9	312	672	1449
14	Topaz Av.	n/o Main St.	Sensitive	73.5	51	110	238
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	76.4	91	196	421
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	78.6	234	504	1086
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	62.2	RW	RW	87
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	70.2	51	111	239
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.6	228	491	1057
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.6	227	489	1053
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.7	231	498	1072
22	Phelan Rd.	e/o Dwy. 1	Sensitive	79.8	235	507	1092
23	Main St.	w/o Mesa Linda St.	Sensitive	80.6	307	662	1427
24	Main St.	w/o Cataba Rd.	Sensitive	81.1	328	706	1521
25	Main St.	e/o Key Point Av.	Non-Sensitive	83.0	438	944	2034
26	Main St.	e/o Mariposa Rd.	Sensitive	83.7	491	1058	2279
27	Main St.	w/o Escondido Av.	Non-Sensitive	83.9	503	1085	2337
28	Main St.	e/o Escondido Av.	Sensitive	82.9	437	943	2031
29	Main St.	e/o Topaz Av.	Sensitive	83.9	546	1176	2534
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	74.6	61	131	282
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	79.2	164	354	762

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 7-6: HORIZON YEAR (2040) WITH PROJECT NOISE CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	83.2	473	1020	2198
2	US Hwy. 395	s/o Luna Rd.	Sensitive	83.1	463	998	2151
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	83.4	483	1042	2244
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	83.3	481	1036	2231
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	75.7	125	269	580
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	71.5	66	142	306
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	63.0	RW	RW	40
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	83.9	549	1184	2551
9	US Hwy. 395	s/o Main St.	Non-Sensitive	85.1	664	1431	3083
10	US Hwy. 395	s/o Poplar St.	Sensitive	83.0	482	1037	2235
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.9	473	1019	2195
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.9	313	674	1451
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.9	312	673	1450
14	Topaz Av.	n/o Main St.	Sensitive	73.5	51	111	238
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	76.4	91	196	422
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	78.7	235	505	1089
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	62.4	RW	RW	89
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	70.3	52	112	242
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.6	228	492	1060
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.6	228	492	1059
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.8	232	501	1079
22	Phelan Rd.	e/o Dwy. 1	Sensitive	80.0	241	518	1117
23	Main St.	w/o Mesa Linda St.	Sensitive	82.3	398	858	1848
24	Main St.	w/o Cataba Rd.	Sensitive	82.6	416	896	1931
25	Main St.	e/o Key Point Av.	Non-Sensitive	83.5	477	1027	2213
26	Main St.	e/o Mariposa Rd.	Sensitive	83.7	492	1060	2284
27	Main St.	w/o Escondido Av.	Non-Sensitive	83.9	505	1087	2342
28	Main St.	e/o Escondido Av.	Sensitive	83.0	438	944	2034
29	Main St.	e/o Topaz Av.	Sensitive	83.9	546	1177	2536
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	74.6	61	131	283
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	79.2	165	356	766

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.

"RW" = Location of the respective noise contour falls within the right-of-way of the road.

7.2 EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report to fully analyze all the existing traffic scenarios identified in the *Hesperia Commerce Center II Traffic Impact Analysis*. This condition is provided solely for informational purposes and will not occur, since the Project will not be fully developed and occupied under Existing conditions. Table 7-1 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels are expected to range from 60.7 to 82.4 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-2 shows the Existing with Project conditions will range from 61.0 to 82.4 dBA CNEL. Table 7-7 shows that the Project off-site traffic noise level impacts will range from 0.0 to 2.3 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, the following two study area roadway segments are shown to experience *potentially significant* off-site traffic noise level increases due to the proposed Project truck trip distribution under Existing with Project conditions. The existing noise-sensitive land uses on these two segments are described below.

- Existing noise-sensitive use (residences) on Main Street west of Mesa Linda Street (Segment #23).
- Existing noise-sensitive use (residences) on Main Street west of Cataba Road (Segment #24).

Section 7.5 describes the off-site traffic noise mitigation measures considered in this analysis. All other roadway segments would not experience noise level increases under Existing with Project conditions that would exceed the established thresholds of significance. In addition, a review of these two study area roadway segments show that they both benefit from existing setbacks and noise barriers that were required to satisfy the General Plan Noise Element exterior noise level standards. These measures are designed to reduce the future long-range exterior noise levels due to future General Plan buildout traffic conditions that include the Project-related off-site traffic noise level impacts.

7.3 OPENING YEAR CUMULATIVE (2021) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-3 presents the Opening Year Cumulative (2021) without Project conditions CNEL noise levels. The Opening Year Cumulative (2021) without Project exterior noise levels are expected to range from 60.9 to 82.9 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-4 shows the Opening Year Cumulative (2021) with Project conditions will range from 61.2 to 83.2 dBA CNEL. Table 7-8 shows that the Project off-site traffic noise level increases will range from 0.0 to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, the following two study area roadway segments are shown to experience *potentially significant* off-site traffic noise level increases due to the proposed Project truck trip distribution under OYC with Project conditions.

- Existing noise-sensitive use (residences) on Main Street west of Mesa Linda Street (Segment #23).
- Existing noise-sensitive use (residences) on Main Street west of Cataba Road (Segment #24).

7.4 HORIZON YEAR (2040) PROJECT TRAFFIC NOISE LEVEL INCREASES

Table 7-5 presents the Horizon Year (2040) without Project conditions CNEL noise levels. The Horizon Year (2040) without Project exterior noise levels are expected to range from 62.2 to 85.1 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 7-6 shows that the Horizon Year (2040) with Project conditions will range from 62.4 to 85.1 dBA CNEL. Table 7-9 shows that the Project off-site traffic noise level increases will range from 0.0 to 1.7 dBA CNEL. Based on the significance criteria for off-site traffic noise presented in Table 4-2, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels. Based on the significance criteria for off-site traffic noise presented in Table 4-2, the following two study area roadway segments are shown to experience *potentially significant* off-site traffic noise level increases due to the proposed Project truck trip distribution under Horizon Year with Project conditions.

- Existing noise-sensitive use (residences) on Main Street west of Mesa Linda Street (Segment #23).
- Existing noise-sensitive use (residences) on Main Street west of Cataba Road (Segment #24).

TABLE 7-7: EXISTING WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	79.4	79.5	0.1	No	70	3.0	No
2	US Hwy. 395	s/o Luna Rd.	Sensitive	78.7	78.8	0.1	Yes	65	1.0	No
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	79.2	79.3	0.1	Yes	65	1.0	No
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	79.4	79.5	0.1	No	70	3.0	No
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.2	74.2	0.0	No	70	3.0	No
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.0	70.1	0.1	No	70	3.0	No
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.3	61.6	0.3	No	70	n/a	No
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	81.6	82.3	0.7	No	70	3.0	No
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.1	81.2	0.1	No	70	3.0	No
10	US Hwy. 395	s/o Poplar St.	Sensitive	81.1	81.2	0.1	Yes	65	1.0	No
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	81.4	81.4	0.0	No	70	3.0	No
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	80.4	80.4	0.0	No	70	3.0	No
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	80.4	80.4	0.0	No	70	3.0	No
14	Topaz Av.	n/o Main St.	Sensitive	72.0	72.0	0.0	Yes	65	1.0	No
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	74.9	74.9	0.0	No	70	3.0	No
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	76.7	76.7	0.0	Yes	65	1.0	No
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	60.7	61.0	0.3	Yes	65	2.0	No
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	68.7	68.8	0.1	No	70	n/a	No
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	78.1	78.1	0.0	No	70	3.0	No
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	78.1	78.1	0.0	No	70	3.0	No
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	78.2	78.3	0.1	No	70	3.0	No
22	Phelan Rd.	e/o Dwy. 1	Sensitive	78.3	78.5	0.2	Yes	65	1.0	No
23	Main St.	w/o Mesa Linda St.	Sensitive	79.1	81.4	2.3	Yes	65	1.0	Yes
24	Main St.	w/o Cataba Rd.	Sensitive	79.6	81.6	2.0	Yes	65	1.0	Yes
25	Main St.	e/o Key Point Av.	Non-Sensitive	81.5	82.2	0.7	No	70	3.0	No
26	Main St.	e/o Mariposa Rd.	Sensitive	82.2	82.2	0.0	Yes	65	1.0	No
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.4	82.4	0.0	No	70	3.0	No
28	Main St.	e/o Escondido Av.	Sensitive	81.4	81.5	0.1	Yes	65	1.0	No

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
29	Main St.	e/o Topaz Av.	Sensitive	82.4	82.4	0.0	Yes	65	1.0	No
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.1	73.1	0.0	No	70	3.0	No
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	75.2	75.3	0.1	No	70	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-8: OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC NOISE INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	80.1	80.2	0.1	No	70	3.0	No
2	US Hwy. 395	s/o Luna Rd.	Sensitive	79.5	79.7	0.2	Yes	65	1.0	No
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	80.0	80.1	0.1	Yes	65	1.0	No
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	80.1	80.3	0.2	No	70	3.0	No
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	74.3	74.4	0.1	No	70	3.0	No
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	70.2	70.2	0.0	No	70	3.0	No
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	61.4	61.8	0.4	No	70	n/a	No
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	82.7	83.2	0.5	No	70	3.0	No
9	US Hwy. 395	s/o Main St.	Non-Sensitive	81.8	81.9	0.1	No	70	3.0	No
10	US Hwy. 395	s/o Poplar St.	Sensitive	81.9	82.0	0.1	Yes	65	1.0	No
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.1	82.1	0.0	No	70	3.0	No
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.0	81.0	0.0	No	70	3.0	No
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.0	81.0	0.0	No	70	3.0	No
14	Topaz Av.	n/o Main St.	Sensitive	72.2	72.2	0.0	Yes	65	1.0	No
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	75.1	75.1	0.0	No	70	3.0	No
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	77.0	77.0	0.0	Yes	65	1.0	No
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	60.9	61.2	0.3	Yes	65	2.0	No
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	68.9	69.0	0.1	No	70	n/a	No
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.0	79.1	0.1	No	70	3.0	No
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.0	79.1	0.1	No	70	3.0	No
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.1	79.2	0.1	No	70	3.0	No
22	Phelan Rd.	e/o Dwy. 1	Sensitive	79.2	79.4	0.2	Yes	65	1.0	No
23	Main St.	w/o Mesa Linda St.	Sensitive	80.4	82.1	1.7	Yes	65	1.0	Yes
24	Main St.	w/o Cataba Rd.	Sensitive	80.8	82.4	1.6	Yes	65	1.0	Yes
25	Main St.	e/o Key Point Av.	Non-Sensitive	82.4	83.0	0.6	No	70	3.0	No
26	Main St.	e/o Mariposa Rd.	Sensitive	82.8	82.8	0.0	Yes	65	1.0	No
27	Main St.	w/o Escondido Av.	Non-Sensitive	82.9	82.9	0.0	No	70	3.0	No
28	Main St.	e/o Escondido Av.	Sensitive	82.0	82.0	0.0	Yes	65	1.0	No

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
29	Main St.	e/o Topaz Av.	Sensitive	82.9	82.9	0.0	Yes	65	1.0	No
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	73.4	73.5	0.1	No	70	3.0	No
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	78.8	78.8	0.0	No	70	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

TABLE 7-9: HORIZON YEAR (2040) WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
1	US Hwy. 395	n/o Luna Rd.	Non-Sensitive	83.2	83.2	0.0	No	70	3.0	No
2	US Hwy. 395	s/o Luna Rd.	Sensitive	83.1	83.1	0.0	Yes	65	1.0	No
3	US Hwy. 395	s/o Bear Valley Rd.	Sensitive	83.3	83.4	0.1	Yes	65	1.0	No
4	US Hwy. 395	s/o Eucalyptus St.	Non-Sensitive	83.3	83.3	0.0	No	70	3.0	No
5	Baldy Mesa Rd.	n/o Phelan Rd.	Non-Sensitive	75.7	75.7	0.0	No	70	3.0	No
6	Baldy Mesa Rd.	s/o Phelan Rd.	Non-Sensitive	71.5	71.5	0.0	No	70	3.0	No
7	Verbena Rd.	n/o Phelan Rd.	Non-Sensitive	62.8	63.0	0.2	No	70	n/a	No
8	US Hwy. 395	s/o Yucca Terrace Dr.	Non-Sensitive	83.4	83.9	0.5	No	70	3.0	No
9	US Hwy. 395	s/o Main St.	Non-Sensitive	85.1	85.1	0.0	No	70	3.0	No
10	US Hwy. 395	s/o Poplar St.	Sensitive	83.0	83.0	0.0	Yes	65	1.0	No
11	US Hwy. 395	s/o Joshua St.	Non-Sensitive	82.9	82.9	0.0	No	70	3.0	No
12	Escondido Av.	n/o Sultana St.	Non-Sensitive	81.9	81.9	0.0	No	70	3.0	No
13	Escondido Av.	s/o Sultana St.	Non-Sensitive	81.9	81.9	0.0	No	70	3.0	No
14	Topaz Av.	n/o Main St.	Sensitive	73.5	73.5	0.0	Yes	65	1.0	No
15	Luna Rd.	e/o US Hwy. 395	Non-Sensitive	76.4	76.4	0.0	No	70	3.0	No
16	Bear Valley Rd.	e/o US Hwy. 395	Sensitive	78.6	78.7	0.1	Yes	65	1.0	No
17	Eucalyptus St.	w/o US Hwy. 395	Sensitive	62.2	62.4	0.2	Yes	65	2.0	No
18	Eucalyptus St.	e/o US Hwy. 395	Non-Sensitive	70.2	70.3	0.1	No	70	3.0	No
19	Phelan Rd.	w/o Baldy Mesa Rd.	Non-Sensitive	79.6	79.6	0.0	No	70	3.0	No
20	Phelan Rd.	w/o Verbena Rd.	Non-Sensitive	79.6	79.6	0.0	No	70	3.0	No
21	Phelan Rd.	w/o Bellflower St.	Non-Sensitive	79.7	79.8	0.1	No	70	3.0	No
22	Phelan Rd.	e/o Dwy. 1	Sensitive	79.8	80.0	0.2	Yes	65	1.0	No
23	Main St.	w/o Mesa Linda St.	Sensitive	80.6	82.3	1.7	Yes	65	1.0	Yes
24	Main St.	w/o Cataba Rd.	Sensitive	81.1	82.6	1.5	Yes	65	1.0	Yes
25	Main St.	e/o Key Point Av.	Non-Sensitive	83.0	83.5	0.5	No	70	3.0	No
26	Main St.	e/o Mariposa Rd.	Sensitive	83.7	83.7	0.0	Yes	65	1.0	No
27	Main St.	w/o Escondido Av.	Non-Sensitive	83.9	83.9	0.0	No	70	3.0	No
28	Main St.	e/o Escondido Av.	Sensitive	82.9	83.0	0.1	Yes	65	1.0	No

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Noise Sensitive Land Use?	Exterior Noise Standard	Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition			Limit	Exceeded?
29	Main St.	e/o Topaz Av.	Sensitive	83.9	83.9	0.0	Yes	65	1.0	No
30	Sultana St.	e/o Escondido Av.	Non-Sensitive	74.6	74.6	0.0	No	70	3.0	No
31	Joshua St.	e/o US Hwy. 395	Non-Sensitive	79.2	79.2	0.0	No	70	3.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.

[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.

[3] Does the Project create an incremental noise level increase exceeding the significance criteria (Table 4-2)?

7.5 OFF-SITE TRAFFIC NOISE MITIGATION

To reduce the *potentially significant* Project traffic noise level increases on the two study area roadway segments (Segment #23 and Segment #24) for Existing plus Project, Opening Year Cumulative and Horizon Year Project conditions, potential noise mitigation measures are identified in this analysis. Potential mitigation measures discussed below include rubberized asphalt hot mix pavement and off-site noise barriers for the existing non-conforming residential use adjacent to impacted roadway segments.

7.5.1 RUBBERIZED ASPHALT

Due to the potential noise attenuation benefits, rubberized asphalt is considered as a mitigation measure for the Project-related roadway improvements associated with Project construction. To reduce traffic noise levels at the noise source, Caltrans research has shown that rubberized asphalt can provide noise attenuation of approximately 4 dBA for automobile traffic noise levels. (19) Changing the pavement type of a roadway has been shown to reduce the amount of tire/pavement noise produced at the source under both near-term and long-term conditions. Traffic noise is generated primarily by the interaction of the tires and pavement, the engine, and exhaust systems. For automobiles noise, as much as 75 to 90-percent of traffic noise is generated by the interaction of the tires and pavement, especially when traveling at higher and constant speeds. (2) According to research conducted by Caltrans (19) and the Canadian Ministry of Transportation and Highways (20) a 4 dBA reduction in tire/pavement noise is attainable using rubberized asphalt under typical operating conditions.

The effectiveness of reducing traffic noise levels is higher on roadways with low percentages of heavy trucks, since the heavy truck engine and exhaust noise is not affected by rubberized alternative pavement due to the truck engine and exhaust stack height above the pavement itself. (19) Per Caltrans guidance a truck stack height is modeled using a height of 11.5 feet above the road. (4) (21) With the primary off-site traffic noise source consisting of heavy trucks with a stack height of 11.5 feet off the ground, the tire/pavement noise reduction benefits associated rubberized asphalt will be primarily limited to autos.

While the off-site Project-related traffic noise level increases would theoretically be reduced with the 4 dBA reduction provided by rubberized asphalt, the reduction would not provide reliable benefits for the noise levels generated by heavy truck traffic. This is, as previously stated, due to the noise source height difference between automobiles and trucks. While rubberized asphalt will provide some noise reduction, this noise study recognizes that this is only effective for tire-on-pavement noise at higher speeds and would not reduce truck-related off-site traffic noise levels associated with truck engine and exhaust stacks to less than significant impacts. Since the use of rubberized asphalt would not lower the off-site traffic noise levels below a level of significance, rubberized asphalt is not proposed as mitigation for the Project and the off-site Project-related traffic noise level increases at adjacent land uses would remain *significant.*

7.5.2 OFF-SITE NOISE BARRIERS

Since existing and future noise-sensitive receiving land uses are located adjacent to the impacted roadway segments in the Project study area, off-site noise barriers were considered in this analysis as a potential traffic noise mitigation measure to reduce the impacts. Off-site noise barriers are estimated to provide a *readily perceptible* 5 dBA reduction which, according to the FHWA, is *simple* to attain when blocking the line-of-sight from the noise source to the receiver. (4) As previously discussed, Caltrans guidance in the Highway Design Manual, Section 1102.3(3), indicates that for design purposes, *the noise barrier should intercept the line of sight from the exhaust stack of a truck to the receptor*, and an 11.5-foot-high truck stack height is assumed to represent the truck engine and exhaust noise source. (21) Therefore, any exterior noise barriers at receiving noise sensitive land uses experiencing Project-related traffic noise level increases would need to be high enough and long enough to block the line-of-sight from the noise source (at 11.5 feet high per Caltrans) to the receiver (at 5 feet high per FHWA guidance) in order to provide a 5 dBA reduction per FHWA guidance. (21)

In addition, according to FHWA guidance, outdoor living areas are generally limited to outdoor living areas of frequent human use (e.g., backyards of single-family homes). Therefore, front and side yards of residential homes adjacent to off-site roadway segments do not represent noise sensitive areas of frequent human use that require exterior noise mitigation. (4) Exterior noise mitigation in the form of noise barriers is not anticipated to provide the FHWA attainable reduction of 5 dBA required to reduce the off-site traffic noise level increases and would also require potential openings for driveway access to individual residential lots fronting the road. As such, off-site noise barriers would not be feasible and would not lower the off-site traffic noise levels below a level of significance, and therefore, noise barriers are not proposed as mitigation for the Project.

7.5.3 SIGNIFICANT OFF-SITE TRAFFIC NOISE IMPACTS

Both rubberized asphalt and off-site noise barriers are considered as potential noise mitigation measures to reduce the *potentially significant* off-site traffic noise level increases shown on Tables 7-7 to 7-9. However, neither form of mitigation would eliminate the off-site traffic noise level increases at the adjacent land uses to the impacted roadway segments. Therefore, the Project-related off-site traffic noise level increases at adjacent noise-sensitive land are considered a *significant and unavoidable* impact.

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8 SENSITIVE RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following sensitive receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

To describe the potential off-site Project noise levels, six receiver locations in the vicinity of the Project site were identified. All distances are measured from the Project site boundary to the outdoor living areas (e.g., private backyards) or at the building façade, whichever is closer to the Project site. The selection of receiver locations is based on FHWA guidelines and is consistent with additional guidance provided by Caltrans and the FTA, as previously described in Section 5.2. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures. Distance is measured in a straight line from the project boundary to each receiver location.

R1: Location R1 represents the existing noise sensitive residence at 10120 Fremontia Road, approximately 662 feet northwest of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R1 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L1, to describe the existing ambient noise environment.

R2: Location R2 represents the existing noise sensitive residence at 10368 US-395 approximately 2,010 feet northeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R2 is placed at the residential building façade. A 24-hour noise measurement was taken near this location, L2, to describe the existing ambient noise environment.

R3: Location R3 represents the existing West Main Villas apartments at 9800 Mesa Linda Street, approximately 2,165 feet southeast of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R3 is placed at the residential building façade. A 24-hour noise measurement near this location, L3, is used to describe the existing ambient noise environment.

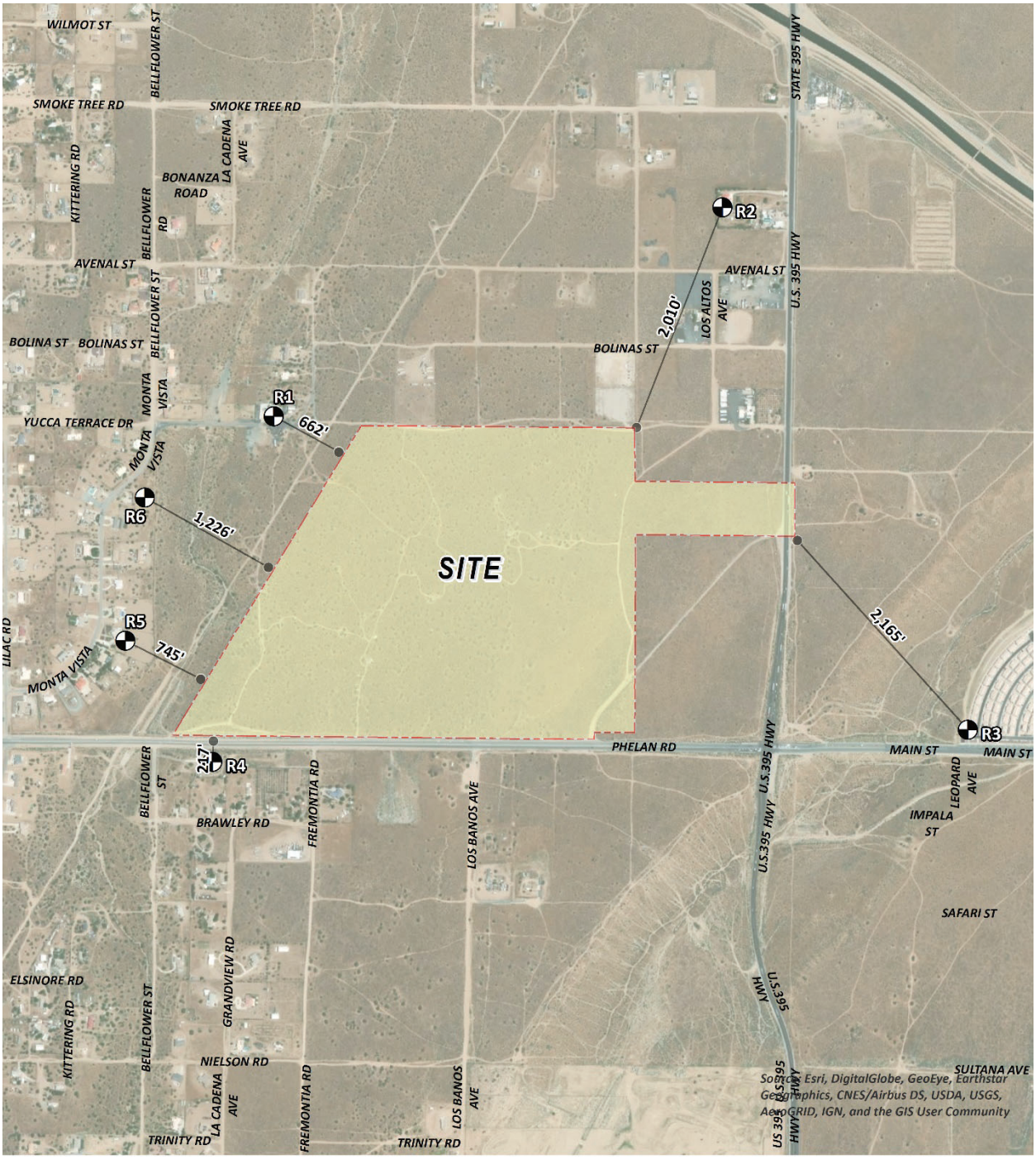
R4: Location R4 represents the existing noise sensitive residence at 11345 Phelan Road, approximately 217 feet south of the Project site. Since there are no private outdoor living areas (backyards) facing the Project site, receiver R4 is placed at the residential building

façade. A 24-hour noise measurement near this location, L4, is used to describe the existing ambient noise environment.

R5: Location R5 represents the existing noise sensitive residence at 9883 Monta Vista, approximately 745 feet west of the Project site. R5 is placed at the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement near this location, L5, is used to describe the existing ambient noise environment.

R6: Location R6 represents the existing noise sensitive residence at 9993 Monta Vista, approximately 1,226 feet west of the Project site. R5 is placed at the private outdoor living area (backyard) facing the Project site. A 24-hour noise measurement near this location, L6, is used to describe the existing ambient noise environment.

EXHIBIT 8-A: SENSITIVE RECEIVER LOCATIONS



LEGEND:

Receiver Locations

Distance from receiver to Project site boundary (in feet)

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9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from the operation of the proposed Hesperia Commerce Center II Project. Exhibit 9-A identifies the representative noise source locations used to assess the operational noise levels.

9.1 OPERATIONAL NOISE SOURCES

This operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities at the Project site. To present the potential worst-case noise conditions, this analysis assumes the Project would be operational 24 hours per day, seven days per week. Consistent with similar warehouse and light industrial uses, the Project business operations would primarily be conducted within the enclosed buildings, except for traffic movement, parking, as well as loading and unloading of trucks at designated loading bays. The on-site Project-related noise sources are expected to include: loading dock activity, entry gate & truck movements, roof-top air conditioning units, and trash enclosure activity.

9.2 REFERENCE NOISE LEVELS

To estimate the Project operational noise impacts, reference noise level measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed Project. This section provides a detailed description of the reference noise level measurements shown on Table 9-1 used to estimate the Project operational noise impacts. It is important to note that the following projected noise levels assume the worst-case noise environment with the loading dock activity, entry gate & truck movements, roof-top air conditioning units, and trash enclosure activity all operating continuously. These sources of noise activity will likely vary throughout the day.

9.2.1 MEASUREMENT PROCEDURES

The reference noise level measurements presented in this section were collected using a Larson Davis LxT Type 1 precisions sound level meter (serial number 01146). The LxT sound level meter was calibrated using a Larson-Davis calibrator, Model CAL 200, was programmed in "slow" mode to record noise levels in "A" weighted form and was located at approximately five feet above the ground elevation for each measurement. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (14)

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS

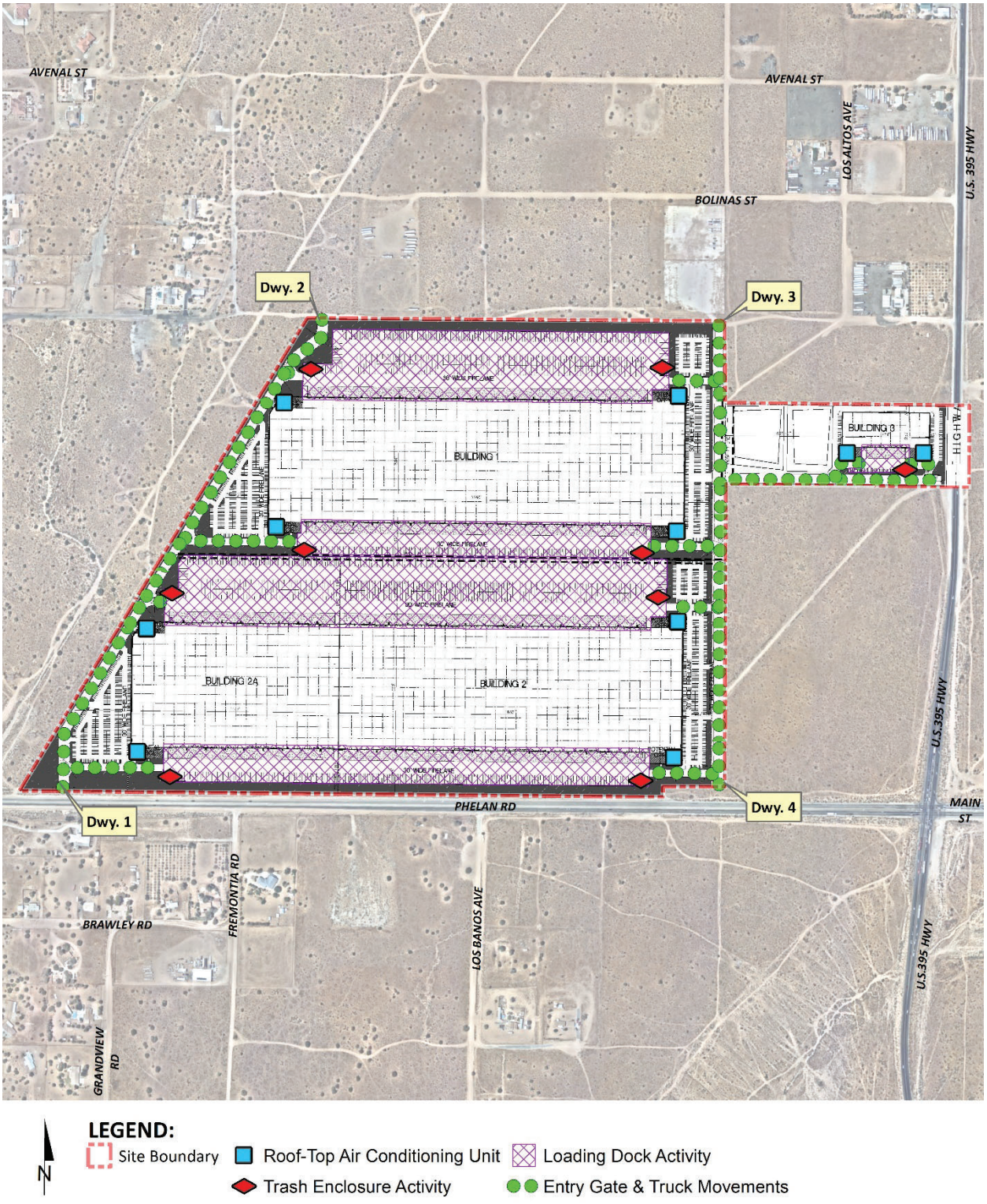

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Ref. Distance (Feet)	Noise Source Height (Feet)	Min./Hour[5]		Reference Noise Level (dBA L_{eq})		Sound Power Level (dBA)[6]
				Day	Night	@ Ref. Dist.	@ 50 Feet	
Loading Dock Activity[1]	00:14:00	30'	8'	60	60	70.1	65.7	111.5
Entry Gate & Truck Movements[2]	00:15:00	20'	8'	-[7]	-[7]	64.0	58.0	89.7
Roof-Top Air Conditioning Units[3]	96:00:00	5'	5'	39	28	77.2	57.2	88.9
Trash Enclosure Activity[4]	00:00:32	8'	5'	5	5	72.7	56.8	89.0

[1] As measured by Urban Crossroads, Inc. at the Nature's Best Distribution Facility in the City of Chino.
[2] As measured by Urban Crossroads, Inc. at the Motivational Fulfillment & Logistics Services distribution facility in the City of Chino.
[3] Lennox SCA120 series 10-ton model packaged air conditioning unit.
[4] As measured by Urban Crossroads, Inc. at a commercial and office park trash enclosure in the City of Costa Mesa.
[5] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site. "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.
[6] Sound power level represents the total amount of acoustical energy (noise level) produced by a sound source independent of distance or surroundings. Sound power levels calculated using the CadnaA noise model at the reference distance to the noise source. Numbers may vary due to size differences between point and area noise sources.
[7] Entry Gate & Truck Movements are calculate based on the number of events by time of day (See Table 9-2).

9.2.2 LOADING DOCK ACTIVITY

To describe the loading dock activities, a reference noise level measurement was collected to represent the truck activities at the Nature's Best distribution facility located at 16081 Fern Avenue in the City of Chino. The reference noise level measurement was taken in the center of the loading dock activity area and represents multiple concurrent noise sources resulting in a combined noise level of 65.7 dBA L_{eq} at a uniform distance of 50 feet. Specifically, the reference noise level measurement represents one truck located approximately 30 feet from the noise level meter with another truck passing by to park roughly 20 feet away, both with their engines idling. Throughout the reference noise level measurement, a separate docked and running reefer truck was located approximately 50 feet east of the measurement location. Additional background noise sources included truck pass-by noise, truck drivers talking to each other next to docked trucks, and air brake release noise when trucks parked.

9.2.3 ENTRY GATE & TRUCK MOVEMENTS

An entry gate and truck movements reference noise level measurement were taken at the southern entry gate of the Motivational Fulfillment & Logistics Services distribution facility located at 6810 Bickmore Avenue in the City of Chino over a 15-minute period and represents multiple noise sources producing a reference noise level of 58.0 dBA L_{eq} at 50 feet. The noise sources included at this measurement location account for the rattling and squeaking during normal opening and closing operations, the gate closure equipment, truck engines idling outside the entry gate, truck movements through the entry gate, and background truck court activities and forklift backup alarm noise.

Consistent with the *Hesperia Commerce Center II Traffic Impact Analysis*, the Project is expected to generate a total of approximately 11,898 trip-ends per day (actual vehicles) and includes 2,368 truck trip-ends per day. (18) This noise study relies on the actual Project trips (as opposed to the passenger car equivalents) to accurately account for the effect of individual truck trips on the study area roadway network. Using the estimated number of truck trips in combination with time of day vehicle splits, the number of entry gate and truck movements by driveway location were calculated. As shown on Table 9-2, this information is then used to calculate the entry gate and truck movements operational noise source activity based on the number of events by time of day.

TABLE 9-2: ENTRY GATE & TRUCK MOVEMENTS BY LOCATION

Entry Gate & Truck Movement Location[1]	Total Project Truck Trips[2]	Trip Dist.[3]		Truck Trips by Location[4]	Time of Day Vehicle Splits[5]			Truck Movements[6]		
		In	Out		Day	Evening	Night	Day	Evening	Night
Driveway 1	2,368	20%	5%	296	63.02%	10.79%	26.19%	187	32	78
Driveway 2		15%	15%	355	63.02%	10.79%	26.19%	224	38	93
Driveway 3		25%	30%	651	63.02%	10.79%	26.19%	410	70	170
Driveway 4		40%	50%	1066	63.02%	10.79%	26.19%	672	115	279

[1] Driveway locations as shown on Exhibit 9-A.
[2] Total Project truck trips according to Table 4-2 of the Hesperia Commerce Center II TIA.
[3] Project truck trip distribution according to Figure 4-1 of the Hesperia Commerce Center II TIA.
[4] Calculated trip trucks per location represents the product of the total (inbound and outbound) project truck trips by and the trip distribution.
[5] Heavy truck time of day vehicle splits as shown on Table 6-3.
[6] Calculated time of day entry gate and truck movements by location.

9.2.4 ROOF-TOP AIR CONDITIONING UNITS

To assess the noise levels created by the roof-top air conditioning units, reference noise level measurements were collected from a Lennox SCA120 series 10-ton model packaged air conditioning unit. At 5 feet from the roof-top air conditioning unit, the exterior noise levels were measured at 77.2 dBA L_{eq}. At the uniform reference distance of 50 feet, the reference noise levels are 57.2 dBA L_{eq}.

Based on the typical operating conditions observed over a four-day measurement period, the roof-top air conditioning units are estimated to operate for and average 39 minutes per hour during the daytime hours, and 28 minutes per hour during the nighttime hours. These operating conditions reflect peak summer cooling requirements with measured temperatures approaching 96 degrees Fahrenheit (°F) with average daytime temperatures of 82°F. For this noise analysis, the air conditioning units are expected to be located on the roof of the Project buildings. This reference noise level describes the expected roof-top air conditioning units located 5 feet above the roof for the planned air conditioning units at the Project site.

9.2.5 TRASH ENCLOSURE ACTIVITY

To describe the noise levels associated with a trash enclosure activity, Urban Crossroads collected a reference noise level measurement at an existing trash enclosure containing two dumpster bins. The trash enclosure noise levels describe metal gates opening and closing, metal scraping against concrete floor sounds, dumpster movement on metal wheels, trash dropping into the metal dumpster. The reference noise levels describe trash enclosure noise activities when trash is dropped into an empty metal dumpster, as would occur at the Project site. The measured reference noise level at the uniform 50-foot reference distance is 56.8 dBA L_{eq} for the trash enclosure activity. The reference noise level describes the expected noise source activities associated with the trash enclosures for each of the Project buildings. Typical trash enclosure activities are estimated to occur for 5 minutes per hour.

9.3 CADNAA NOISE PREDICTION MODEL

To fully describe the exterior operational noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels.

Using the ISO 9613 protocol, CadnaA will calculate the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. Consistent with the ISO 9613 protocol, the CadnaA noise prediction model relies on the reference sound power level (PWL) to describe individual noise sources. While sound pressure levels (e.g. L_{eq}) quantify in decibels the intensity of given sound sources at a reference distance, sound power levels (PWL) are connected to the sound source and are independent of distance. Sound pressure levels vary substantially with distance from the source and diminish from intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment. The operational noise level calculations provided in this noise study account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.0 was used in the CadnaA noise analysis to account for hard site conditions. Appendix 9.1 includes the detailed noise model inputs.

9.4 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include loading dock activity, entry gate & truck movements, roof-top air conditioning units, and trash enclosure activity, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the Project site and the Project-related noise level increases that would be experienced at each of the sensitive receiver locations. Tables 9-3 shows the Project

operational noise levels during the daytime hours of 7:00 a.m. to 10:00 p.m. The daytime hourly noise levels at the off-site receiver locations are expected to range from 50.0 to 53.9 dBA L_{eq}.

TABLE 9-3: DAYTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Loading Dock Activity	52.7	48.9	52.4	49.1	49.7	49.5
Entry Gate & Truck Movements	46.6	43.5	48.4	45.8	44.3	42.3
Roof-Top Air Conditioning Units	31.4	27.5	32.4	30.1	29.1	26.7
Trash Enclosure Activity	26.0	19.8	27.7	23.7	23.6	17.3
Total (All Noise Sources)	**53.7**	**50.0**	**53.9**	**50.8**	**50.8**	**50.3**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

Table 9-4 shows the Project operational noise levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. The nighttime hourly noise levels at the off-site receiver locations are expected to range from 49.4 to 53.1 dBA L_{eq}. The differences between the daytime and nighttime noise levels is largely related to the duration of noise activity (Table 9-1).

TABLE 9-4: NIGHTTIME PROJECT OPERATIONAL NOISE LEVELS

Noise Source[1]	Operational Noise Levels by Receiver Location (dBA Leq)					
	R1	R2	R3	R4	R5	R6
Loading Dock Activity	52.7	48.9	52.4	49.1	49.7	49.5
Entry Gate & Truck Movements	42.7	39.7	44.6	42.0	40.5	38.5
Roof-Top Air Conditioning Units	29.0	25.1	30.0	27.7	26.7	24.3
Trash Enclosure Activity	25.0	18.8	26.7	22.8	22.6	16.3
Total (All Noise Sources)	**53.1**	**49.4**	**53.1**	**49.9**	**50.2**	**49.8**

[1] See Exhibit 9-A for the noise source locations. CadnaA noise model calculations are included in Appendix 9.1.

9.5 PROJECT OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Hesperia exterior noise level standards at nearby noise-sensitive receiver locations. Table 9-5 shows the operational noise levels associated with Hesperia Commerce Center II Project will satisfy the City of Hesperia 60 dBA L_{eq} daytime and 55 dBA L_{eq} nighttime exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations.

TABLE 9-5: OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Project Operational Noise Levels (dBA Leq)[2]		Noise Level Standards (dBA Leq)[3]		Noise Level Standards Exceeded?[4]	
	Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	53.7	53.1	60	55	No	No
R2	50.0	49.4	60	55	No	No
R3	53.9	53.1	60	55	No	No
R4	50.8	49.9	60	55	No	No
R5	50.8	50.2	60	55	No	No
R6	50.3	49.8	60	55	No	No

[1] See Exhibit 8-A for the receiver locations.
[2] Proposed Project operational noise levels as shown on Tables 9-3 and 9-4.
[3] Exterior noise level standards for residential land use, as shown on Table 3-1.
[4] Do the estimated Project operational noise source activities exceed the noise level standards? "Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.6 PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (2) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level increases to the existing ambient noise environment. As indicated on Tables 9-6 and 9-7, the Project is not expected to generate a measurable daytime and nighttime operational noise level increase dBA L_{eq} at the nearby receiver locations. Project-related operational noise level increases will satisfy the operational noise level increase significance criteria presented on Table 4-2. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

9.7 OPERATIONAL VIBRATION IMPACTS

The operation of the Project site will include heavy trucks moving on site to and from the loading dock areas. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. According to the FTA *Transit Noise and Vibration Impact Assessment Manual,* (8 p. 113) trucks rarely create vibration that exceeds 70 VdB or 0.004 PPV (in/sec) at 25 feet (unless there are bumps due to frequent potholes in the road). Trucks transiting on site will be travelling at very low speeds so it is expected that delivery truck vibration impacts will satisfy the City of Hesperia 0.2 PPV (in/sec) vibration threshold, and therefore, will be *less than significant*

TABLE 9-6: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	53.7	L1	54.7	57.2	2.5	Yes	5	No
R2	50.0	L2	58.8	59.3	0.5	Yes	3	No
R3	53.9	L3	59.1	60.2	1.1	Yes	3	No
R4	50.8	L4	70.6	70.6	0.0	Yes	1	No
R5	50.8	L5	52.8	54.9	2.1	Yes	5	No
R6	50.3	L6	50.4	53.4	3.0	Yes	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project daytime operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-2.

TABLE 9-7: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location[1]	Total Project Operational Noise Level[2]	Measurement Location[3]	Reference Ambient Noise Levels[4]	Combined Project and Ambient[5]	Project Increase[6]	Noise Sensitive Land Use?	Increase Criteria[7]	Increase Criteria Exceeded?[7]
R1	53.1	L1	54.9	57.1	2.2	Yes	5	No
R2	49.4	L2	58.9	59.4	0.5	Yes	3	No
R3	53.1	L3	59.2	60.2	1.0	Yes	3	No
R4	49.9	L4	71.6	71.6	0.0	Yes	1	No
R5	50.2	L5	54.1	55.6	1.5	Yes	5	No
R6	49.8	L6	51.5	53.8	2.3	Yes	5	No

[1] See Exhibit 8-A for the receiver locations.
[2] Total Project nighttime operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance increase criteria as shown on Table 4-2.

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10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearest sensitive receiver locations previously described in Section 8. To prevent high levels of construction noise from impacting noise-sensitive land uses, City of Hesperia Municipal Code Section 16.20.125.E.3, states that construction activities are limited to the hours of 7:00 a.m. to 7:00 p.m. on any day and at any time on Sundays and federal holidays.

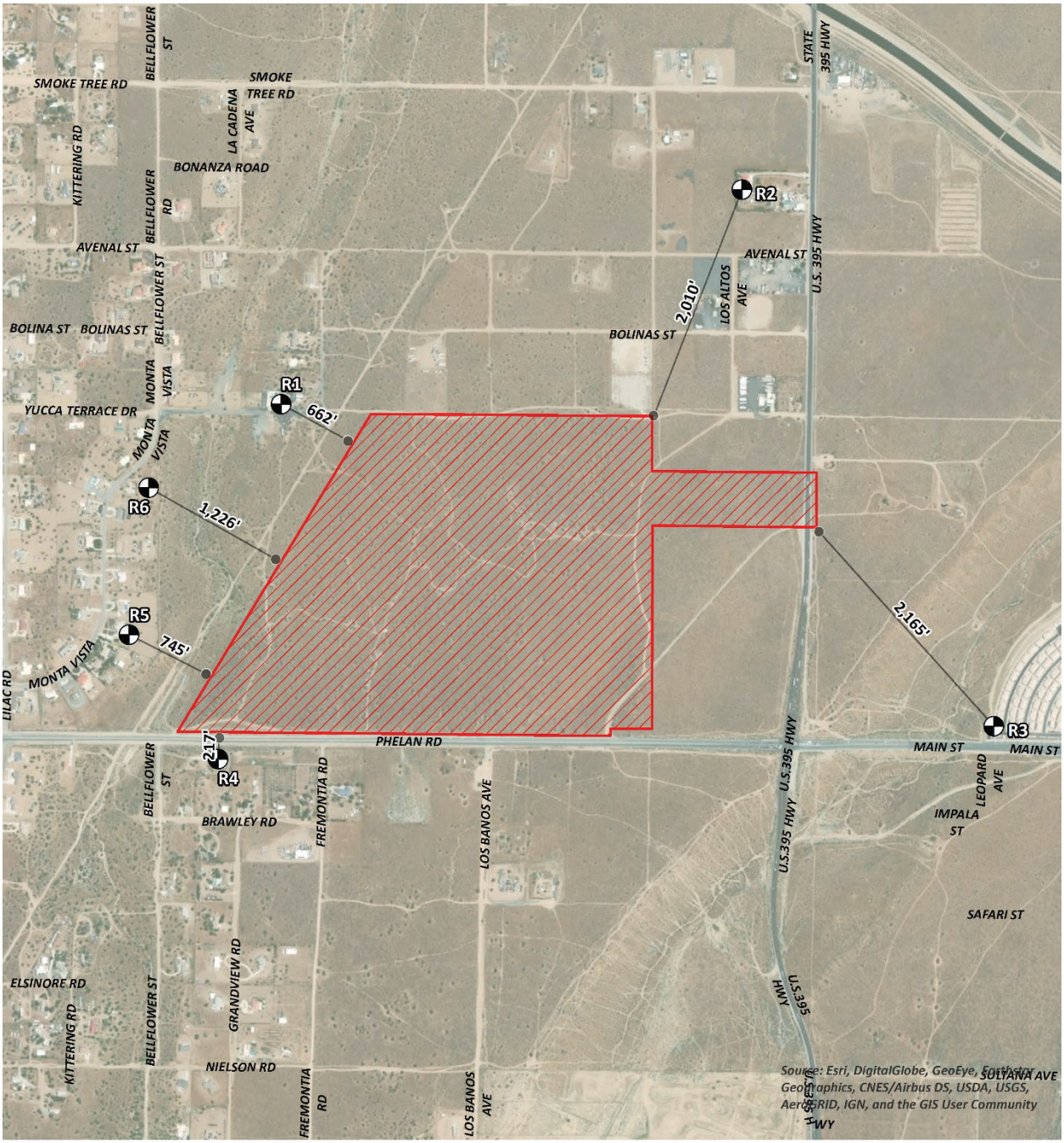
10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators operating simultaneously that when combined can reach high levels. The number and mix of construction equipment are expected to occur in the following stages:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver.

EXHIBIT 10-A: TYPICAL CONSTRUCTION NOISE SOURCE LOCATIONS



LEGEND:

- Construction Activity
- Receiver Locations
- Distance from receiver to Project site boundary (in feet)

10.2 TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project typical construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet. Construction noise generated from concrete crushing activities and nighttime concrete pours are addressed separately, below.

TABLE 10-1: TYPICAL CONSTRUCTION REFERENCE NOISE LEVELS

Construction Stage	Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{eq})	Highest Reference Noise Level (dBA L_{eq})
Demolition	Demolition Activity	67.9	71.9
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Site Preparation	Scraper, Water Truck, & Dozer Activity	75.3	75.3
	Backhoe	64.2	
	Water Truck Pass-By & Backup Alarm	71.9	
Grading	Rough Grading Activities	73.5	73.5
	Water Truck Pass-By & Backup Alarm	71.9	
	Construction Vehicle Maintenance Activities	67.5	
Building Construction	Foundation Trenching	68.2	71.6
	Framing	62.3	
	Concrete Mixer Backup Alarms & Air Brakes	71.6	
Paving	Concrete Mixer Truck Movements	71.2	71.2
	Concrete Paver Activities	65.6	
	Concrete Mixer Pour & Paving Activities	65.9	
Architectural Coating	Air Compressors	65.2	65.2
	Generator	64.9	
	Crane	62.3	

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.

10.3 TYPICAL CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts with multiple pieces of equipment operating simultaneously at the nearest sensitive receiver locations were completed. This includes the additional noise attenuation provided by the existing intervening building structures and noise barriers located between the Project site and the nearest receiver locations.

To assess the worst-case construction noise levels, the Project construction noise analysis relies on the highest noise level impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity (Project site boundary) to each receiver location. As shown on Table 10-2, the construction noise levels are expected to range from 60.6 to 73.6 dBA L_{eq}, and the highest construction levels are expected to range from 64.7 to 73.6 dBA L_{eq} at the nearby receiver locations. Appendix 10.1 includes the detailed CadnaA construction noise model inputs.

TABLE 10-2: TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})						
	Demolition	Site Preparation	Grading	Building Construction	Paving	Architectural Coating	Highest Levels[2]
R1	68.7	72.1	70.3	68.4	68.0	68.0	72.1
R2	61.3	64.7	62.9	61.0	60.6	60.6	64.7
R3	70.2	73.6	71.8	69.9	69.5	69.5	73.6
R4	67.3	70.7	68.9	67.0	66.6	66.6	70.7
R5	66.4	69.8	68.0	66.1	65.7	65.7	69.8
R6	62.7	66.1	64.3	62.4	62.0	62.0	66.1

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Construction noise level calculations based on distance from the project site boundaries (construction activity area) to nearby receiver locations. CadnaA construction noise model inputs are included in Appendix 10.1.

10.4 TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

To evaluate whether the Project will generate potentially significant short-term noise levels at nearest receiver locations, a construction-related daytime noise level threshold of 80 dBA L_{eq} is used as a reasonable threshold to assess the daytime construction noise level impacts. The construction noise analysis shows that the nearest receiver locations will satisfy the reasonable daytime 80 dBA L_{eq} significance threshold during Project construction activities as shown on Table 10-3. Therefore, the noise impacts due to Project construction noise is considered *less than significant* at all receiver locations.

TABLE 10-3: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Highest Construction Noise Levels[2]	Threshold[3]	Threshold Exceeded?[4]
R1	72.1	80	No
R2	64.7	80	No
R3	73.6	80	No
R4	70.7	80	No
R5	69.8	80	No
R6	66.1	80	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations as shown on Table 10-2.
[3] Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold?

10.6 TYPICAL CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. Ground-borne vibration levels resulting from typical construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration (FTA). (8) However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used.

Ground vibration levels associated with various types of construction equipment are summarized on Table 10-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential Project construction vibration levels using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation:
$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 10-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 10-5 presents the expected typical construction equipment vibration levels at the nearest receiver locations. At distances ranging from 217 feet to 2,165 feet from typical Project construction activities (at the Project site boundary), construction vibration velocity levels are estimated at 0.003 PPV (in/sec). Based on the City of Hesperia vibration standards, the unmitigated Project construction vibration levels will satisfy the 0.2 PPV (in/sec) threshold at all the nearby sensitive receiver locations. Therefore, the vibration impacts due to Project construction are considered *less than significant*.

Further, vibration levels at the site of the closest sensitive receiver are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating simultaneously adjacent to the Project site perimeter. Moreover, construction at the Project site will be restricted to daytime hours consistent with City requirements thereby eliminating potential vibration impacts during the sensitive nighttime hours.

TABLE 10-5: TYPICAL CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					Threshold PPV (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration		
R1	662'	0.000	0.000	0.001	0.001	0.001	0.2	No
R2	2,010'	0.000	0.000	0.000	0.000	0.000	0.2	No
R3	2,165'	0.000	0.000	0.000	0.000	0.000	0.2	No
R4	217'	0.000	0.001	0.003	0.003	0.003	0.2	No
R5	745'	0.000	0.000	0.000	0.001	0.001	0.2	No
R6	1,226'	0.000	0.000	0.000	0.000	0.000	0.2	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 10-4.
[3] City of Hesperia Municipal Code, Section 16.20.130 (Appendix 3.1)
[4] Does the vibration level exceed the maximum acceptable vibration threshold?

11 REFERENCES

1. **State of California.** *California Environmental Quality Act, Appendix G.* 2018.
2. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
3. **Environmental Protection Agency Office of Noise Abatement and Control.** *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* March 1974. EPA/ONAC 550/9/74-004.
4. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
5. **U.S. Department of Transportation, Federal Highway Administration.** *Highway Traffic Noise in the United States, Problem and Response.* April 2000. p. 3.
6. **U.S. Environmental Protection Agency Office of Noise Abatement and Control.** *Noise Effects Handbook-A Desk Reference to Health and Welfare Effects of Noise.* October 1979 (revised July 1981). EPA 550/9/82/106.
7. **Occupational Safety and Health Administration.** *Standard 29 CRF, Part 1910.*
8. **U.S. Department of Transportation, Federal Transit Administration.** *Transit Noise and Vibration Impact Assessment Manual.* September 2018.
9. **Office of Planning and Research.** *State of California General Plan Guidelines.* October 2017.
10. **State of California.** *2016 California Green Building Standards Code.* January 2017.
11. **City of Hesperia.** *General Plan Noise Element.* 2010.
12. —. *Municipal Code, Section 16.20.*
13. **California Court of Appeal.** *King and Gardiner Farms, LLC v. County of Kern (2020) .* 45 Cal.App.5th 814, 893,
14. **American National Standards Institute (ANSI).** *Specification for Sound Level Meters ANSI S1.4-2014/IEC 61672-1:2013.*
15. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
16. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
17. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
18. **Urban Crossroads, Inc.** *Hesperia Commerce Center II Traffic Impact Analysis.* July 2020.
19. **California Department of Transportation Environmental Program.** *I-80 Davis OGAC Pavement Noise Study.* September 2001.
20. **Canadian Ministry of Transportation and Highways, Highway Environment Branch.** *Open-Graded Asphalt 'Quiet Pavement' - Assessment of Traffic Noise Reduction Performance.* November 1995.
21. **California Department of Transportation.** *Highway Design Manual, Chapter 1100 Highway Traffic Noise Abatement.* November 2017.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Hesperia Commerce Center II Project. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.



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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF HESPERIA MUNICIPAL CODE

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16.20.125 - Noise.

A. Noise Measurement. Noise will be measured with a sound level meter, which meets the standards of the American National Standards Institute (ANSI Section S1.4-1979, Type 1 or Type 2). Noise levels shall be measured using the "A" weighted sound pressure level scale in decibels (ref. pressure = 20 micro-newtons per meter squared). The unit of measure shall be designated as dB(A). The building official shall be the noise control officer.

B. Noise Standards.

1. The following table describes the noise standard for emanations from any source, as it affects adjacent properties:

NOISE STANDARDS

Affected Land Use (Receiving Noise)	Maximum Noise Level	Time Period
A-1, A-2, R-1, R-3 and RR Zone Districts	55 dB(A)	10:00 p.m. - 7:00 a.m.
A-1, A-2, R-1, R-3 and RR Zone Districts	60 dB(A)*	7:00 a.m. - 10:00 p.m.
C-1, C-2, C-3, C-4, C-R, AP, and P-I Zone Districts	65 dB(A)*	Anytime
I-1 and I-2 Zone Districts	70 dB(A)*	Anytime

* Due to wind noise, the maximum permissible noise level may be adjusted so that it is no greater than five dB(A) above the ambient noise level.

2. No person shall operate or cause to be operated any source of sound at any location or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed:

a. The noise standard for that receiving land use (as specified in subsection (B)(1) of this section) for a cumulative period of more than thirty (30) minutes in any hour; or

b. The noise standard plus five dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

c. The noise standard plus ten dB(A) for a cumulative period of more than five minutes in any hour; or

d. The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

e. The noise standard plus twenty (20) dB(A) for any period of time.

C. If the measured ambient level exceeds any of the first four noise limit categories above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the

ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

D. If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in subsection (B)(1) of this section shall be reduced by five dB(A).

E. Exempt Noises. The following sources of noise are exempt:

1. Motor vehicles not under the control of the industrial use;

2. Emergency equipment, vehicles and devices;

3. Temporary construction, repair, or demolition activities between seven a.m. and seven p.m. except Sundays and federal holidays.

(Ord. 2002-07 Exh. A, 2002; Amended during 1997 codification; Ord. 75 § 2 (part), 1990; SBCC § 87.1305)

16.20.130 - Vibration.

A. Vibration Standard. No ground vibration shall be allowed which can be felt without the aid of instruments at or beyond the lot line; nor will any vibration be permitted which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line.

B. Vibration Measurement. Vibration velocity shall be measured with a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity or acceleration. Readings are to be made at points of maximum vibration along any lot line next to a residential or commercial district or a community industrial lot.

C. Exempt Vibrations. The following sources of vibration are not regulated by this code:

1. Motor vehicles not under the control of the industrial use;

2. Temporary construction, maintenance or demolition activities between seven a.m. and seven p.m. except Sundays and federal holidays.

(SBCC § 87.1310)

APPENDIX 5.1:

STUDY AREA PHOTOS

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JN: 12780 Study Area Photos



L1_E
34, 26' 2.060000", 117, 24' 47.690000"



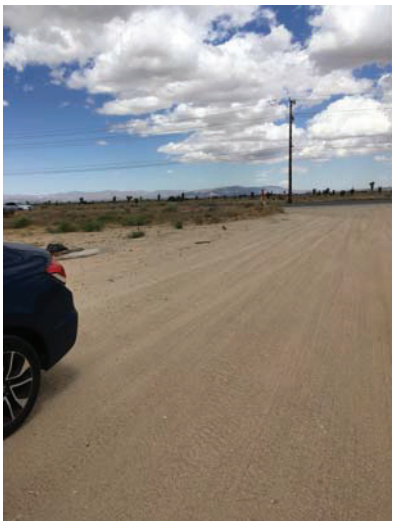
L1_N
34, 26' 2.150000", 117, 24' 47.770000"



L1_S
34, 26' 1.910000", 117, 24' 47.690000"



L1_W
34, 26' 1.860000", 117, 24' 47.690000"



L2_E
34, 26' 9.030000", 117, 24' 0.360000"

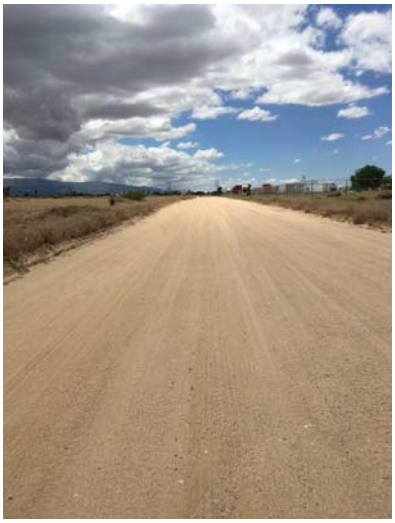


L2_N
34, 26' 8.980000", 117, 24' 0.360000"

JN: 12780 Study Area Photos



L2_S
34, 26' 9.030000", 117, 24' 0.440000"



L2_W
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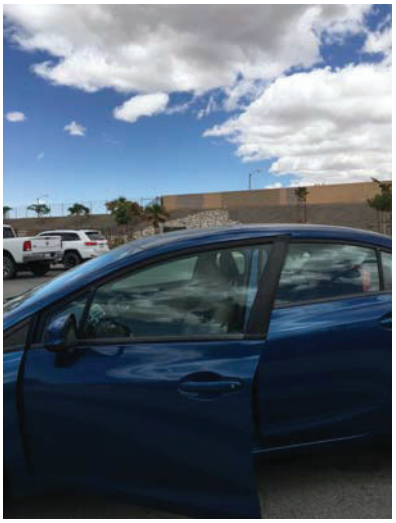
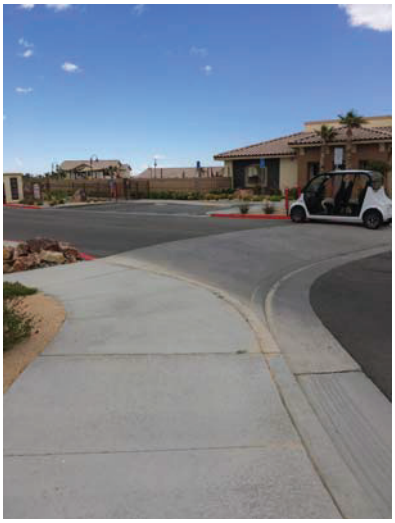


L3_E
34, 25' 39.720000", 117, 23' 27.160000"



L3_N
34, 25' 39.940000", 117, 23' 27.490000"



L3_S
34, 25' 39.730000", 117, 23' 26.910000"



L3_W
34, 25' 39.710000", 117, 23' 26.830000"

JN: 12780 Study Area Photos



L4_E
34, 25' 35.600000", 117, 24' 44.420000"



L4_N
34, 25' 35.640000", 117, 24' 44.500000"



L4_S
34, 25' 35.570000", 117, 24' 44.420000"



L4_W
34, 25' 35.590000", 117, 24' 44.450000"



L5_E
34, 25' 40.350000", 117, 25' 13.830000"



L5_N
34, 25' 40.350000", 117, 25' 13.830000"

JN: 12780 Study Area Photos



L5_S
34, 25' 40.520000", 117, 25' 13.940000"



L5_W
34, 25' 40.520000", 117, 25' 13.940000"



L6_E
34, 25' 58.600000", 117, 25' 2.410000"



L6_N
34, 26' 3.490000", 117, 24' 59.830000"



L6_S
34, 25' 58.530000", 117, 25' 2.270000"



L6_W
34, 25' 58.530000", 117, 25' 2.190000"

APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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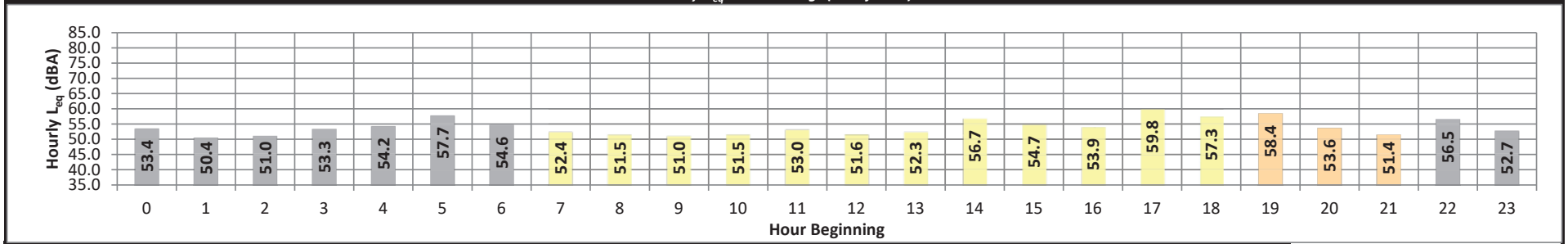
24-Hour Noise Level Measurement Summary

Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II
Location: L1 - Located northwest of the Project site on Yucca Terrace Drive near existing single-family residential home at 10120 Fremontia Road.
Meter: Piccolo I
JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	53.4	65.6	44.7	61.0	60.0	60.0	59.0	52.0	50.0	47.0	46.0	46.0	53.4	10.0	63.4
	1	50.4	68.7	44.8	54.0	53.0	52.0	52.0	50.0	49.0	47.0	46.0	46.0	50.4	10.0	60.4
	2	51.0	59.3	47.0	56.0	55.0	53.0	53.0	51.0	50.0	48.0	48.0	47.0	51.0	10.0	61.0
	3	53.3	66.1	48.2	59.0	58.0	56.0	56.0	53.0	52.0	50.0	49.0	49.0	53.3	10.0	63.3
	4	54.2	62.8	50.7	58.0	58.0	56.0	56.0	54.0	53.0	52.0	51.0	51.0	54.2	10.0	64.2
	5	57.7	82.9	49.6	68.0	60.0	57.0	56.0	55.0	54.0	52.0	51.0	50.0	57.7	10.0	67.7
	6	54.6	64.8	49.3	59.0	59.0	57.0	57.0	55.0	53.0	51.0	50.0	50.0	54.6	10.0	64.6
Day	7	52.4	66.7	44.9	60.0	58.0	57.0	56.0	52.0	50.0	47.0	46.0	46.0	52.4	0.0	52.4
	8	51.5	70.8	45.4	57.0	55.0	54.0	53.0	51.0	49.0	47.0	46.0	46.0	51.5	0.0	51.5
	9	51.0	71.0	45.2	59.0	57.0	54.0	52.0	49.0	48.0	46.0	46.0	45.0	51.0	0.0	51.0
	10	51.5	74.8	45.4	59.0	58.0	55.0	54.0	50.0	48.0	47.0	46.0	46.0	51.5	0.0	51.5
	11	53.0	73.8	45.9	64.0	60.0	56.0	54.0	51.0	49.0	48.0	47.0	46.0	53.0	0.0	53.0
	12	51.6	66.6	46.6	60.0	58.0	55.0	53.0	51.0	49.0	48.0	48.0	47.0	51.6	0.0	51.6
	13	52.3	67.2	46.3	60.0	59.0	56.0	54.0	52.0	50.0	48.0	48.0	47.0	52.3	0.0	52.3
	14	56.7	75.5	47.4	67.0	65.0	61.0	59.0	54.0	51.0	49.0	49.0	48.0	56.7	0.0	56.7
	15	54.7	73.3	48.2	64.0	62.0	59.0	57.0	53.0	51.0	50.0	49.0	49.0	54.7	0.0	54.7
	16	53.9	70.9	47.0	65.0	62.0	58.0	56.0	52.0	50.0	48.0	48.0	47.0	53.9	0.0	53.9
	17	59.8	81.6	45.7	73.0	67.0	61.0	59.0	54.0	50.0	48.0	47.0	46.0	59.8	0.0	59.8
	18	57.3	78.9	45.4	70.0	65.0	60.0	57.0	52.0	50.0	48.0	47.0	46.0	57.3	0.0	57.3
Evening	19	58.4	84.1	47.4	62.0	59.0	56.0	56.0	53.0	52.0	49.0	49.0	48.0	58.4	5.0	63.4
	20	53.6	64.9	47.4	62.0	60.0	57.0	56.0	53.0	51.0	49.0	49.0	48.0	53.6	5.0	58.6
	21	51.4	65.4	46.0	56.0	55.0	54.0	53.0	52.0	50.0	48.0	48.0	47.0	51.4	5.0	56.4
Night	22	56.5	83.0	46.7	59.0	58.0	56.0	55.0	53.0	51.0	49.0	48.0	47.0	56.5	10.0	66.5
	23	52.7	64.7	45.6	60.0	59.0	56.0	55.0	52.0	51.0	48.0	47.0	46.0	52.7	10.0	62.7

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	51.0	66.6	44.9	57.0	55.0	54.0	52.0	49.0	48.0	46.0	46.0	45.0
	Max	59.8	81.6	48.2	73.0	67.0	61.0	59.0	54.0	51.0	50.0	49.0	49.0
Energy Average		54.8	Average:		63.2	60.5	57.2	55.3	51.8	49.6	47.8	47.3	46.6
Evening	Min	51.4	64.9	46.0	56.0	55.0	54.0	53.0	52.0	50.0	48.0	48.0	47.0
	Max	58.4	84.1	47.4	62.0	60.0	57.0	56.0	53.0	52.0	49.0	49.0	48.0
Energy Average		55.5	Average:		60.0	58.0	55.7	55.0	52.7	51.0	48.7	48.7	47.7
Night	Min	50.4	59.3	44.7	54.0	53.0	52.0	52.0	50.0	49.0	47.0	46.0	46.0
	Max	57.7	83.0	50.7	68.0	60.0	60.0	59.0	55.0	54.0	52.0	51.0	51.0
Energy Average		54.3	Average:		59.3	57.8	55.9	55.4	52.8	51.4	49.3	48.4	48.0

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
54.7	**54.9**	**54.3**

24-Hour CNEL (dBA)

61.2

24-Hour Noise Level Measurement Summary

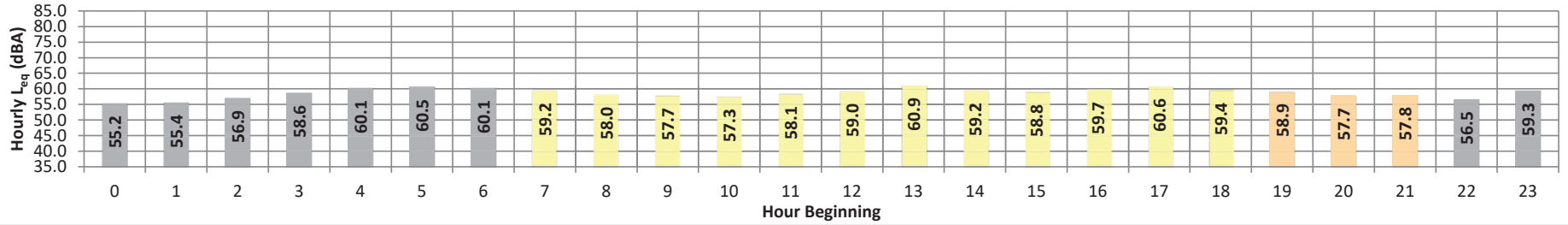
Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II

Location: L2 - Located northeast of the Project site on Bolinas Street near existing Vacant Land.

Meter: Piccolo I

JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	55.2	73.8	36.7	67.0	65.0	61.0	59.0	52.0	46.0	39.0	39.0	38.0	55.2	10.0	65.2
	1	55.4	76.6	38.9	67.0	64.0	61.0	58.0	53.0	47.0	40.0	40.0	39.0	55.4	10.0	65.4
	2	56.9	78.3	39.0	67.0	65.0	62.0	60.0	56.0	51.0	42.0	41.0	39.0	56.9	10.0	66.9
	3	58.6	75.0	39.1	67.0	66.0	64.0	62.0	58.0	55.0	46.0	43.0	41.0	58.6	10.0	68.6
	4	60.1	79.6	44.4	68.0	67.0	65.0	63.0	60.0	57.0	50.0	48.0	46.0	60.1	10.0	70.1
	5	60.5	81.6	42.1	69.0	68.0	65.0	64.0	60.0	57.0	49.0	46.0	43.0	60.5	10.0	70.5
	6	60.1	74.0	39.0	69.0	68.0	65.0	64.0	60.0	57.0	47.0	44.0	40.0	60.1	10.0	70.1
Day	7	59.2	77.0	39.0	69.0	67.0	64.0	63.0	58.0	55.0	46.0	44.0	41.0	59.2	0.0	59.2
	8	58.0	77.6	36.1	67.0	66.0	64.0	62.0	57.0	53.0	44.0	42.0	39.0	58.0	0.0	58.0
	9	57.7	75.2	38.9	66.0	65.0	63.0	62.0	57.0	54.0	46.0	43.0	40.0	57.7	0.0	57.7
	10	57.3	74.9	36.1	66.0	65.0	63.0	61.0	57.0	53.0	43.0	41.0	38.0	57.3	0.0	57.3
	11	58.1	78.0	36.1	67.0	66.0	63.0	62.0	57.0	53.0	43.0	41.0	39.0	58.1	0.0	58.1
	12	59.0	81.2	37.9	68.0	66.0	64.0	62.0	58.0	54.0	45.0	43.0	39.0	59.0	0.0	59.0
	13	60.9	84.2	37.6	70.0	67.0	64.0	63.0	59.0	55.0	47.0	44.0	40.0	60.9	0.0	60.9
	14	59.2	84.9	41.2	68.0	66.0	63.0	62.0	58.0	55.0	48.0	46.0	43.0	59.2	0.0	59.2
	15	58.8	76.7	43.5	69.0	66.0	63.0	62.0	58.0	55.0	48.0	47.0	45.0	58.8	0.0	58.8
	16	59.7	81.1	41.9	69.0	67.0	64.0	63.0	58.0	55.0	48.0	46.0	44.0	59.7	0.0	59.7
	17	60.6	84.7	42.9	70.0	68.0	65.0	63.0	59.0	56.0	49.0	47.0	45.0	60.6	0.0	60.6
	18	59.4	77.5	44.5	68.0	66.0	64.0	63.0	59.0	56.0	49.0	48.0	46.0	59.4	0.0	59.4
Evening	19	58.9	79.7	44.3	68.0	66.0	64.0	62.0	58.0	55.0	48.0	47.0	46.0	58.9	5.0	63.9
	20	57.7	74.6	45.0	67.0	65.0	63.0	62.0	57.0	53.5	48.0	47.0	46.0	57.7	5.0	62.7
	21	57.8	79.2	43.4	68.0	66.0	63.0	61.0	56.0	52.0	46.0	45.0	44.0	57.8	5.0	62.8
Night	22	56.5	73.2	42.9	66.0	65.0	62.0	60.0	55.0	51.0	45.0	45.0	44.0	56.5	10.0	66.5
	23	59.3	81.3	43.0	69.0	66.0	64.0	62.0	55.0	50.0	45.0	45.0	43.0	59.3	10.0	69.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	57.3	74.9	36.1	66.0	65.0	63.0	61.0	57.0	53.0	43.0	41.0	38.0
	Max	60.9	84.9	44.5	70.0	68.0	65.0	63.0	59.0	56.0	49.0	48.0	46.0
Energy Average		59.1	Average:		68.1	66.3	63.7	62.3	57.9	54.5	46.3	44.3	41.6
Evening	Min	57.7	74.6	43.4	67.0	65.0	63.0	61.0	56.0	52.0	46.0	45.0	44.0
	Max	58.9	79.7	45.0	68.0	66.0	64.0	62.0	58.0	55.0	48.0	47.0	46.0
Energy Average		58.2	Average:		67.7	65.7	63.3	61.7	57.0	53.5	47.3	46.3	45.3
Night	Min	55.2	73.2	36.7	66.0	64.0	61.0	58.0	52.0	46.0	39.0	39.0	38.0
	Max	60.5	81.6	44.4	69.0	68.0	65.0	64.0	60.0	57.0	50.0	48.0	46.0
Energy Average		58.5	Average:		67.7	66.0	63.2	61.3	56.6	52.3	44.8	43.4	41.4

L_{eq} (dBA)		
24-Hour	*Daytime*	*Nighttime*
58.8	**58.9**	**58.5**

24-Hour CNEL (dBA)

65.2

24-Hour Noise Level Measurement Summary

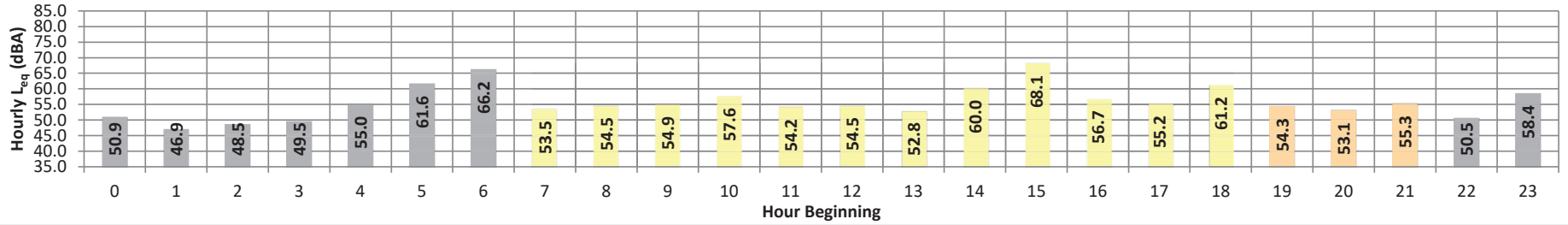
Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II

Location: L3 - Located east of the Project site on Mesa Linda Street near the West Main Villas multi-family homes.

Meter: Piccolo I

JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	50.9	79.0	40.5	59.0	56.0	52.0	50.0	47.0	45.0	42.0	40.0	40.0	50.9	10.0	60.9
	1	46.9	66.8	39.1	55.0	52.0	49.0	48.0	46.0	44.0	41.0	40.0	40.0	46.9	10.0	56.9
	2	48.5	68.2	41.9	58.0	55.0	51.0	50.0	47.0	46.0	43.0	43.0	42.0	48.5	10.0	58.5
	3	49.5	67.8	42.9	58.0	55.0	52.0	51.0	49.0	47.0	44.0	44.0	43.0	49.5	10.0	59.5
	4	55.0	78.9	44.8	65.0	63.0	58.0	56.0	51.0	49.0	47.0	46.0	45.0	55.0	10.0	65.0
	5	61.6	91.1	44.3	68.0	64.0	58.0	56.0	52.0	49.0	47.0	46.0	45.0	61.6	10.0	71.6
	6	66.2	96.7	42.1	66.0	63.0	58.0	56.0	52.0	50.0	46.0	44.0	42.0	66.2	10.0	76.2
Day	7	53.5	71.3	40.9	66.0	63.0	59.0	56.0	50.0	47.0	43.0	42.0	42.0	53.5	0.0	53.5
	8	54.5	80.4	40.0	65.0	62.0	58.0	55.0	49.0	46.0	42.0	41.0	40.0	54.5	0.0	54.5
	9	54.9	75.9	39.1	67.0	64.0	59.0	56.0	49.0	46.0	42.0	41.0	40.0	54.9	0.0	54.9
	10	57.6	86.0	39.1	70.0	65.0	59.0	57.0	50.0	46.0	41.0	40.0	40.0	57.6	0.0	57.6
	11	54.2	80.3	39.0	65.0	61.0	56.0	54.0	49.0	45.0	41.0	40.0	39.0	54.2	0.0	54.2
	12	54.5	77.4	39.1	65.0	62.0	59.0	57.0	51.0	47.0	41.0	40.0	40.0	54.5	0.0	54.5
	13	52.8	72.6	39.1	64.0	61.0	57.0	55.0	50.0	46.0	42.0	41.0	40.0	52.8	0.0	52.8
	14	60.0	87.1	39.1	71.0	67.0	61.0	58.0	52.0	47.0	42.0	41.0	40.0	60.0	0.0	60.0
	15	68.1	96.2	39.9	76.0	70.0	63.0	61.0	54.0	49.0	43.0	42.0	41.0	68.1	0.0	68.1
	16	56.7	81.3	40.2	67.0	65.0	60.0	58.0	52.0	48.0	43.0	42.0	40.0	56.7	0.0	56.7
	17	55.2	76.9	39.1	66.0	63.0	59.0	57.0	52.0	48.0	43.0	42.0	40.0	55.2	0.0	55.2
	18	61.2	91.3	40.8	66.0	63.0	60.0	57.0	51.0	48.0	43.0	42.0	41.0	61.2	0.0	61.2
Evening	19	54.3	76.0	42.3	65.0	62.0	59.0	57.0	52.0	49.0	45.0	44.0	43.0	54.3	5.0	59.3
	20	53.1	71.9	41.9	63.0	61.0	58.0	56.0	52.0	49.0	46.0	45.0	43.0	53.1	5.0	58.1
	21	55.3	78.2	42.0	67.0	62.0	57.0	54.0	49.0	46.0	44.0	43.0	43.0	55.3	5.0	60.3
Night	22	50.5	73.1	40.6	62.0	59.0	53.0	51.0	47.0	45.0	43.0	42.0	41.0	50.5	10.0	60.5
	23	58.4	88.2	40.6	68.0	61.0	52.0	49.0	45.0	44.0	42.0	41.0	40.0	58.4	10.0	68.4

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	52.8	71.3	39.0	64.0	61.0	56.0	54.0	49.0	45.0	41.0	40.0	39.0
	Max	68.1	96.2	40.9	76.0	70.0	63.0	61.0	54.0	49.0	43.0	42.0	42.0
Energy Average		59.9	Average:		67.3	63.8	59.2	56.8	50.8	46.9	42.2	41.2	40.3
Evening	Min	53.1	71.9	41.9	63.0	61.0	57.0	54.0	49.0	46.0	44.0	43.0	43.0
	Max	55.3	78.2	42.3	67.0	62.0	59.0	57.0	52.0	49.0	46.0	45.0	43.0
Energy Average		54.3	Average:		65.0	61.7	58.0	55.7	51.0	48.0	45.0	44.0	43.0
Night	Min	46.9	66.8	39.1	55.0	52.0	49.0	48.0	45.0	44.0	41.0	40.0	40.0
	Max	66.2	96.7	44.8	68.0	64.0	58.0	56.0	52.0	50.0	47.0	46.0	45.0
Energy Average		58.9	Average:		62.1	58.7	53.7	51.9	48.4	46.6	43.9	42.9	42.0

L_{eq} (dBA)		
24-Hour	Daytime	Nighttime
59.1	59.2	58.9

24-Hour CNEL (dBA)

65.5

24-Hour Noise Level Measurement Summary

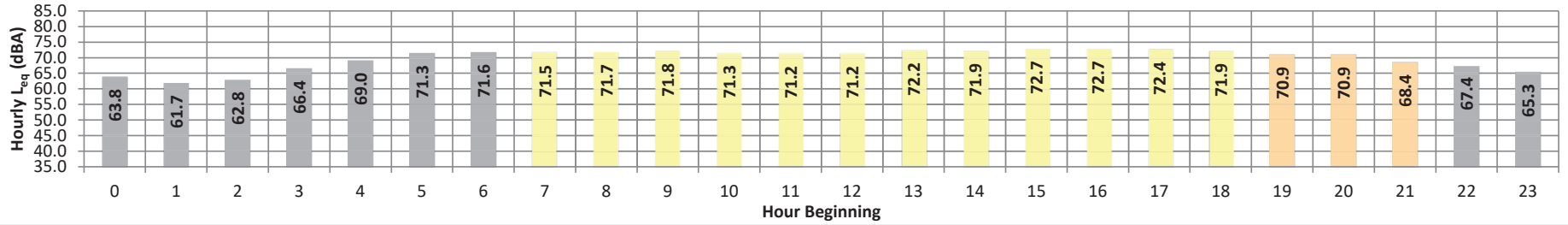
Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II

L4 - Located south of the Project site on Phelan Road near existing single-family residential home at 9565 Fremontia Road.

Meter: Piccolo I

JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	63.8	85.5	33.6	76.0	74.0	70.0	68.0	54.0	45.0	37.0	36.0	35.0	63.8	10.0	73.8
	1	61.7	83.7	33.6	75.0	73.0	67.0	63.0	48.0	40.0	36.0	35.0	35.0	61.7	10.0	71.7
	2	62.8	83.2	35.4	76.0	74.0	69.0	65.0	48.0	41.0	36.0	36.0	36.0	62.8	10.0	72.8
	3	66.4	85.2	36.2	78.0	77.0	74.0	72.0	58.0	51.0	37.0	36.0	36.0	66.4	10.0	76.4
	4	69.0	85.4	38.4	79.0	78.0	76.0	75.0	67.0	55.0	45.0	43.0	41.0	69.0	10.0	79.0
	5	71.3	87.0	41.7	80.0	79.0	78.0	76.0	71.0	61.0	48.0	46.0	43.0	71.3	10.0	81.3
	6	71.6	89.4	40.5	80.0	79.0	78.0	77.0	72.0	63.0	47.0	45.0	42.0	71.6	10.0	81.6
Day	7	71.5	84.2	38.3	79.0	78.0	77.0	76.0	73.0	66.0	45.0	42.0	39.0	71.5	0.0	71.5
	8	71.7	84.6	38.3	79.0	78.0	77.0	76.0	73.0	68.0	48.0	44.0	40.0	71.7	0.0	71.7
	9	71.8	88.4	36.6	79.0	78.0	77.0	76.0	73.0	68.0	47.0	43.0	39.0	71.8	0.0	71.8
	10	71.3	84.3	36.6	79.0	78.0	76.0	76.0	72.0	68.0	47.0	43.0	39.0	71.3	0.0	71.3
	11	71.2	83.7	36.6	78.0	77.0	76.0	75.0	73.0	68.0	46.0	42.0	38.0	71.2	0.0	71.2
	12	71.2	83.1	36.6	78.0	77.0	76.0	75.0	73.0	68.0	48.0	43.0	38.0	71.2	0.0	71.2
	13	72.2	93.1	36.6	80.0	78.0	76.0	76.0	73.0	69.0	47.0	42.0	38.0	72.2	0.0	72.2
	14	71.9	85.0	36.6	80.0	78.0	77.0	76.0	73.0	69.0	47.0	42.0	38.0	71.9	0.0	71.9
	15	72.7	93.3	36.6	80.0	79.0	77.0	76.0	73.0	70.0	53.0	47.0	38.0	72.7	0.0	72.7
	16	72.7	89.9	36.6	80.0	78.0	77.0	76.0	74.0	70.0	49.0	43.0	38.0	72.7	0.0	72.7
	17	72.4	86.3	36.6	80.0	79.0	77.0	76.0	73.0	70.0	48.0	44.0	39.0	72.4	0.0	72.4
	18	71.9	86.3	37.1	80.0	78.0	77.0	76.0	73.0	68.0	45.0	42.0	38.0	71.9	0.0	71.9
Evening	19	70.9	85.9	38.3	79.0	78.0	77.0	76.0	72.0	65.0	46.0	43.0	40.0	70.9	5.0	75.9
	20	70.9	89.8	36.6	80.0	78.0	76.0	75.0	71.0	63.0	45.0	42.0	39.0	70.9	5.0	75.9
	21	68.4	82.9	34.3	78.0	77.0	75.0	74.0	68.0	56.0	41.0	38.0	36.0	68.4	5.0	73.4
Night	22	67.4	83.2	36.4	77.0	77.0	74.0	73.0	66.0	52.0	39.0	37.0	36.0	67.4	10.0	77.4
	23	65.3	80.9	33.6	76.0	75.0	72.0	71.0	61.0	47.0	37.0	36.0	36.0	65.3	10.0	75.3

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	71.2	83.1	36.6	78.0	77.0	76.0	75.0	72.0	66.0	45.0	42.0	38.0
	Max	72.7	93.3	38.3	80.0	79.0	77.0	76.0	74.0	70.0	53.0	47.0	40.0
Energy Average		71.9	Average:		79.3	78.0	76.7	75.8	73.0	68.5	47.5	43.1	38.5
Evening	Min	68.4	82.9	34.3	78.0	77.0	75.0	74.0	68.0	56.0	41.0	38.0	36.0
	Max	70.9	89.8	38.3	80.0	78.0	77.0	76.0	72.0	65.0	46.0	43.0	40.0
Energy Average		70.2	Average:		79.0	77.7	76.0	75.0	70.3	61.3	44.0	41.0	38.3
Night	Min	61.7	80.9	33.6	75.0	73.0	67.0	63.0	48.0	40.0	36.0	35.0	35.0
	Max	71.6	89.4	41.7	80.0	79.0	78.0	77.0	72.0	63.0	48.0	46.0	43.0
Energy Average		67.9	Average:		77.4	76.2	73.1	71.1	60.6	50.6	40.2	38.9	37.8

L_{eq} (dBA)

24-Hour	Daytime	Nighttime
70.6	71.6	67.9

24-Hour CNEL (dBA)

75.4

24-Hour Noise Level Measurement Summary

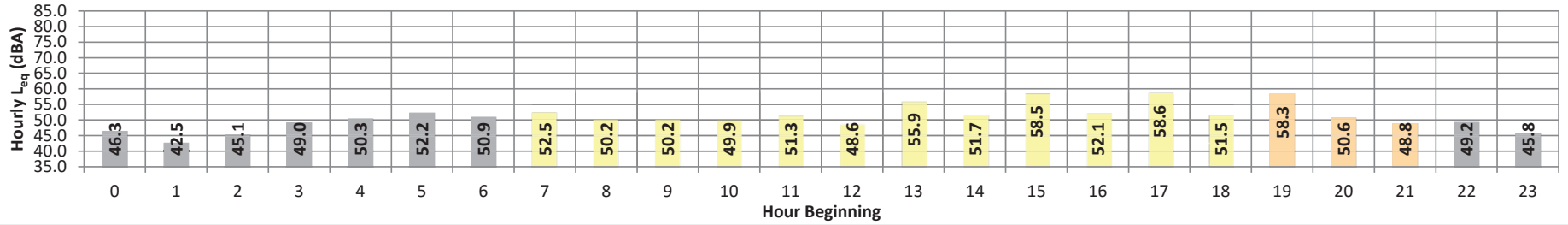
Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II

L5 - Located southeast of the Project site on Monte Vista near existing single-family residential home at 9751 Monta Vista.

Meter: Piccolo I

JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	46.3	65.5	35.2	56.0	54.0	52.0	50.0	45.0	41.0	35.0	35.0	35.0	46.3	10.0	56.3
	1	42.5	58.7	35.2	52.0	50.0	48.0	46.0	41.0	38.0	35.0	35.0	35.0	42.5	10.0	52.5
	2	45.1	64.1	35.2	56.0	53.0	50.0	48.0	43.0	39.0	35.0	35.0	35.0	45.1	10.0	55.1
	3	49.0	67.9	35.2	60.0	56.0	53.0	52.0	47.0	43.0	38.0	38.0	35.0	49.0	10.0	59.0
	4	50.3	67.6	38.1	59.0	57.0	55.0	53.0	50.0	47.0	42.0	41.0	38.0	50.3	10.0	60.3
	5	52.2	72.4	39.0	61.0	59.0	56.0	55.0	52.0	49.0	44.0	42.0	40.0	52.2	10.0	62.2
	6	50.9	67.5	38.2	62.0	60.0	55.0	53.0	49.0	47.0	41.0	40.0	39.0	50.9	10.0	60.9
Day	7	52.5	74.6	38.1	64.0	61.0	55.0	53.0	49.0	46.0	41.0	40.0	38.0	52.5	0.0	52.5
	8	50.2	64.9	35.2	61.0	59.0	56.0	54.0	49.0	45.0	39.0	38.0	36.0	50.2	0.0	50.2
	9	50.2	73.7	35.2	62.0	59.0	55.0	52.0	46.0	43.0	38.0	37.0	35.0	50.2	0.0	50.2
	10	49.9	67.9	35.2	63.0	60.0	54.0	51.0	46.0	43.0	38.0	38.0	35.0	49.9	0.0	49.9
	11	51.3	78.2	35.2	61.0	59.0	53.0	50.0	46.0	42.0	38.0	37.0	35.0	51.3	0.0	51.3
	12	48.6	67.3	35.2	60.0	58.0	53.0	51.0	46.0	43.0	38.0	37.0	35.0	48.6	0.0	48.6
	13	55.9	83.6	35.2	66.0	66.0	60.0	56.0	47.0	43.0	38.0	38.0	35.0	55.9	0.0	55.9
	14	51.7	78.5	35.2	62.0	60.0	54.0	52.0	47.0	44.0	39.0	38.0	35.0	51.7	0.0	51.7
	15	58.5	88.2	35.2	67.0	63.0	59.0	56.0	50.0	47.0	40.0	38.0	37.0	58.5	0.0	58.5
	16	52.1	76.8	35.2	62.0	61.0	57.0	55.0	49.0	46.0	40.0	38.0	35.0	52.1	0.0	52.1
	17	58.6	85.2	35.2	70.0	64.0	58.0	56.0	50.0	46.0	40.0	38.0	35.0	58.6	0.0	58.6
	18	51.5	73.9	37.8	62.0	60.0	56.0	54.0	50.0	47.0	41.0	39.0	38.0	51.5	0.0	51.5
Evening	19	58.3	88.1	38.1	63.0	60.0	56.0	54.0	51.0	48.0	42.0	41.0	39.0	58.3	5.0	63.3
	20	50.6	69.5	37.9	61.0	58.0	54.0	53.0	49.0	47.0	41.0	40.0	38.0	50.6	5.0	55.6
	21	48.8	69.9	35.2	59.0	57.0	53.0	51.0	48.0	44.0	38.0	38.0	35.0	48.8	5.0	53.8
Night	22	49.2	70.1	35.2	59.0	58.0	55.0	53.0	47.0	43.0	38.0	38.0	35.0	49.2	10.0	59.2
	23	45.8	63.9	35.2	55.0	53.0	51.0	50.0	45.0	41.0	35.0	35.0	35.0	45.8	10.0	55.8

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.6	64.9	35.2	60.0	58.0	53.0	50.0	46.0	42.0	38.0	37.0	35.0
	Max	58.6	88.2	38.1	70.0	66.0	60.0	56.0	50.0	47.0	41.0	40.0	38.0
Energy Average		53.9	Average:		63.3	60.8	55.8	53.3	47.9	44.6	39.2	38.0	35.8
Evening	Min	48.8	69.5	35.2	59.0	57.0	53.0	51.0	48.0	44.0	38.0	38.0	35.0
	Max	58.3	88.1	38.1	63.0	60.0	56.0	54.0	51.0	48.0	42.0	41.0	39.0
Energy Average		54.6	Average:		61.0	58.3	54.3	52.7	49.3	46.3	40.3	39.7	37.3
Night	Min	42.5	58.7	35.2	52.0	50.0	48.0	46.0	41.0	38.0	35.0	35.0	35.0
	Max	52.2	72.4	39.0	62.0	60.0	56.0	55.0	52.0	49.0	44.0	42.0	40.0
Energy Average		48.8	Average:		57.8	55.6	52.8	51.1	46.6	43.1	38.1	37.7	36.3

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
52.8	**54.1**	**48.8**

24-Hour CNEL (dBA)

57.2

24-Hour Noise Level Measurement Summary

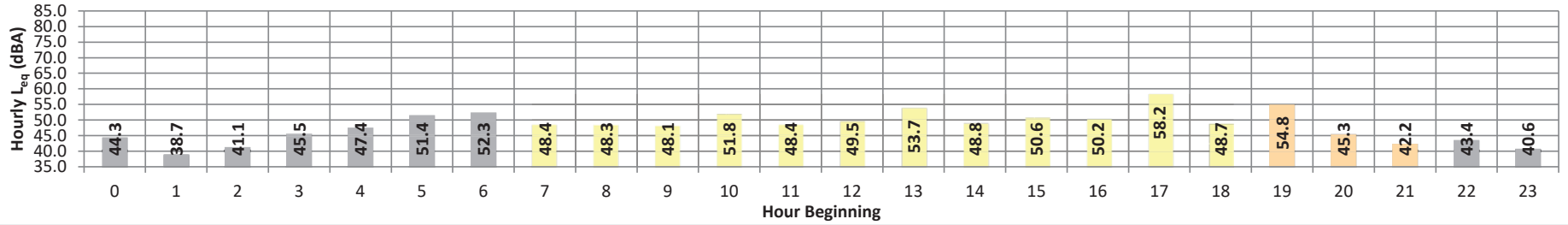
Date: Wednesday, May 20, 2020
Project: Hesperia Commerce Center II

L6 - Located east of the Project site on Monte Vista near existing single-family residential home at 10040 Monta Vista.

Meter: Piccolo I

JN: 12780
Analyst: P. Mara

Hourly L_{eq} dBA Readings (unadjusted)



Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%	L_{eq}	Adj.	Adj. L_{eq}
Night	0	44.3	69.0	36.1	52.0	50.0	47.0	46.0	42.0	39.0	36.0	36.0	36.0	44.3	10.0	54.3
	1	38.7	61.9	36.1	44.0	42.0	41.0	40.0	38.0	36.0	36.0	36.0	36.0	38.7	10.0	48.7
	2	41.1	65.9	36.1	45.0	44.0	42.0	41.0	39.0	37.0	36.0	36.0	36.0	41.1	10.0	51.1
	3	45.5	69.7	36.1	55.0	47.0	44.0	43.0	41.0	39.0	37.0	36.0	36.0	45.5	10.0	55.5
	4	47.4	74.6	36.1	57.0	50.0	47.0	45.0	43.0	42.0	39.0	39.0	36.0	47.4	10.0	57.4
	5	51.4	69.4	40.8	61.0	58.0	55.0	54.0	50.0	48.0	45.0	43.0	42.0	51.4	10.0	61.4
	6	52.3	67.8	36.1	63.0	61.0	59.0	57.0	49.0	46.0	41.0	40.0	39.0	52.3	10.0	62.3
Day	7	48.4	70.5	36.1	60.0	56.0	51.0	48.0	44.0	41.0	39.0	38.0	37.0	48.4	0.0	48.4
	8	48.3	69.1	36.1	61.0	57.0	52.0	49.0	44.0	42.0	39.0	39.0	38.0	48.3	0.0	48.3
	9	48.1	68.5	36.5	61.0	57.0	51.0	48.0	44.0	42.0	39.0	39.0	38.0	48.1	0.0	48.1
	10	51.8	75.0	36.1	65.0	62.0	53.0	50.0	45.0	42.0	39.0	37.0	36.0	51.8	0.0	51.8
	11	48.4	70.9	36.1	60.0	57.0	53.0	50.0	44.0	42.0	38.0	37.0	36.0	48.4	0.0	48.4
	12	49.5	73.0	36.1	61.0	57.0	53.0	50.0	46.0	44.0	40.0	39.0	37.0	49.5	0.0	49.5
	13	53.7	84.3	36.1	63.0	59.0	52.0	49.0	45.0	42.0	38.0	36.0	36.0	53.7	0.0	53.7
	14	48.8	72.6	36.1	61.0	56.0	50.0	48.0	45.0	40.0	36.0	36.0	36.0	48.8	0.0	48.8
	15	50.6	74.5	36.1	64.0	60.0	52.0	48.0	42.0	40.0	38.0	36.0	36.0	50.6	0.0	50.6
	16	50.2	75.5	36.1	62.0	59.0	54.0	51.0	44.0	40.0	38.0	36.0	36.0	50.2	0.0	50.2
	17	58.2	85.7	36.1	67.0	63.0	59.0	57.0	47.0	42.0	36.0	36.0	36.0	58.2	0.0	58.2
	18	48.7	69.7	36.1	61.0	57.0	52.0	49.0	45.0	43.0	40.0	39.0	38.0	48.7	0.0	48.7
Evening	19	54.8	82.2	36.1	63.0	57.0	51.0	48.0	45.0	43.0	37.0	36.0	36.0	54.8	5.0	59.8
	20	45.3	68.9	36.1	56.0	50.0	46.0	44.0	41.0	39.0	36.0	36.0	36.0	45.3	5.0	50.3
	21	42.2	65.2	36.1	50.0	46.0	43.0	42.0	39.0	38.0	36.0	36.0	36.0	42.2	5.0	47.2
Night	22	43.4	69.9	36.1	47.0	44.0	42.0	41.0	39.0	38.0	36.0	36.0	36.0	43.4	10.0	53.4
	23	40.6	65.8	36.1	50.0	45.0	42.0	41.0	39.0	37.0	36.0	36.0	36.0	40.6	10.0	50.6

Timeframe	Hour	L_{eq}	L_{max}	L_{min}	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	48.1	68.5	36.1	60.0	56.0	50.0	48.0	42.0	40.0	36.0	36.0	36.0
	Max	58.2	85.7	36.5	67.0	63.0	59.0	57.0	47.0	44.0	40.0	39.0	38.0
Energy Average		51.7	Average:		62.2	58.3	52.7	49.8	44.6	41.7	38.3	37.3	36.7
Evening	Min	42.2	65.2	36.1	50.0	46.0	43.0	42.0	39.0	38.0	36.0	36.0	36.0
	Max	54.8	82.2	36.1	63.0	57.0	51.0	48.0	45.0	43.0	37.0	36.0	36.0
Energy Average		50.7	Average:		56.3	51.0	46.7	44.7	41.7	40.0	36.3	36.0	36.0
Night	Min	38.7	61.9	36.1	44.0	42.0	41.0	40.0	38.0	36.0	36.0	36.0	36.0
	Max	52.3	74.6	40.8	63.0	61.0	59.0	57.0	50.0	48.0	45.0	43.0	42.0
Energy Average		47.3	Average:		52.7	49.0	46.6	45.3	42.2	40.2	38.0	37.6	37.0

L_{eq} (dBA)

24-Hour	*Daytime*	*Nighttime*
50.4	**51.5**	**47.3**

24-Hour CNEL (dBA)

55.1

APPENDIX 7.1:

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,862 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,238 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.02	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.54	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.75	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	67.8	67.0	65.1	72.0	72.4
Medium Trucks:	70.5	68.3	65.7	64.8	71.8	72.1
Heavy Trucks:	75.3	72.7	71.1	70.2	77.0	77.3
Vehicle Noise:	77.5	75.0	73.3	72.2	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	250	540	1,163	2,505
CNEL:	262	565	1,218	2,623

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,348 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,909 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.67	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.23	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.44	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	67.1	66.3	64.4	71.3	71.7
Medium Trucks:	69.8	67.6	65.0	64.1	71.1	71.4
Heavy Trucks:	74.6	72.1	70.4	69.5	76.3	76.6
Vehicle Noise:	76.8	74.3	72.7	71.5	78.4	78.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	225	485	1,045	2,252
CNEL:	236	508	1,095	2,359

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,779 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,137 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.18	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.74	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.95	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	67.6	66.8	64.9	71.8	72.2
Medium Trucks:	70.3	68.1	65.5	64.6	71.6	71.9
Heavy Trucks:	75.1	72.5	70.9	70.0	76.8	77.1
Vehicle Noise:	77.3	74.8	73.1	72.0	78.9	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	243	523	1,127	2,428
CNEL:	254	548	1,180	2,543

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,878 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,240 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.03	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.54	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.75	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	67.8	67.0	65.1	72.0	72.4
Medium Trucks:	70.5	68.3	65.7	64.8	71.8	72.1
Heavy Trucks:	75.3	72.8	71.1	70.2	77.0	77.3
Vehicle Noise:	77.5	75.0	73.3	72.2	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	251	540	1,163	2,506
CNEL:	262	565	1,218	2,624

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,265	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	588	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.78	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-16.35	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-15.56	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.2	62.6	61.7	59.9	66.8	67.1
Medium Trucks:	65.3	63.1	60.5	59.6	66.6	66.9
Heavy Trucks:	70.0	67.5	65.9	65.0	71.8	72.1
Vehicle Noise:	72.2	69.8	68.1	67.0	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	94	203	437	942
CNEL:	99	213	458	987

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: s/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,389	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	224	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-9.97	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-20.54	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.75	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.0	58.4	57.6	55.7	62.6	62.9
Medium Trucks:	61.1	58.9	56.3	55.4	62.4	62.7
Heavy Trucks:	65.9	63.3	61.7	60.8	67.6	67.9
Vehicle Noise:	68.1	65.6	63.9	62.8	69.7	70.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	230	495
CNEL:	52	112	241	519

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Verbena Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	192	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	18	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	24	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	25.0	feet
Centerline Dist. to Observer:	25.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-19.54	5.10	-1.20	*-4.41*	0.000	0.000
Medium Trucks:	77.72	-30.10	5.22	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	82.99	-29.31	5.20	-1.20	*-5.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	50.9	48.3	47.4	45.6	52.5	52.8
Medium Trucks:	51.6	49.4	46.8	45.9	52.9	53.2
Heavy Trucks:	57.7	55.2	53.5	52.6	59.4	59.7
Vehicle Noise:	59.3	56.8	55.2	54.1	61.0	61.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	13	29	62
CNEL:	7	14	30	65

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Yucca Terrace Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,536	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,395	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.32	1.69	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-10.25	1.73	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.46	1.73	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.0	69.2	67.3	74.2	74.5
Medium Trucks:	72.7	70.5	67.9	67.0	74.0	74.3
Heavy Trucks:	77.5	74.9	73.3	72.4	79.2	79.5
Vehicle Noise:	79.7	77.2	75.5	74.4	81.3	81.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	368	792	1,707	3,678
CNEL:	385	830	1,788	3,853

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,673 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,127 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.20	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.76	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.97	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	69.5	68.6	66.8	73.7	74.0
Medium Trucks:	72.2	70.0	67.4	66.5	73.5	73.8
Heavy Trucks:	77.0	74.4	72.8	71.9	78.7	79.0
Vehicle Noise:	79.1	76.7	75.0	73.9	80.8	81.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	340	732	1,577	3,398
CNEL:	356	767	1,652	3,559

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Poplar St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,662 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,126 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.20	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.77	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.98	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	69.5	68.6	66.8	73.7	74.0
Medium Trucks:	72.2	70.0	67.4	66.5	73.5	73.8
Heavy Trucks:	76.9	74.4	72.8	71.9	78.7	79.0
Vehicle Noise:	79.1	76.7	75.0	73.9	80.8	81.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	340	732	1,577	3,397
CNEL:	356	767	1,651	3,558

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Joshua St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,326 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,282 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.11	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.46	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.67	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	69.8	68.9	67.1	74.0	74.3
Medium Trucks:	72.5	70.3	67.7	66.8	73.8	74.1
Heavy Trucks:	77.3	74.7	73.1	72.2	79.0	79.3
Vehicle Noise:	79.5	77.0	75.3	74.2	81.1	81.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	356	767	1,653	3,561
CNEL:	373	804	1,731	3,730

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: n/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,716 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,943 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.18	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.74	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.95	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.5	67.6	65.8	72.6	73.0
Medium Trucks:	71.3	69.1	66.5	65.6	72.6	72.9
Heavy Trucks:	76.5	74.0	72.3	71.4	78.2	78.5
Vehicle Noise:	78.5	76.0	74.4	73.3	80.1	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	237	510	1,099	2,367
CNEL:	248	534	1,150	2,478

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: s/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,716 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,943 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.18	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.74	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.95	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.5	67.6	65.8	72.6	73.0
Medium Trucks:	71.3	69.1	66.5	65.6	72.6	72.9
Heavy Trucks:	76.5	74.0	72.3	71.4	78.2	78.5
Vehicle Noise:	78.5	76.0	74.4	73.3	80.1	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	237	510	1,099	2,367
CNEL:	248	534	1,150	2,478

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Topaz Av. | Job Number: 12780
Road Segment: n/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,199 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	300 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.32	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-17.89	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-17.10	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.6	59.1	58.2	56.4	63.2	63.6
Medium Trucks:	62.3	60.1	57.6	56.7	63.7	63.9
Heavy Trucks:	68.4	65.9	64.2	63.3	70.1	70.4
Vehicle Noise:	70.0	67.6	65.9	64.8	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	180	389
CNEL:	41	88	189	407

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Luna Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,673 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	720 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.52	2.76	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-14.09	2.82	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-13.30	2.81	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.0	61.1	59.3	66.2	66.5
Medium Trucks:	65.2	63.0	60.5	59.6	66.6	66.8
Heavy Trucks:	71.3	68.8	67.1	66.2	73.0	73.3
Vehicle Noise:	73.0	70.5	68.8	67.7	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	148	320	689
CNEL:	72	155	335	721

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Bear Valley Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,845 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,205 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.67	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-13.23	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.44	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.7	65.1	64.3	62.4	69.3	69.7
Medium Trucks:	67.8	65.6	63.0	62.1	69.1	69.4
Heavy Trucks:	72.6	70.1	68.4	67.5	74.3	74.6
Vehicle Noise:	74.8	72.3	70.7	69.5	76.4	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	166	357	769	1,657
CNEL:	174	374	806	1,736

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: w/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	320 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	30 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-18.70	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-29.27	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-28.48	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.7	49.1	48.2	46.4	53.3	53.6
Medium Trucks:	51.8	49.6	47.0	46.1	53.1	53.4
Heavy Trucks:	56.5	54.0	52.4	51.5	58.3	58.6
Vehicle Noise:	58.7	56.3	54.6	53.5	60.4	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	14	30	66	141
CNEL:	15	32	69	148

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,610 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	151 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-11.68	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-22.25	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.46	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.7	57.1	56.2	54.4	61.3	61.6
Medium Trucks:	59.8	57.6	55.0	54.1	61.1	61.4
Heavy Trucks:	64.6	62.0	60.4	59.5	66.3	66.6
Vehicle Noise:	66.8	64.3	62.6	61.5	68.4	68.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	390
CNEL:	41	88	190	408

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Baldy Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,549 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,458 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.84	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-12.40	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-11.61	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	66.6	65.7	63.9	70.7	71.1
Medium Trucks:	69.2	67.0	64.4	63.5	70.5	70.8
Heavy Trucks:	74.0	71.5	69.8	68.9	75.7	76.0
Vehicle Noise:	76.2	73.7	72.1	71.0	77.8	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	372	802	1,727
CNEL:	181	390	840	1,809

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Verbena Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,453 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,449 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.86	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-12.43	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-11.64	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.1	66.5	65.7	63.8	70.7	71.1
Medium Trucks:	69.2	67.0	64.4	63.5	70.5	70.8
Heavy Trucks:	74.0	71.4	69.8	68.9	75.7	76.0
Vehicle Noise:	76.2	73.7	72.0	70.9	77.8	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	172	371	798	1,720
CNEL:	180	388	836	1,801

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Phelan Rd. | *Job Number:* 12780
Road Segment: w/o Bellflower St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,874 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,489 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.75	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-12.31	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-11.52	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.2	66.6	65.8	63.9	70.8	71.2
Medium Trucks:	69.3	67.1	64.5	63.6	70.6	70.9
Heavy Trucks:	74.1	71.6	69.9	69.0	75.8	76.1
Vehicle Noise:	76.3	73.8	72.2	71.0	77.9	78.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	377	813	1,751
CNEL:	183	395	851	1,834

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Phelan Rd. | *Job Number:* 12780
Road Segment: e/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,327 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,532 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.62	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-12.19	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-11.40	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	66.8	65.9	64.1	70.9	71.3
Medium Trucks:	69.4	67.2	64.6	63.7	70.7	71.0
Heavy Trucks:	74.2	71.7	70.0	69.1	75.9	76.2
Vehicle Noise:	76.4	73.9	72.3	71.2	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	178	384	828	1,784
CNEL:	187	403	867	1,869

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: w/o Mesa Linda St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,996 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,688 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.79	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-11.35	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.56	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.2	66.3	64.5	71.4	71.7
Medium Trucks:	70.0	67.8	65.2	64.3	71.3	71.6
Heavy Trucks:	75.2	72.7	71.0	70.1	76.9	77.2
Vehicle Noise:	77.2	74.7	73.1	72.0	78.8	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	233	502	1,082	2,331
CNEL:	244	526	1,133	2,441

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: w/o Catabra Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,799 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,857 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.37	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-10.94	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-10.15	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	67.6	66.7	64.9	71.8	72.1
Medium Trucks:	70.4	68.2	65.7	64.8	71.8	72.0
Heavy Trucks:	75.6	73.1	71.4	70.5	77.3	77.6
Vehicle Noise:	77.6	75.2	73.5	72.4	79.3	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	248	535	1,153	2,484
CNEL:	260	560	1,208	2,602

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: e/o Key Point Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,634	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,873	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.52	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-9.04	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-8.25	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.1	69.5	68.6	66.8	73.7	74.0
Medium Trucks:	72.3	70.1	67.6	66.7	73.7	73.9
Heavy Trucks:	77.5	75.0	73.3	72.4	79.2	79.5
Vehicle Noise:	79.5	77.1	75.4	74.3	81.2	81.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	332	716	1,543	3,323
CNEL:	348	750	1,615	3,480

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: e/o Mariposa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,544	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,709	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	88	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.63	1.17	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.93	1.21	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.14	1.20	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.8	70.2	69.4	67.5	74.4	74.8
Medium Trucks:	73.1	70.9	68.3	67.4	74.4	74.7
Heavy Trucks:	78.2	75.7	74.1	73.2	80.0	80.3
Vehicle Noise:	80.3	77.8	76.1	75.0	81.9	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	372	802	1,728	3,722
CNEL:	390	840	1,809	3,898

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: w/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	41,069	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,852	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	88	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	-7.77	1.21	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-6.98	1.20	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38				*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	73.0	70.4	69.5	67.7	74.6	74.9
Medium Trucks:	73.2	71.0	68.5	67.6	74.6	74.8
Heavy Trucks:	78.4	75.9	74.2	73.3	80.1	80.4
Vehicle Noise:	80.4	78.0	76.3	75.2	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	382	822	1,772	3,817
CNEL:	400	861	1,856	3,998

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | *Project Name:* Hesperia Commerce Cent
Road Name: Main St. | *Job Number:* 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,268	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,121	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	88	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.88	1.17	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-8.68	1.21	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.89	1.20	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.1	69.5	68.6	66.8	73.7	74.0
Medium Trucks:	72.3	70.1	67.5	66.6	73.6	73.9
Heavy Trucks:	77.5	75.0	73.3	72.4	79.2	79.5
Vehicle Noise:	79.5	77.0	75.4	74.3	81.1	81.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	332	715	1,540	3,317
CNEL:	347	748	1,612	3,474

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Topaz Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,474 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,858 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.09	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.48	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.69	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	70.8	69.9	68.1	75.0	75.3
Medium Trucks:	73.5	71.3	68.7	67.8	74.8	75.1
Heavy Trucks:	78.2	75.7	74.1	73.2	80.0	80.3
Vehicle Noise:	80.4	78.0	76.3	75.2	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	414	892	1,921	4,139
CNEL:	433	934	2,012	4,334

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Sultana St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,122 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	387 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.22	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-16.78	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-15.99	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.7	60.2	59.3	57.5	64.3	64.7
Medium Trucks:	63.4	61.2	58.7	57.8	64.8	65.0
Heavy Trucks:	69.5	67.0	65.3	64.4	71.2	71.5
Vehicle Noise:	71.1	68.7	67.0	65.9	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	46	99	214	460
CNEL:	48	104	224	482

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing (2019) | Project Name: Hesperia Commerce Cent
Road Name: Joshua St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,420 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	415 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-7.30	2.88	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-17.86	2.94	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-17.07	2.93	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.2	63.6	62.7	60.9	67.8	68.1
Medium Trucks:	66.3	64.1	61.5	60.6	67.6	67.9
Heavy Trucks:	71.1	68.5	66.9	66.0	72.8	73.1
Vehicle Noise:	73.2	70.8	69.1	68.0	74.9	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	85	182	393	846
CNEL:	89	191	411	886

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,170 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,267 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.53%
Medium Trucks:	67.8%	9.4%	22.8%	7.51%
Heavy Trucks:	63.0%	10.8%	26.2%	8.95%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.06	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.40	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.63	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	67.9	67.0	65.2	72.0	72.4
Medium Trucks:	70.6	68.4	65.9	64.9	72.0	72.2
Heavy Trucks:	75.4	72.9	71.2	70.3	77.1	77.4
Vehicle Noise:	77.6	75.1	73.4	72.3	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	255	549	1,182	2,547
CNEL:	267	575	1,238	2,667

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,752 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,947 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.56%
Medium Trucks:	67.8%	9.4%	22.8%	7.50%
Heavy Trucks:	63.0%	10.8%	26.2%	8.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.60	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.06	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.31	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.2	66.3	64.5	71.4	71.7
Medium Trucks:	70.0	67.8	65.2	64.3	71.3	71.6
Heavy Trucks:	74.7	72.2	70.6	69.6	76.4	76.7
Vehicle Noise:	76.9	74.4	72.8	71.7	78.5	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	230	495	1,067	2,298
CNEL:	241	519	1,117	2,407

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,564 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,210 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.85%
Medium Trucks:	67.8%	9.4%	22.8%	7.37%
Heavy Trucks:	63.0%	10.8%	26.2%	8.78%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.03	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.59	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.83	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	67.8	66.9	65.1	72.0	72.3
Medium Trucks:	70.4	68.2	65.7	64.8	71.8	72.0
Heavy Trucks:	75.2	72.7	71.0	70.1	76.9	77.2
Vehicle Noise:	77.4	74.9	73.3	72.2	79.0	79.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	248	534	1,151	2,479
CNEL:	260	559	1,205	2,596

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,949 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,340 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.04%
Medium Trucks:	67.8%	9.4%	22.8%	7.28%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.23	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.39	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.63	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.0	67.2	65.3	72.2	72.6
Medium Trucks:	70.6	68.4	65.9	64.9	72.0	72.2
Heavy Trucks:	75.4	72.9	71.2	70.3	77.1	77.4
Vehicle Noise:	77.6	75.1	73.5	72.4	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	256	552	1,188	2,560
CNEL:	268	578	1,245	2,681

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,551 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	615 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.52%
Medium Trucks:	67.8%	9.4%	22.8%	7.04%
Heavy Trucks:	63.0%	10.8%	26.2%	8.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.55	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-16.35	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-15.56	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	62.8	62.0	60.1	67.0	67.4
Medium Trucks:	65.3	63.1	60.5	59.6	66.6	66.9
Heavy Trucks:	70.0	67.5	65.9	65.0	71.8	72.1
Vehicle Noise:	72.3	69.8	68.2	67.1	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	95	204	440	949
CNEL:	99	214	461	994

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Baldy Mesa Rd.
Road Segment: s/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,579 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	242 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.01%
Medium Trucks:	67.8%	9.4%	22.8%	6.82%
Heavy Trucks:	63.0%	10.8%	26.2%	8.17%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-9.58	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-20.54	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-19.75	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.4	58.8	57.9	56.1	63.0	63.3
Medium Trucks:	61.1	58.9	56.3	55.4	62.4	62.7
Heavy Trucks:	65.9	63.3	61.7	60.8	67.6	67.9
Vehicle Noise:	68.1	65.7	64.0	62.9	69.8	70.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	108	233	501
CNEL:	53	113	244	525

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Verbena Rd.
Road Segment: n/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	287 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	27 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	25.0 feet
Centerline Dist. to Observer:	25.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	89.18%
Medium Trucks:	67.8%	9.4%	22.8%	4.92%
Heavy Trucks:	63.0%	10.8%	26.2%	5.90%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.52	5.10	-1.20	-4.41	0.000	0.000
Medium Trucks:	77.72	-30.10	5.22	-1.20	-4.85	0.000	0.000
Heavy Trucks:	82.99	-29.31	5.20	-1.20	-5.94	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.9	50.3	49.5	47.6	54.5	54.8
Medium Trucks:	51.6	49.4	46.8	45.9	52.9	53.2
Heavy Trucks:	57.7	55.2	53.5	52.6	59.4	59.7
Vehicle Noise:	59.7	57.2	55.6	54.5	61.3	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	14	31	66
CNEL:	7	15	32	69

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: US Hwy. 395
Road Segment: s/o Yucca Terrace Dr.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,914 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,712 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	82.92%
Medium Trucks:	67.8%	9.4%	22.8%	7.91%
Heavy Trucks:	63.0%	10.8%	26.2%	9.17%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.81	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.39	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.75	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	70.5	69.6	67.8	74.7	75.0
Medium Trucks:	73.5	71.3	68.8	67.9	74.9	75.1
Heavy Trucks:	78.2	75.7	74.0	73.1	79.9	80.2
Vehicle Noise:	80.4	77.9	76.2	75.1	82.0	82.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	409	881	1,899	4,091
CNEL:	428	923	1,988	4,284

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: US Hwy. 395
Road Segment: s/o Main St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,579 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,305 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.07%
Medium Trucks:	67.8%	9.4%	22.8%	6.79%
Heavy Trucks:	63.0%	10.8%	26.2%	8.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.22	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.76	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.97	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	69.9	69.0	67.2	74.1	74.4
Medium Trucks:	72.2	70.0	67.4	66.5	73.5	73.8
Heavy Trucks:	77.0	74.4	72.8	71.9	78.7	79.0
Vehicle Noise:	79.2	76.8	75.1	74.0	80.9	81.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	344	742	1,598	3,442
CNEL:	361	777	1,674	3,606

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: US Hwy. 395
Road Segment: s/o Poplar St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,568 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,304 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.07%
Medium Trucks:	67.8%	9.4%	22.8%	6.79%
Heavy Trucks:	63.0%	10.8%	26.2%	8.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.21	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.77	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.98	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	69.9	69.0	67.2	74.1	74.4
Medium Trucks:	72.2	70.0	67.4	66.5	73.5	73.8
Heavy Trucks:	76.9	74.4	72.8	71.9	78.7	79.0
Vehicle Noise:	79.2	76.8	75.1	74.0	80.9	81.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	344	741	1,597	3,441
CNEL:	360	777	1,673	3,605

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: US Hwy. 395
Road Segment: s/o Joshua St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,851 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,425 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.77%
Medium Trucks:	67.8%	9.4%	22.8%	6.92%
Heavy Trucks:	63.0%	10.8%	26.2%	8.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.42	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.46	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.67	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.1	69.3	67.4	74.3	74.6
Medium Trucks:	72.5	70.3	67.7	66.8	73.8	74.1
Heavy Trucks:	77.3	74.7	73.1	72.2	79.0	79.3
Vehicle Noise:	79.5	77.1	75.4	74.3	81.1	81.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	360	775	1,669	3,596
CNEL:	377	811	1,748	3,767

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Escondido Av.
Road Segment: n/o Sultana St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,097 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,979 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.11%
Medium Trucks:	67.8%	9.4%	22.8%	7.23%
Heavy Trucks:	63.0%	10.8%	26.2%	8.67%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.08	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.74	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.95	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	68.6	67.7	65.9	72.7	73.1
Medium Trucks:	71.3	69.1	66.5	65.6	72.6	72.9
Heavy Trucks:	76.5	74.0	72.3	71.4	78.2	78.5
Vehicle Noise:	78.5	76.0	74.4	73.3	80.1	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	237	511	1,101	2,373
CNEL:	248	535	1,153	2,485

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Escondido Av.
Road Segment: s/o Sultana St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,906 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,961 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.96%
Medium Trucks:	67.8%	9.4%	22.8%	7.29%
Heavy Trucks:	63.0%	10.8%	26.2%	8.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	-0.13	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.74	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.95	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	68.5	67.6	65.8	72.7	73.0
Medium Trucks:	71.3	69.1	66.5	65.6	72.6	72.9
Heavy Trucks:	76.5	74.0	72.3	71.4	78.2	78.5
Vehicle Noise:	78.5	76.0	74.4	73.3	80.1	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	237	511	1,100	2,370
CNEL:	248	535	1,152	2,482

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Topaz Av.
Road Segment: n/o Main St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,295 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	309 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.28%
Medium Trucks:	67.8%	9.4%	22.8%	7.15%
Heavy Trucks:	63.0%	10.8%	26.2%	8.57%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.17	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-17.89	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-17.10	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.2	58.3	56.5	63.4	63.7
Medium Trucks:	62.3	60.1	57.6	56.7	63.7	63.9
Heavy Trucks:	68.4	65.9	64.2	63.3	70.1	70.4
Vehicle Noise:	70.1	67.6	65.9	64.9	71.7	72.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	39	84	181	390
CNEL:	41	88	190	408

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Luna Rd.
Road Segment: e/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,768 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	729 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.01%
Medium Trucks:	67.8%	9.4%	22.8%	7.27%
Heavy Trucks:	63.0%	10.8%	26.2%	8.72%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.46	2.76	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-14.09	2.82	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-13.30	2.81	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.6	62.0	61.2	59.3	66.2	66.6
Medium Trucks:	65.2	63.0	60.5	59.6	66.6	66.8
Heavy Trucks:	71.3	68.8	67.1	66.2	73.0	73.3
Vehicle Noise:	73.0	70.5	68.8	67.8	74.6	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	69	149	320	690
CNEL:	72	156	335	722

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Bear Valley Rd.
Road Segment: e/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,227 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,241 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.28%
Medium Trucks:	67.8%	9.4%	22.8%	7.15%
Heavy Trucks:	63.0%	10.8%	26.2%	8.57%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.52	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-13.23	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.44	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.9	65.3	64.4	62.6	69.5	69.8
Medium Trucks:	67.8	65.6	63.0	62.1	69.1	69.4
Heavy Trucks:	72.6	70.1	68.4	67.5	74.3	74.6
Vehicle Noise:	74.8	72.3	70.7	69.6	76.4	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	167	359	773	1,665
CNEL:	174	376	810	1,744

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Eucalyptus St.
Road Segment: w/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	415 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	39 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	87.53%
Medium Trucks:	67.8%	9.4%	22.8%	5.67%
Heavy Trucks:	63.0%	10.8%	26.2%	6.80%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-17.38	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-29.27	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-28.48	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.0	50.4	49.6	47.7	54.6	55.0
Medium Trucks:	51.8	49.6	47.0	46.1	53.1	53.4
Heavy Trucks:	56.5	54.0	52.4	51.5	58.3	58.6
Vehicle Noise:	59.0	56.6	55.0	53.8	60.7	61.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	69	148
CNEL:	15	33	72	155

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Eucalyptus St.
Road Segment: e/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,801 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	169 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.53%
Medium Trucks:	67.8%	9.4%	22.8%	6.58%
Heavy Trucks:	63.0%	10.8%	26.2%	7.89%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-11.11	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-22.25	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.46	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.3	57.7	56.8	55.0	61.9	62.2
Medium Trucks:	59.8	57.6	55.0	54.1	61.1	61.4
Heavy Trucks:	64.6	62.0	60.4	59.5	66.3	66.6
Vehicle Noise:	66.9	64.4	62.8	61.6	68.5	68.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	184	397
CNEL:	42	90	193	416

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Phelan Rd.
Road Segment: w/o Baldy Mesa Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,930 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,494 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.20%
Medium Trucks:	67.8%	9.4%	22.8%	7.18%
Heavy Trucks:	63.0%	10.8%	26.2%	8.62%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.71	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-12.40	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-11.61	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.3	66.7	65.8	64.0	70.9	71.2
Medium Trucks:	69.2	67.0	64.4	63.5	70.5	70.8
Heavy Trucks:	74.0	71.5	69.8	68.9	75.7	76.0
Vehicle Noise:	76.2	73.8	72.1	71.0	77.8	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	373	805	1,733
CNEL:	182	391	843	1,816

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Phelan Rd.
Road Segment: w/o Verbena Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,311 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,530 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.67%
Medium Trucks:	67.8%	9.4%	22.8%	6.97%
Heavy Trucks:	63.0%	10.8%	26.2%	8.36%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.59	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-12.43	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-11.64	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	66.8	65.9	64.1	71.0	71.3
Medium Trucks:	69.2	67.0	64.4	63.5	70.5	70.8
Heavy Trucks:	74.0	71.4	69.8	68.9	75.7	76.0
Vehicle Noise:	76.2	73.8	72.1	71.0	77.8	78.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	173	374	805	1,735
CNEL:	182	391	843	1,817

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Phelan Rd.
Road Segment: w/o Bellflower St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,827 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,578 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.73%
Medium Trucks:	67.8%	9.4%	22.8%	6.94%
Heavy Trucks:	63.0%	10.8%	26.2%	8.33%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.45	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-12.31	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-11.52	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	66.9	66.1	64.2	71.1	71.5
Medium Trucks:	69.3	67.1	64.5	63.6	70.6	70.9
Heavy Trucks:	74.1	71.6	69.9	69.0	75.8	76.1
Vehicle Noise:	76.3	73.9	72.2	71.1	78.0	78.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	177	381	820	1,767
CNEL:	185	399	859	1,851

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Phelan Rd.
Road Segment: e/o Dwy. 1

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,398	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	1,632	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	84.13%
Medium Trucks:	67.8%	9.4%	22.8%	7.25%
Heavy Trucks:	63.0%	10.8%	26.2%	8.62%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.33	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-11.98	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-11.23	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.6	67.1	66.2	64.4	71.2	71.6
Medium Trucks:	69.6	67.4	64.9	63.9	71.0	71.2
Heavy Trucks:	74.4	71.9	70.2	69.3	76.1	76.4
Vehicle Noise:	76.6	74.1	72.5	71.4	78.2	78.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	184	397	854	1,840
CNEL:	193	415	895	1,928

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: w/o Mesa Linda St.

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,964	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,435	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	80.12%
Medium Trucks:	67.8%	9.4%	22.8%	9.50%
Heavy Trucks:	63.0%	10.8%	26.2%	10.39%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.61	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-8.65	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-8.26	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	68.6	67.7	65.9	72.8	73.1
Medium Trucks:	72.7	70.5	67.9	67.0	74.0	74.3
Heavy Trucks:	77.5	75.0	73.3	72.4	79.2	79.5
Vehicle Noise:	79.4	77.0	75.3	74.2	81.1	81.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	328	707	1,523	3,281
CNEL:	343	740	1,594	3,435

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: w/o Catabra Rd.

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,767	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,605	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	80.36%
Medium Trucks:	67.8%	9.4%	22.8%	9.36%
Heavy Trucks:	63.0%	10.8%	26.2%	10.28%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.91	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-8.43	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-8.02	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.5	68.9	68.0	66.2	73.1	73.4
Medium Trucks:	73.0	70.8	68.2	67.3	74.3	74.6
Heavy Trucks:	77.7	75.2	73.6	72.7	79.5	79.8
Vehicle Noise:	79.7	77.2	75.5	74.5	81.3	81.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	341	735	1,583	3,411
CNEL:	357	769	1,658	3,571

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: e/o Key Point Av.

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,035	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,286	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	82.80%
Medium Trucks:	67.8%	9.4%	22.8%	7.98%
Heavy Trucks:	63.0%	10.8%	26.2%	9.22%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.05	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-8.11	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.48	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.6	70.0	69.2	67.3	74.2	74.6
Medium Trucks:	73.3	71.1	68.5	67.6	74.6	74.9
Heavy Trucks:	78.3	75.8	74.1	73.2	80.0	80.3
Vehicle Noise:	80.3	77.8	76.1	75.0	81.9	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	373	804	1,733	3,734
CNEL:	391	842	1,815	3,910

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: e/o Mariposa Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	40,497 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,799 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.19%
Medium Trucks:	67.8%	9.4%	22.8%	7.19%
Heavy Trucks:	63.0%	10.8%	26.2%	8.62%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.75	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.93	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.14	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	70.4	69.5	67.7	74.5	74.9
Medium Trucks:	73.1	70.9	68.3	67.4	74.4	74.7
Heavy Trucks:	78.2	75.7	74.1	73.2	80.0	80.3
Vehicle Noise:	80.3	77.8	76.2	75.0	81.9	82.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	374	805	1,734	3,735
CNEL:	391	843	1,816	3,912

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: w/o Escondido Av.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,022 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,942 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.18%
Medium Trucks:	67.8%	9.4%	22.8%	7.19%
Heavy Trucks:	63.0%	10.8%	26.2%	8.63%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.91	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.77	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.98	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	70.5	69.7	67.8	74.7	75.0
Medium Trucks:	73.2	71.0	68.5	67.6	74.6	74.8
Heavy Trucks:	78.4	75.9	74.2	73.3	80.1	80.4
Vehicle Noise:	80.4	78.0	76.3	75.2	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	383	825	1,778	3,830
CNEL:	401	864	1,862	4,011

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: e/o Escondido Av.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,840 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,174 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.09%
Medium Trucks:	67.8%	9.4%	22.8%	7.23%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.97	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-8.68	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.89	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	69.6	68.7	66.9	73.7	74.1
Medium Trucks:	72.3	70.1	67.5	66.6	73.6	73.9
Heavy Trucks:	77.5	75.0	73.3	72.4	79.2	79.5
Vehicle Noise:	79.5	77.1	75.4	74.3	81.2	81.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	333	716	1,543	3,325
CNEL:	348	750	1,616	3,482

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Main St.
Road Segment: e/o Topaz Av.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,760 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,885 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.96%
Medium Trucks:	67.8%	9.4%	22.8%	7.29%
Heavy Trucks:	63.0%	10.8%	26.2%	8.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.13	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.48	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.69	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	70.8	70.0	68.1	75.0	75.4
Medium Trucks:	73.5	71.3	68.7	67.8	74.8	75.1
Heavy Trucks:	78.2	75.7	74.1	73.2	80.0	80.3
Vehicle Noise:	80.4	78.0	76.3	75.2	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	414	893	1,924	4,145
CNEL:	434	935	2,015	4,341

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Sultana St.
Road Segment: e/o Escondido Av.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,312 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	405 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	84.53%
Medium Trucks:	67.8%	9.4%	22.8%	7.03%
Heavy Trucks:	63.0%	10.8%	26.2%	8.44%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-5.99	3.64	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-16.78	3.71	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-15.99	3.70	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.0	60.4	59.5	57.7	64.6	64.9
Medium Trucks:	63.4	61.2	58.7	57.8	64.8	65.0
Heavy Trucks:	69.5	67.0	65.3	64.4	71.2	71.5
Vehicle Noise:	71.2	68.7	67.0	66.0	72.8	73.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	46	100	215	463
CNEL:	48	104	225	484

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: Existing + Project
Road Name: Joshua St.
Road Segment: e/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,802 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	450 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	85.10%
Medium Trucks:	67.8%	9.4%	22.8%	6.77%
Heavy Trucks:	63.0%	10.8%	26.2%	8.13%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-6.87	2.88	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	82.40	-17.86	2.94	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-17.07	2.93	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.6	64.0	63.1	61.3	68.2	68.5
Medium Trucks:	66.3	64.1	61.5	60.6	67.6	67.9
Heavy Trucks:	71.1	68.5	66.9	66.0	72.8	73.1
Vehicle Noise:	73.3	70.9	69.2	68.1	75.0	75.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	86	185	398	857
CNEL:	90	193	417	898

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: US Hwy. 395
Road Segment: n/o Luna Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,362 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,660 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.77	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-9.79	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.00	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.2	68.6	67.7	65.9	72.8	73.1
Medium Trucks:	71.2	69.0	66.5	65.6	72.6	72.8
Heavy Trucks:	76.0	73.5	71.9	70.9	77.8	78.0
Vehicle Noise:	78.2	75.8	74.1	73.0	79.8	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	281	605	1,304	2,810
CNEL:	294	634	1,366	2,943

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: US Hwy. 395
Road Segment: s/o Luna Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,674 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,314 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.17	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-10.40	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.61	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.6	68.0	67.1	65.3	72.2	72.5
Medium Trucks:	70.6	68.4	65.9	64.9	72.0	72.2
Heavy Trucks:	75.4	72.9	71.3	70.3	77.1	77.4
Vehicle Noise:	77.6	75.1	73.5	72.4	79.2	79.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	256	552	1,189	2,561
CNEL:	268	578	1,245	2,682

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,178	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,549	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.59	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-9.98	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.19	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.4	67.5	65.7	72.6	72.9
Medium Trucks:	71.1	68.9	66.3	65.4	72.4	72.7
Heavy Trucks:	75.8	73.3	71.7	70.7	77.6	77.9
Vehicle Noise:	78.0	75.6	73.9	72.8	79.7	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	273	588	1,268	2,732
CNEL:	286	616	1,328	2,861

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,296	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,654	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.76	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-9.80	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-9.01	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	68.6	67.7	65.9	72.7	73.1
Medium Trucks:	71.2	69.0	66.4	65.5	72.5	72.8
Heavy Trucks:	76.0	73.5	71.8	70.9	77.7	78.0
Vehicle Noise:	78.2	75.7	74.1	73.0	79.8	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	281	605	1,302	2,806
CNEL:	294	633	1,364	2,939

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,519	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	611	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.61	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-16.18	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-15.39	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	62.8	61.9	60.1	67.0	67.3
Medium Trucks:	65.4	63.2	60.7	59.8	66.8	67.0
Heavy Trucks:	70.2	67.7	66.1	65.1	72.0	72.2
Vehicle Noise:	72.4	70.0	68.3	67.2	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	208	449	967
CNEL:	101	218	470	1,013

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: s/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,485	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	233	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-9.80	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-20.36	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.57	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	58.6	57.7	55.9	62.8	63.1
Medium Trucks:	61.2	59.1	56.5	55.6	62.6	62.8
Heavy Trucks:	66.0	63.5	61.9	60.9	67.8	68.1
Vehicle Noise:	68.2	65.8	64.1	63.0	69.9	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	110	236	509
CNEL:	53	115	247	533

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: Verbena Rd.
Road Segment: n/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	200 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	19 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	25.0 feet
Centerline Dist. to Observer:	25.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-19.37	5.10	-1.20	-4.41	0.000	0.000
Medium Trucks:	77.72	-29.93	5.22	-1.20	-4.85	0.000	0.000
Heavy Trucks:	82.99	-29.14	5.20	-1.20	-5.94	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	51.0	48.5	47.6	45.8	52.6	53.0
Medium Trucks:	51.8	49.6	47.0	46.1	53.1	53.4
Heavy Trucks:	57.9	55.3	53.7	52.8	59.6	59.9
Vehicle Noise:	59.5	57.0	55.3	54.3	61.1	61.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	30	64
CNEL:	7	14	31	67

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: US Hwy. 395
Road Segment: s/o Yucca Terrace Dr.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	32,744 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,071 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.40	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.17	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.38	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.7	71.1	70.2	68.4	75.3	75.6
Medium Trucks:	73.8	71.6	69.0	68.1	75.1	75.4
Heavy Trucks:	78.5	76.0	74.4	73.5	80.3	80.6
Vehicle Noise:	80.7	78.3	76.6	75.5	82.4	82.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	434	935	2,015	4,342
CNEL:	455	980	2,111	4,547

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: US Hwy. 395
Road Segment: s/o Main St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,011 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,534 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.56	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.00	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.21	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.8	70.3	69.4	67.6	74.4	74.8
Medium Trucks:	72.9	70.7	68.1	67.2	74.3	74.5
Heavy Trucks:	77.7	75.2	73.5	72.6	79.4	79.7
Vehicle Noise:	79.9	77.4	75.8	74.7	81.5	81.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	382	823	1,772	3,819
CNEL:	400	862	1,856	4,000

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021)
Road Name: US Hwy. 395
Road Segment: s/o Poplar St.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,426 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,573 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.63	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.94	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.15	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.9	70.3	69.5	67.6	74.5	74.9
Medium Trucks:	73.0	70.8	68.2	67.3	74.3	74.6
Heavy Trucks:	77.8	75.3	73.6	72.7	79.5	79.8
Vehicle Noise:	80.0	77.5	75.8	74.7	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	386	831	1,791	3,858
CNEL:	404	870	1,875	4,040

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Joshua St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,574 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,680 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.81	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.76	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.97	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.1	70.5	69.6	67.8	74.7	75.0
Medium Trucks:	73.2	71.0	68.4	67.5	74.5	74.8
Heavy Trucks:	78.0	75.4	73.8	72.9	79.7	80.0
Vehicle Noise:	80.2	77.7	76.0	74.9	81.8	82.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	396	854	1,840	3,965
CNEL:	415	895	1,927	4,152

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: n/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,770 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,230 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.42	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.14	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.35	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.1	68.2	66.4	73.2	73.6
Medium Trucks:	71.9	69.7	67.1	66.2	73.2	73.5
Heavy Trucks:	77.1	74.6	72.9	72.0	78.8	79.1
Vehicle Noise:	79.1	76.6	75.0	73.9	80.7	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	259	559	1,204	2,594
CNEL:	272	585	1,261	2,716

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: s/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,770 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,230 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.42	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.14	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.35	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.6	69.1	68.2	66.4	73.2	73.6
Medium Trucks:	71.9	69.7	67.1	66.2	73.2	73.5
Heavy Trucks:	77.1	74.6	72.9	72.0	78.8	79.1
Vehicle Noise:	79.1	76.6	75.0	73.9	80.7	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	259	559	1,204	2,594
CNEL:	272	585	1,261	2,716

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Topaz Av. | Job Number: 12780
Road Segment: n/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,343 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	314 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-7.13	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-17.69	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-16.90	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.8	59.2	58.4	56.5	63.4	63.8
Medium Trucks:	62.5	60.3	57.7	56.8	63.9	64.1
Heavy Trucks:	68.6	66.1	64.4	63.5	70.3	70.6
Vehicle Noise:	70.2	67.8	66.1	65.0	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	186	400
CNEL:	42	90	194	419

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Luna Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	7,999 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	750 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.34	2.76	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-13.91	2.82	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-13.12	2.81	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.7	62.2	61.3	59.5	66.3	66.7
Medium Trucks:	65.4	63.2	60.6	59.7	66.7	67.0
Heavy Trucks:	71.5	69.0	67.3	66.4	73.2	73.5
Vehicle Noise:	73.1	70.7	69.0	67.9	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	329	708
CNEL:	74	160	344	741

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Bear Valley Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,776 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,292 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.36	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-12.93	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-12.14	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.0	65.4	64.6	62.7	69.6	70.0
Medium Trucks:	68.1	65.9	63.3	62.4	69.4	69.7
Heavy Trucks:	72.9	70.4	68.7	67.8	74.6	74.9
Vehicle Noise:	75.1	72.6	71.0	69.8	76.7	77.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	174	374	806	1,737
CNEL:	182	392	844	1,819

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: w/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	341 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	32 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-18.43	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-28.99	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-28.20	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.0	49.4	48.5	46.7	53.6	53.9
Medium Trucks:	52.0	49.8	47.3	46.3	53.4	53.6
Heavy Trucks:	56.8	54.3	52.7	51.7	58.6	58.8
Vehicle Noise:	59.0	56.6	54.9	53.8	60.6	60.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	32	68	147
CNEL:	15	33	72	154

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,691 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	159 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-11.47	0.79	-1.20	-4.65	0.000	0.000
Medium Trucks:	82.40	-22.04	0.82	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-21.25	0.82	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	59.9	57.3	56.5	54.6	61.5	61.9
Medium Trucks:	60.0	57.8	55.2	54.3	61.3	61.6
Heavy Trucks:	64.8	62.2	60.6	59.7	66.5	66.8
Vehicle Noise:	67.0	64.5	62.8	61.7	68.6	68.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	87	187	403
CNEL:	42	91	196	422

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Baldy Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,241 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,805 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.91	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.48	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.69	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	67.5	66.6	64.8	71.7	72.0
Medium Trucks:	70.1	67.9	65.4	64.5	71.5	71.7
Heavy Trucks:	74.9	72.4	70.8	69.8	76.7	76.9
Vehicle Noise:	77.1	74.7	73.0	71.9	78.7	79.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	199	429	924	1,990
CNEL:	208	449	968	2,085

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Verbena Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,141 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,795 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.93	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.50	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.71	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	67.5	66.6	64.8	71.6	72.0
Medium Trucks:	70.1	67.9	65.3	64.4	71.4	71.7
Heavy Trucks:	74.9	72.4	70.7	69.8	76.6	76.9
Vehicle Noise:	77.1	74.6	73.0	71.9	78.7	79.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	198	427	921	1,984
CNEL:	208	448	964	2,077

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Bellflower St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,579 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,837 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.84	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.40	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.61	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.1	67.6	66.7	64.9	71.7	72.1
Medium Trucks:	70.2	68.0	65.4	64.5	71.5	71.8
Heavy Trucks:	75.0	72.5	70.8	69.9	76.7	77.0
Vehicle Noise:	77.2	74.7	73.1	72.0	78.8	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	201	434	935	2,014
CNEL:	211	454	979	2,109

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: e/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,051 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,881 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.73	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.30	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.51	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	67.7	66.8	65.0	71.8	72.2
Medium Trucks:	70.3	68.1	65.5	64.6	71.6	71.9
Heavy Trucks:	75.1	72.6	70.9	70.0	76.8	77.1
Vehicle Noise:	77.3	74.8	73.2	72.1	78.9	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	205	441	950	2,046
CNEL:	214	462	995	2,143

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Mesa Linda St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,919 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,244 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.45	1.54	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-10.12	1.58	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-9.33	1.58	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.0	68.4	67.6	65.7	72.6	72.9
Medium Trucks:	71.3	69.1	66.5	65.6	72.6	72.9
Heavy Trucks:	76.4	73.9	72.3	71.3	78.2	78.5
Vehicle Noise:	78.4	76.0	74.3	73.2	80.1	80.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	282	607	1,308	2,818
CNEL:	295	636	1,370	2,951

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Catabra Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,165 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,454 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.84	1.54	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-9.73	1.58	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-8.94	1.58	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	68.8	67.9	66.1	73.0	73.3
Medium Trucks:	71.7	69.5	66.9	66.0	73.0	73.3
Heavy Trucks:	76.8	74.3	72.7	71.7	78.6	78.8
Vehicle Noise:	78.8	76.4	74.7	73.6	80.5	80.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	299	645	1,389	2,992
CNEL:	313	675	1,454	3,133

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Key Point Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,235 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,586 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.48	1.54	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-8.08	1.58	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.29	1.58	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.0	70.5	69.6	67.8	74.6	75.0
Medium Trucks:	73.3	71.1	68.5	67.6	74.6	74.9
Heavy Trucks:	78.5	75.9	74.3	73.4	80.2	80.5
Vehicle Noise:	80.5	78.0	76.3	75.3	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	385	830	1,788	3,852
CNEL:	403	869	1,873	4,034

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Mariposa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	45,113 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,232 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.20	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.36	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.57	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.4	70.8	69.9	68.1	75.0	75.3
Medium Trucks:	73.6	71.4	68.9	68.0	75.0	75.2
Heavy Trucks:	78.8	76.3	74.6	73.7	80.5	80.8
Vehicle Noise:	80.8	78.4	76.7	75.6	82.5	82.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	406	876	1,886	4,064
CNEL:	426	917	1,975	4,256

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,700 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,380 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.35	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.21	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.42	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	71.0	70.1	68.3	75.1	75.5
Medium Trucks:	73.8	71.6	69.0	68.1	75.1	75.4
Heavy Trucks:	79.0	76.4	74.8	73.9	80.7	81.0
Vehicle Noise:	81.0	78.5	76.8	75.7	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	416	896	1,930	4,159
CNEL:	436	938	2,021	4,355

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,911 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,556 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.45	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-8.12	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.33	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	71.0	69.2	67.3	74.2	74.6
Medium Trucks:	72.9	70.7	68.1	67.2	74.2	74.5
Heavy Trucks:	78.1	75.5	73.9	73.0	79.8	80.1
Vehicle Noise:	80.1	77.6	75.9	74.8	81.7	82.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	362	780	1,680	3,619
CNEL:	379	817	1,759	3,790

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Topaz Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,673 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,252 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.65	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.92	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.13	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.9	71.3	70.5	68.6	75.5	75.9
Medium Trucks:	74.0	71.8	69.2	68.3	75.3	75.6
Heavy Trucks:	78.8	76.3	74.6	73.7	80.5	80.8
Vehicle Noise:	81.0	78.5	76.9	75.8	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	451	972	2,094	4,510
CNEL:	472	1,018	2,193	4,724

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Sultana St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,456 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	418 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.88	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-16.45	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-15.66	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.1	60.5	59.6	57.8	64.7	65.0
Medium Trucks:	63.8	61.6	59.0	58.1	65.1	65.4
Heavy Trucks:	69.8	67.3	65.7	64.8	71.6	71.9
Vehicle Noise:	71.5	69.0	67.3	66.3	73.1	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	48	104	225	485
CNEL:	51	109	236	508

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYC (2021) | Project Name: Hesperia Commerce Cent
Road Name: Joshua St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,141 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	951 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.69	2.88	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-14.26	2.94	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-13.47	2.93	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.2	66.3	64.5	71.4	71.7
Medium Trucks:	69.9	67.7	65.1	64.2	71.2	71.5
Heavy Trucks:	74.7	72.1	70.5	69.6	76.4	76.7
Vehicle Noise:	76.9	74.4	72.7	71.6	78.5	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	147	317	683	1,471
CNEL:	154	332	715	1,541

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,670 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,689 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.58%
Medium Trucks:	67.8%	9.4%	22.8%	7.49%
Heavy Trucks:	63.0%	10.8%	26.2%	8.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.81	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.67	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.90	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	68.6	67.8	65.9	72.8	73.1
Medium Trucks:	71.4	69.2	66.6	65.7	72.7	73.0
Heavy Trucks:	76.1	73.6	72.0	71.0	77.9	78.1
Vehicle Noise:	78.3	75.8	74.2	73.1	79.9	80.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	285	614	1,323	2,850
CNEL:	298	643	1,385	2,985

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,078 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,352 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.60%
Medium Trucks:	67.8%	9.4%	22.8%	7.48%
Heavy Trucks:	63.0%	10.8%	26.2%	8.92%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.23	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.26	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.49	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.0	67.2	65.3	72.2	72.6
Medium Trucks:	70.8	68.6	66.0	65.1	72.1	72.4
Heavy Trucks:	75.5	73.0	71.4	70.4	77.3	77.6
Vehicle Noise:	77.7	75.3	73.6	72.5	79.3	79.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	260	561	1,209	2,604
CNEL:	273	588	1,266	2,727

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,963 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,623 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.85%
Medium Trucks:	67.8%	9.4%	22.8%	7.37%
Heavy Trucks:	63.0%	10.8%	26.2%	8.79%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.71	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.85	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.08	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	68.5	67.7	65.8	72.7	73.1
Medium Trucks:	71.2	69.0	66.4	65.5	72.5	72.8
Heavy Trucks:	75.9	73.4	71.8	70.9	77.7	78.0
Vehicle Noise:	78.1	75.7	74.0	72.9	79.8	80.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	278	599	1,290	2,779
CNEL:	291	627	1,351	2,911

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,367	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,755	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.00%
Medium Trucks:	67.8%	9.4%	22.8%	7.29%
Heavy Trucks:	63.0%	10.8%	26.2%	8.70%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.93	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-9.68	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-8.91	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.3	68.7	67.9	66.0	72.9	73.3
Medium Trucks:	71.4	69.2	66.6	65.7	72.7	73.0
Heavy Trucks:	76.1	73.6	71.9	71.0	77.8	78.1
Vehicle Noise:	78.3	75.9	74.2	73.1	80.0	80.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	286	616	1,326	2,857
CNEL:	299	645	1,389	2,993

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,804	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	638	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.49%
Medium Trucks:	67.8%	9.4%	22.8%	7.05%
Heavy Trucks:	63.0%	10.8%	26.2%	8.46%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-5.39	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-16.18	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-15.39	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.6	63.0	62.1	60.3	67.2	67.5
Medium Trucks:	65.4	63.2	60.7	59.8	66.8	67.0
Heavy Trucks:	70.2	67.7	66.1	65.1	72.0	72.2
Vehicle Noise:	72.5	70.0	68.3	67.2	74.1	74.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	97	210	452	974
CNEL:	102	220	473	1,020

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: s/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,676	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	251	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.97%
Medium Trucks:	67.8%	9.4%	22.8%	6.83%
Heavy Trucks:	63.0%	10.8%	26.2%	8.20%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-9.42	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-20.36	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.57	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.5	59.0	58.1	56.3	63.1	63.5
Medium Trucks:	61.2	59.1	56.5	55.6	62.6	62.8
Heavy Trucks:	66.0	63.5	61.9	60.9	67.8	68.1
Vehicle Noise:	68.3	65.8	64.2	63.1	69.9	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	51	111	239	515
CNEL:	54	116	250	539

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Verbena Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	295	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	28	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	24	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	25.0	feet
Centerline Dist. to Observer:	25.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	89.04%
Medium Trucks:	67.8%	9.4%	22.8%	4.98%
Heavy Trucks:	63.0%	10.8%	26.2%	5.98%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-17.41	5.10	-1.20	*-4.41*	0.000	0.000
Medium Trucks:	77.72	-29.93	5.22	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	82.99	-29.14	5.20	-1.20	*-5.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.0	50.4	49.6	47.7	54.6	55.0
Medium Trucks:	51.8	49.6	47.0	46.1	53.1	53.4
Heavy Trucks:	57.9	55.3	53.7	52.8	59.6	59.9
Vehicle Noise:	59.8	57.4	55.7	54.6	61.5	61.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	7	15	31	68
CNEL:	7	15	33	71

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Yucca Terrace Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	36,122	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,388	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.10%
Medium Trucks:	67.8%	9.4%	22.8%	7.80%
Heavy Trucks:	63.0%	10.8%	26.2%	9.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.79	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.49	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.82	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.1	71.5	70.6	68.8	75.7	76.0
Medium Trucks:	74.4	72.3	69.7	68.8	75.8	76.0
Heavy Trucks:	79.1	76.6	74.9	74.0	80.8	81.1
Vehicle Noise:	81.3	78.8	77.2	76.1	82.9	83.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	472	1,018	2,192	4,723
CNEL:	495	1,066	2,296	4,946

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	28,917	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,712	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.88%
Medium Trucks:	67.8%	9.4%	22.8%	6.87%
Heavy Trucks:	63.0%	10.8%	26.2%	8.25%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.91	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-10.00	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.21	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.2	70.6	69.7	67.9	74.8	75.1
Medium Trucks:	72.9	70.7	68.1	67.2	74.3	74.5
Heavy Trucks:	77.7	75.2	73.5	72.6	79.4	79.7
Vehicle Noise:	80.0	77.5	75.9	74.7	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	386	832	1,792	3,860
CNEL:	404	871	1,877	4,044

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Poplar St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,332	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,751	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.87%
Medium Trucks:	67.8%	9.4%	22.8%	6.88%
Heavy Trucks:	63.0%	10.8%	26.2%	8.25%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.97	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.94	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-9.15	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.2	70.7	69.8	68.0	74.8	75.2
Medium Trucks:	73.0	70.8	68.2	67.3	74.3	74.6
Heavy Trucks:	77.8	75.3	73.6	72.7	79.5	79.8
Vehicle Noise:	80.0	77.6	75.9	74.8	81.7	82.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	390	840	1,810	3,899
CNEL:	408	880	1,896	4,084

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Joshua St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,099	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,823	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.63%
Medium Trucks:	67.8%	9.4%	22.8%	6.99%
Heavy Trucks:	63.0%	10.8%	26.2%	8.38%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.07	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-9.76	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.97	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.3	70.8	69.9	68.1	74.9	75.3
Medium Trucks:	73.2	71.0	68.4	67.5	74.5	74.8
Heavy Trucks:	78.0	75.4	73.8	72.9	79.7	80.0
Vehicle Noise:	80.2	77.7	76.1	75.0	81.8	82.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	400	861	1,855	3,997
CNEL:	419	902	1,944	4,187

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: n/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,151 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,265 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.07%
Medium Trucks:	67.8%	9.4%	22.8%	7.24%
Heavy Trucks:	63.0%	10.8%	26.2%	8.69%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.50	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.14	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.35	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.1	68.3	66.4	73.3	73.7
Medium Trucks:	71.9	69.7	67.1	66.2	73.2	73.5
Heavy Trucks:	77.1	74.6	72.9	72.0	78.8	79.1
Vehicle Noise:	79.1	76.6	75.0	73.9	80.7	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	260	560	1,207	2,600
CNEL:	272	587	1,264	2,723

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: s/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,960 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,247 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.94%
Medium Trucks:	67.8%	9.4%	22.8%	7.30%
Heavy Trucks:	63.0%	10.8%	26.2%	8.76%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	0.46	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-10.14	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-9.35	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.7	69.1	68.2	66.4	73.3	73.6
Medium Trucks:	71.9	69.7	67.1	66.2	73.2	73.5
Heavy Trucks:	77.1	74.6	72.9	72.0	78.8	79.1
Vehicle Noise:	79.1	76.6	75.0	73.9	80.7	81.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	260	559	1,205	2,597
CNEL:	272	586	1,262	2,719

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Topaz Av. | Job Number: 12780
Road Segment: n/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,438 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	322 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.26%
Medium Trucks:	67.8%	9.4%	22.8%	7.16%
Heavy Trucks:	63.0%	10.8%	26.2%	8.58%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-6.98	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-17.69	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-16.90	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.0	59.4	58.5	56.7	63.6	63.9
Medium Trucks:	62.5	60.3	57.7	56.8	63.9	64.1
Heavy Trucks:	68.6	66.1	64.4	63.5	70.3	70.6
Vehicle Noise:	70.3	67.8	66.1	65.0	71.9	72.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	87	186	402
CNEL:	42	91	195	420

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Luna Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,094 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	759 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.00%
Medium Trucks:	67.8%	9.4%	22.8%	7.27%
Heavy Trucks:	63.0%	10.8%	26.2%	8.72%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-3.28	2.76	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-13.91	2.82	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-13.12	2.81	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.8	62.2	61.4	59.5	66.4	66.7
Medium Trucks:	65.4	63.2	60.6	59.7	66.7	67.0
Heavy Trucks:	71.5	69.0	67.3	66.4	73.2	73.5
Vehicle Noise:	73.1	70.7	69.0	67.9	74.8	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	71	153	329	709
CNEL:	74	160	345	742

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Bear Valley Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,158 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,328 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.25%
Medium Trucks:	67.8%	9.4%	22.8%	7.16%
Heavy Trucks:	63.0%	10.8%	26.2%	8.59%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.22	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-12.93	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-12.14	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	65.6	64.7	62.9	69.8	70.1
Medium Trucks:	68.1	65.9	63.3	62.4	69.4	69.7
Heavy Trucks:	72.9	70.4	68.7	67.8	74.6	74.9
Vehicle Noise:	75.1	72.6	71.0	69.9	76.7	77.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	174	376	810	1,744
CNEL:	183	394	848	1,827

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: w/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	436 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	41 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	87.35%
Medium Trucks:	67.8%	9.4%	22.8%	5.75%
Heavy Trucks:	63.0%	10.8%	26.2%	6.90%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-17.18	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-28.99	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-28.20	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.2	50.6	49.8	47.9	54.8	55.2
Medium Trucks:	52.0	49.8	47.3	46.3	53.4	53.6
Heavy Trucks:	56.8	54.3	52.7	51.7	58.6	58.8
Vehicle Noise:	59.3	56.8	55.2	54.1	60.9	61.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	15	33	71	154
CNEL:	16	35	75	161

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,882 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	177 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.45%
Medium Trucks:	67.8%	9.4%	22.8%	6.61%
Heavy Trucks:	63.0%	10.8%	26.2%	7.93%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-10.92	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	82.40	-22.04	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-21.25	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	60.4	57.9	57.0	55.2	62.0	62.4
Medium Trucks:	60.0	57.8	55.2	54.3	61.3	61.6
Heavy Trucks:	64.8	62.2	60.6	59.7	66.5	66.8
Vehicle Noise:	67.1	64.6	63.0	61.8	68.7	69.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	88	190	410
CNEL:	43	93	199	429

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Baldy Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,622 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,841 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.13%
Medium Trucks:	67.8%	9.4%	22.8%	7.22%
Heavy Trucks:	63.0%	10.8%	26.2%	8.66%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.81	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-11.48	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.69	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	67.6	66.7	64.9	71.8	72.1
Medium Trucks:	70.1	67.9	65.4	64.5	71.5	71.7
Heavy Trucks:	74.9	72.4	70.8	69.8	76.7	76.9
Vehicle Noise:	77.1	74.7	73.0	71.9	78.8	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	430	927	1,997
CNEL:	209	451	971	2,091

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Verbena Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	19,998 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,876 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.51%
Medium Trucks:	67.8%	9.4%	22.8%	7.04%
Heavy Trucks:	63.0%	10.8%	26.2%	8.45%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.71	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.50	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.71	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.3	67.7	66.8	65.0	71.9	72.2
Medium Trucks:	70.1	67.9	65.3	64.4	71.4	71.7
Heavy Trucks:	74.9	72.4	70.7	69.8	76.6	76.9
Vehicle Noise:	77.1	74.7	73.0	71.9	78.8	79.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	200	430	927	1,997
CNEL:	209	451	971	2,092

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Bellflower St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,532 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,926 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.57%
Medium Trucks:	67.8%	9.4%	22.8%	7.02%
Heavy Trucks:	63.0%	10.8%	26.2%	8.42%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.59	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.40	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.61	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.4	67.8	66.9	65.1	72.0	72.3
Medium Trucks:	70.2	68.0	65.4	64.5	71.5	71.8
Heavy Trucks:	75.0	72.5	70.8	69.9	76.7	77.0
Vehicle Noise:	77.2	74.8	73.1	72.0	78.9	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	203	437	942	2,029
CNEL:	213	458	986	2,125

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: e/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,122 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,981 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.08%
Medium Trucks:	67.8%	9.4%	22.8%	7.27%
Heavy Trucks:	63.0%	10.8%	26.2%	8.65%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.49	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-11.12	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-10.37	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	67.9	67.0	65.2	72.1	72.4
Medium Trucks:	70.5	68.3	65.7	64.8	71.8	72.1
Heavy Trucks:	75.2	72.7	71.1	70.2	77.0	77.3
Vehicle Noise:	77.5	75.0	73.3	72.2	79.1	79.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	210	452	974	2,099
CNEL:	220	474	1,020	2,198

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Mesa Linda St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	31,887 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,991 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	80.80%
Medium Trucks:	67.8%	9.4%	22.8%	9.10%
Heavy Trucks:	63.0%	10.8%	26.2%	10.10%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.54	1.54	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.95	1.58	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.50	1.58	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.1	69.5	68.6	66.8	73.7	74.0
Medium Trucks:	73.4	71.2	68.7	67.7	74.8	75.0
Heavy Trucks:	78.3	75.7	74.1	73.2	80.0	80.3
Vehicle Noise:	80.2	77.8	76.1	75.0	81.8	82.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	370	797	1,717	3,699
CNEL:	387	834	1,798	3,873

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Catabra Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,133	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,202	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	81.00%
Medium Trucks:	67.8%	9.4%	22.8%	8.99%
Heavy Trucks:	63.0%	10.8%	26.2%	10.01%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.84	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.71	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.24	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.4	69.8	68.9	67.1	74.0	74.3
Medium Trucks:	73.7	71.5	68.9	68.0	75.0	75.3
Heavy Trucks:	78.5	76.0	74.4	73.4	80.3	80.5
Vehicle Noise:	80.5	78.0	76.3	75.2	82.1	82.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	385	830	1,788	3,852
CNEL:	403	869	1,872	4,032

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Key Point Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,637	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,999	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	82.98%
Medium Trucks:	67.8%	9.4%	22.8%	7.87%
Heavy Trucks:	63.0%	10.8%	26.2%	9.15%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.91	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.32	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-6.66	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	70.9	70.0	68.2	75.1	75.4
Medium Trucks:	74.1	71.9	69.3	68.4	75.4	75.7
Heavy Trucks:	79.1	76.6	74.9	74.0	80.8	81.1
Vehicle Noise:	81.1	78.6	77.0	75.9	82.7	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	424	913	1,966	4,236
CNEL:	444	956	2,059	4,435

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Mariposa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	46,066	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	4,321	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	88	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.15%
Medium Trucks:	67.8%	9.4%	22.8%	7.21%
Heavy Trucks:	63.0%	10.8%	26.2%	8.64%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.31	1.17	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.36	1.21	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-6.57	1.20	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.5	70.9	70.1	68.2	75.1	75.4
Medium Trucks:	73.6	71.4	68.9	68.0	75.0	75.2
Heavy Trucks:	78.8	76.3	74.6	73.7	80.5	80.8
Vehicle Noise:	80.8	78.4	76.7	75.6	82.5	82.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	408	878	1,892	4,076
CNEL:	427	920	1,981	4,269

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,653	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	4,470	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	88	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.14%
Medium Trucks:	67.8%	9.4%	22.8%	7.21%
Heavy Trucks:	63.0%	10.8%	26.2%	8.65%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.46	1.17	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.21	1.21	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-6.42	1.20	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.1	70.2	68.4	75.2	75.6
Medium Trucks:	73.8	71.6	69.0	68.1	75.1	75.4
Heavy Trucks:	79.0	76.4	74.8	73.9	80.7	81.0
Vehicle Noise:	81.0	78.5	76.9	75.8	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	417	899	1,936	4,171
CNEL:	437	941	2,027	4,368

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	38,482 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,610 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.05%
Medium Trucks:	67.8%	9.4%	22.8%	7.25%
Heavy Trucks:	63.0%	10.8%	26.2%	8.70%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	2.53	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-8.12	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-7.33	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.7	70.1	69.3	67.4	74.3	74.7
Medium Trucks:	72.9	70.7	68.1	67.2	74.2	74.5
Heavy Trucks:	78.1	75.5	73.9	73.0	79.8	80.1
Vehicle Noise:	80.1	77.6	76.0	74.9	81.7	82.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	363	781	1,683	3,627
CNEL:	380	818	1,763	3,798

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Topaz Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,959 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,279 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.95%
Medium Trucks:	67.8%	9.4%	22.8%	7.30%
Heavy Trucks:	63.0%	10.8%	26.2%	8.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.69	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.92	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.13	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	71.4	70.5	68.7	75.6	75.9
Medium Trucks:	74.0	71.8	69.2	68.3	75.3	75.6
Heavy Trucks:	78.8	76.3	74.6	73.7	80.5	80.8
Vehicle Noise:	81.0	78.5	76.9	75.8	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	452	973	2,096	4,516
CNEL:	473	1,019	2,196	4,730

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Sultana St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,647 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	436 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.48%
Medium Trucks:	67.8%	9.4%	22.8%	7.06%
Heavy Trucks:	63.0%	10.8%	26.2%	8.46%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.66	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-16.45	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-15.66	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.3	60.7	59.8	58.0	64.9	65.2
Medium Trucks:	63.8	61.6	59.0	58.1	65.1	65.4
Heavy Trucks:	69.8	67.3	65.7	64.8	71.6	71.9
Vehicle Noise:	71.5	69.0	67.4	66.3	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	105	226	487
CNEL:	51	110	237	510

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: OYCP (2021) | Project Name: Hesperia Commerce Cent
Road Name: Joshua St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,523 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	987 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.40%
Medium Trucks:	67.8%	9.4%	22.8%	7.09%
Heavy Trucks:	63.0%	10.8%	26.2%	8.51%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.50	2.88	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-14.26	2.94	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-13.47	2.93	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.0	67.4	66.5	64.7	71.6	71.9
Medium Trucks:	69.9	67.7	65.1	64.2	71.2	71.5
Heavy Trucks:	74.7	72.1	70.5	69.6	76.4	76.7
Vehicle Noise:	76.9	74.4	72.8	71.7	78.5	78.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	148	319	687	1,480
CNEL:	155	334	719	1,550

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: US Hwy. 395 *Job Number:* 12780
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,258	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	5,371	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.82	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-6.74	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-5.95	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.2	71.6	70.8	68.9	75.8	76.2
Medium Trucks:	74.3	72.1	69.5	68.6	75.6	75.9
Heavy Trucks:	79.1	76.6	74.9	74.0	80.8	81.1
Vehicle Noise:	81.3	78.8	77.1	76.0	82.9	83.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	449	967	2,084	4,489
CNEL:	470	1,013	2,182	4,702

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: US Hwy. 395 *Job Number:* 12780
Road Segment: s/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,402	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	5,197	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.68	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-6.88	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-6.09	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.1	71.5	70.6	68.8	75.7	76.0
Medium Trucks:	74.1	71.9	69.4	68.5	75.5	75.7
Heavy Trucks:	78.9	76.4	74.8	73.8	80.7	81.0
Vehicle Noise:	81.1	78.7	77.0	75.9	82.8	83.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	439	946	2,038	4,392
CNEL:	460	991	2,135	4,600

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: US Hwy. 395 *Job Number:* 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,992	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	5,533	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.95	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-6.61	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-5.82	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.3	71.8	70.9	69.1	75.9	76.3
Medium Trucks:	74.4	72.2	69.6	68.7	75.7	76.0
Heavy Trucks:	79.2	76.7	75.0	74.1	80.9	81.2
Vehicle Noise:	81.4	78.9	77.3	76.2	83.0	83.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	458	987	2,126	4,579
CNEL:	480	1,033	2,226	4,796

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: US Hwy. 395 *Job Number:* 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,413	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	5,479	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	3.91	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-6.65	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-5.86	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.3	71.7	70.9	69.0	75.9	76.2
Medium Trucks:	74.4	72.2	69.6	68.7	75.7	76.0
Heavy Trucks:	79.2	76.6	75.0	74.1	80.9	81.2
Vehicle Noise:	81.4	78.9	77.2	76.1	83.0	83.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	455	980	2,112	4,549
CNEL:	476	1,027	2,212	4,765

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Baldy Mesa Rd.
Road Segment: n/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	8,855 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	831 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-4.28	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-14.85	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-14.06	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.7	64.1	63.2	61.4	68.3	68.6
Medium Trucks:	66.8	64.6	62.0	61.1	68.1	68.4
Heavy Trucks:	71.5	69.0	67.4	66.5	73.3	73.6
Vehicle Noise:	73.7	71.3	69.6	68.5	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	256	551	1,186
CNEL:	124	268	577	1,243

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Baldy Mesa Rd.
Road Segment: s/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,376 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	317 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-8.47	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-19.03	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-18.24	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.5	59.9	59.1	57.2	64.1	64.4
Medium Trucks:	62.6	60.4	57.8	56.9	63.9	64.2
Heavy Trucks:	67.4	64.8	63.2	62.3	69.1	69.4
Vehicle Noise:	69.6	67.1	65.4	64.3	71.2	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	62	134	290	624
CNEL:	65	141	303	653

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Verbena Rd.
Road Segment: n/o Phelan Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	271 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	25 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	25.0 feet
Centerline Dist. to Observer:	25.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-18.04	5.10	-1.20	*-4.41*	0.000	0.000
Medium Trucks:	77.72	-28.60	5.22	-1.20	*-4.85*	0.000	0.000
Heavy Trucks:	82.99	-27.81	5.20	-1.20	*-5.94*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	52.4	49.8	48.9	47.1	54.0	54.3
Medium Trucks:	53.1	50.9	48.3	47.4	54.5	54.7
Heavy Trucks:	59.2	56.7	55.0	54.1	60.9	61.2
Vehicle Noise:	60.8	58.3	56.7	55.6	62.5	62.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	37	79
CNEL:	8	18	38	82

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: US Hwy. 395
Road Segment: s/o Yucca Terrace Dr.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	39,091 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,667 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.17	1.69	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-8.40	1.73	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-7.61	1.73	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.4	71.9	71.0	69.2	76.0	76.4
Medium Trucks:	74.5	72.3	69.8	68.9	75.9	76.1
Heavy Trucks:	79.3	76.8	75.2	74.2	81.1	81.3
Vehicle Noise:	81.5	79.0	77.4	76.3	83.1	83.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	489	1,053	2,268	4,886
CNEL:	512	1,102	2,375	5,117

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,363	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	5,381	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.83	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.73	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.94	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.1	73.5	72.7	70.8	77.7	78.1
Medium Trucks:	76.2	74.0	71.4	70.5	77.5	77.8
Heavy Trucks:	81.0	78.5	76.8	75.9	82.7	83.0
Vehicle Noise:	83.2	80.7	79.1	77.9	84.8	85.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	631	1,359	2,929	6,309
CNEL:	661	1,424	3,067	6,608

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Poplar St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,235	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,305	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.72	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.85	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.06	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.0	71.4	70.5	68.7	75.6	75.9
Medium Trucks:	74.1	71.9	69.3	68.4	75.4	75.7
Heavy Trucks:	78.9	76.3	74.7	73.8	80.6	80.9
Vehicle Noise:	81.1	78.6	76.9	75.8	82.7	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	456	982	2,116	4,559
CNEL:	477	1,029	2,216	4,775

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Joshua St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	34,380	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,225	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.61	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.96	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.17	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.9	71.3	70.4	68.6	75.5	75.8
Medium Trucks:	74.0	71.8	69.2	68.3	75.3	75.6
Heavy Trucks:	78.8	76.2	74.6	73.7	80.5	80.8
Vehicle Noise:	81.0	78.5	76.8	75.7	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	449	966	2,082	4,485
CNEL:	470	1,012	2,180	4,697

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: n/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,278	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,746	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.33	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-9.24	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.45	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.5	70.0	69.1	67.3	74.1	74.5
Medium Trucks:	72.8	70.6	68.0	67.1	74.1	74.4
Heavy Trucks:	78.0	75.5	73.8	72.9	79.7	80.0
Vehicle Noise:	80.0	77.5	75.9	74.8	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	298	642	1,383	2,981
CNEL:	312	672	1,449	3,121

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Escondido Av. *Job Number:* 12780
Road Segment: s/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,278	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,746	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.33	2.21	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	81.00	-9.24	2.26	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	85.38	-8.45	2.25	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.5	70.0	69.1	67.3	74.1	74.5
Medium Trucks:	72.8	70.6	68.0	67.1	74.1	74.4
Heavy Trucks:	78.0	75.5	73.8	72.9	79.7	80.0
Vehicle Noise:	80.0	77.5	75.9	74.8	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	298	642	1,383	2,981
CNEL:	312	672	1,449	3,121

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Topaz Av. *Job Number:* 12780
Road Segment: n/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,522	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	424	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	23	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	30.0	feet
Centerline Dist. to Observer:	30.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-5.82	3.64	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-16.38	3.71	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-15.59	3.70	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	63.1	60.6	59.7	57.9	64.7	65.1
Medium Trucks:	63.8	61.6	59.1	58.2	65.2	65.4
Heavy Trucks:	69.9	67.4	65.7	64.8	71.6	71.9
Vehicle Noise:	71.5	69.1	67.4	66.3	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	49	105	227	490
CNEL:	51	110	238	513

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Luna Rd. *Job Number:* 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,845	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	1,017	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	24	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	34.0	feet
Centerline Dist. to Observer:	34.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-2.02	2.76	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	77.72	-12.58	2.82	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-11.79	2.81	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	66.1	63.5	62.6	60.8	67.7	68.0
Medium Trucks:	66.8	64.6	62.0	61.1	68.1	68.4
Heavy Trucks:	72.8	70.3	68.7	67.7	74.5	74.8
Vehicle Noise:	74.5	72.0	70.3	69.2	76.1	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	87	187	403	867
CNEL:	91	196	421	908

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Bear Valley Rd. *Job Number:* 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,088	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	1,884	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	62.0	feet
Centerline Dist. to Observer:	62.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.72	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-11.29	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-10.50	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.7	67.1	66.2	64.4	71.3	71.6
Medium Trucks:	69.7	67.5	65.0	64.1	71.1	71.3
Heavy Trucks:	74.5	72.0	70.4	69.4	76.3	76.5
Vehicle Noise:	76.7	74.3	72.6	71.5	78.3	78.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	223	481	1,036	2,233
CNEL:	234	504	1,086	2,339

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Eucalyptus St.
Road Segment: w/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	452 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	42 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-17.20	-0.20	-1.20	*-4.70*	0.000	0.000
Medium Trucks:	82.40	-27.77	-0.17	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-26.98	-0.18	-1.20	*-5.32*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.2	50.6	49.7	47.9	54.8	55.1
Medium Trucks:	53.3	51.1	48.5	47.6	54.6	54.9
Heavy Trucks:	58.0	55.5	53.9	53.0	59.8	60.1
Vehicle Noise:	60.2	57.8	56.1	55.0	61.9	62.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	38	83	178
CNEL:	19	40	87	186

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Eucalyptus St.
Road Segment: e/o US Hwy. 395
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,276 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	213 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-10.18	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	82.40	-20.75	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.96	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.2	58.6	57.8	55.9	62.8	63.1
Medium Trucks:	61.3	59.1	56.5	55.6	62.6	62.9
Heavy Trucks:	66.1	63.5	61.9	61.0	67.8	68.1
Vehicle Noise:	68.3	65.8	64.1	63.0	69.9	70.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	228	491
CNEL:	51	111	239	514

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Phelan Rd.
Road Segment: w/o Baldy Mesa Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,976 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,061 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.33	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.90	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.11	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.1	67.2	65.4	72.2	72.6
Medium Trucks:	70.7	68.5	65.9	65.0	72.0	72.3
Heavy Trucks:	75.5	73.0	71.3	70.4	77.2	77.5
Vehicle Noise:	77.7	75.2	73.6	72.5	79.3	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	217	469	1,009	2,175
CNEL:	228	491	1,057	2,278

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040)
Road Name: Phelan Rd.
Road Segment: w/o Verbena Rd.
Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,840 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,049 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.36	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.93	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.14	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.0	67.2	65.3	72.2	72.6
Medium Trucks:	70.7	68.5	65.9	65.0	72.0	72.3
Heavy Trucks:	75.5	72.9	71.3	70.4	77.2	77.5
Vehicle Noise:	77.7	75.2	73.5	72.4	79.3	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	217	467	1,005	2,166
CNEL:	227	489	1,053	2,268

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Phelan Rd. *Job Number:* 12780
Road Segment: w/o Bellflower St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,435	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,104	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.24	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.81	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.02	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.7	68.1	67.3	65.4	72.3	72.7
Medium Trucks:	70.8	68.6	66.0	65.1	72.1	72.4
Heavy Trucks:	75.6	73.1	71.4	70.5	77.3	77.6
Vehicle Noise:	77.8	75.3	73.7	72.5	79.4	79.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	221	475	1,023	2,205
CNEL:	231	498	1,072	2,309

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Phelan Rd. *Job Number:* 12780
Road Segment: e/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,076	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,165	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	48	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	52.0	feet
Centerline Dist. to Observer:	52.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.12	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.69	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-9.90	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.8	68.3	67.4	65.6	72.4	72.8
Medium Trucks:	70.9	68.7	66.1	65.2	72.2	72.5
Heavy Trucks:	75.7	73.2	71.5	70.6	77.4	77.7
Vehicle Noise:	77.9	75.4	73.8	72.7	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	225	484	1,043	2,247
CNEL:	235	507	1,092	2,353

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Main St. *Job Number:* 12780
Road Segment: w/o Mesa Linda St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,435	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,386	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	0.71	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-9.85	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-9.06	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.3	68.7	67.8	66.0	72.9	73.2
Medium Trucks:	71.5	69.3	66.7	65.8	72.9	73.1
Heavy Trucks:	76.7	74.2	72.5	71.6	78.4	78.7
Vehicle Noise:	78.7	76.2	74.6	73.5	80.3	80.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	294	632	1,363	2,936
CNEL:	307	662	1,427	3,074

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Main St. *Job Number:* 12780
Road Segment: w/o Catabra Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,982	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,625	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	92	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	60.0	feet
Centerline Dist. to Observer:	60.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.13	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-9.44	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-8.65	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.7	69.1	68.2	66.4	73.3	73.6
Medium Trucks:	71.9	69.7	67.2	66.3	73.3	73.5
Heavy Trucks:	77.1	74.6	72.9	72.0	78.8	79.1
Vehicle Noise:	79.1	76.7	75.0	73.9	80.8	81.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	313	674	1,452	3,129
CNEL:	328	706	1,521	3,276

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Key Point Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,295 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,061 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.02	1.54	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.54	1.58	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.75	1.58	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.0	70.1	68.3	75.2	75.5
Medium Trucks:	73.8	71.6	69.1	68.2	75.2	75.4
Heavy Trucks:	79.0	76.5	74.8	73.9	80.7	81.0
Vehicle Noise:	81.0	78.6	76.9	75.8	82.7	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	419	902	1,943	4,185
CNEL:	438	944	2,034	4,383

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Mariposa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,888 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,242 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.13	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-6.43	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-5.64	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.3	71.7	70.9	69.0	75.9	76.3
Medium Trucks:	74.6	72.4	69.8	68.9	75.9	76.2
Heavy Trucks:	79.7	77.2	75.6	74.7	81.5	81.8
Vehicle Noise:	81.8	79.3	77.6	76.5	83.4	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	469	1,010	2,176	4,688
CNEL:	491	1,058	2,279	4,909

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,044 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,445 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.30	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-6.27	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-5.48	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.5	71.9	71.0	69.2	76.1	76.4
Medium Trucks:	74.7	72.5	70.0	69.1	76.1	76.3
Heavy Trucks:	79.9	77.4	75.7	74.8	81.6	81.9
Vehicle Noise:	81.9	79.5	77.8	76.7	83.6	83.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	481	1,036	2,231	4,808
CNEL:	503	1,085	2,337	5,035

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,018 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,410 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.38	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.18	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.39	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.0	70.1	68.3	75.2	75.5
Medium Trucks:	73.8	71.6	69.0	68.1	75.1	75.4
Heavy Trucks:	79.0	76.5	74.8	73.9	80.7	81.0
Vehicle Noise:	81.0	78.5	76.9	75.8	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	418	900	1,939	4,178
CNEL:	437	943	2,031	4,375

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Topaz Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,069 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,040 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.59	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-7.98	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.19	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.9	72.3	71.4	69.6	76.5	76.8
Medium Trucks:	75.0	72.8	70.2	69.3	76.3	76.6
Heavy Trucks:	79.7	77.2	75.6	74.7	81.5	81.8
Vehicle Noise:	81.9	79.5	77.8	76.7	83.6	83.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	521	1,123	2,419	5,212
CNEL:	546	1,176	2,534	5,459

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Sultana St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	5,825 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	546 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-4.72	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-15.28	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-14.49	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	64.2	61.7	60.8	59.0	65.8	66.2
Medium Trucks:	64.9	62.7	60.2	59.3	66.3	66.5
Heavy Trucks:	71.0	68.5	66.8	65.9	72.7	73.0
Vehicle Noise:	72.6	70.2	68.5	67.4	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	58	125	269	580
CNEL:	61	131	282	607

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HY (2040) | Project Name: Hesperia Commerce Cent
Road Name: Joshua St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,156 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,046 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	40.0 feet
Centerline Dist. to Observer:	40.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.81%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.83%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-3.28	2.88	-1.20	-4.59	0.000	0.000
Medium Trucks:	82.40	-13.84	2.94	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-13.05	2.93	-1.20	-5.56	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.2	67.6	66.7	64.9	71.8	72.1
Medium Trucks:	70.3	68.1	65.5	64.6	71.6	71.9
Heavy Trucks:	75.1	72.6	70.9	70.0	76.8	77.1
Vehicle Noise:	77.3	74.8	73.1	72.0	78.9	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	157	338	728	1,568
CNEL:	164	354	762	1,642

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: n/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	57,567 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,400 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.70%
Medium Trucks:	67.8%	9.4%	22.8%	7.42%
Heavy Trucks:	63.0%	10.8%	26.2%	8.88%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.84	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.68	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.90	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.2	71.7	70.8	68.9	75.8	76.2
Medium Trucks:	74.3	72.2	69.6	68.7	75.7	75.9
Heavy Trucks:	79.1	76.6	75.0	74.0	80.9	81.1
Vehicle Noise:	81.3	78.9	77.2	76.1	82.9	83.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	452	974	2,098	4,521
CNEL:	473	1,020	2,198	4,735

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Luna Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	55,806 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,235 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.72%
Medium Trucks:	67.8%	9.4%	22.8%	7.41%
Heavy Trucks:	63.0%	10.8%	26.2%	8.87%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	3.71	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.82	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-6.04	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.1	71.5	70.7	68.8	75.7	76.0
Medium Trucks:	74.2	72.0	69.4	68.5	75.5	75.8
Heavy Trucks:	79.0	76.5	74.8	73.9	80.7	81.0
Vehicle Noise:	81.2	78.7	77.0	75.9	82.8	83.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	442	953	2,054	4,425
CNEL:	463	998	2,151	4,634

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Bear Valley Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,777 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,607 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.83%
Medium Trucks:	67.8%	9.4%	22.8%	7.36%
Heavy Trucks:	63.0%	10.8%	26.2%	8.81%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.01	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.55	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.77	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.4	71.8	71.0	69.1	76.0	76.3
Medium Trucks:	74.5	72.3	69.7	68.8	75.8	76.1
Heavy Trucks:	79.2	76.7	75.1	74.2	81.0	81.3
Vehicle Noise:	81.4	79.0	77.3	76.2	83.1	83.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	462	995	2,143	4,616
CNEL:	483	1,042	2,244	4,835

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Eucalyptus St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,484 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,580 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.91%
Medium Trucks:	67.8%	9.4%	22.8%	7.33%
Heavy Trucks:	63.0%	10.8%	26.2%	8.77%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.00	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.59	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.82	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.4	71.8	70.9	69.1	76.0	76.3
Medium Trucks:	74.4	72.2	69.7	68.7	75.8	76.0
Heavy Trucks:	79.2	76.7	75.0	74.1	80.9	81.2
Vehicle Noise:	81.4	78.9	77.3	76.2	83.0	83.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	459	989	2,130	4,590
CNEL:	481	1,036	2,231	4,807

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	9,141 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	857 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.32%
Medium Trucks:	67.8%	9.4%	22.8%	7.13%
Heavy Trucks:	63.0%	10.8%	26.2%	8.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-4.12	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-14.85	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-14.06	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.8	64.3	63.4	61.6	68.4	68.8
Medium Trucks:	66.8	64.6	62.0	61.1	68.1	68.4
Heavy Trucks:	71.5	69.0	67.4	66.5	73.3	73.6
Vehicle Noise:	73.8	71.3	69.7	68.5	75.4	75.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	119	257	553	1,192
CNEL:	125	269	580	1,249

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Baldy Mesa Rd. | Job Number: 12780
Road Segment: s/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	3,567 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	335 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.68%
Medium Trucks:	67.8%	9.4%	22.8%	6.97%
Heavy Trucks:	63.0%	10.8%	26.2%	8.36%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-8.19	0.38	-1.20	-4.66	0.000	0.000
Medium Trucks:	82.40	-19.03	0.41	-1.20	-4.87	0.000	0.000
Heavy Trucks:	86.40	-18.24	0.41	-1.20	-5.41	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.8	60.2	59.3	57.5	64.4	64.7
Medium Trucks:	62.6	60.4	57.8	56.9	63.9	64.2
Heavy Trucks:	67.4	64.8	63.2	62.3	69.1	69.4
Vehicle Noise:	69.6	67.1	65.5	64.4	71.2	71.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	63	136	292	629
CNEL:	66	142	306	659

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Verbena Rd. | Job Number: 12780
Road Segment: n/o Phelan Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	367 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	34 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	25.0 feet
Centerline Dist. to Observer:	25.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	88.02%
Medium Trucks:	67.8%	9.4%	22.8%	5.45%
Heavy Trucks:	63.0%	10.8%	26.2%	6.53%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	22.494
Medium Trucks:	22.098
Heavy Trucks:	22.136

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-16.52	5.10	-1.20	-4.41	0.000	0.000
Medium Trucks:	77.72	-28.60	5.22	-1.20	-4.85	0.000	0.000
Heavy Trucks:	82.99	-27.81	5.20	-1.20	-5.94	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.9	51.3	50.5	48.6	55.5	55.8
Medium Trucks:	53.1	50.9	48.3	47.4	54.5	54.7
Heavy Trucks:	59.2	56.7	55.0	54.1	60.9	61.2
Vehicle Noise:	61.1	58.6	57.0	55.9	62.7	63.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	18	38	82
CNEL:	9	18	40	86

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Yucca Terrace Dr.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	42,469 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,984 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.21%
Medium Trucks:	67.8%	9.4%	22.8%	7.74%
Heavy Trucks:	63.0%	10.8%	26.2%	9.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.50	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-7.82	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.14	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.8	72.2	71.3	69.5	76.4	76.7
Medium Trucks:	75.1	72.9	70.3	69.4	76.4	76.7
Heavy Trucks:	79.8	77.3	75.6	74.7	81.5	81.8
Vehicle Noise:	82.0	79.5	77.8	76.7	83.6	83.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	525	1,130	2,435	5,247
CNEL:	549	1,184	2,551	5,495

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	59,269 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,559 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.33%
Medium Trucks:	67.8%	9.4%	22.8%	7.12%
Heavy Trucks:	63.0%	10.8%	26.2%	8.54%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	4.00	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-6.73	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-5.94	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	76.3	73.7	72.8	71.0	77.9	78.2
Medium Trucks:	76.2	74.0	71.4	70.5	77.5	77.8
Heavy Trucks:	81.0	78.5	76.8	75.9	82.7	83.0
Vehicle Noise:	83.2	80.7	79.1	78.0	84.8	85.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	634	1,366	2,944	6,342
CNEL:	664	1,431	3,083	6,642

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Poplar St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	37,141	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,484	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.64%
Medium Trucks:	67.8%	9.4%	22.8%	6.98%
Heavy Trucks:	63.0%	10.8%	26.2%	8.37%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.99	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.85	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.06	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.3	71.7	70.8	69.0	75.9	76.2
Medium Trucks:	74.1	71.9	69.3	68.4	75.4	75.7
Heavy Trucks:	78.9	76.3	74.7	73.8	80.6	80.9
Vehicle Noise:	81.1	78.7	77.0	75.9	82.7	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	460	990	2,134	4,597
CNEL:	482	1,037	2,235	4,815

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: US Hwy. 395 | Job Number: 12780
Road Segment: s/o Joshua St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,905	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	3,368	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	106	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	65.0	feet
Centerline Dist. to Observer:	65.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.50%
Medium Trucks:	67.8%	9.4%	22.8%	7.05%
Heavy Trucks:	63.0%	10.8%	26.2%	8.45%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.83	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-8.96	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-8.17	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.1	71.5	70.7	68.8	75.7	76.1
Medium Trucks:	74.0	71.8	69.2	68.3	75.3	75.6
Heavy Trucks:	78.8	76.2	74.6	73.7	80.5	80.8
Vehicle Noise:	81.0	78.5	76.9	75.8	82.6	82.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	452	973	2,096	4,516
CNEL:	473	1,019	2,195	4,730

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: n/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,659	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,782	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.02%
Medium Trucks:	67.8%	9.4%	22.8%	7.26%
Heavy Trucks:	63.0%	10.8%	26.2%	8.71%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.39	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-9.24	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.45	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.0	69.2	67.3	74.2	74.6
Medium Trucks:	72.8	70.6	68.0	67.1	74.1	74.4
Heavy Trucks:	78.0	75.5	73.8	72.9	79.7	80.0
Vehicle Noise:	80.0	77.5	75.9	74.8	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	299	643	1,386	2,986
CNEL:	313	674	1,451	3,127

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Escondido Av. | Job Number: 12780
Road Segment: s/o Sultana St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,469	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	2,764	vehicles
Vehicle Speed:	50	mph
Near/Far Lane Distance:	72	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	50.0	feet
Centerline Dist. to Observer:	50.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.92%
Medium Trucks:	67.8%	9.4%	22.8%	7.31%
Heavy Trucks:	63.0%	10.8%	26.2%	8.77%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	35.057
Medium Trucks:	34.804
Heavy Trucks:	34.828

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	1.36	2.21	-1.20	-4.65	0.000	0.000
Medium Trucks:	81.00	-9.24	2.26	-1.20	-4.87	0.000	0.000
Heavy Trucks:	85.38	-8.45	2.25	-1.20	-5.43	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.6	70.0	69.1	67.3	74.2	74.5
Medium Trucks:	72.8	70.6	68.0	67.1	74.1	74.4
Heavy Trucks:	78.0	75.5	73.8	72.9	79.7	80.0
Vehicle Noise:	80.0	77.5	75.9	74.8	81.6	81.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	298	643	1,385	2,983
CNEL:	312	673	1,450	3,124

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Topaz Av. | Job Number: 12780
Road Segment: n/o Main St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	4,617 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	433 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	23 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	30.0 feet
Centerline Dist. to Observer:	30.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.15%
Medium Trucks:	67.8%	9.4%	22.8%	7.21%
Heavy Trucks:	63.0%	10.8%	26.2%	8.64%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-5.71	3.64	-1.20	-4.49	0.000	0.000
Medium Trucks:	77.72	-16.38	3.71	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-15.59	3.70	-1.20	-5.77	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	63.2	60.7	59.8	58.0	64.8	65.2
Medium Trucks:	63.8	61.6	59.1	58.2	65.2	65.4
Heavy Trucks:	69.9	67.4	65.7	64.8	71.6	71.9
Vehicle Noise:	71.6	69.1	67.4	66.3	73.2	73.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	49	106	228	491
CNEL:	51	111	238	514

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Luna Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	10,940 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,026 vehicles
Vehicle Speed:	40 mph
Near/Far Lane Distance:	24 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.96%
Medium Trucks:	67.8%	9.4%	22.8%	7.29%
Heavy Trucks:	63.0%	10.8%	26.2%	8.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	32.202
Medium Trucks:	31.927
Heavy Trucks:	31.953

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	66.51	-1.97	2.76	-1.20	-4.53	0.000	0.000
Medium Trucks:	77.72	-12.58	2.82	-1.20	-4.86	0.000	0.000
Heavy Trucks:	82.99	-11.79	2.81	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	66.1	63.5	62.7	60.8	67.7	68.1
Medium Trucks:	66.8	64.6	62.0	61.1	68.1	68.4
Heavy Trucks:	72.8	70.3	68.7	67.7	74.5	74.8
Vehicle Noise:	74.5	72.0	70.3	69.3	76.1	76.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	87	187	403	868
CNEL:	91	196	422	909

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Bear Valley Rd. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,469 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	1,920 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.12%
Medium Trucks:	67.8%	9.4%	22.8%	7.22%
Heavy Trucks:	63.0%	10.8%	26.2%	8.66%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.63	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-11.29	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-10.50	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.8	67.2	66.3	64.5	71.4	71.7
Medium Trucks:	69.7	67.5	65.0	64.1	71.1	71.3
Heavy Trucks:	74.5	72.0	70.4	69.4	76.3	76.5
Vehicle Noise:	76.7	74.3	72.6	71.5	78.4	78.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	224	483	1,040	2,240
CNEL:	235	505	1,089	2,346

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: w/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	547 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	51 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	72 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	62.0 feet
Centerline Dist. to Observer:	62.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	86.63%
Medium Trucks:	67.8%	9.4%	22.8%	6.08%
Heavy Trucks:	63.0%	10.8%	26.2%	7.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	50.725
Medium Trucks:	50.550
Heavy Trucks:	50.567

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-16.23	-0.20	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-27.77	-0.17	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-26.98	-0.18	-1.20	-5.32	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	54.2	51.6	50.7	48.9	55.8	56.1
Medium Trucks:	53.3	51.1	48.5	47.6	54.6	54.9
Heavy Trucks:	58.0	55.5	53.9	53.0	59.8	60.1
Vehicle Noise:	60.5	58.0	56.4	55.2	62.1	62.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	18	40	85	184
CNEL:	19	41	89	193

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Eucalyptus St. | Job Number: 12780
Road Segment: e/o US Hwy. 395

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	2,467 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	231 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	50 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	50.0 feet
Centerline Dist. to Observer:	50.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	85.06%
Medium Trucks:	67.8%	9.4%	22.8%	6.79%
Heavy Trucks:	63.0%	10.8%	26.2%	8.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	43.589
Medium Trucks:	43.386
Heavy Trucks:	43.405

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-9.77	0.79	-1.20	*-4.65*	0.000	0.000
Medium Trucks:	82.40	-20.75	0.82	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-19.96	0.82	-1.20	*-5.43*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	61.6	59.0	58.2	56.3	63.2	63.6
Medium Trucks:	61.3	59.1	56.5	55.6	62.6	62.9
Heavy Trucks:	66.1	63.5	61.9	61.0	67.8	68.1
Vehicle Noise:	68.3	65.9	64.2	63.1	70.0	70.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	50	107	231	497
CNEL:	52	112	242	521

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Baldy Mesa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,357 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,097 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.09%
Medium Trucks:	67.8%	9.4%	22.8%	7.23%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.25	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.90	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.11	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	68.1	67.3	65.4	72.3	72.7
Medium Trucks:	70.7	68.5	65.9	65.0	72.0	72.3
Heavy Trucks:	75.5	73.0	71.3	70.4	77.2	77.5
Vehicle Noise:	77.7	75.2	73.6	72.5	79.3	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	218	470	1,012	2,181
CNEL:	228	492	1,060	2,284

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Verbena Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,698 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,129 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.43%
Medium Trucks:	67.8%	9.4%	22.8%	7.08%
Heavy Trucks:	63.0%	10.8%	26.2%	8.49%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.16	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.93	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.14	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.8	68.2	67.4	65.5	72.4	72.8
Medium Trucks:	70.7	68.5	65.9	65.0	72.0	72.3
Heavy Trucks:	75.5	72.9	71.3	70.4	77.2	77.5
Vehicle Noise:	77.7	75.2	73.6	72.5	79.3	79.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	218	469	1,011	2,179
CNEL:	228	492	1,059	2,282

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Phelan Rd. | Job Number: 12780
Road Segment: w/o Bellflower St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	23,388 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,194 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.47%
Medium Trucks:	67.8%	9.4%	22.8%	7.06%
Heavy Trucks:	63.0%	10.8%	26.2%	8.47%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.03	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.81	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-10.02	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.9	68.4	67.5	65.7	72.5	72.9
Medium Trucks:	70.8	68.6	66.0	65.1	72.1	72.4
Heavy Trucks:	75.6	73.1	71.4	70.5	77.3	77.6
Vehicle Noise:	77.8	75.4	73.7	72.6	79.5	79.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	222	478	1,030	2,220
CNEL:	232	501	1,079	2,325

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Phelan Rd. *Job Number:* 12780
Road Segment: e/o Dwy. 1

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	24,147 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	2,265 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	48 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	52.0 feet
Centerline Dist. to Observer:	52.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	84.04%
Medium Trucks:	67.8%	9.4%	22.8%	7.28%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.400
Medium Trucks:	46.209
Heavy Trucks:	46.228

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	0.09	0.38	-1.20	*-4.66*	0.000	0.000
Medium Trucks:	82.40	-10.54	0.41	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-9.78	0.41	-1.20	*-5.41*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.1	68.5	67.6	65.8	72.7	73.0
Medium Trucks:	71.1	68.9	66.3	65.4	72.4	72.7
Heavy Trucks:	75.8	73.3	71.7	70.7	77.6	77.9
Vehicle Noise:	78.0	75.6	73.9	72.8	79.7	80.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	230	495	1,066	2,297
CNEL:	241	518	1,117	2,406

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Main St. *Job Number:* 12780
Road Segment: w/o Mesa Linda St.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	33,403 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,133 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	80.94%
Medium Trucks:	67.8%	9.4%	22.8%	9.02%
Heavy Trucks:	63.0%	10.8%	26.2%	10.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	1.75	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.78	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.32	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.3	69.7	68.9	67.0	73.9	74.2
Medium Trucks:	73.6	71.4	68.8	67.9	74.9	75.2
Heavy Trucks:	78.4	75.9	74.3	73.4	80.2	80.5
Vehicle Noise:	80.4	77.9	76.2	75.2	82.0	82.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	380	819	1,765	3,802
CNEL:	398	858	1,848	3,981

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Main St. *Job Number:* 12780
Road Segment: w/o Catabra Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	35,950 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	3,372 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	81.14%
Medium Trucks:	67.8%	9.4%	22.8%	8.90%
Heavy Trucks:	63.0%	10.8%	26.2%	9.95%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	2.08	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-7.52	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-7.04	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	72.6	70.0	69.2	67.3	74.2	74.6
Medium Trucks:	73.9	71.7	69.1	68.2	75.2	75.5
Heavy Trucks:	78.7	76.2	74.6	73.6	80.5	80.7
Vehicle Noise:	80.7	78.2	76.5	75.5	82.3	82.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	397	856	1,844	3,973
CNEL:	416	896	1,931	4,159

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) *Project Name:* Hesperia Commerce Cent
Road Name: Main St. *Job Number:* 12780
Road Segment: e/o Key Point Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,697 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,474 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	92 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	83.07%
Medium Trucks:	67.8%	9.4%	22.8%	7.81%
Heavy Trucks:	63.0%	10.8%	26.2%	9.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	38.846
Medium Trucks:	38.617
Heavy Trucks:	38.640

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	70.20	3.41	1.54	-1.20	*-4.69*	0.000	0.000
Medium Trucks:	81.00	-6.86	1.58	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	85.38	-6.19	1.58	-1.20	*-5.34*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	74.0	71.4	70.5	68.7	75.6	75.9
Medium Trucks:	74.5	72.3	69.7	68.8	75.8	76.1
Heavy Trucks:	79.6	77.0	75.4	74.5	81.3	81.6
Vehicle Noise:	81.6	79.1	77.4	76.3	83.2	83.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	455	981	2,114	4,554
CNEL:	477	1,027	2,213	4,769

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Mariposa Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	56,841 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,332 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.09%
Medium Trucks:	67.8%	9.4%	22.8%	7.24%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.22	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-6.43	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-5.64	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.4	71.8	71.0	69.1	76.0	76.4
Medium Trucks:	74.6	72.4	69.8	68.9	75.9	76.2
Heavy Trucks:	79.7	77.2	75.6	74.7	81.5	81.8
Vehicle Noise:	81.8	79.3	77.6	76.5	83.4	83.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	470	1,012	2,181	4,699
CNEL:	492	1,060	2,284	4,921

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: w/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	58,997 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	5,534 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.08%
Medium Trucks:	67.8%	9.4%	22.8%	7.24%
Heavy Trucks:	63.0%	10.8%	26.2%	8.68%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	4.38	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-6.27	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-5.48	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.6	72.0	71.1	69.3	76.2	76.5
Medium Trucks:	74.7	72.5	70.0	69.1	76.1	76.3
Heavy Trucks:	79.9	77.4	75.7	74.8	81.6	81.9
Vehicle Noise:	81.9	79.5	77.8	76.7	83.6	83.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	482	1,038	2,237	4,819
CNEL:	505	1,087	2,342	5,046

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Escondido Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	47,590 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,464 vehicles
Vehicle Speed:	50 mph
Near/Far Lane Distance:	88 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	60.0 feet
Centerline Dist. to Observer:	60.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	84.01%
Medium Trucks:	67.8%	9.4%	22.8%	7.27%
Heavy Trucks:	63.0%	10.8%	26.2%	8.72%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	41.097
Medium Trucks:	40.882
Heavy Trucks:	40.903

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	70.20	3.45	1.17	-1.20	-4.69	0.000	0.000
Medium Trucks:	81.00	-7.18	1.21	-1.20	-4.88	0.000	0.000
Heavy Trucks:	85.38	-6.39	1.20	-1.20	-5.34	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	73.6	71.0	70.2	68.3	75.2	75.6
Medium Trucks:	73.8	71.6	69.0	68.1	75.1	75.4
Heavy Trucks:	79.0	76.5	74.8	73.9	80.7	81.0
Vehicle Noise:	81.0	78.6	76.9	75.8	82.7	83.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	418	902	1,942	4,185
CNEL:	438	944	2,034	4,383

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040) | Project Name: Hesperia Commerce Cent
Road Name: Main St. | Job Number: 12780
Road Segment: e/o Topaz Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	43,355 vehicles
Peak Hour Percentage:	9.38%
Peak Hour Volume:	4,067 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	106 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	65.0 feet
Centerline Dist. to Observer:	65.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	62.2%	12.7%	25.0%	83.92%
Medium Trucks:	67.8%	9.4%	22.8%	7.31%
Heavy Trucks:	63.0%	10.8%	26.2%	8.77%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	37.961
Medium Trucks:	37.727
Heavy Trucks:	37.749

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	2.62	1.69	-1.20	-4.70	0.000	0.000
Medium Trucks:	82.40	-7.98	1.73	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-7.19	1.73	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.9	72.3	71.5	69.6	76.5	76.8
Medium Trucks:	75.0	72.8	70.2	69.3	76.3	76.6
Heavy Trucks:	79.7	77.2	75.6	74.7	81.5	81.8
Vehicle Noise:	81.9	79.5	77.8	76.7	83.6	83.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	522	1,124	2,422	5,217
CNEL:	546	1,177	2,536	5,465

Tuesday, July 14, 2020

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040)
Road Name: Sultana St.
Road Segment: e/o Escondido Av.

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	6,016	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	564	vehicles
Vehicle Speed:	40	mph
Near/Far Lane Distance:	23	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	30.0	feet
Centerline Dist. to Observer:	30.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	84.33%
Medium Trucks:	67.8%	9.4%	22.8%	7.13%
Heavy Trucks:	63.0%	10.8%	26.2%	8.55%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	28.156
Medium Trucks:	27.840
Heavy Trucks:	27.871

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	66.51	-4.55	3.64	-1.20	*-4.49*	0.000	0.000
Medium Trucks:	77.72	-15.28	3.71	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	82.99	-14.49	3.70	-1.20	*-5.77*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	64.4	61.8	61.0	59.1	66.0	66.4
Medium Trucks:	64.9	62.7	60.2	59.3	66.3	66.5
Heavy Trucks:	71.0	68.5	66.8	65.9	72.7	73.0
Vehicle Noise:	72.7	70.2	68.5	67.5	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	58	125	270	582
CNEL:	61	131	283	609

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

Scenario: HYP (2040)
Road Name: Joshua St.
Road Segment: e/o US Hwy. 395

Project Name: Hesperia Commerce Cent
Job Number: 12780

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	11,537	vehicles
Peak Hour Percentage:	9.38%	
Peak Hour Volume:	1,082	vehicles
Vehicle Speed:	55	mph
Near/Far Lane Distance:	50	feet

Site Data

Barrier Height:	**0.0**	**feet**
Barrier Type (0-Wall, 1-Berm):	0.0	
Centerline Dist. to Barrier:	40.0	feet
Centerline Dist. to Observer:	40.0	feet
Barrier Distance to Observer:	0.0	feet
Observer Height (Above Pad):	5.0	feet
Pad Elevation:	0.0	feet
Road Elevation:	0.0	feet
Road Grade:	0.0%	
Left View:	-90.0	degrees
Right View:	90.0	degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	62.2%	12.7%	25.0%	84.35%
Medium Trucks:	67.8%	9.4%	22.8%	7.12%
Heavy Trucks:	63.0%	10.8%	26.2%	8.54%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	31.623
Medium Trucks:	31.342
Heavy Trucks:	31.369

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-3.11	2.88	-1.20	*-4.59*	0.000	0.000
Medium Trucks:	82.40	-13.84	2.94	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	86.40	-13.05	2.93	-1.20	*-5.56*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.4	67.8	66.9	65.1	72.0	72.3
Medium Trucks:	70.3	68.1	65.5	64.6	71.6	71.9
Heavy Trucks:	75.1	72.6	70.9	70.0	76.8	77.1
Vehicle Noise:	77.3	74.8	73.2	72.1	78.9	79.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	158	340	731	1,576
CNEL:	165	356	766	1,651

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APPENDIX 9.1:

CADNAA OPERATIONAL NOISE MODEL INPUTS

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12780 - Hesperia Commerce II

CadnaA Noise Prediction Model: 12780.cna
Date: 15.07.20
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	53.7	53.1	59.8	60.0	55.0	0.0				5.00	a	6210708.20	2467486.53	5.00
RECEIVERS		R2	50.0	49.4	56.1	60.0	55.0	0.0				5.00	a	6216473.10	2464880.91	5.00
RECEIVERS		R3	53.9	53.1	59.9	60.0	55.0	0.0				5.00	a	6210199.09	2464616.15	5.00
RECEIVERS		R4	50.8	49.9	56.6	60.0	55.0	0.0				5.00	a	6209477.38	2465621.71	5.00
RECEIVERS		R5	50.8	50.2	56.9	60.0	55.0	0.0				5.00	a	6209637.11	2466811.81	5.00
RECEIVERS		R6	50.2	49.8	56.5	60.0	55.0	0.0				5.00	a	6214435.39	2469223.71	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6211265.98	2466272.06	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6213444.01	2466247.92	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6213427.92	2465016.74	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6210509.56	2465048.93	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6213454.74	2466985.56	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6211308.89	2466948.00	50.00
POINTSOURCE		AC07	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6214787.85	2466674.41	50.00
POINTSOURCE		AC08	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6214369.41	2466674.41	50.00
POINTSOURCE		AC09	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6213449.38	2465757.06	50.00
POINTSOURCE		AC10	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	0.0	5.00	g	6210560.53	2465719.50	50.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			K0	Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night				X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(dB)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6210687.13	2464913.54	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6213248.24	2464891.32	5.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6210698.24	2465910.76	5.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6213342.69	2465888.54	5.00
POINTSOURCE		TRASH05	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6213256.58	2466130.20	5.00
POINTSOURCE		TRASH06	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6211417.69	2466146.87	5.00
POINTSOURCE		TRASH07	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6211453.80	2467130.20	5.00
POINTSOURCE		TRASH08	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6213364.91	2467138.54	5.00
POINTSOURCE		TRASH09	89.0	89.0	89.0	Lw	89		75.00	0.00	45.00	0.0	5.00	a	6214686.92	2466582.16	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)
LINESOURCE		DWY01	94.8	87.1	91.0	73.2	65.5	69.4	PWL-Pt	89.7					224.0	38.0	93.0	6.2	8
LINESOURCE		DWY02	100.3	92.6	96.5	73.2	65.5	69.4	PWL-Pt	89.7					224.0	38.0	93.0	6.2	8
LINESOURCE		DWY03	94.3	86.7	90.6	72.4	64.8	68.6	PWL-Pt	89.7					187.0	32.0	78.0	6.2	8
LINESOURCE		DWY04	98.0	90.3	94.2	72.4	64.8	68.6	PWL-Pt	89.7					187.0	32.0	78.0	6.2	8
LINESOURCE		DWY05	94.6	86.9	90.8	72.4	64.8	68.6	PWL-Pt	89.7					187.0	32.0	78.0	6.2	8
LINESOURCE		DWY06	99.3	91.7	95.5	78.0	70.3	74.2	PWL-Pt	89.7					672.0	115.0	279.0	6.2	8
LINESOURCE		DWY07	103.6	95.9	99.8	78.0	70.3	74.2	PWL-Pt	89.7					672.0	115.0	279.0	6.2	8
LINESOURCE		DWY08	101.4	93.7	97.5	78.0	70.3	74.2	PWL-Pt	89.7					672.0	115.0	279.0	6.2	8
LINESOURCE		DWY09	101.5	93.8	97.6	75.8	68.2	72.0	PWL-Pt	89.7					410.0	70.0	170.0	6.2	8
LINESOURCE		DWY10	95.7	88.1	91.9	75.8	68.2	72.0	PWL-Pt	89.7					410.0	70.0	170.0	6.2	8
LINESOURCE		DWY11	104.1	96.4	100.3	78.0	70.3	74.2	PWL-Pt	89.7					672.0	115.0	279.0	6.2	8
LINESOURCE		DWY12	96.4	88.7	92.6	78.0	70.3	74.2	PWL-Pt	89.7					672.0	115.0	279.0	6.2	8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a			6211513.59	2467403.96	8.00	0.00
					6211510.12	2467303.26	8.00	0.00
					6211341.72	2467164.37	8.00	0.00
					6211315.67	2467117.50	8.00	0.00
					6211410.30	2467087.88	8.00	0.00
LINESOURCE	8.00	a			6211315.67	2467117.50	8.00	0.00
					6210767.06	2466225.14	8.00	0.00
					6210777.48	2466195.62	8.00	0.00
					6211378.08	2466191.60	8.00	0.00
LINESOURCE	8.00	a			6210767.06	2466225.14	8.00	0.00
					6210555.26	2465891.80	8.00	0.00
					6210572.62	2465870.97	8.00	0.00
					6210661.37	2465858.67	8.00	0.00
LINESOURCE	8.00	a			6210555.26	2465891.80	8.00	0.00
					6210112.55	2465147.01	8.00	0.00
					6210103.87	2464836.25	8.00	0.00
LINESOURCE	8.00	a			6210107.37	2464961.44	8.00	0.00
					6210650.72	2464964.72	8.00	0.00
LINESOURCE	8.00	a			6213675.05	2464858.82	8.00	0.00
					6213675.05	2464928.26	8.00	0.00
					6213295.47	2464936.93	8.00	0.00
LINESOURCE	8.00	a			6213675.05	2464928.26	8.00	0.00
					6213676.78	2465832.78	8.00	0.00
					6213388.79	2465836.60	8.00	0.00
LINESOURCE	8.00	a			6213676.78	2465832.78	8.00	0.00
					6213681.99	2466167.84	8.00	0.00
					6213301.97	2466166.30	8.00	0.00
LINESOURCE	8.00	a			6213681.99	2466167.84	8.00	0.00
					6213678.52	2467065.41	8.00	0.00
					6213378.29	2467070.09	8.00	0.00
LINESOURCE	8.00	a			6213678.52	2467065.41	8.00	0.00
					6213671.58	2467386.59	8.00	0.00
LINESOURCE	8.00	a			6214709.87	2466613.29	8.00	0.00
					6214821.16	2466610.32	8.00	0.00
					6214820.17	2466524.71	8.00	0.00
					6213680.59	2466530.66	8.00	0.00
LINESOURCE	8.00	a			6214451.05	2466616.27	8.00	0.00
					6214309.48	2466614.30	8.00	0.00
					6214307.47	2466527.38	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
AREASOURCE		DOCK01	111.5	111.5	111.5	63.2	63.2	63.2	Lw	111.5					8

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
AREASOURCE		DOCK02	111.5	111.5	111.5	66.3	66.3	66.3	Lw	111.5					8
AREASOURCE		DOCK03	111.5	111.5	111.5	61.7	61.7	61.7	Lw	111.5					8
AREASOURCE		DOCK04	111.5	111.5	111.5	64.5	64.5	64.5	Lw	111.5					8
AREASOURCE		DOCK05	111.5	111.5	111.5	75.7	75.7	75.7	Lw	111.5					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6211409.21	2466963.09	8.00	0.00
					6211412.15	2467161.24	8.00	0.00
					6211571.09	2467155.16	8.00	0.00
					6211573.61	2467348.74	8.00	0.00
					6213401.73	2467327.90	8.00	0.00
					6213402.70	2467019.08	8.00	0.00
					6213310.25	2467019.08	8.00	0.00
					6213311.55	2466943.56	8.00	0.00
AREASOURCE	8.00	a			6211380.90	2466124.78	8.00	0.00
					6211380.99	2466236.75	8.00	0.00
					6211402.70	2466236.75	8.00	0.00
					6211402.70	2466312.70	8.00	0.00
					6213304.82	2466291.00	8.00	0.00
					6213302.77	2466103.95	8.00	0.00
AREASOURCE	8.00	a			6210658.12	2465735.12	8.00	0.00
					6210651.73	2465934.68	8.00	0.00
					6210735.07	2465939.88	8.00	0.00
					6210732.46	2466072.70	8.00	0.00
					6210763.71	2466116.97	8.00	0.00
					6213391.32	2466093.53	8.00	0.00
					6213385.99	2465783.30	8.00	0.00
					6213305.26	2465784.60	8.00	0.00
					6213303.95	2465707.78	8.00	0.00
AREASOURCE	8.00	a			6210651.73	2464885.20	8.00	0.00
					6210652.91	2465091.89	8.00	0.00
					6213298.75	2465065.85	8.00	0.00
					6213292.36	2464864.36	8.00	0.00
AREASOURCE	8.00	a			6214451.84	2466718.82	8.00	0.00
					6214710.66	2466718.82	8.00	0.00
					6214709.49	2466565.87	8.00	0.00
					6214379.97	2466570.90	8.00	0.00
					6214379.97	2466591.03	8.00	0.00
					6214451.24	2466591.03	8.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		45.00	a	6211284.43	2466980.09	45.00	0.00
								6211285.12	2466980.78	45.00	0.00
								6213309.43	2466962.03	45.00	0.00
								6213310.82	2467020.36	45.00	0.00
								6213494.84	2467018.97	45.00	0.00
								6213486.51	2466215.50	45.00	0.00
								6211219.84	2466239.11	45.00	0.00
								6211226.09	2466889.81	45.00	0.00
BUILDING		BUILDING00002	x	0		45.00	a	6210534.60	2465759.34	45.00	0.00
								6213304.13	2465726.79	45.00	0.00
								6213302.83	2465785.38	45.00	0.00
								6213482.52	2465782.78	45.00	0.00
								6213473.40	2464989.81	45.00	0.00
								6213296.32	2464985.90	45.00	0.00
								6213293.72	2465043.19	45.00	0.00
								6210654.39	2465070.54	45.00	0.00
								6210651.79	2465013.25	45.00	0.00
								6210472.10	2465013.25	45.00	0.00
								6210476.01	2465674.70	45.00	0.00
BUILDING		BUILDING00003	x	0		45.00	a	6214453.84	2466643.54	45.00	0.00
								6214423.24	2466643.32	45.00	0.00
								6214422.38	2466640.72	45.00	0.00
								6214384.62	2466640.50	45.00	0.00
								6214383.75	2466643.76	45.00	0.00
								6214381.58	2466643.97	45.00	0.00
								6214381.58	2466648.53	45.00	0.00
								6214377.02	2466648.31	45.00	0.00
								6214376.80	2466644.19	45.00	0.00
								6214370.08	2466644.19	45.00	0.00
								6214370.08	2466645.28	45.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height	Coordinates			
						Begin	x	y	z	Ground
						(ft)	(ft)	(ft)	(ft)	(ft)
							6214363.78	2466645.06	45.00	0.00
							6214364.00	2466642.67	45.00	0.00
							6214362.05	2466643.11	45.00	0.00
							6214344.69	2466645.71	45.00	0.00
							6214342.30	2466678.26	45.00	0.00
							6214347.07	2466678.91	45.00	0.00
							6214347.29	2466686.51	45.00	0.00
							6214338.61	2466687.38	45.00	0.00
							6214338.39	2466713.64	45.00	0.00
							6214343.17	2466714.46	45.00	0.00
							6214344.99	2466898.05	45.00	0.00
							6214824.42	2466893.37	45.00	0.00
							6214820.25	2466638.94	45.00	0.00
							6214786.40	2466639.20	45.00	0.00
							6214786.66	2466644.15	45.00	0.00
							6214782.23	2466644.15	45.00	0.00
							6214781.97	2466640.24	45.00	0.00
							6214776.76	2466636.07	45.00	0.00
							6214727.54	2466637.12	45.00	0.00
							6214727.02	2466640.24	45.00	0.00
							6214708.01	2466641.02	45.00	0.00
							6214709.31	2466699.62	45.00	0.00
							6214454.36	2466702.74	45.00	0.00

APPENDIX 10.1:

CADNAA CONSTRUCTION NOISE MODEL INPUTS

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12780 - Hesperia Commerce II

CadnaA Noise Prediction Model: 12780_Construction.cna
Date: 15.07.20
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (#(Unit,LEN))	2000.01
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (#(Unit,LEN))	999.99
Min. Length of Section (#(Unit,LEN))	1.01
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	5.00
Night-time Penalty (dB)	10.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	2
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Incl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (#(Unit,TEMP))	10
rel. Humidity (%)	70
Ground Absorption G	0.00
Wind Speed for Dir. (#(Unit,SPEED))	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	72.1	72.1	78.7	60.0	55.0	0.0				5.00	a	6210708.20	2467486.53	5.00
RECEIVERS		R2	64.7	64.7	71.3	60.0	55.0	0.0				5.00	a	6216473.10	2464880.91	5.00
RECEIVERS		R3	73.6	73.6	80.3	60.0	55.0	0.0				5.00	a	6210199.09	2464616.15	5.00
RECEIVERS		R4	70.7	70.7	77.4	60.0	55.0	0.0				5.00	a	6209477.38	2465621.71	5.00
RECEIVERS		R5	69.8	69.8	76.5	60.0	55.0	0.0				5.00	a	6209637.11	2466811.81	5.00
RECEIVERS		R6	66.1	66.1	72.8	60.0	55.0	0.0				5.00	a	6214435.39	2469223.71	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	
SITEBOUNDARY		CONSTRUCTION	134.3	134.3	134.3	75.3	75.3	75.3	Lw"	75.3					8

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6213705.72	2467390.83	8.00	0.00
					6213708.33	2466945.51	8.00	0.00
					6215036.45	2466932.49	8.00	0.00
					6215033.85	2466489.79	8.00	0.00
					6213710.93	2466505.41	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6213705.14	2464859.00	8.00	0.00
			6213370.94	2464859.00	8.00	0.00
			6213368.77	2464802.57	8.00	0.00
			6209869.21	2464836.43	8.00	0.00
			6211434.17	2467407.46	8.00	0.00

Appendix K-1

Traffic Impact Analysis

Hesperia Commerce Center II

TRAFFIC IMPACT ANALYSIS

CITY OF HESPERIA

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JULY 2, 2020

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
CA MUTCD	California Manual on Uniform Traffic Control Devices
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
DIF	Development Impact Fee
E+P	Existing Plus Project
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
HOV	High Occupancy Vehicle
ITE	Institute of Transportation Engineers
LOS	Level of Service
OPR	Office of Planning and Research
PCE	Passenger Car Equivalent
PeMS	Performance Measurement System
PHF	Peak Hour Factor
Project	Hesperia Commerce Center II
RTP	Regional Transportation Plan
SB	Senate Bill
SBCTA	San Bernardino County Transportation Authority
SBTAM	San Bernardino Transportation Analysis Model
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SHS	State Highway System
TCR	Transportation Concept Report
TIA	Traffic Impact Analysis
TUMF	Transportation Uniform Mitigation Fee
Vphgpl	Vehicles Per Hour Green Per Lane
VVTA	Victor Valley Transit Authority
WRCOG	Western Riverside Council of Governments
VMT	Vehicle Miles Traveled

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1 INTRODUCTION

This report presents the results of the traffic impact analysis (TIA) for the proposed Hesperia Commerce Center II development (referred to as "Project") located north of Phelan Road and west of US Highway 395 in the City of Hesperia, as shown on Exhibit 1-1.

The purpose of this TIA is to evaluate the potential circulation system deficiencies that may result from the development of the proposed Project, and to recommend improvements to achieve acceptable circulation system operational conditions. This traffic study has been prepared in accordance with the San Bernardino County Congestion Management Program (CMP) Guidelines for CMP Traffic Impact Analysis Reports (Appendix B, 2016 Update), the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies, and through consultation with City of Hesperia staff during the scoping process. (1) (2) The approved Project Traffic Study Scoping agreement is provided in Appendix 1.1 of this TIA.

1.1 SUMMARY OF FINDINGS

The Project is proposing to construct the following improvements as design features in conjunction with development of the site.

Recommendation 1.1 – Driveway 1 & Phelan Road (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the southbound approach and construct southbound shared left-right turn lane, and westbound right turn lane.

Recommendation 2.1 – Driveway 2 & Yucca Terrace Drive (#5) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach and construct northbound shared left-right turn lane, eastbound shared through-right turn lane, westbound left turn lane within a two-way turn lane and a westbound through lane.

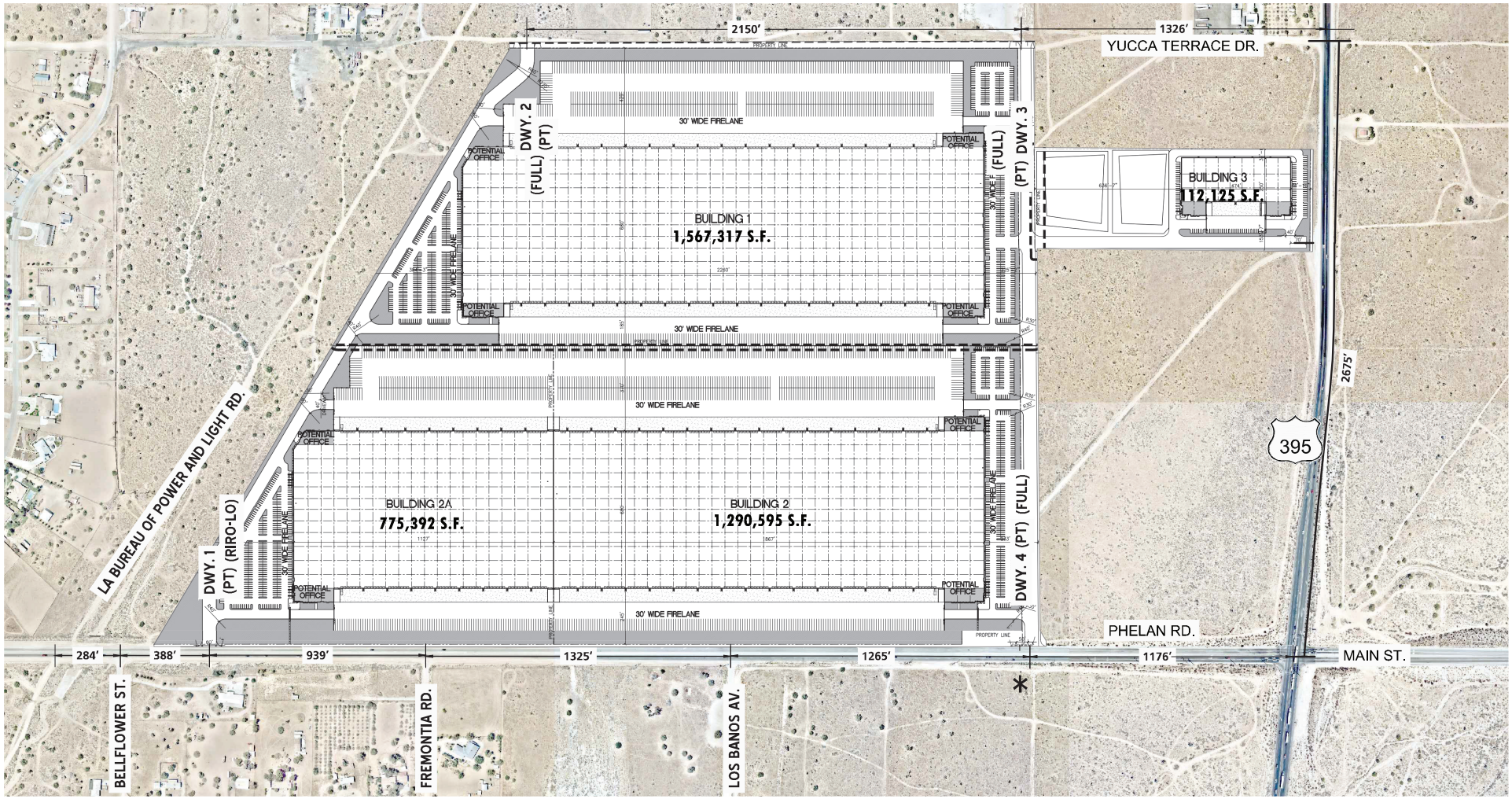
Recommendation 3.1 – Driveway 3 & Yucca Terrace Drive (#6) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach and construct northbound shared left-right turn lane, eastbound shared through-right turn lane, westbound left turn lane within a two-way turn lane and a westbound through lane.

Recommendation 4.1 – Driveway 4 & Phelan Road (#7) – The following improvements are necessary to accommodate site access:

- Project to install a traffic signal and construct southbound shared left-right turn lane and eastbound left turn lane with a minimum of 150-feet of storage. Driveway 4 is proposed to provide reciprocal access with the adjacent (not-a-part) use to the east.

EXHIBIT 1-1 PRELIMINARY SITE PLAN



LEGEND:

RIRO	= RIGHT-IN/RIGHT-OUT ONLY ACCESS
FULL	= FULL ACCESS
PT	= PASSENGER CARS AND TRUCKS
LO	= LEFT OUT

*** NOTE: DRIVEWAY 4 IS A PROPOSED SIGNALIZED DRIVEWAY THAT WILL PROVIDE RECIPROCAL ACCESS WITH THE ADJACENT USE. A SIGNAL MODIFICATION WILL BE NECESSARY AT THIS LOCATION.**

Recommendation 5.1 – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to accommodate site access:

- Project to install a traffic signal and construct northbound left turn lane with a minimum of 260-feet of storage, eastbound left turn lane with a minimum of 200-feet of storage and an eastbound right turn lane.

Recommendation 6.1 – US Highway 395 & Phelan Road/Main Street (#12) – The following improvements are necessary to accommodate site access:

- Project to construct a 2nd northbound left turn lane.
- Project to construct a 2nd southbound left turn lane.

Recommendation 7.1 – Phelan Road – Project to construct Phelan Road from the western Project boundary to the eastern Project boundary at its ultimate half-section width as a Major Arterial (ultimate 120-foot right-of-way) in compliance with the circulation recommendations found in the City of Hesperia's General Plan. The additional westbound through lanes may not be striped until such time in the future when Phelan Road is widened to the west with additional receiving lanes.

Recommendation 8.1 – Yucca Terrace Drive – Project to construct Yucca Terrace Drive from the western Project boundary to the eastern Project boundary at its ultimate half-section width as an Industrial Collector (ultimate 70-foot right-of-way) in compliance with the circulation recommendations found in the City of Hesperia's General Plan. The project will provide an additional 12-feet of pavement width to accommodate one westbound lane from the western Project boundary to US Highway 395 and an additional 12-feet of pavement width to accommodate one eastbound lane from the eastern Project boundary to US Highway 395 in order to facilitate site access.

Recommendation 9.1 – US Highway 395 – Project to construct US Highway 395 from the northern Project boundary of Building 3 to the southern Project boundary of Building 3 at its ultimate half-section width (ultimate 130-foot right-of-way) in compliance with Caltrans standards and the circulation recommendations found in the City of Hesperia's General Plan. The additional southbound through lanes may not be striped until such time in the future when US Highway 395 is widened to the south with additional receiving lanes.

The Project Applicant's responsibility for the Project's contributions towards off-site deficient intersections is fulfilled through payment of fair share and/or payment into pre-existing fee programs (if applicable) that would be assigned to construction of the identified recommended improvements. The Project Applicant would be required to pay requisite fees and/or fair share contributions consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

Recommendation 10.1 – Prior to the issuance of building permits, the Project Applicant shall pay the Project's fair share amount of $324,443 for the improvements identified in Table 1-3 at intersections located within the City of Hesperia, or as agreed to by the City and Project Applicant.

Recommendation 11.1 – The Developer's fair-share amount for the intersections that either share a mutual border with or are wholly located within the jurisdiction of Caltrans that have recommended improvements which are not covered by a pre-existing fee program is $893,156. Developer shall be required to pay the amount shown above to the City of Hesperia prior to the issuance of building permits. The City of Hesperia shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon with Caltrans.

1.2 PROJECT OVERVIEW

The proposed Project consists of the following uses:

- 2,361,648 square feet of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 square feet of General Light Industrial use; 1,271,656 square feet within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 square feet within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at the Main Street interchange. The Project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. Vehicular and truck traffic access will be provided via the following driveways:

- Driveway 1 via Phelan Road – Right-In/Right-Out/Left-Out access for both passenger cars and trucks (no left-in access)
- Driveway 2 via Yucca Terrace Drive – Full access for both passenger cars and trucks
- Driveway 3 via Yucca Terrace Drive – Full access for both passenger cars and trucks
- Driveway 4 via Phelan Road – Full access for both passenger cars and trucks

Trips generated by the Project's proposed land uses have been estimated based on trip generation rates published by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation Manual, 10th Edition, 2017 and the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019). (3) (4) The Project is estimated to generate a total of 11,898 trip-ends per day on a typical weekday with 1,258 AM peak hour trips and 1,261 PM peak hour trips. The

assumptions and methods used to estimate the Project's trip generation characteristics are discussed in greater detail in Section 4.1 *Project Trip Generation* of this report.

1.3 ANALYSIS SCENARIOS

For the purposes of this traffic study, potential deficiencies to traffic and circulation have been assessed for each of the following conditions:

- Existing (2019)
- Existing Plus Project (E+P)
- Opening Year Cumulative (2021) Without Project
- Opening Year Cumulative (2021) With Project
- Horizon Year (2040) Without Project
- Horizon Year (2040) With Project

1.3.1 EXISTING (2019) CONDITIONS

Existing (2019) conditions represents the baseline traffic conditions as they existed at the time this report was prepared.

1.3.2 EXISTING PLUS PROJECT CONDITIONS

The E+P analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions. The E+P analysis is intended to identify the project-specific traffic deficiencies associated solely with the development of the proposed Project based on a comparison of the E+P traffic conditions to Existing (2019) conditions.

1.3.3 OPENING YEAR CUMULATIVE (2021) CONDITIONS

The Opening Year Cumulative (2021) conditions analysis determines the potential near-term cumulative circulation system deficiencies. To account for growth in traffic between Existing (2019) traffic conditions and the Project Opening Year Cumulative (2021), a growth rate of 4.04 percent was assumed (2.0 percent per year, compounded annually over 2 years).

1.3.4 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) with Project conditions were derived from the San Bernardino Transportation Analysis Model (SBTAM). The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's Development Impact Fee (DIF) program or other approved funding mechanisms, can accommodate the long-range cumulative traffic at the target level of service (LOS) identified by the City of Hesperia (lead agency). If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative improvements. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

1.4 STUDY AREA

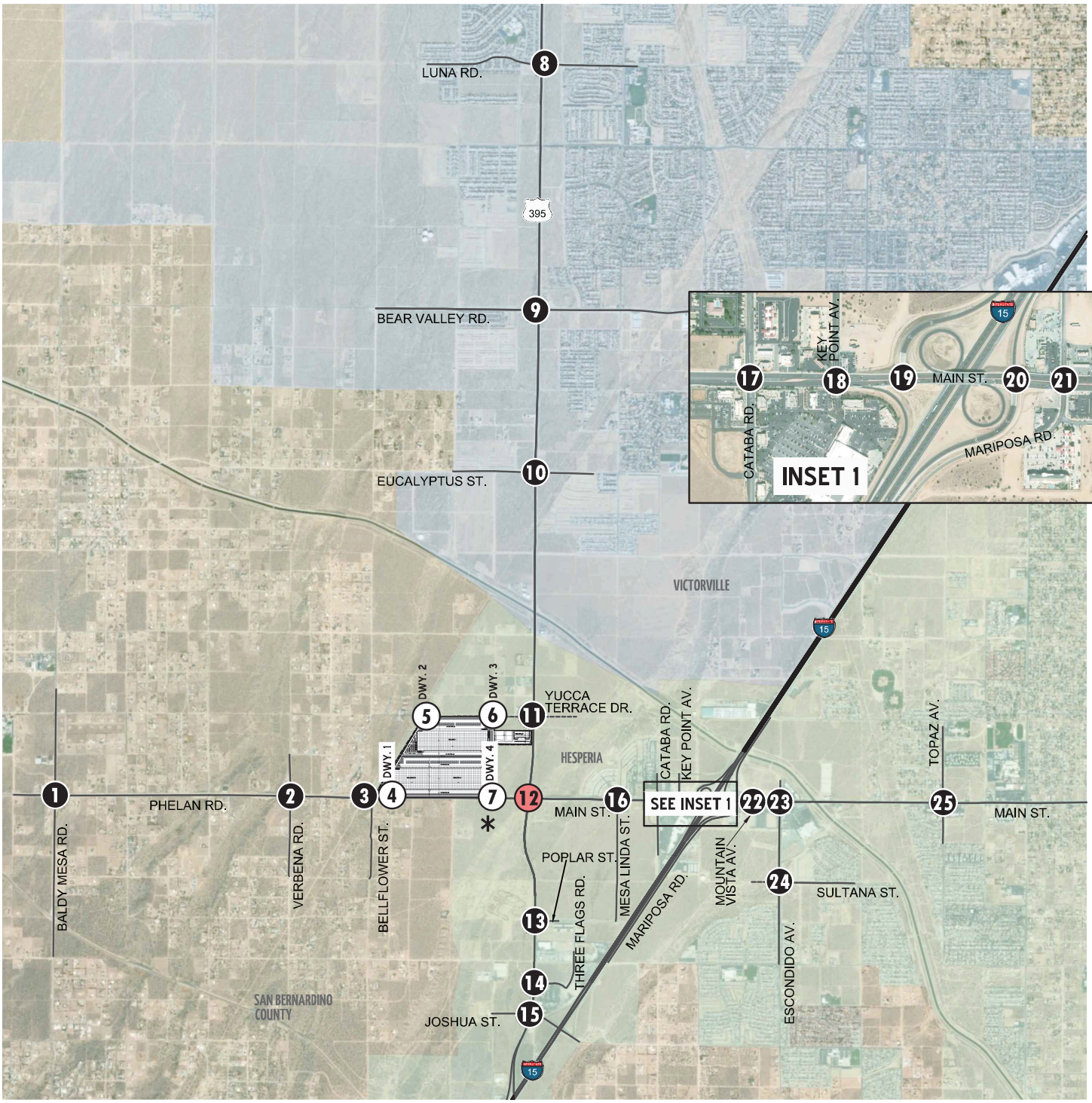
1.4.1 INTERSECTIONS

The following 25 study area intersections listed in Table 1-1 and shown on Exhibit 1-2 were selected for this TIA based on where the Project is anticipated to contribute 50 or more peak hour trips, or if the intersection provides access to the proposed Project.

TABLE 1-1: INTERSECTION ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction	CMP?
1	Baldy Mesa Rd. & Phelan Rd.	County of San Bernardino	No
2	Verbena Rd. & Phelan Rd.	County of San Bernardino	No
3	Bellflower St. & Phelan Rd.	County of San Bernardino	No
4	Driveway 1 & Phelan Rd. – Future Intersection	City of Hesperia, County of San Bernardino	No
5	Driveway 2 & Yucca Terrace Dr. – Future Intersection	City of Hesperia	No
6	Driveway 3 & Yucca Terrace Dr. – Future Intersection	City of Hesperia	No
7	Driveway 4 & Phelan Rd. – Future Intersection	City of Hesperia	No
8	US Highway 395 & Luna Rd.	City of Victorville, Caltrans	No
9	US Highway 395 & Bear Valley Rd.	City of Victorville, Caltrans	No
10	US Highway 395 & Eucalyptus St.	City of Victorville, Caltrans	No
11	US Highway 395 & Yucca Terrace Dr.	City of Hesperia, Caltrans	No
12	US Highway 395 & Phelan Rd./Main St.	City of Hesperia, Caltrans	Yes
13	US Highway 395 & Poplar St.	City of Hesperia, Caltrans	No
14	US Highway 395 & Three Flags Rd.	City of Hesperia, Caltrans	No
15	US Highway 395 & Joshua St.	City of Hesperia, Caltrans	No
16	Mesa Linda St. & Main St.	City of Hesperia	No
17	Catawba Rd. & Main St.	City of Hesperia	No
18	Key Point Av. & Main St.	City of Hesperia	No
19	I-15 SB Ramps & Main St.	City of Hesperia, Caltrans	No
20	I-15 NB Ramps & Main St.	City of Hesperia, Caltrans	No
21	Mariposa Rd. & Main St.	City of Hesperia	No
22	Mountain Vista Av. & Main St.	City of Hesperia	No
23	Escondido Av. & Main St.	City of Hesperia	No
24	Escondido Av. & Sultana St.	City of Hesperia	No
25	Topaz Av. & Main St.	City of Hesperia	No

EXHIBIT 1-2: LOCATION MAP



LEGEND:

- (0) = EXISTING INTERSECTION ANALYSIS LOCATION
- (0) = FUTURE INTERSECTION ANALYSIS LOCATION
- (0) = SBCTA INTERSECTION
- ---- = DIRT ROAD

N

* NOTE: DRIVEWAY 4 IS A PROPOSED SIGNALIZED DRIVEWAY THAT WILL PROVIDE RECIPROCAL ACCESS WITH THE ADJACENT USE.

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URBAN CROSSROADS

The "50 peak hour trip" criterion utilized by the City of Hesperia is consistent with the methodology employed by the County of San Bernardino, and generally represents a minimum number of trips at which a typical intersection would have the potential to be affected by a given development proposal. Although each intersection may have unique operating characteristics, this traffic engineering rule of thumb is a widely-utilized tool for estimating a study area.

The intent of a CMP is to more directly link land use, transportation, and air quality, thereby prompting reasonable growth management programs that will effectively utilize new transportation funds, alleviate traffic congestion and related deficiencies, and improve air quality. Counties within California have developed CMPs with varying methods and strategies to meet the intent of the CMP legislation. The intersection of US Highway 395 & Phelan Road/Main Street is identified as a San Bernardino County Transportation Authority (SBCTA) CMP intersection.

1.4.2 FREEWAY MAINLINE AND RAMP JUNCTION ANALYSIS

Study area freeway mainline analysis locations were selected based on Caltrans traffic study guidelines, which may require the analysis of State highway facilities. (2) Consistent with recent Caltrans guidance, and because deficiencies to freeway segments tend to dissipate with distance from the point of State Highway System (SHS) entry, quantitative study of freeway segments beyond those immediately adjacent to the point of entry typically is not required. This study evaluates the following freeway facilities adjacent to the point of entry to the SHS at the I-15 Freeway and Main Street, and the I-15 Freeway and US Highway 395 (see Table 1-2):

TABLE 1-2: FREEWAY FACILITY ANALYSIS LOCATIONS

ID	Freeway Facilities
1	I-15 Freeway Southbound, North of Main St. (mainline segment)
2	I-15 Freeway Southbound, Off-Ramp at Main St. (diverge ramp junction)
3	I-15 Freeway Southbound, Loop On-Ramp at Main St. (merge ramp junction)
4	I-15 Freeway Southbound, On-Ramp at Main St. (merge ramp junction)
5	I-15 Freeway Southbound, South of Main St. (mainline segment)
6	I-15 Freeway Southbound, North of US Highway 395 (mainline segment)
7	I-15 Freeway Southbound, On-Ramp at US Highway 395 (merge ramp junction)
8	I-15 Freeway Southbound, South of US Highway 395 (mainline segment)
9	I-15 Freeway Northbound, North of Main St. (mainline segment)
10	I-15 Freeway Northbound, On-Ramp at Main St. (merge ramp junction)
11	I-15 Freeway Northbound, Loop On-Ramp at Main St. (merge ramp junction)
12	I-15 Freeway Northbound, Off-Ramp at Main St. (diverge ramp junction)
13	I-15 Freeway Northbound, South of Main St. (mainline segment)
14	I-15 Freeway Northbound, North of US Highway 395 (mainline segment)
15	I-15 Freeway Northbound, Off-Ramp at US Highway 395 (diverge ramp junction)
16	I-15 Freeway Northbound, South of US Highway 395 (mainline segment)

1.5 SENATE BILL 743 – VEHICLE MILES TRAVELED (VMT)

Senate Bill 743 (SB 743), approved in 2013, endeavors to change the way transportation impacts will be determined according to the California Environmental Quality Act (CEQA). The Office of Planning and Research (OPR) has recommended the use of vehicle miles traveled (VMT) as the replacement for automobile delay-based LOS. In December 2018, the Natural Resources Agency finalized updates to CEQA Guidelines to incorporate SB 743 (i.e., VMT). While a lead agency has the option to immediately apply the new VMT based analysis methodology and thresholds for the purposes of evaluating transportation impacts, statewide application of the new guidelines is required July 1, 2020. VMT analysis for the proposed Project has been prepared under separate cover.

It is our understanding that the City of Hesperia has not currently adopted VMT thresholds. In July 2019, the County of San Bernardino adopted new Traffic Impact Study Guidelines which includes a set of procedures and thresholds for conducting VMT analyses in the County. The County has concluded that County projects will be required to complete a TIA, in conjunction with a VMT assessment, in order to demonstrate consistency with the General Plan. For purposes of SB 743 compliance, VMT analysis should be conducted for land use projects as deemed necessary by the lead agency and would apply to projects that have the potential to increase the average VMT per person or employee. The County recommends VMT be estimated by multiplying average trip length by the trip generation for the project and that average trip length information be obtained for each trip purpose from the SBTAM traffic model. Using SBTAM to determine both trip generation and trip lengths allows the user to use an identical methodology when comparing project VMT per person/employee to the regional VMT per person/employee. The San Bernardino County Transportation Authority (SBCTA) is also currently conducting a multi-jurisdictional study to develop a set of procedures and provide local jurisdictions with sufficient information to adopt VMT baselines and thresholds of significance at or around the July 2020 required implementation date.

Caltrans has yet to formally adopted VMT thresholds of significance for purposes of determining transportation impacts under CEQA. The guidelines are set to be available in Spring/Summer 2020, however, Caltrans acknowledges automobile delay will no longer be considered a CEQA impact for development projects and will use VMT for projects on the SHS. As such, the LOS operations included in this TIA for intersections and freeway facilities are informational and are not anticipated to support the environmental document.

1.6 DEFICIENCIES

This section provides a summary of Project deficiencies. Section 2 *Methodologies* provides information on the methodologies used in the analysis and Section 5 *E+P Traffic Conditions*, Section 6 *Opening Year Cumulative (2021) Traffic Conditions*, and Section 7 *Horizon Year (2040) Traffic Conditions* includes the detailed analysis. A summary of LOS results for all analysis scenarios is presented on Exhibit 1-3.

1.6.1 E+P CONDITIONS

Intersections

US Highway 395 & Yucca Terrace Drive (#11) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the PM peak hour under Existing traffic conditions and is anticipated to continue to operate at an unacceptable LOS during one or more peak hours with the addition of Project traffic resulting in a cumulative deficiency.

US Highway 395 & Phelan Road/Main Street (#12) – This intersection was found to operate at an acceptable LOS (LOS D or better) during the peak hours under Existing traffic conditions. However, the intersection is anticipated to operate at an unacceptable LOS (LOS E or worse) during the peak hours with the addition of Project traffic for E+P traffic conditions.

US Highway 395 & Poplar Street (#13) – This intersection was found to operate at an unacceptable LOS (LOS E or worse) during the peak hours under Existing traffic conditions and is anticipated to continue to operate at an unacceptable LOS during one or more peak hours with the addition of Project traffic resulting in a cumulative deficiency.

Queuing

The following turning movement is anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows under E+P traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours

Consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows.

Freeway Facilities

Consistent with Existing (2019) traffic conditions, the following study area freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for E+P traffic conditions:

- I-15 Freeway Northbound, North of Main Street (#9) – LOS E PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS E PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS E PM peak hour only

EXHIBIT 1-3: SUMMARY OF DEFICIENT INTERSECTIONS BY ANALYSIS SCENARIO

#	Intersection	Existing (2019)	E+P	Opening Year Cumulative (2021) Without Project	Opening Year Cumulative (2021) With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project
1	Baldy Mesa Rd. & Phelan Rd.						
2	Verbena Rd. & Phelan Rd.						
3	Bellflower St. & Phelan Rd.						
4	Dwy. 1 & Phelan Rd.	NA		NA		NA	
5	Dwy. 2 & Yucca Terrace Dr.	NA		NA		NA	
6	Dwy. 3 & Yucca Terrace Dr.	NA		NA		NA	
7	Dwy. 4 & Phelan Rd.	NA					
8	US Highway 395 & Luna Rd.						
9	US Highway 395 & Bear Valley Rd.						
10	US Highway 395 & Eucalyptus St.						
11	US Highway 395 & Yucca Terrace Dr.						
12	US Highway 395 & Phelan Rd. / Main St.						
13	US Highway 395 & Poplar St.						
14	US Highway 395 & Three Flags Rd.						
15	US Highway 395 & Joshua St.						
16	Mesa Linda St. & Main St.						
17	Cataba Rd. & Main St.						
18	Key Point Av. & Main St.						
19	I-15 SB Ramps & Main St.						
20	I-15 NB Ramps & Main St.						
21	Mariposa Rd. & Main St.						
22	Mountain Vista Av. & Main St.						
23	Escondido Av. & Main St.						
24	Escondido Av. & Sultana St.						
25	Topaz Av. & Main St.						

LEGEND:

- = AM PEAK HOUR
- = PM PEAK HOUR
- = LOS A-D
- = LOS D-E
- = LOS F

NA = NOT AN ANALYSIS LOCATION FOR THIS SCENARIO

1.6.2 OPENING YEAR CUMULATIVE (2021) CONDITIONS

Intersections

The following intersections are anticipated to operate at an unacceptable LOS during the peak hours for Opening Year Cumulative (2021) Without Project traffic conditions:

- Verbena Road & Phelan Road (#2) – LOS D AM and PM peak hours
- US Highway 395 & Yucca Terrace Drive (#11) – LOS F AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) – LOS E PM peak hour only
- US Highway 395 & Poplar Street (#13) – LOS F AM and PM peak hours
- Escondido Avenue & Main Street (#23) – LOS E PM peak hour only

Queuing

The following intersection turning movements are anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Opening Year Cumulative (2021) Without Project traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) Northbound Left – AM and PM peak hours

The following additional intersection turning movement is anticipated to experience queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Opening Year Cumulative (2021) With Project traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Northbound Left – AM and PM peak hours

Consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2021) Without Project and With Project traffic conditions.

Freeway Facilities

The following study area freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Opening Year Cumulative (2021) Without Project traffic conditions:

- I-15 Freeway Northbound, North of Main Street (#9) – LOS E PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS E PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS E PM peak hour only

The following additional study area ramp junction is anticipated to operate at an unacceptable LOS under Horizon Year (2040) With Project traffic conditions, resulting in a cumulative deficiency:

- I-15 Freeway Northbound, On-Ramp at Main Street (#10) – LOS E PM peak hour only

1.6.3 HORIZON YEAR (2040) CONDITIONS

Intersections

The following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2040) Without Project conditions:

- Verbena Road & Phelan Road (#2) – LOS E AM peak hour; LOS D PM peak hour
- Bellflower Street & Phelan Road (#3) – LOS D AM and PM peak hours
- US Highway 395 & Luna Road (#8) – LOS E AM peak hour; LOS F PM peak hour
- US Highway 395 & Bear Valley Road (#9) – LOS E AM peak hour; LOS F PM peak hour
- US Highway 395 & Eucalyptus Road (#10) – LOS E AM and PM peak hours
- US Highway 395 & Yucca Terrace Drive (#11) – LOS F AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) – LOS F AM and PM peak hours
- US Highway 395 & Poplar Street (#13) – LOS F AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) – LOS F AM peak hour only
- US Highway 395 & Joshua Street (#15) – LOS F PM peak hour only
- Escondido Avenue & Main Street (#23) – LOS E AM and PM peak hours
- Escondido Avenue & Sultana Street (#24) – LOS E AM peak hour; LOS F PM peak hour
- Topaz Avenue & Main Street (#25) – LOS E PM peak hour only

Queuing

The following intersection turning movements are anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Horizon Year (2040) Without Project traffic conditions:

- US Highway 395 & Bear Valley Road (#9) Northbound Left – AM and PM peak hours
- US Highway 395 & Bear Valley Road (#9) Southbound Left – AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) Northbound Left – PM peak hour only
- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours
- US Highway 395 & Poplar Street (#13) Southbound Left – AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) Northbound Left – AM and PM peak hours
- US Highway 395 & Joshua Street (#15) Southbound Left – AM and PM peak hours

With the addition of Project traffic, there are no additional intersection turning movements that are anticipated to experience queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Horizon Year (2040) With Project traffic conditions, in addition to the movements identified under Horizon Year (2040) Without Project traffic conditions.

Consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Horizon Year (2040) Without Project and With Project traffic conditions.

Freeway Facilities

The following study area freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Horizon Year (2040) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Main Street (#1) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, Off-Ramp at Main Street (#2) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, South of Main Street (#5) – LOS E AM peak hour only
- I-15 Freeway Southbound, North of US Highway 395 (#6) – LOS F AM peak hour; LOS E PM peak hour
- I-15 Freeway Southbound, On-Ramp at US Highway 395 (#7) – LOS F AM peak hour only
- I-15 Freeway Southbound, South of US Highway 395 (#8) – LOS F AM peak hour; LOS E PM peak hour
- I-15 Freeway Northbound, North of Main Street (#9) – LOS F PM peak hour only
- I-15 Freeway Northbound, On-Ramp at Main Street (#10) – LOS F PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS F PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at US Highway 395 (#15) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of US Highway 395 (#16) – LOS F PM peak hour only

The following additional study area ramp junctions are anticipated to operate at an unacceptable LOS under Horizon Year (2040) With Project traffic conditions, resulting in a cumulative deficiency:

- I-15 Freeway Southbound, On-Ramp at Main Street (#4) – LOS E AM peak hour only
- I-15 Freeway Northbound, Loop On-Ramp at Main Street (#11) – LOS E PM peak hour only

1.7 RECOMMENDATIONS

The following recommendations are based on the improvements needed to accommodate site access. Exhibit 1-4 shows the site adjacent recommendations.

Recommendation 1.1 – Driveway 1 & Phelan Road (#4) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the southbound approach and a southbound shared left-right turn lane.
- Project to construct a westbound right turn lane.

Recommendation 2.1 – Driveway 2 & Yucca Terrace Drive (#5) – The following improvements are necessary to accommodate site access:

- Project to install a stop control on the northbound approach and a northbound shared left-right turn lane.
- Project to construct an eastbound shared through-right turn lane.
- Project to construct a westbound left turn lane within a two-way turn lane and a westbound through lane.

Recommendation 3.1 – Driveway 3 & Yucca Terrace Drive (#6) – The following improvements are necessary to accommodate site access:

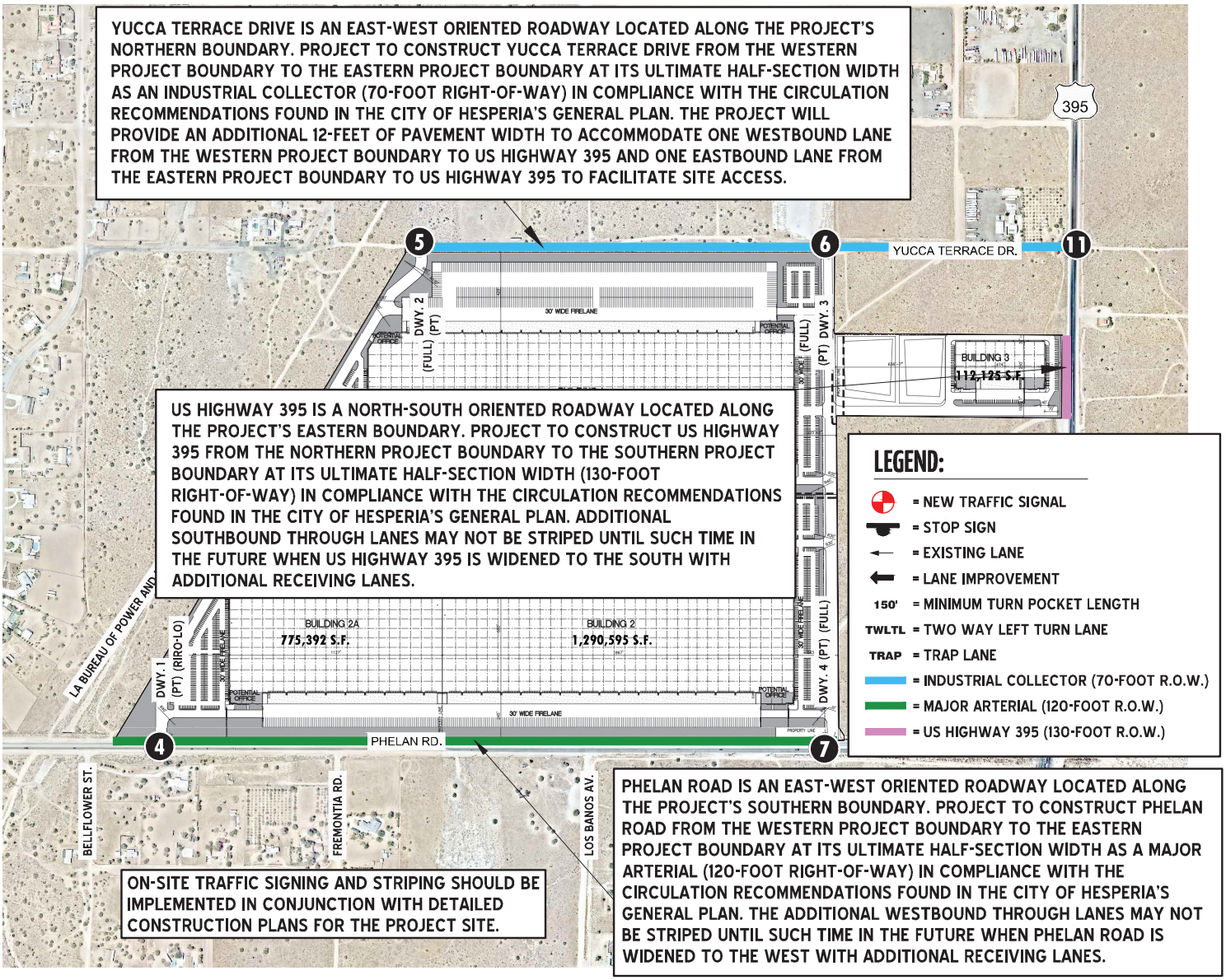
- Project to install a stop control on the northbound approach and a northbound shared left-right turn lane.
- Project to construct an eastbound shared through-right turn lane.
- Project to construct a westbound left turn lane within a two-way turn lane and a westbound through lane.

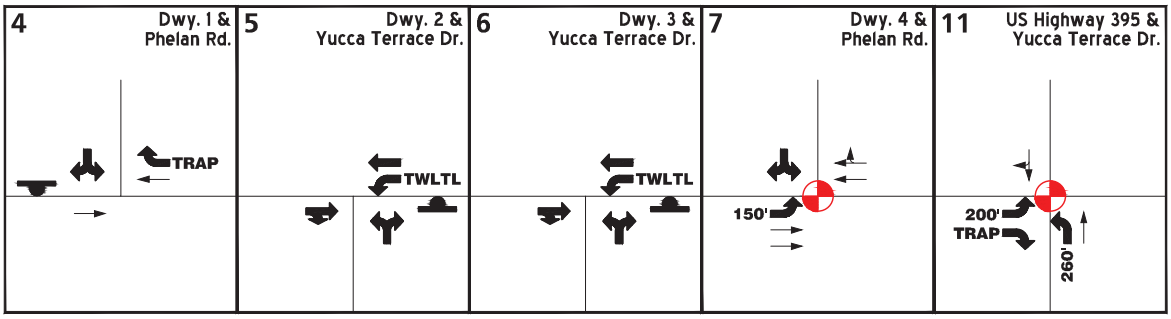
Recommendation 4.1 – Driveway 4 & Phelan Road (#7) – The following improvements are necessary to accommodate site access:

- Project to install a traffic signal.
- Project to construct a southbound shared left-right turn lane.
- Project to construct an eastbound left turn lane with a minimum of 150-feet of storage.

Driveway 4 is proposed to provide reciprocal access to the adjacent (not-a-part) use to the east.

EXHIBIT 1-4: SITE ADJACENT ROADWAY AND SITE ACCESS RECOMMENDATIONS





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SIGHT DISTANCE AT EACH PROJECT ACCESS POINT SHOULD BE REVIEWED WITH RESPECT TO STANDARD CALTRANS AND CITY OF HESPERIA SIGHT DISTANCE STANDARDS AT THE TIME OF PREPARATION OF FINAL GRADING, LANDSCAPE AND STREET IMPROVEMENT PLANS.

DRIVEWAY 4 IS A PROPOSED SIGNALIZED DRIVEWAY THAT WILL PROVIDE RECIPROCAL ACCESS WITH THE ADJACENT USE. A SIGNAL MODIFICATION WILL BE NECESSARY AT THIS LOCATION.

Recommendation 5.1 – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to accommodate site access:

- Project to install a traffic signal.
- Project to construct a northbound left turn lane with a minimum of 260-feet of storage.
- Project to construct an eastbound left turn lane with a minimum of 200-feet of storage and an eastbound right turn lane.

Recommendation 6.1 – US Highway 395 & Phelan Road/Main Street (#12) – The following improvements are necessary to accommodate site access:

- Project to construct a 2nd northbound left turn lane.
- Project to construct a 2nd southbound left turn lane.

Recommendation 7.1 – Phelan Road – Phelan Road is an east-west oriented roadway located along the Project's southern boundary. Project to construct Phelan Road from the western Project boundary to the eastern Project boundary at its ultimate half-section width as a Major Arterial (ultimate 120-foot right-of-way) in compliance with the circulation recommendations found in the City of Hesperia's General Plan. The additional westbound through lanes may not be striped until such time in the future when Phelan Road is widened to the west with additional receiving lanes.

Recommendation 8.1 – Yucca Terrace Drive – Yucca Terrace Drive is an east-west oriented roadway located along the Project's northern boundary. Project to construct Yucca Terrace Drive from the western Project boundary to the eastern Project boundary at its ultimate half-section width as an Industrial Collector (ultimate 70-foot right-of-way) in compliance with the circulation recommendations found in the City of Hesperia's General Plan. The project will provide an additional 12-feet of pavement width to accommodate one westbound lane from the western Project boundary to US Highway 395 and an additional 12-feet of pavement width to accommodate one eastbound lane from the eastern Project boundary to US Highway 395 to facilitate site access.

Recommendation 9.1 – US Highway 395 – US Highway 395 is a north-south oriented roadway located along the Project's eastern boundary. Project to construct US Highway 395 from the northern Project boundary of Building 3 to the southern Project boundary of Building 3 at its ultimate half-section width (ultimate 130-foot right-of-way) in compliance with Caltrans standards and the circulation recommendations found in the City of Hesperia's General Plan. The additional southbound through lanes may not be striped until such time in the future when US Highway 395 is widened to the south with additional receiving lanes.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the Project site.

Sight distance at each project access point should be reviewed with respect to standard City of Hesperia sight distance standards at the time of preparation of final grading, landscape and street improvement plans.

The recommended improvements needed to address the cumulative deficiencies identified under E+P, Opening Year Cumulative (2021), and Horizon Year (2040) traffic conditions are shown in Table 1-3. For those improvements listed in Table 1-3 and not constructed as part of the Project, the Applicant's responsibility for the Project's contributions towards deficient intersections is fulfilled through payment of fair share that would be assigned to construction of the identified recommended improvements. Preliminary cost estimates and fee assessments for these improvements are summarized in Table 1-3. The Project Applicant would be required to pay fair share fees consistent with the City's requirements (see Section 8 *Local and Regional Funding Mechanisms*).

Recommendation 10.1 – Prior to the issuance of building permits, the Project Applicant shall pay the Project's fair share amount of $321,301 for the improvements identified in Table 1-3 at intersections located within the City of Hesperia, or as agreed to by the City and Project Applicant.

Recommendation 11.1 – The Developer's fair-share amount for the intersections that either share a mutual border with or are wholly located within the jurisdiction of Caltrans that have recommended improvements which are not covered by a pre-existing fee program is $680,227. Developer shall be required to pay the amount shown above to the City of Hesperia prior to the issuance of building permits. The City of Hesperia shall hold Developer's Fair Share contribution in trust and shall apply Developer's Fair Share Contribution to any fee program adopted or agreed upon by the City of Hesperia and other agencies.

1.8 TRUCK ACCESS

Due to the typical wide turning radius of large trucks, a truck turning template has been overlaid on the site plan at each applicable Project driveway and site adjacent intersection anticipated to be utilized by heavy trucks in order to determine appropriate curb radii and to verify that trucks will have sufficient space to execute turning maneuvers (see Exhibit 1-5). A WB-67 truck (53-foot trailer) has been utilized for the purposes of this analysis. As shown on Exhibit 1-5, the Project driveways are anticipated to accommodate the wide turning radius of trucks as currently designed.

Table 1-3
Page 1 of 2

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Existing (2019)	E+P	2021 Without Project	2021 With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project	Improvements in Fee Program?[1]	Project Responsibility[2]	Total Cost[3]	Fair Share %[4]	Fair Share Cost[5]
8	US Highway 395 & Luna Rd.	Victorville, Caltrans	None	None	None	None	Add 3rd NB through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0	--	$0
							Restripe the SB right turn lane to a 3rd through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0		$0
										Total	**$0**		**$0**
9	US Highway 395 & Bear Valley Rd.	Victorville, Caltrans	None	None	None	None	Add 2nd NB left turn lane	Same	No	Fair Share	$78,400	4.37%	$3,427
							Add 3rd NB through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0		$0
							Add NB right turn lane	Same	No	Fair Share	$78,400		$3,427
							Add 2nd SB left turn lane	Same	No	Fair Share	$78,400		$3,427
							Add 3rd SB through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0		$0
							Add SB right turn lane	Same	No	Fair Share	$78,400		$3,427
										Total	**$313,600**		**$13,706**
10	US Highway 395 & Eucalyptus St.	Victorville, Caltrans	None	None	None	None	Add 3rd NB through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0	--	$0
							Add 3rd SB through lane	Same	Yes (SBCTA CMP)	Fee Payment	$0		$0
										Total	**$0**		**$0**
11	US Highway 395 & Yucca Terrace Dr.	Hesperia, Caltrans	Add 2nd NB through lane	Same	Same	Same	Same	Same	No	Fair Share	$282,240	19.51%	$55,076
			Add 2nd SB through lane	Same	Same	Same	Same	Same	No	Fair Share	$282,240		$55,076
				Install a Traffic Signal	Not Applicable	Same as E+P	Same as E+P	Same as E+P	No	Construct[9]	$0		$0
				Add NB left turn lane	Not Applicable	Same as E+P	Same as E+P	Same as E+P	No	Construct[9]	$0		$0
				Add EB left turn lane	Not Applicable	Same as E+P	Same as E+P	Same as E+P	No	Construct[9]	$0		$0
							Add 3rd NB through lane	Same	No	Fair Share	$282,240		$55,076
							Add 3rd SB through lane	Same	No	Fair Share	$282,240		$55,076
										Total	**$1,128,960**		**$220,303**
12	US Highway 395 & Phelan Rd./Main St.	Hesperia, Caltrans	None	Add 2nd NB left turn lane	Same	Same	Same	Same	No	Construct	$0	30.35%	$0
				Add 2nd SB left turn lane	Same	Same	Same	Same	No	Construct	$0		$0
					Add 3rd EB through lane	Same	Same	Same	No	Fair Share	$282,240		$85,669
					Add 3rd WB through lane	Same	Same	Same	No	Fair Share	$282,240		$85,669
					Add WB right turn lane	Same	Same	Same	No	Fair Share	$78,400		$23,797
					Modify the traffic signal to implement overlap phasing for the WB right turn lane	Same	Same	Same	No	Fair Share	$117,600		$35,695
							Add 3rd NB through lane	Same	No	Fair Share	$282,240		$85,669
							Add NB right turn lane	Same	No	Fair Share	$78,400		$23,797
							Add 3rd SB through lane	Same	No	Fair Share	$282,240		$85,669
							Add SB right turn lane	Same	No	Fair Share	$78,400		$23,797
							Add EB right turn lane	Same	No	Fair Share	$78,400		$23,797
										Total	**$1,560,160**		**$473,558**

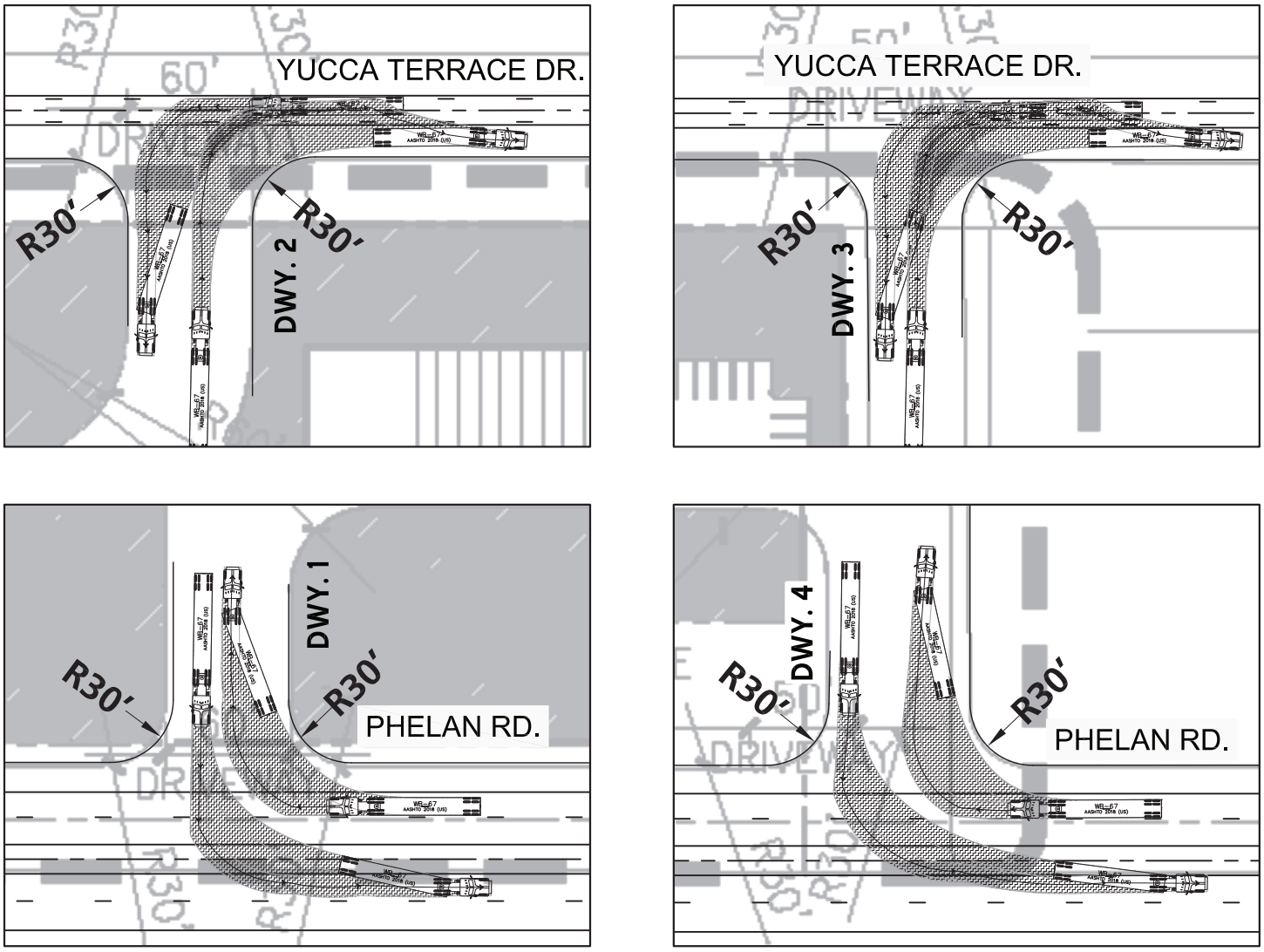
Table 1-3

Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	Existing (2019)	E+P	2021 Without Project	2021 With Project	Horizon Year (2040) Without Project	Horizon Year (2040) With Project	Improvements in Fee Program?[1]	Project Responsibility[2]	Total Cost[3]	Fair Share %[4]	Fair Share Cost[5]
13	US Highway 395 & Poplar St.	Hesperia, Caltrans	Add 2nd SB through lane	Same	Same	Same	Same	Same	No	Fair Share	$282,240	7.49%	$21,126
							Install a Traffic Signal	Same	No	Fair Share	$600,000		$44,910
							Add 3rd NB through lane	Same	No	Fair Share	$282,240		$21,126
							Add NB right turn lane	Same	No	Fair Share	$78,400		$5,868
							Add 2nd SB left turn lane	Same	No	Fair Share	$78,400		$5,868
							Add 3rd SB through lane	Same	No	Fair Share	$282,240		$21,126
										Total	**$1,603,520**		**$120,024**
14	US Highway 395 & Three Flags Rd.	Hesperia, Caltrans	None	None	None	None	Add 3rd NB through lane	Same	No	Fair Share	$282,240	8.95%	$25,256
							Add 3rd SB through lane	Same	No	Fair Share	$282,240		$25,256
										Total	**$564,480**		**$50,513**
15	US Highway 395 & Joshua St.	Hesperia, Caltrans	None	None	None	None	Add 3rd NB through lane	Same	No	Fair Share	$282,240	8.83%	$24,914
							Add 3rd SB through lane	Same	No	Fair Share	$282,240		$24,914
							Add SB right turn lane	Same	No	Fair Share	$78,400		$6,921
										Total	**$642,880**		**$56,750**
23	Escondido Av. & Main St.	Hesperia	None	None	Add 3rd WB through lane	Same	Same	Same	No	Fair Share	$282,240	7.89%	$22,282
										Total	**$282,240**		**$22,282**
24	Escondido Av. & Sultana St.	Hesperia	None	None	None	None	Install a Traffic Signal	Same	No	Fair Share	$600,000	4.68%	$28,103
										Total	**$600,000**		**$28,103**
25	Topaz Av. & Main St.	Hesperia	None	None	None	None	Restripe the EB right turn lane to a 3rd through lane	Same	No	Fair Share	$39,200	5.07%	$1,986
							Add 3rd WB through lane	Same	No	Fair Share	$282,240		$14,303
										Total	**$321,440**		**$16,289**
										Total Costs for Horizon Year (2040) Improvements	**$7,017,280**		**$1,001,527**
										Total Project Fair Share Contribution to the City of Hesperia (non-DIF)[6]		**$321,301**	
										Total Project Fair Share Contribution to the City of Victorville[7]		**$0**	
										Total Project Fair Share Contribution to Caltrans[8]		**$680,227**	

[1] Improvements included in City of Hesperia Development Impact Fee (DIF) or the San Bernardino County Transportation Authority (SBCTA) Congestion Management Program (CMP) fee programs.
[2] Identifies the Project's responsibility to construct an improvement, contribute fair share, or contribute a fee payment towards the implementation of the improvements shown.
[3] Costs have been estimated using the data provided in Appendix "G" of the CMP (2016 Update) for preliminary construction costs.
[4] Program improvements constructed by project may be eligible for fee credit, at discretion of the City. See Table 8-1 for Fair Share Calculations.
[5] Rough order of magnitude cost estimate.
[6] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Hesperia.
[7] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within the City of Victorville.
[8] Total project fair share contribution consists of the improvements which are not already included in a fee program for those intersections wholly or partially within Caltrans' jurisdiction.
[9] Project will construct the improvement in order to facilitate site access.

EXHIBIT 1-5: TRUCK ACCESS



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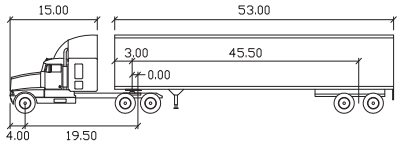

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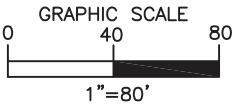
feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		





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2 METHODOLOGIES

This section of the report presents the methodologies used to perform the traffic analyses summarized in this report. The methodologies described are generally consistent with the SBCTA CMP and Caltrans traffic study guidelines. (1) (2)

2.1 LEVEL OF SERVICE

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow.

2.2 INTERSECTION CAPACITY ANALYSIS

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Transportation Research Board's Highway Capacity Manual (HCM) 6th Edition methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. (5) The HCM uses different procedures depending on the type of intersection control.

2.2.1 SIGNALIZED INTERSECTIONS

The City of Hesperia, City of Victorville, County of San Bernardino, and Caltrans require signalized intersection operations analysis based on the methodology described in the HCM 6th Edition. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections, LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 2-1. Study area intersections have been evaluated using the Synchro (Version 10) analysis software package.

TABLE 2-1: SIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: HCM, 6th Edition

Consistent with Appendix B of the SBCTA CMP, the following saturation flow rates, in vehicles per hour green per lane (vphgpl), will be utilized in the traffic analysis for signalized intersections:

Existing and Opening Year Cumulative (2021) Traffic Conditions:

- Exclusive through: 1800 vphgpl
- Exclusive left: 1700 vphgpl
- Exclusive right: 1800 vphgpl
- Exclusive dual left: 1600 vphgpl
- Exclusive triple left: 1500 vphgpl

Horizon Year (2040) Traffic Conditions:

- Exclusive through: 1900 vphgpl
- Exclusive left: 1800 vphgpl
- Exclusive right: 1900 vphgpl
- Exclusive dual left: 1700 vphgpl
- Exclusive triple left: 1600 vphgpl

Synchro is a macroscopic traffic software program that is based on the signalized intersection capacity analysis as specified in the HCM. Macroscopic level models represent traffic in terms of aggregate measures for each movement at the study intersections. Equations are used to determine measures of effectiveness such as delay and queue length. The level of service and capacity analysis performed by Synchro takes into consideration optimization and coordination of signalized intersections within a network.

The peak hour traffic volumes have been adjusted using a peak hour factor (PHF) to reflect peak 15-minute volumes. Common practice for LOS analysis is to use a peak 15-minute rate of flow. However, flow rates are typically expressed in vehicles per hour. The PHF is the relationship between the peak 15-minute flow rate and the full hourly volume (e.g. PHF = [Hourly Volume] / [4 x Peak 15-minute Flow Rate]). The use of a 15-minute PHF produces a more detailed analysis as compared to analyzing vehicles per hour. Existing PHFs have been used for all analysis scenarios. Per the HCM, PHF values over 0.95 often are indicative of high traffic volumes with capacity constraints on peak hour flows while lower PHF values are indicative of greater variability of flow during the peak hour. (5)

2.2.2 UNSIGNALIZED INTERSECTIONS

The City of Hesperia, City of Victorville, County of San Bernardino, and Caltrans require the operations of unsignalized intersections be evaluated using the methodology described the HCM 6th Edition. (5) The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 2-2).

TABLE 2-2: UNSIGNALIZED INTERSECTION LOS THRESHOLDS

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: HCM, 6th Edition

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole.

2.3 TRAFFIC SIGNAL WARRANT ANALYSIS METHODOLOGY

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. This TIA uses the signal warrant criteria presented in the latest edition of the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD) for all unsignalized study area intersections. (6)

The signal warrant criteria for Existing study area intersections are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The CA MUTCD indicate that the installation of a traffic signal should be considered if one or more of the signal warrants are met. (6) Specifically, this TIA utilizes the Peak Hour

Volume-based Warrant 3 as the appropriate representative traffic signal warrant analysis for existing traffic conditions. Warrant 3 is appropriate to use for this TIA because it provides specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating above 40 miles per hour). For the purposes of this study, the speed limit was the basis for determining whether Urban or Rural warrants were used for a given intersection.

Future unsignalized intersections, that currently do not exist, have been assessed regarding the potential need for new traffic signals based on future average daily traffic (ADT) volumes, using the Caltrans planning level ADT-based signal warrant analysis worksheets.

As shown in Table 2-3, traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips:

TABLE 2-3: TRAFFIC SIGNAL WARRANT ANALYSIS LOCATIONS

ID	Intersection Location	Jurisdiction
2	Verbena Rd. & Phelan Rd.	County of San Bernardino
3	Bellflower St. & Phelan Rd.	County of San Bernardino
5	Driveway 2 & Yucca Terrace Dr. – Future Intersection	City of Hesperia
6	Driveway 3 & Yucca Terrace Dr. – Future Intersection	City of Hesperia
7	Driveway 4 & Phelan Rd. – Future Intersection	City of Hesperia
11	US Highway 395 & Yucca Terrace Dr.	City of Hesperia, Caltrans
13	US Highway 395 & Poplar St.	City of Hesperia, Caltrans
24	Escondido Av. & Sultana St.	City of Hesperia

The Existing conditions traffic signal warrant analysis is presented in the subsequent section, Section 3 *Area Conditions* of this report. The traffic signal warrant analyses for future conditions are presented in Section 5 *E+P Traffic Analysis,* Section 6 *Opening Year Cumulative (2021) Traffic Analysis,* and Section 7 *Horizon Year (2040) Traffic Analysis* of this report.

It is important to note that a signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant.

2.4 FREEWAY OFF-RAMP QUEUING ANALYSIS

Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections at the I-15 Freeway and Main Street interchange. Specifically, the queuing analysis is utilized to identify any potential queuing and "spill back" onto the I-15 Freeway mainline from the off-ramps.

The traffic progression analysis tool and HCM intersection analysis program, Synchro, has been used to assess the potential deficiencies/needs of the intersections with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps have been based upon the 95th percentile queue resulting from the Synchro progression analysis. The footnote from the Synchro output sheets indicates if the 95th percentile cycle exceeds capacity. Traffic is simulated for two complete cycles of the 95th percentile traffic in Synchro in order to account for the effects of spillover between cycles. A vehicle is considered queued whenever it is traveling at less than 10 feet/second. A vehicle will only become queued when it is either at the stop bar or behind another queued vehicle. In practice, the 95th percentile queue shown will rarely be exceeded and the queues shown with the footnote are acceptable for the design of storage bays. The 95th percentile queue is derived from the average queue plus 1.65 standard deviations. The 95th percentile queue is not necessarily ever observed it is simply based on statistical calculations.

2.5 FREEWAY MAINLINE SEGMENT ANALYSIS METHODOLOGY

Consistent with recent Caltrans guidance, the traffic study has evaluated all freeway segments where the Project is anticipated to contribute 50 or more peak hour one-way trips, in an effort to conduct a conservative analysis and overstate as opposed to understand potential deficiencies.

The freeway system in the study area has been broken into segments defined by the freeway-to-arterial interchange locations. The freeway segments have been evaluated in this TIA based upon peak hour directional volumes. The freeway segment analysis is based on the methodology described in the HCM and performed using Highway Capacity Software (HCS) 7. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Table 2-4 illustrates the freeway segment LOS descriptions for each density range utilized for this analysis.

TABLE 2-4: DESCRIPTION OF FREEWAY MAINLINE LOS

Level of Service	Description	Density Range (pc/mi/ln)[1]
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly, and flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM, 6th Edition

The number of lanes for existing baseline conditions has been obtained from field observations conducted by Urban Crossroads in October 2019. These existing freeway geometrics have been utilized for Existing, E+P, Opening Year Cumulative (2021), and Horizon Year (2040) conditions.

The I-15 Freeway mainline volume data was obtained from the Caltrans Performance Measurement System (PeMS) website for the segments of the I-15 Freeway interchanges at Main Street. The data was obtained from September 2019. In an effort to conduct a conservative analysis, the maximum value observed within the 3-day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic and actual vehicles (as opposed to PCE volumes) have been utilized for the purposes of the basic freeway segment analysis. (7)

2.6 FREEWAY MERGE/DIVERGE RAMP JUNCTION ANALYSIS

The freeway system in the study area has been broken into segments defined by freeway-to-arterial interchange locations resulting in 4 existing on and off ramp locations where the Project is anticipated to contribute 50 or more peak hour trips (see Table 1-2). Although the HCM indicates the influence area for a merge/diverge junction is 1,500 feet, the analysis presented in this traffic study has been performed at all ramp locations with respect to the nearest on or off ramp at each interchange in an effort to be consistent with Caltrans guidance/comments on other projects Urban Crossroads has worked on in the region.

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS7 software. The measure of effectiveness (reported in passenger car/mile/lane) are calculated based on the existing number of travel lanes, number of lanes at the on and off ramps both at the analysis junction and at upstream and downstream locations (if applicable) and acceleration/deceleration lengths at each merge/diverge point. Table 2-5 presents the merge/diverge area level of service descriptions for each density range utilized for this analysis.

TABLE 2-5: DESCRIPTION OF FREEWAY MERGE AND DIVERGE LOS

Level of Service	Density Range (pc/mi/ln)[1]
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] pc/mi/ln = passenger cars per mile per lane. Source: HCM, 6th Edition

Similar to the basic freeway segment analysis, the I-15 Freeway mainline volume data were obtained from the Caltrans maintained PeMS website for the segments of the I-15 Freeway interchanges at Joshua Street and Ranchero Road. The ramp data (per the count data presented in Appendix 3.1) were then utilized to flow conserve the mainline volumes to determine the remaining I-15 Freeway mainline segment volumes. Flow conservation checks ensure that traffic flows from north to south (and vice versa) of the interchange area with no unexplained loss of vehicles. The data was obtained from September 2019. In an effort to conduct a conservative analysis, the maximum value observed within the 3-day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic and actual vehicles (as opposed to PCE volumes) have been utilized for the purposes of the freeway ramp junction (merge/diverge) analysis. (7)

2.7 MINIMUM ACCEPTABLE LEVELS OF SERVICE (LOS)

2.7.1 CITY OF HESPERIA

For the purposes of this traffic analysis, and consistent with the City of Hesperia General Plan Circulation Element, LOS D is considered acceptable for circulation element intersections.

2.7.2 CITY OF VICTORVILLE

For the purposes of this traffic analysis, and consistent with the City of Victorville General Plan Circulation Element, LOS D is considered acceptable for circulation element intersections.

2.7.3 COUNTY OF SAN BERNARDINO

The definition of an intersection deficiency in the County of San Bernardino is based on the County's General Plan Circulation Element. The County of San Bernardino's General Plan states

that target LOS C be maintained at County intersections and roadway segments wherever possible within the Desert region.

2.7.4 SAN BERNARDINO COUNTY CMP

The CMP definition of deficiency is based on maintaining a level of service standard of LOS E or better, where feasible, except where an existing LOS F condition is identified in the CMP document. However, for the purposes of this analysis, LOS D (or LOS C in County of San Bernardino) has been utilized for all study area intersections.

2.7.5 CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on the SHS facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. Caltrans acknowledges that the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS D. Consistent with the Caltrans LOS threshold of LOS D and in excess of the CMP stated LOS threshold of LOS E, LOS D will be used as the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions.

2.8 INTERSECTION DEFICIENCY CRITERIA

City of Hesperia, City of Victorville

To determine whether the addition of project traffic (as defined through the comparison of Existing traffic conditions to E+P traffic conditions) at a study intersection, which would result in a direct project-specific traffic deficiency, the following will be utilized:

- When the pre-Project condition is at or better than LOS D (i.e., acceptable LOS), and project-generated traffic, as measured by 50 or more peak hour trips, causes deterioration below LOS D (i.e., unacceptable LOS), a deficiency is deemed to occur.

However, when the pre-Project condition is already below LOS D (i.e., unacceptable LOS), the Project will be responsible for improving its contribution to a deficiency to a level of service equal to or better than it was without the Project for intersections that receive 50 or more peak hour project-related trips.

Cumulative traffic deficiencies are created as a result of a combination of the proposed Project together with other future developments contributing to the overall traffic deficiencies requiring additional improvements to maintain acceptable level of service operations with or without the Project. A Project's contribution to a cumulative deficiency can be reduced if the Project is required to implement or fund its fair share of improvements designed to alleviate its contribution to the deficiency. A cumulative deficiency is identified when the Project contributes 50 or more peak hour trips, and all facilities that would receive 50 or more peak hour trips from the Project are evaluated in this report.

County of San Bernardino

Consistent with the County of San Bernardino traffic study guidelines and the acceptable LOS for the Desert, Valley, and Mountain regions as described in the General Plan, the County will consider the following signalized intersection criteria when identifying operational deficiencies in a traffic study to demonstrate consistency with the General Plan: (8)

- Any signalized study intersection in the Valley or Mountain regions that is operating at an acceptable LOS D or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS E or F shall identify improvements to improve operations to LOS D or better.
- Any signalized study intersection in the Desert region that is operating at an LOS C or better without project traffic in which the addition of project traffic causes the intersection to degrade to an LOS D, E, or F shall identify improvements to improve operations to LOS C.
- Any signalized study intersection in the Valley or Mountain regions that is operating at LOS E or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.
- Any signalized study intersection in the Desert region that is operating at LOS D, E, or F without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

Consistent with the County of San Bernardino traffic study guidelines and the acceptable LOS for the Desert, Valley, and Mountain regions as described in the General Plan, the County will consider the following unsignalized intersection criteria when identifying operational deficiencies in a traffic study to demonstrate consistency with the General Plan:

- The addition of project related traffic causes the intersection to move from a LOS D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the Desert region.

  OR

- The project contributes additional traffic to an intersection that is already projected to operate at an LOS E or F in the Valley and Mountain regions or at an LOS D, E, or F in the Desert region (per Section 10.5.2 b))

  AND

- One or both of the following conditions are met:
  - The project adds ten (10) or more trips to any approach
  - The intersection meets the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c)).

If the conditions above are satisfied, improvements should be identified that achieve the following:

- In the Valley and Mountain regions, improvements should be identified that would achieve LOS D or better for case a) above or to pre-project LOS and delay for case b) above.
- In the Desert region, improvements should be identified that would achieve LOS C or better for case a) above or to pre-project LOS and delay for case b) above.

Improvements for project level deficiencies should focus on providing operations that offset the project deficiency (e.g. achieve a "no project" LOS). Improvements could consist of signal timing improvements, lane restriping, or new lanes to study facilities. Cumulative deficiencies should include a fair-share contribution toward achieving acceptable levels of service as noted below. Alternatively, if a cumulative location is included in an existing traffic impact fee program, payment of those fees would constitute an appropriate contribution. A key element of SB 743 is the elimination of automobile delay and level of service as the sole basis of determining CEQA impacts. The most recent CEQA guidelines, released in December 2018, recommend VMT as the most appropriate measure of project transportation impacts. However, SB 743 does not prevent a city or county from continuing to analyze delay or LOS as part of other plans (i.e., the general plan), studies, or ongoing network monitoring. VMT thresholds, methodology, analysis, and findings are discussed under separate cover.

2.9 PROJECT FAIR SHARE CALCULATION METHODOLOGY

Improvements found to be included in the City's DIF will be identified as such. For improvements that do not appear to be in any pre-existing fee programs, a fair share financial contribution based on the Project's proportional share may be imposed in order to improve the Project's share of deficiencies in lieu of construction. It should be noted that fair share calculations are for informational purposes only and the City Engineer will determine the appropriate improvements to be implemented by a project (to be identified in the conditions of approval).

The Project's fair share cost of improvements have been determined based on the following equation, which is the ratio of Project traffic to new traffic, where new traffic is total future traffic less existing baseline traffic:

Project Fair Share % = Project Traffic / (2040 With Project Total Traffic – Existing 2019 Traffic)

3 AREA CONDITIONS

This section provides a summary of the existing circulation network, the City of Hesperia General Plan Circulation Network, and a review of existing peak hour intersection operations, traffic signal warrant, queuing, and freeway facility operations analyses.

3.1 EXISTING CIRCULATION NETWORK

Pursuant to the scoping agreement with City of Hesperia staff (Appendix 1.1), the study area includes a total of 25 existing and future intersections as shown previously on Exhibit 1-2 where the Project is anticipated to contribute 50 or more peak hour trips. Exhibit 3-1 illustrates the study area intersections located near the proposed Project and identifies the number of through traffic lanes for existing roadways and intersection traffic controls.

3.2 CITY OF HESPERIA GENERAL PLAN CIRCULATION ELEMENT

As previously noted, the Project site is located within the City of Hesperia. Exhibit 3-2 shows the City of Hesperia General Plan Circulation Element, and Exhibit 3-3 illustrates the City of Hesperia General Plan roadway cross-sections. The roadway classifications and planned (ultimate) roadway cross-sections of the major roadways within the City of Hesperia in the vicinity of the proposed Project as identified on the City's General Plan Circulation Element are described subsequently.

Major Arterials can accommodate six travel lanes and may have raised medians. These roadways experience the most traffic within the city. Examples of a Major Arterial within the study area include:

- Phelan Road
- Main Street, west of I-15 Freeway

Major Arterials with Bike Lanes can accommodate six travel lanes with bike lanes on each side and may have raised medians. These roadways experience the most traffic within the city. An example of a Major Arterial with Bike Lanes within the study area includes:

- Escondido Avenue, north of Main Street

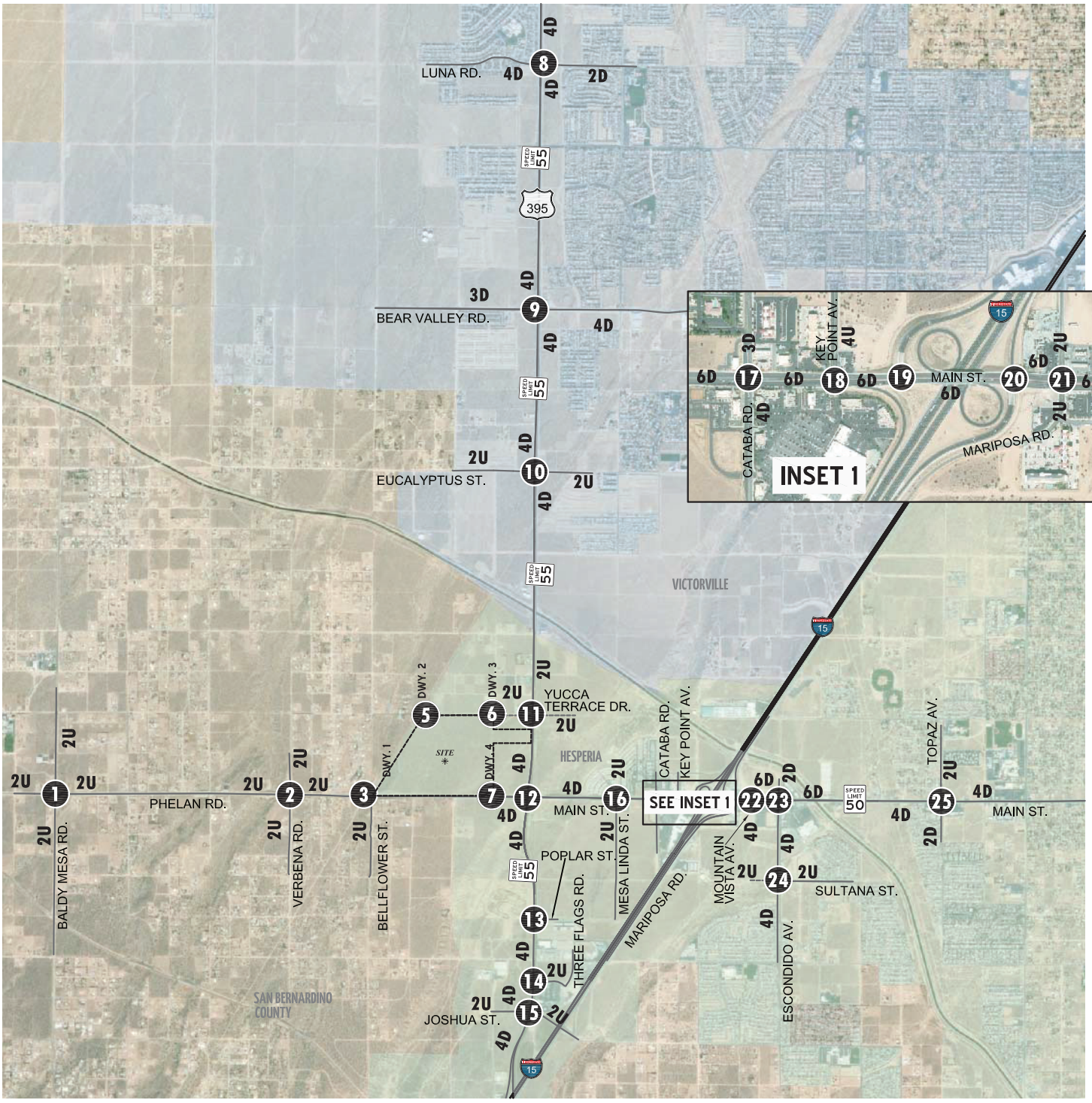
Arterials can accommodate four travel lanes. Arterials may have two-way left-turn lanes. Examples of Arterials within the study area include:

- Mesa Linda Street
- Escondido Avenue, south of Main Street

Secondary Arterials can accommodate two travel lanes and provide connection between collectors and arterials. Secondary Arterials may have two-way left-turn lanes. Examples of Secondary Arterials within the study area include:

- Poplar Street, west of Lassen Road
- Joshua Street

EXHIBIT 3-1 (1OF2): EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS



LEGEND:

- 4 = NUMBER OF LANES
- D = DIVIDED
- U = UNDIVIDED
- SPEED LIMIT 25 = SPEED LIMIT (MPH)

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EXHIBIT 3-1 (2OF2): EXISTING NUMBER OF THROUGH LANES AND INTERSECTION CONTROLS

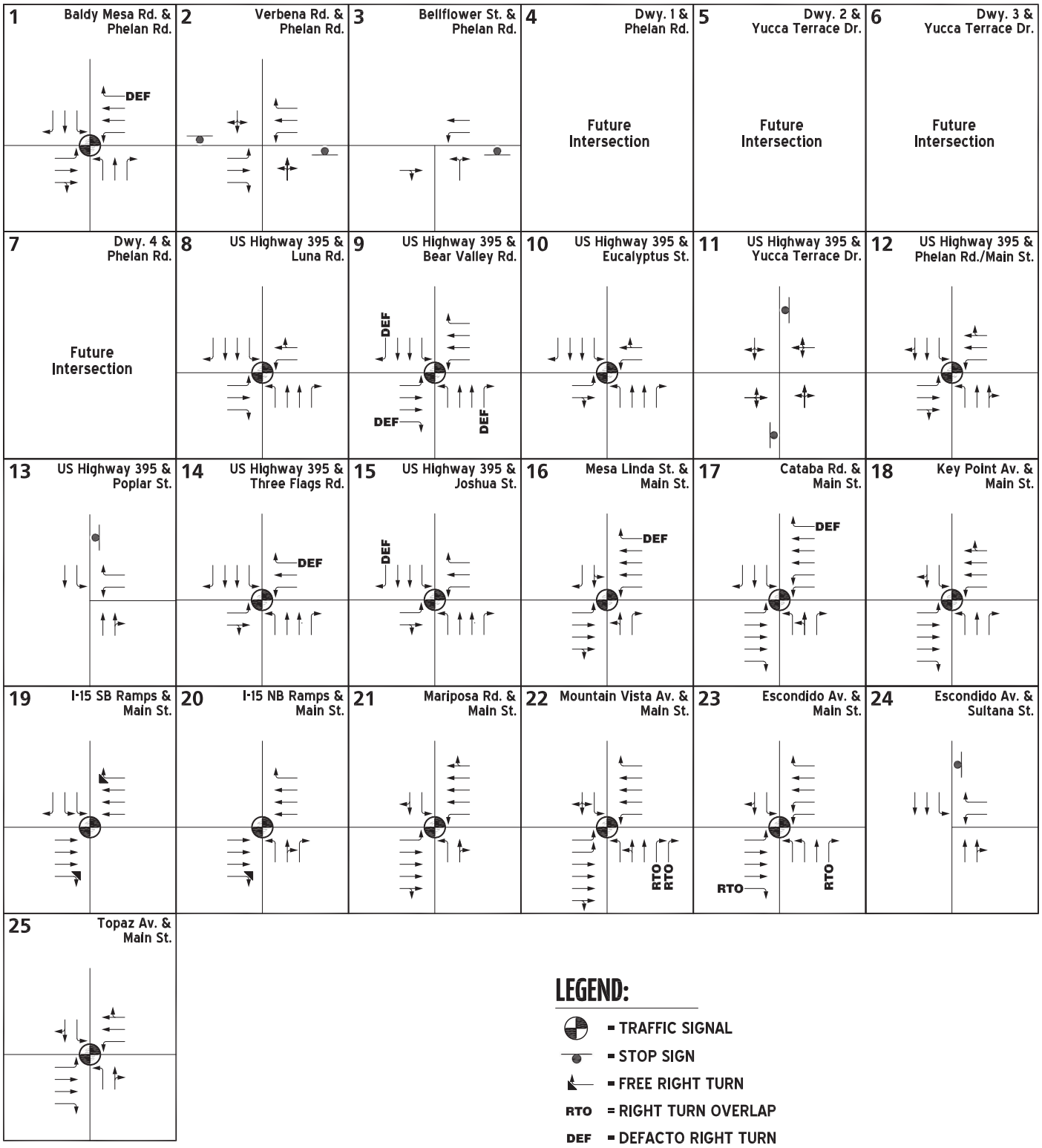
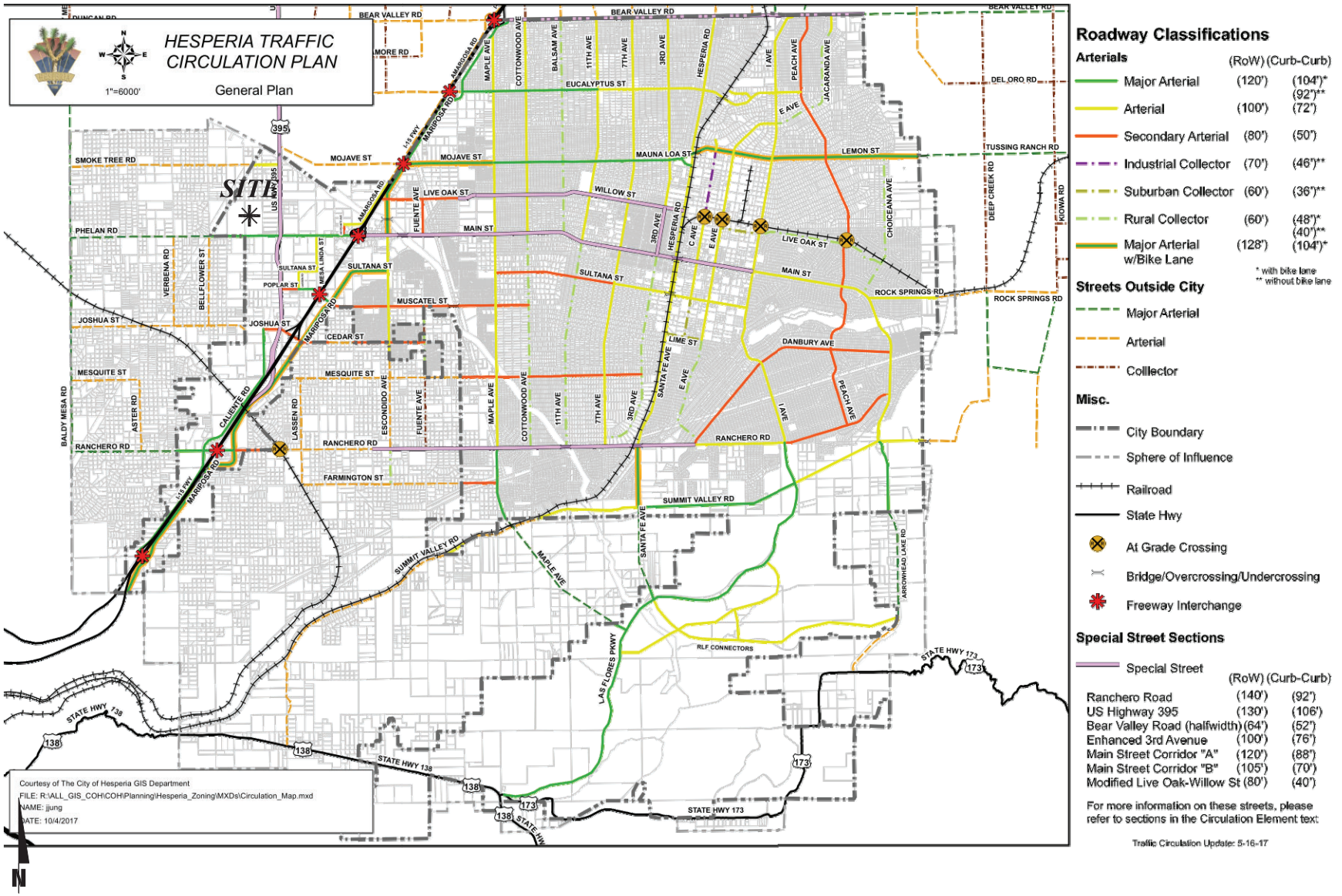
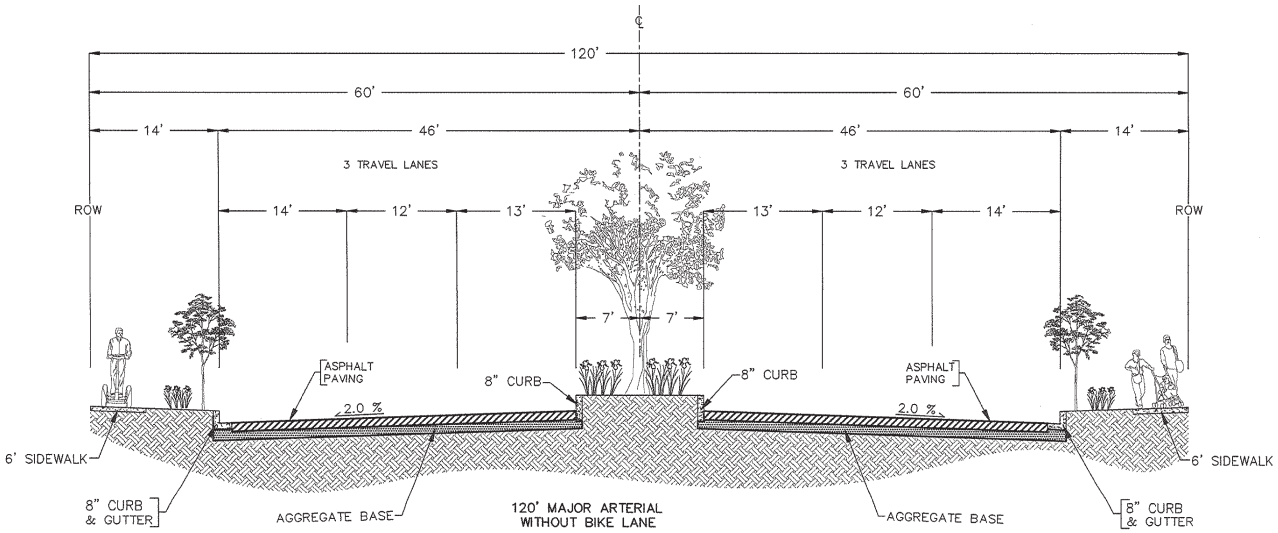


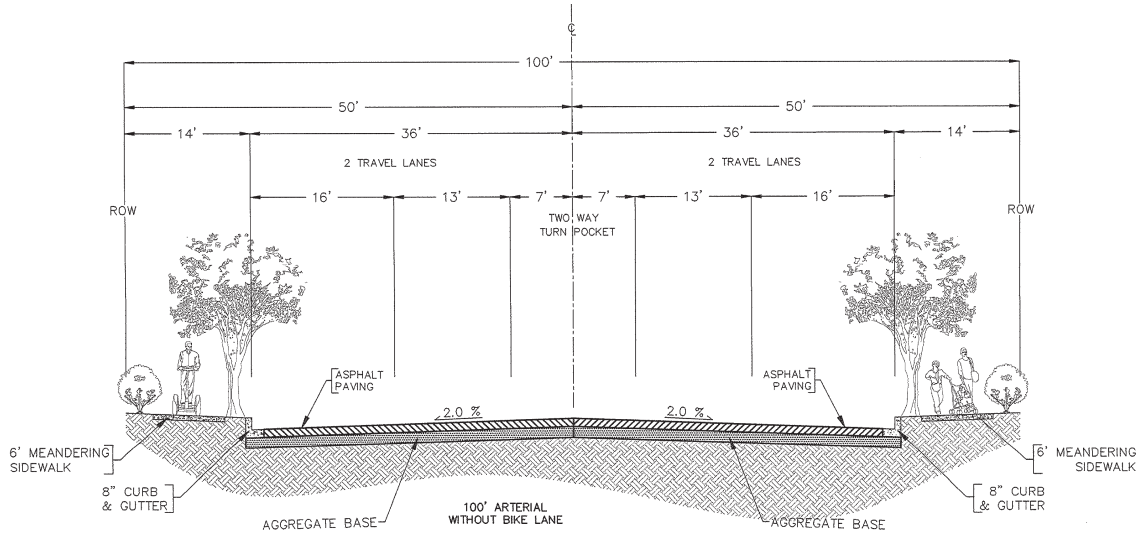
EXHIBIT 3-2: CITY OF HESPERIA GENERAL PLAN CIRCULATION ELEMENT



URBAN CROSSROADS

EXHIBIT 3-3 (1OF3): CITY OF HESPERIA GENERAL PLAN ROADWAY CROSS-SECTIONS





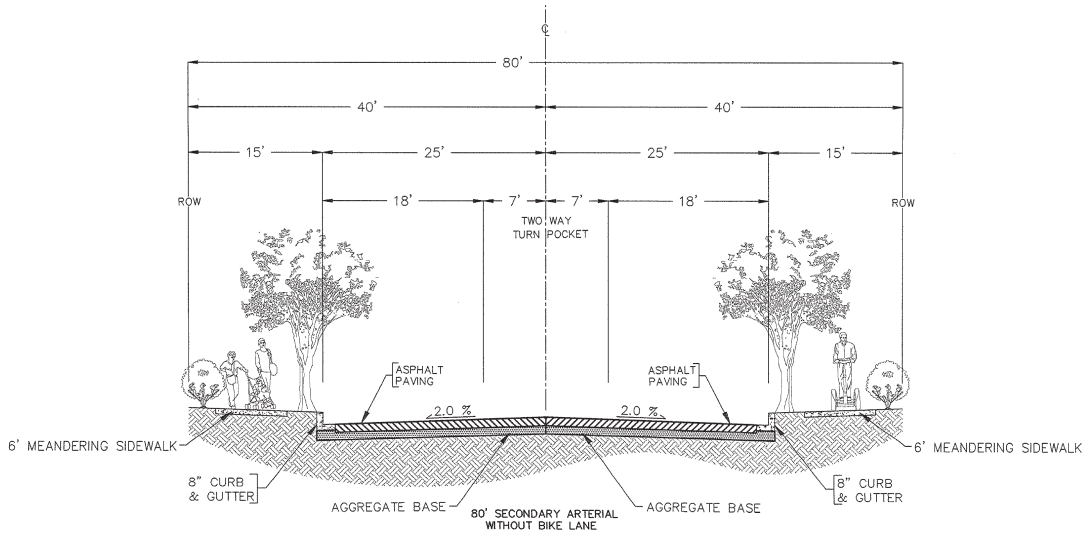
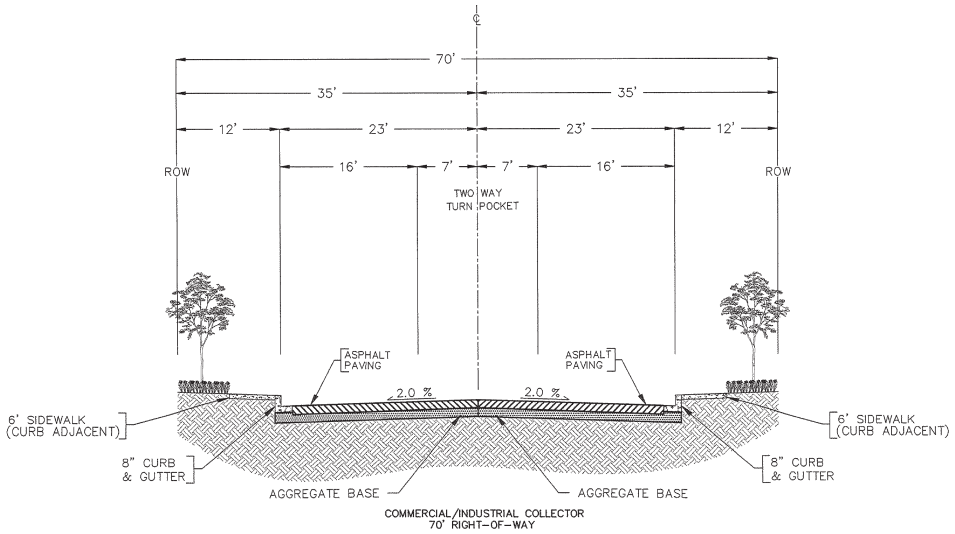
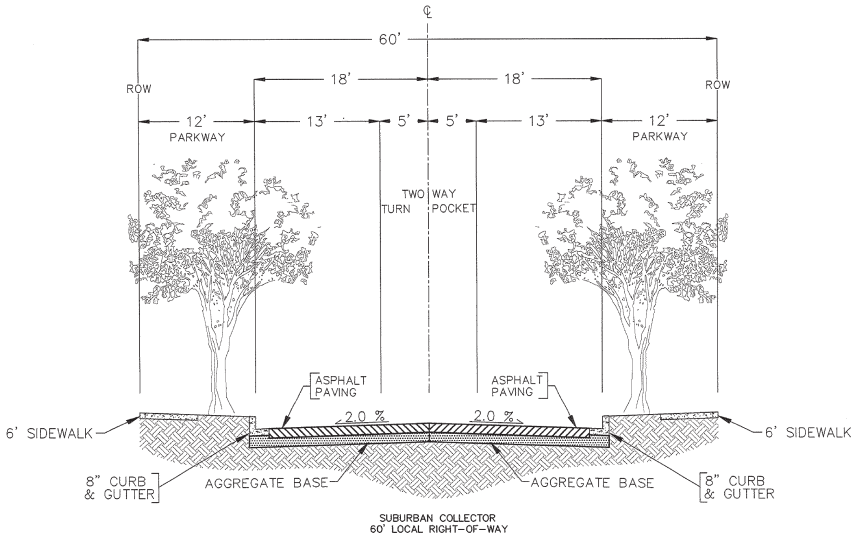


EXHIBIT 3-3 (2OF3): CITY OF HESPERIA GENERAL PLAN ROADWAY CROSS-SECTIONS





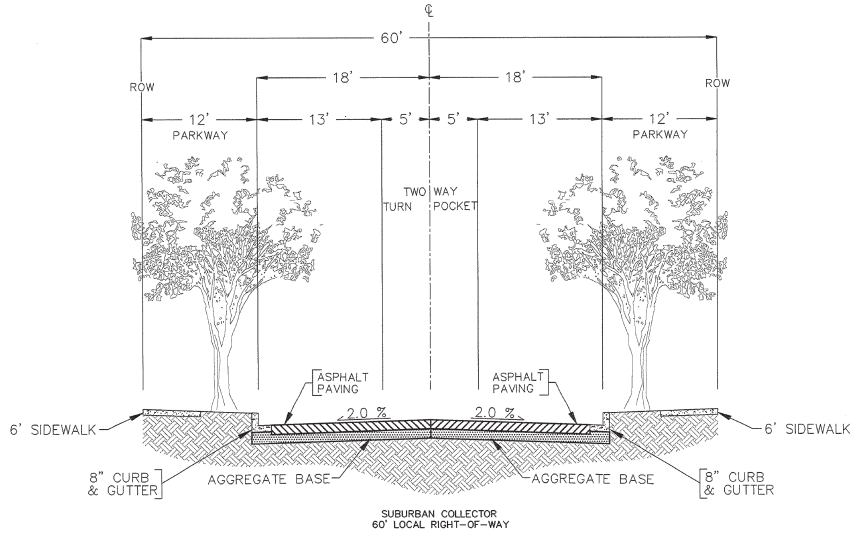
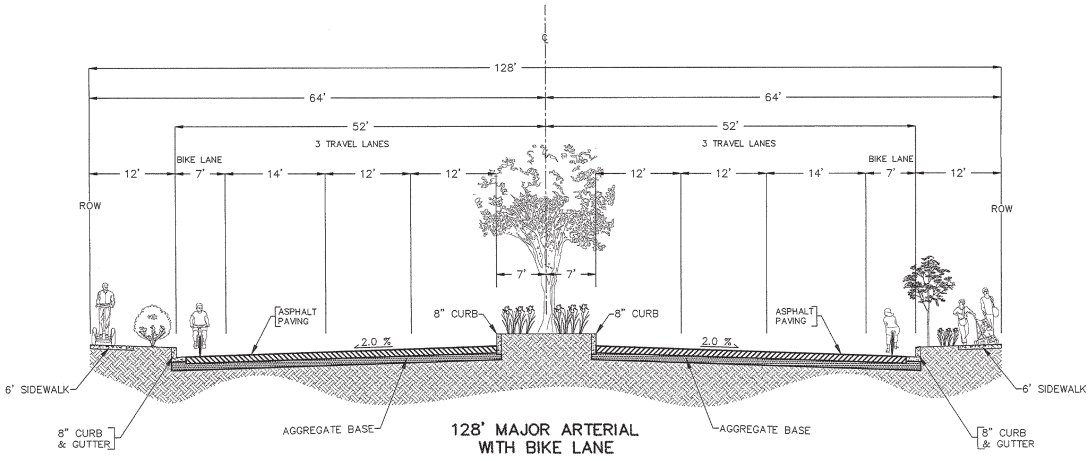


EXHIBIT 3-3 (3OF3): CITY OF HESPERIA GENERAL PLAN ROADWAY CROSS-SECTIONS



Main Street Corridor 'A' is the segment of Main Street from the I-15 Freeway to Ninth Avenue. This segment of Main Street can accommodate six travel lanes and includes a landscape median. This segment does not include bike lanes.

3.3 COUNTY OF SAN BERNARDINO AND CITY OF VICTORVILLE GENERAL PLAN CIRCULATION ELEMENT

Exhibits 3-4 and 3-5 show the County of San Bernardino's General Plan Circulation Element and roadway cross-sections, respectively. Exhibits 3-6 and 3-7 show the City of Victorville's General Plan Circulation Element and roadway cross-sections, respectively.

3.4 BICYCLE & PEDESTRIAN FACILITIES

In an effort to promote alternative modes of transportation, the City of Hesperia General Plan also includes a bike plan. The City of Hesperia bike plan is shown on Exhibit 3-8. Within the study area, there are existing Class II bike paths along Escondido Avenue. Within the study area, there are proposed Class I bike paths along Main Street, east of I-15 Freeway, proposed Class II bike facilities along Topaz Avenue and Mariposa Avenue, and a proposed Class III bike facility along Joshua Street.

Field observations conducted in October 2019 indicates nominal pedestrian and bicycle activity within the study area. Exhibit 3-9 illustrates the existing pedestrian facilities, including sidewalks and crosswalks. As shown on Exhibit 3-9, there are existing sidewalks along portions of Luna Road, Main Street, and Escondido Avenue within the study area.

3.5 TRANSIT SERVICE

The study area is currently served by the Victor Valley Transit Authority (VVTA), a public transit agency serving the Victor Valley area within San Bernardino County, with bus service along Mariposa Road, Main Street, Phelan Road, Bear Valley Road, and Escondido Avenue. Existing bus routes provided within the area by VVTA are shown on Exhibit 3-10. VVTA Route 21W could potentially serve the Project in the future. Transit service is reviewed and updated by VVTA periodically to address ridership, budget and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. As such, it is recommended that the Project Applicant work in conjunction with VVTA to potentially provide bus service to the site.

3.6 TRUCK ROUTES

The City of Hesperia's General Plan does not provide designated truck routes. The City of Victorville truck routes are shown on Exhibit 3-11. Truck routes for the proposed Project have been determined based on discussions with City staff. These truck routes serve both the proposed Project and future cumulative development projects throughout the study area.

EXHIBIT 3-4: COUNTY OF SAN BERNARDINO GENERAL PLAN CIRCULATION ELEMENT

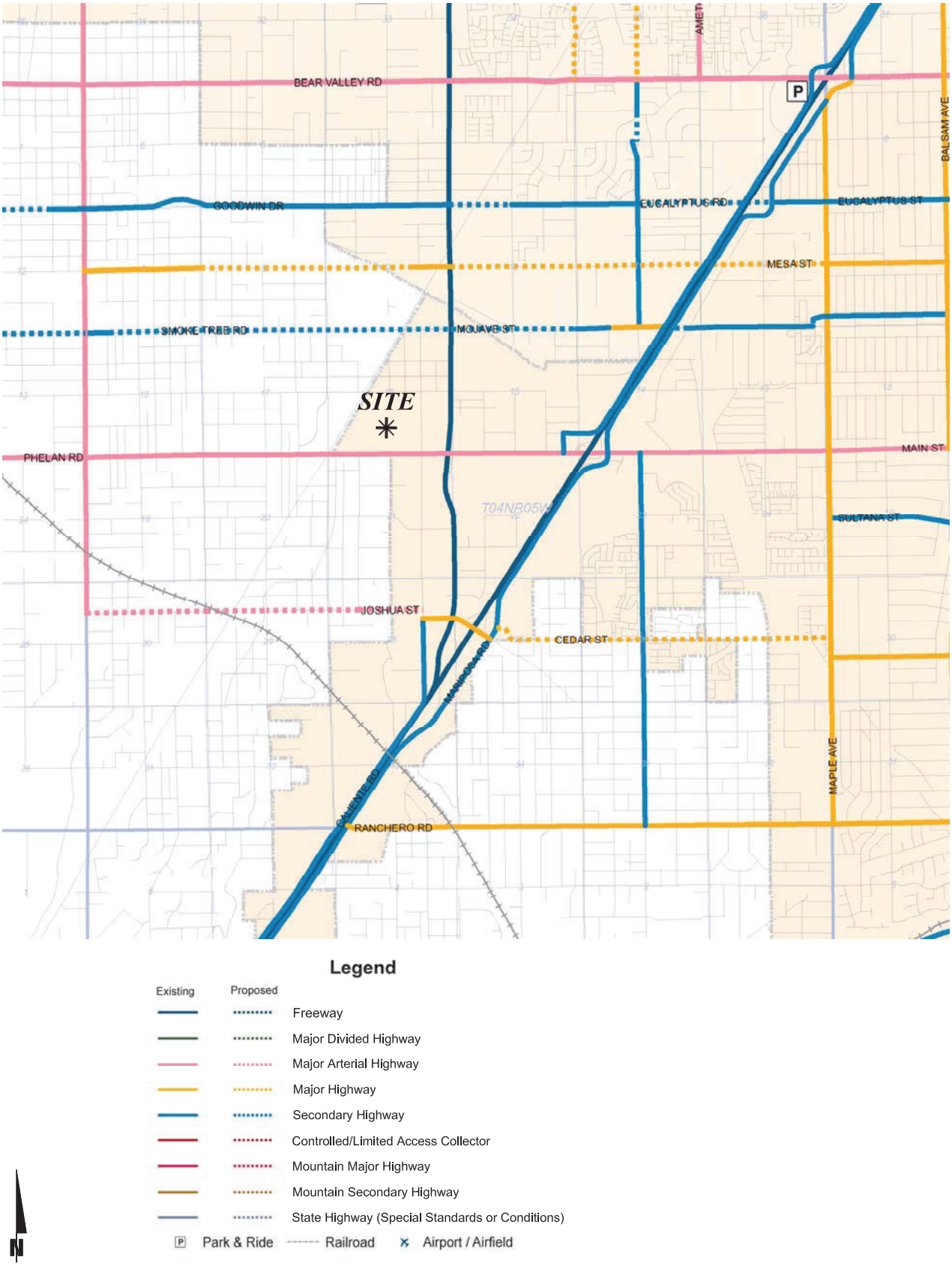
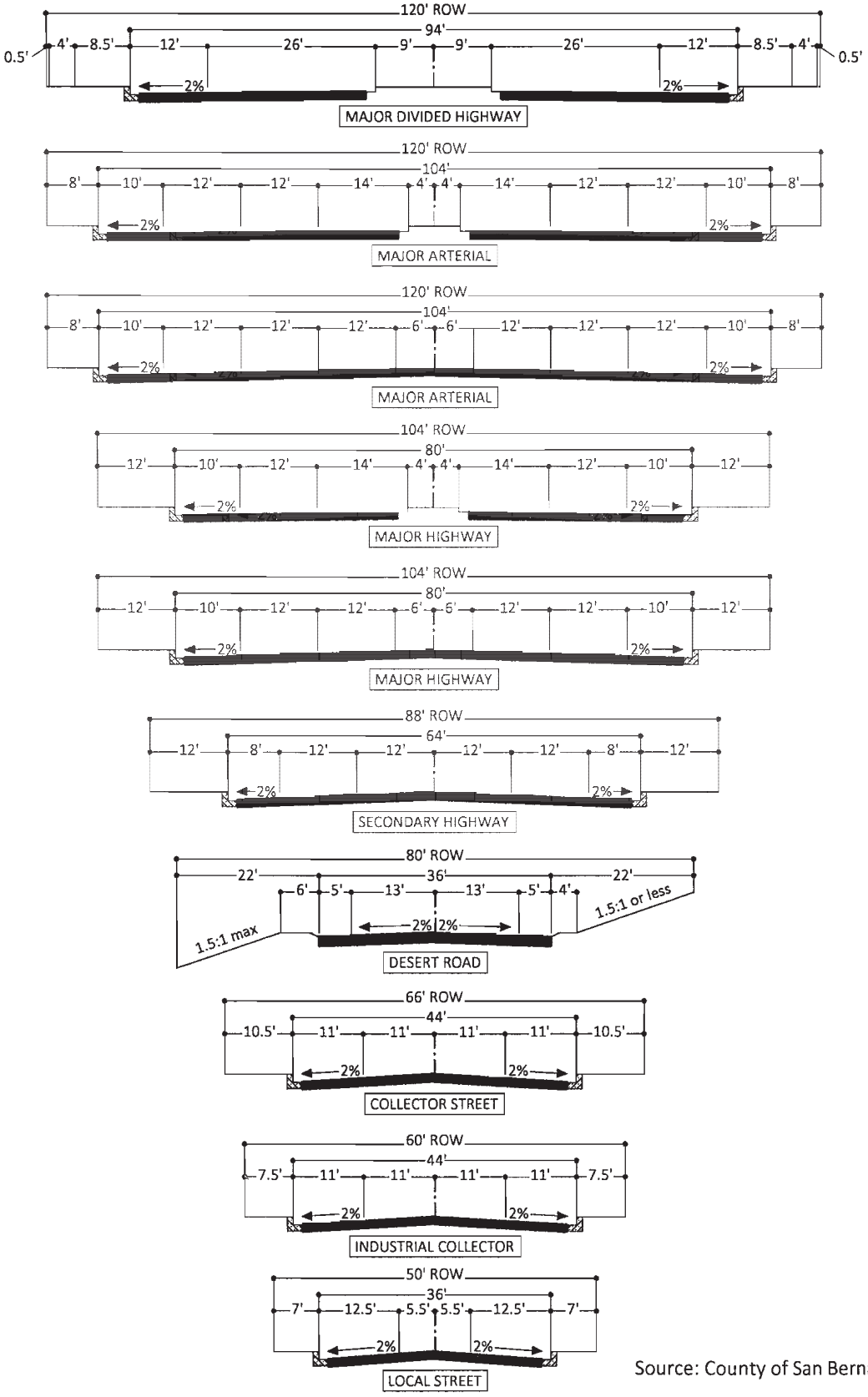


EXHIBIT 3-5 : COUNTY OF SAN BERNARDINO GENERAL PLAN ROADWAY CROSS-SECTIONS



Source: County of San Bernardino

EXHIBIT 3-6: CITY OF VICTORVILLE GENERAL PLAN CIRCULATION ELEMENT

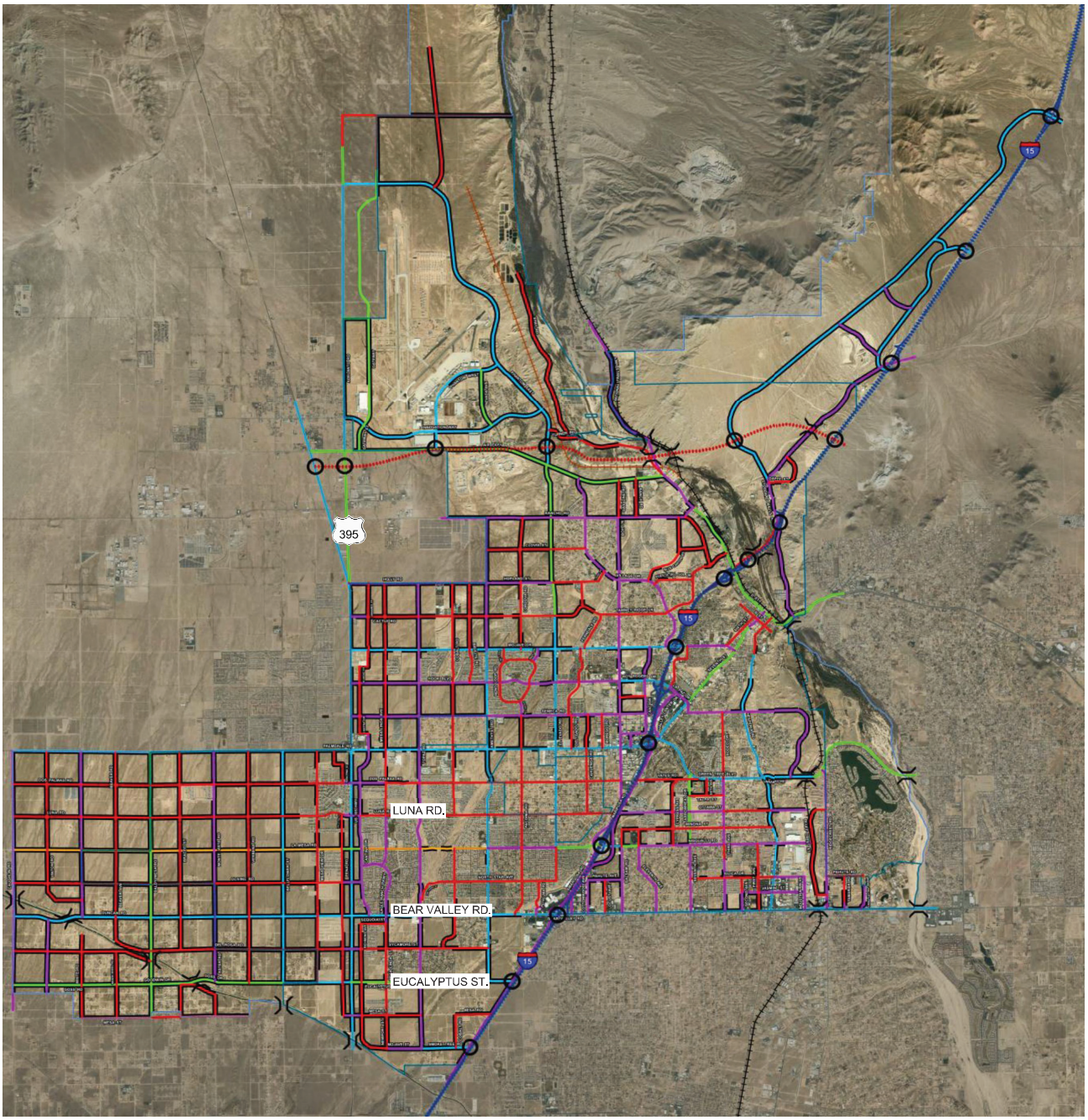


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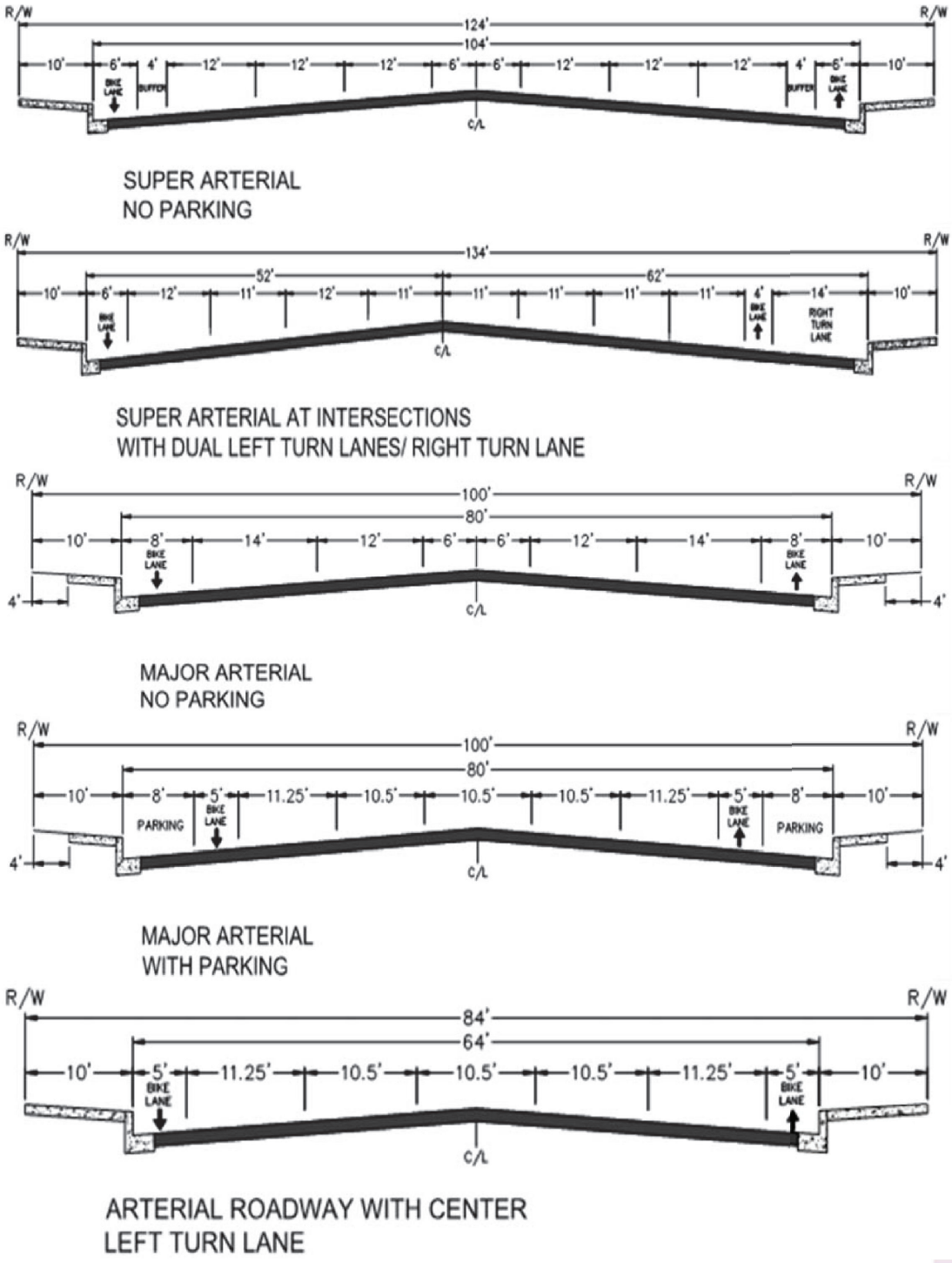
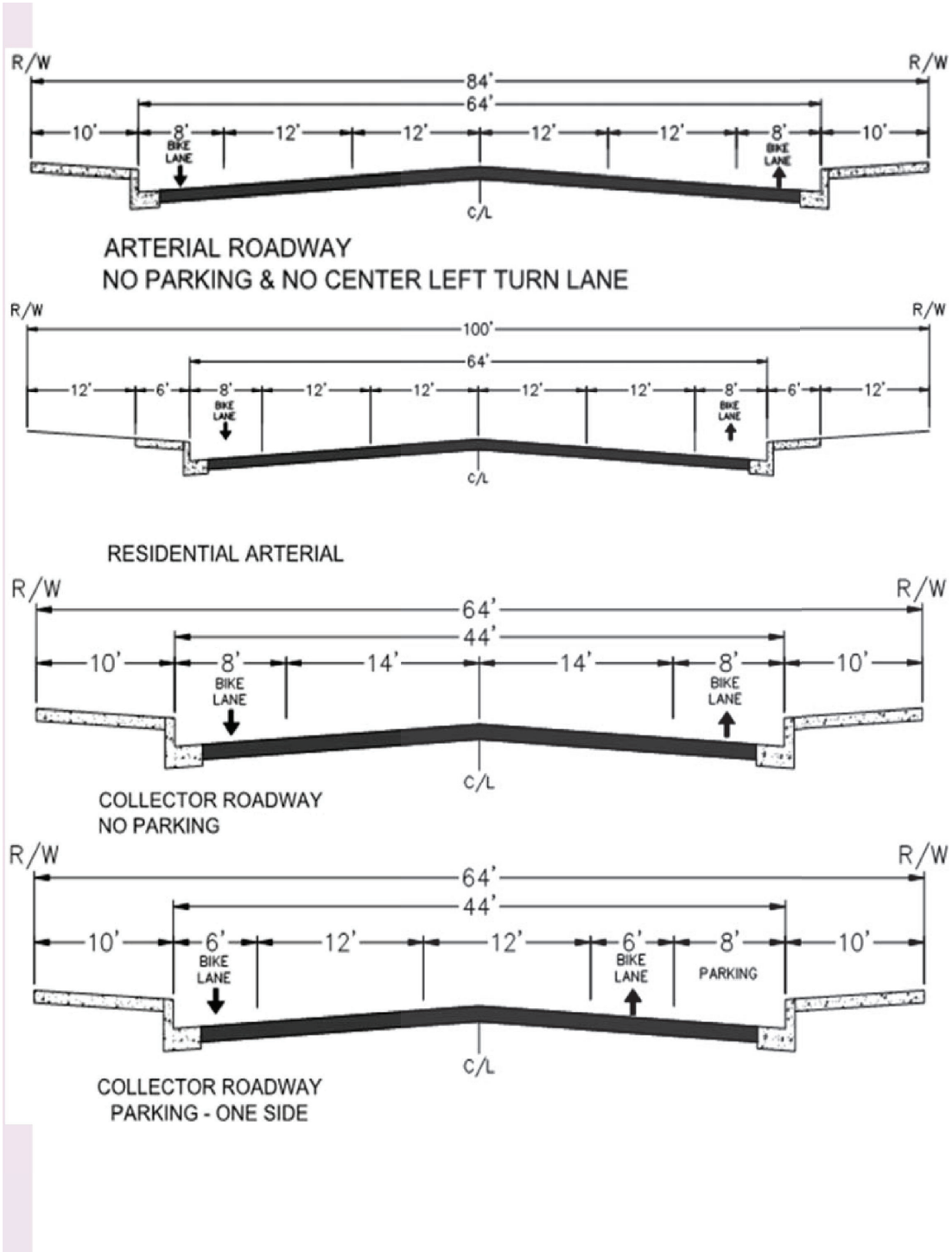
EXHIBIT 3-7 (1OF5): CITY OF VICTORVILLE GENERAL PLAN ROADWAY CROSS-SECTIONS



Retrofit Street Sections

N

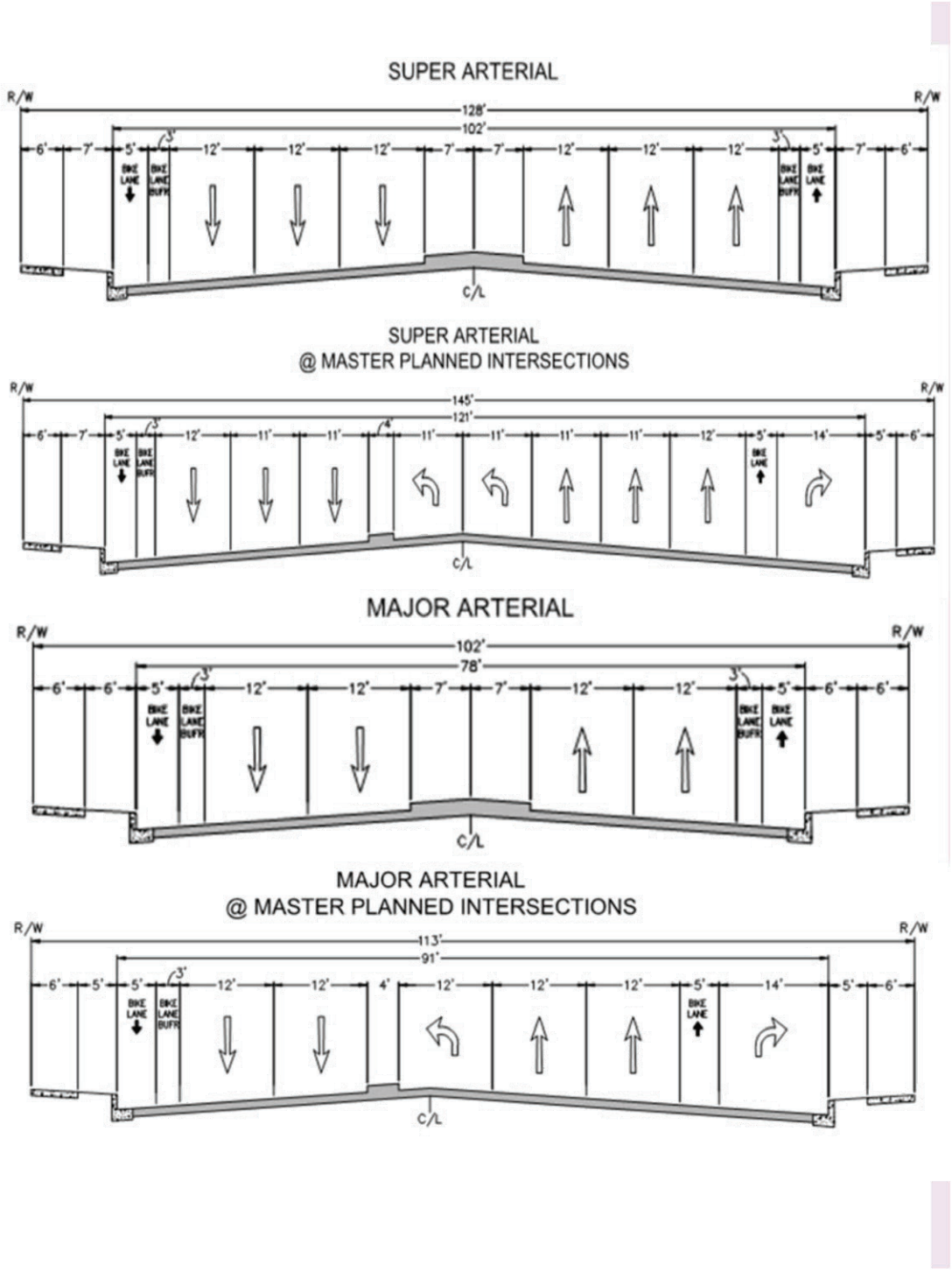
EXHIBIT 3-7 (2OF5): CITY OF VICTORVILLE GENERAL PLAN ROADWAY CROSS-SECTIONS



Retrofit Street Sections

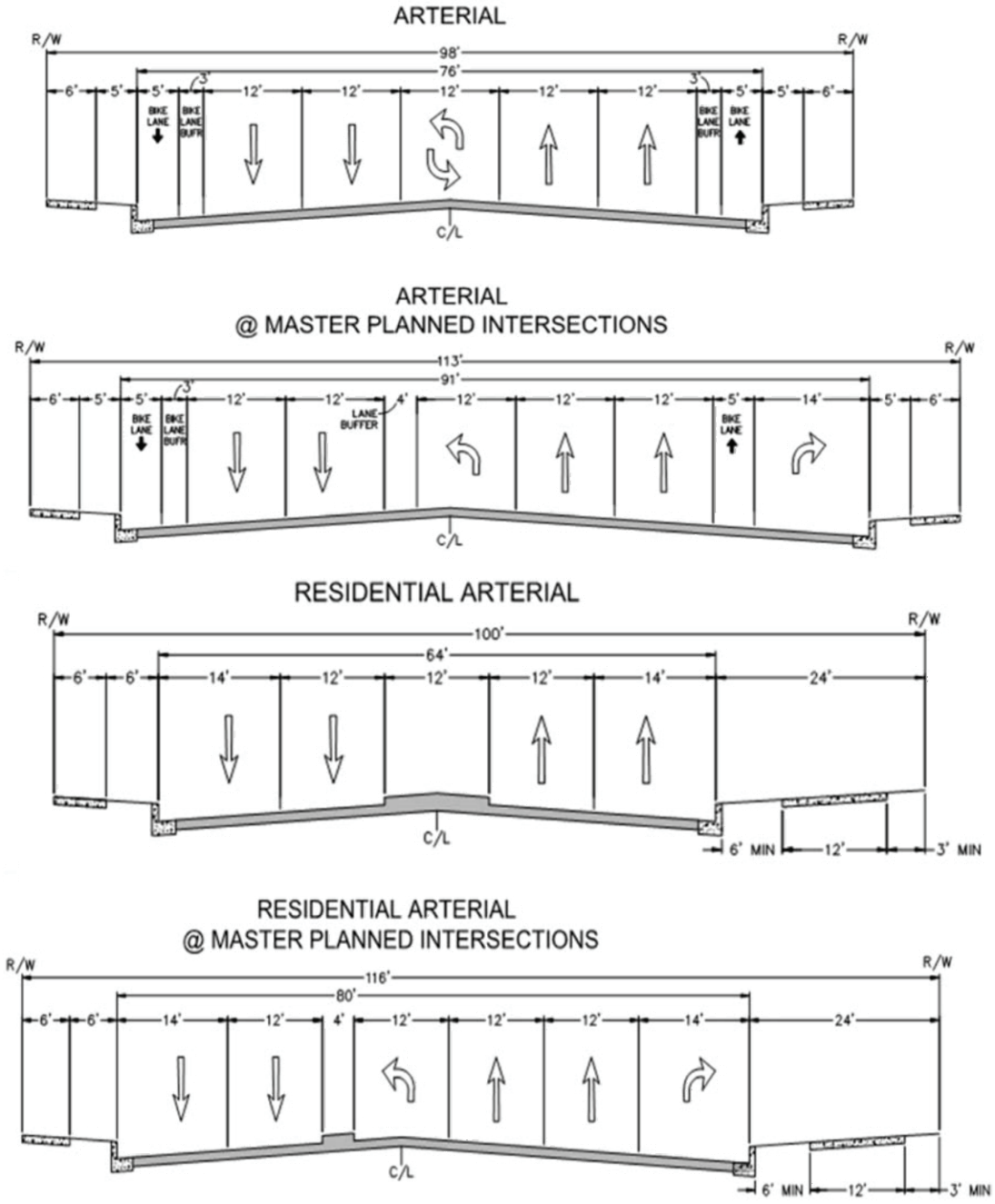
N

EXHIBIT 3-7 (3OF5): CITY OF VICTORVILLE GENERAL PLAN ROADWAY CROSS-SECTIONS



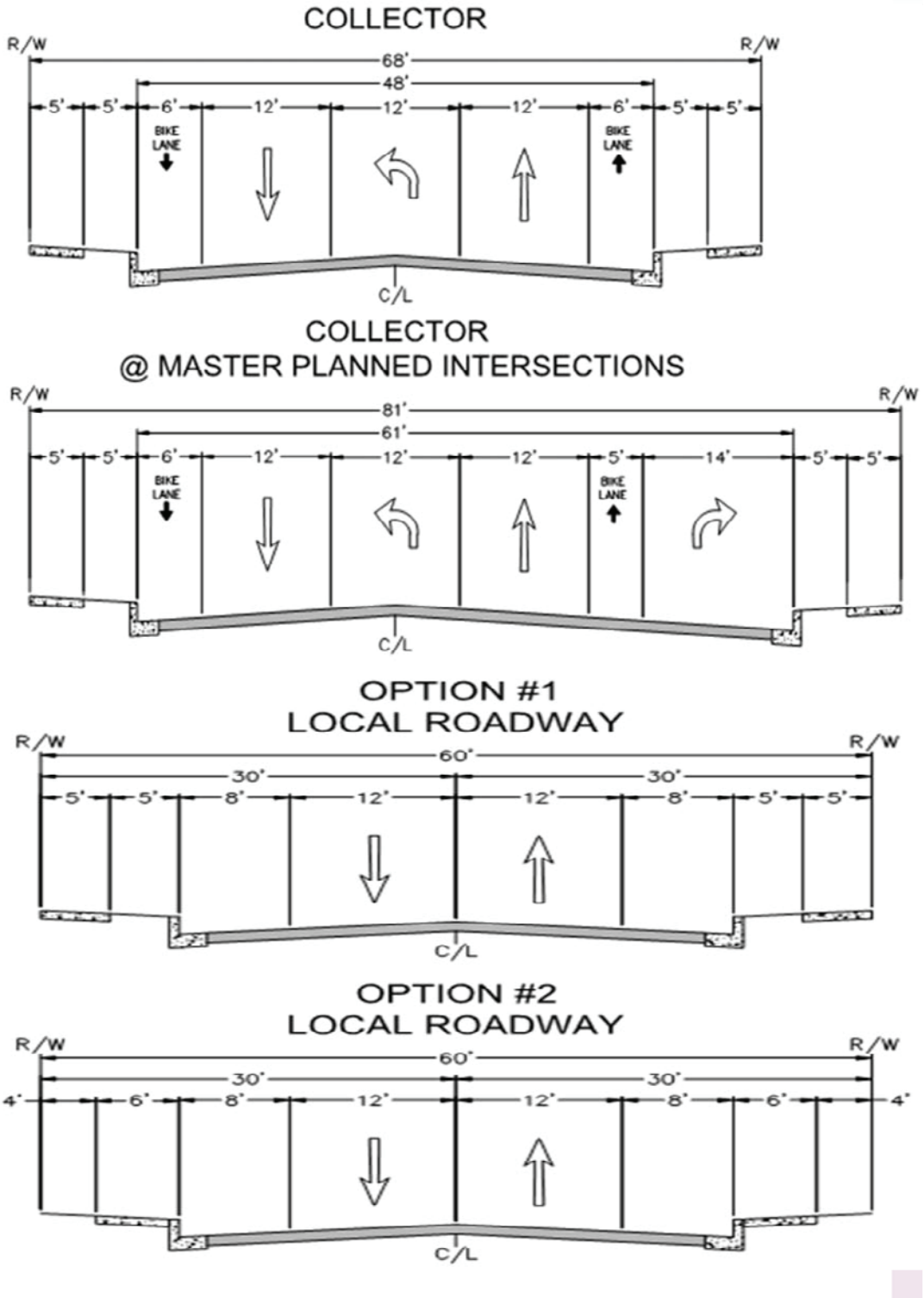
Street Sections

EXHIBIT 3-7 (4OF5): CITY OF VICTORVILLE GENERAL PLAN ROADWAY CROSS-SECTIONS



Street Sections

EXHIBIT 3-7 (5OF5): CITY OF VICTORVILLE GENERAL PLAN ROADWAY CROSS-SECTIONS



Street Sections

EXHIBIT 3-8: CITY OF HESPERIA GENERAL PLAN BIKE PLAN

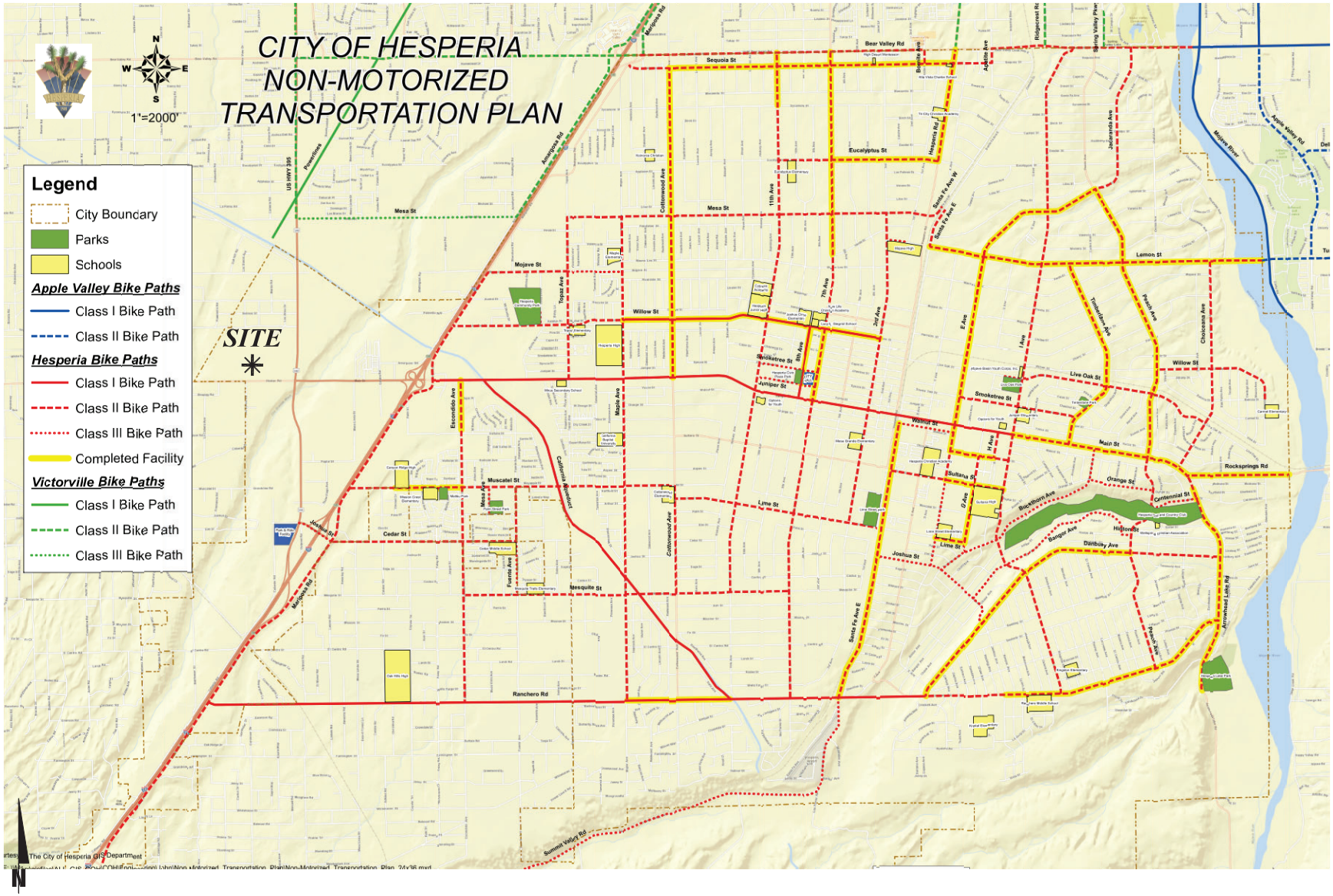

CITY OF HESPERIA
NON-MOTORIZED
TRANSPORTATION PLAN
1"=2000'
SITE
Legend
City Boundary
Parks
Schools
Apple Valley Bike Paths
Class I Bike Path
Class II Bike Path
Hesperia Bike Paths
Class I Bike Path
Class II Bike Path
Class III Bike Path
Completed Facility
Victorville Bike Paths
Class I Bike Path
Class II Bike Path
Class III Bike Path
The City of Hesperia GIS Department
Bear Valley Rd
Sequoia St
Eucalyptus St
Mesa St
Mojave St
Willow St
Juniper St
Smoketree St
Walnut St
Live Oak St
Lemon St
Main St
Orange St
Centennial St
Rockspring Rd
Sultana St
Lime St
Joshua St
Cedar St
Muscatel St
Mesquite St
Ranchero Rd
Summit Valley Rd
Maple Ave
Escondido Ave
Topaz Ave
Cottonwood Ave
California Aqueduct
Fuente Ave
Mesa Ave
Santa Fe Ave E
Santa Fe Ave W
Hesperia Rd
Amargosa Rd
Maple Ave
Peach Ave
Cholcema Ave
Tamarisk Ave
Jacaranda Ave
Apple Valley Rd
Mojave River
Arrowhead Lake Rd
Danbury Ave
Bangor Ave
Bluethorn Ave
Highland St
Main St
Walnut St
Smoketree St
Live Oak St
Willow St
Lemon St
Mojave St
Mesa St
Sequoia St
Bear Valley Rd
Eucalyptus St
Lime St
Joshua St
Cedar St
Muscatel St
Mesquite St
Ranchero Rd
Summit Valley Rd
Maple Ave
Escondido Ave
Topaz Ave
Cottonwood Ave
California Aqueduct
Fuente Ave
Mesa Ave
Santa Fe Ave E
Santa Fe Ave W
Hesperia Rd
Amargosa Rd
Peach Ave
Cholcema Ave
Tamarisk Ave
Jacaranda Ave
Apple Valley Rd
Mojave River
Arrowhead Lake Rd
Danbury Ave
Bangor Ave
Bluethorn Ave
Highland St
Main St
Orange St
Centennial St
Rockspring Rd
Sultana

EXHIBIT 3-9: EXISTING PEDESTRIAN FACILITIES

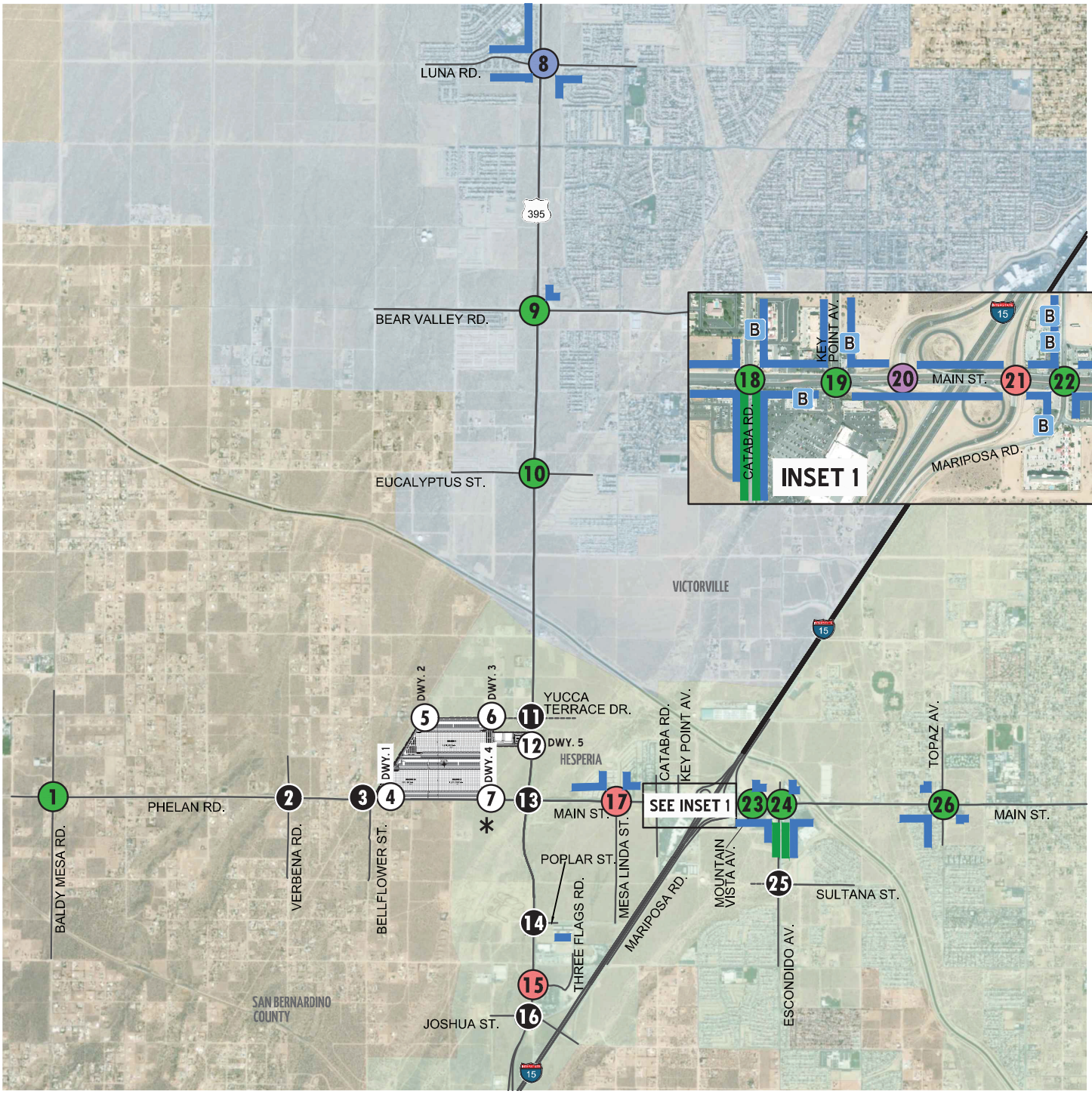


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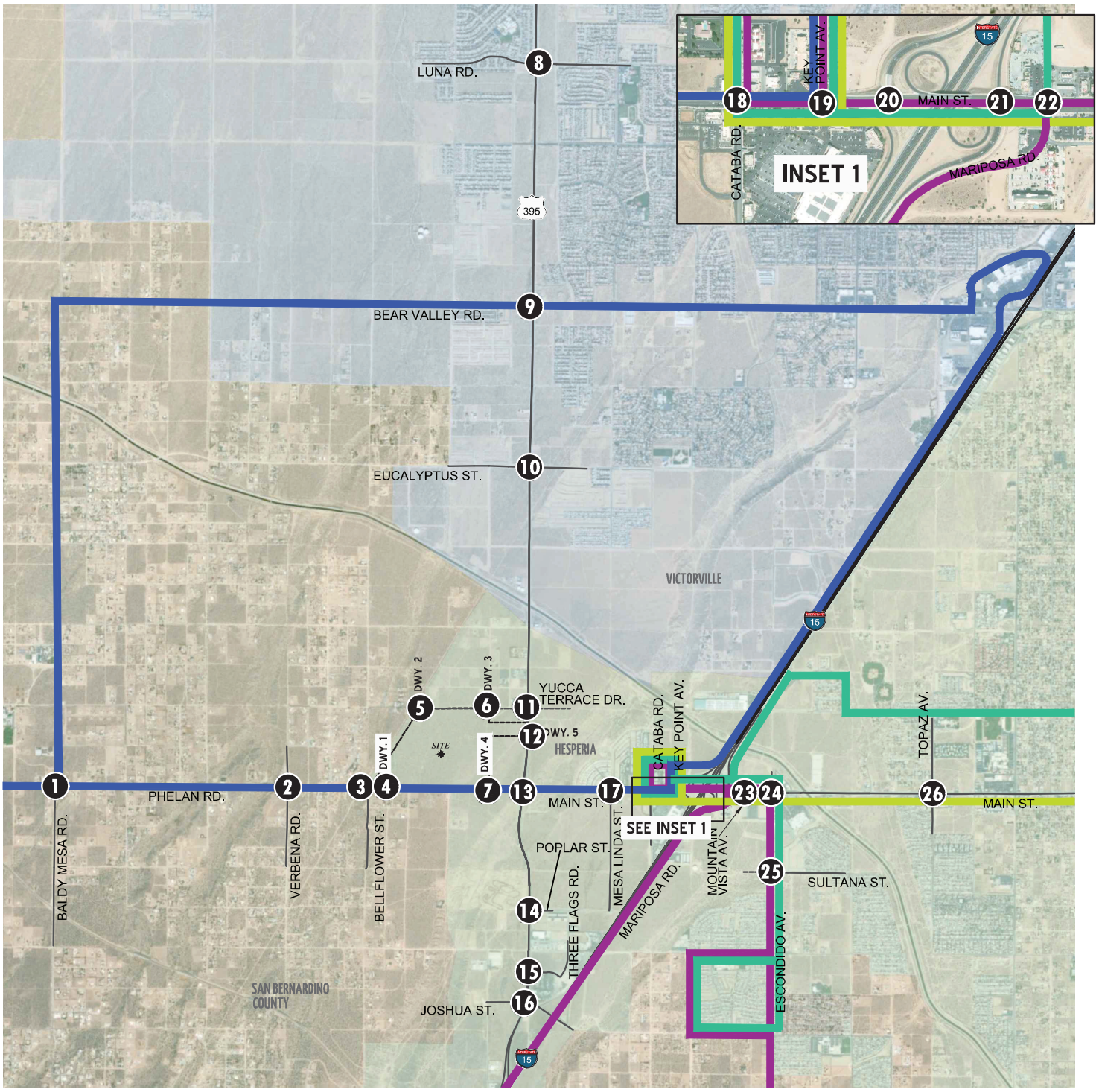
EXHIBIT 3-10: EXISTING TRANSIT ROUTES



LEGEND:

- = VVTA ROUTE 21W
- = VVTA ROUTE 25
- = VVTA ROUTE 64
- = VVTA ROUTE 68

N

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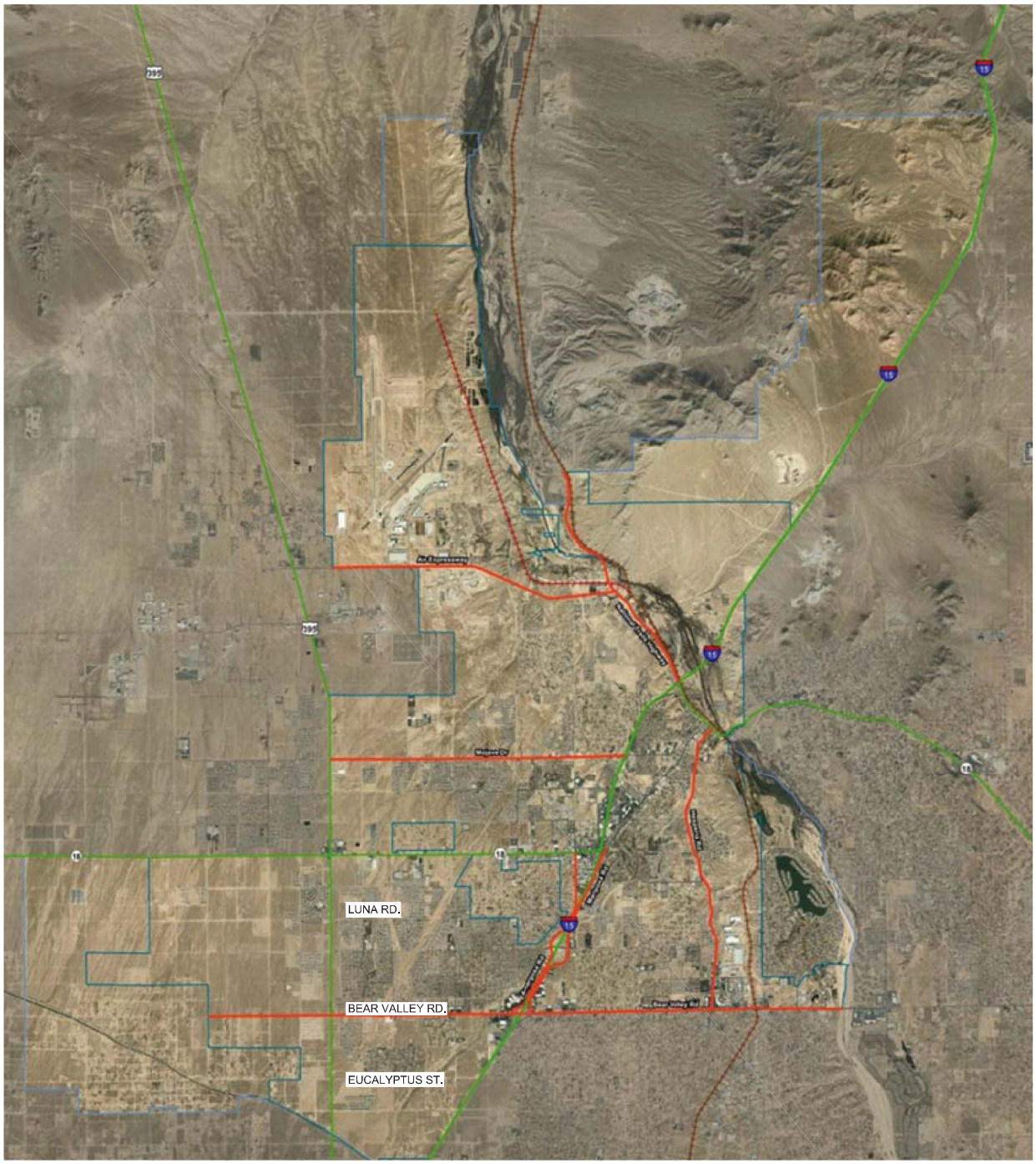
URBAN CROSSROADS

EXHIBIT 3-11: CITY OF VICTORVILLE STATE RAIL AND TRUCK ROUTES



3.7 EXISTING TRAFFIC COUNTS

The intersection LOS analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected in September 2019 and January 2020, while schools were in session. Consistent with standard engineering practice, these traffic counts were conducted either on Tuesday, Wednesday, or Thursday due to potential fluctuations in traffic that typically occur on Mondays, Fridays, Holidays, or weekends. The following peak hours were selected for analysis:

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data are representative of typical weekday peak hour traffic conditions in the study area, which are based on the traffic conditions in September 2019 and January 2020. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes and near-by schools were in session and operating on normal schedules.

The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1. These raw turning volumes have been flow conserved between intersections with limited access, no access, and where there are currently no uses generating traffic. The traffic counts collected in September 2019 and January 2020 include the vehicle classifications as shown below:

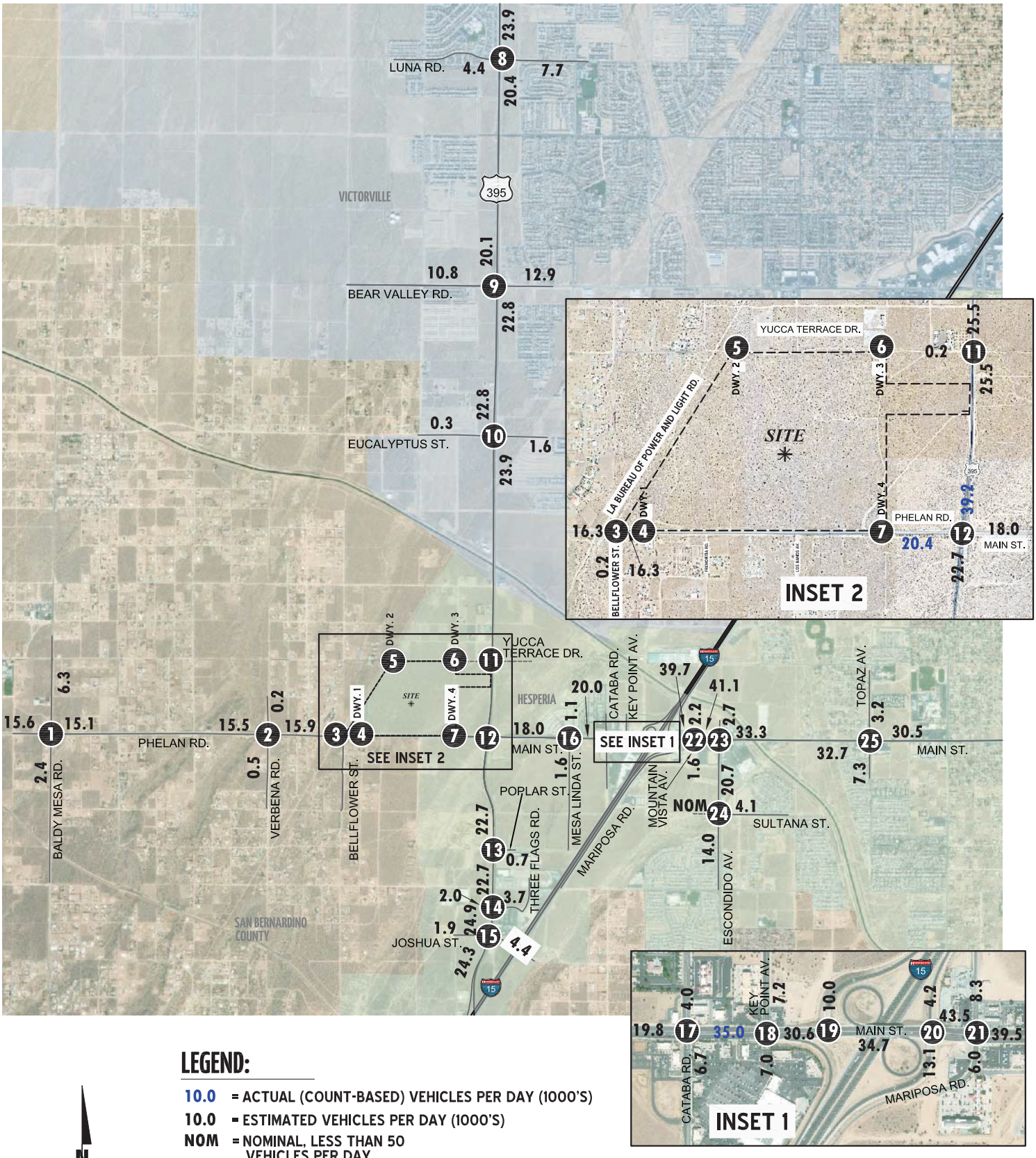
- Passenger Cars
- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

To represent the effect of large trucks, buses, and recreational vehicles have on traffic flow, all trucks were converted into PCEs. By their size alone, these vehicles occupy the same space as two or more passenger cars. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars and varies depending on the type of vehicle and number of axles. For this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the SBCTA CMP. (9)

Existing weekday ADT volumes on arterial highways throughout the study area are shown on Exhibit 3-12. Where actual 24-hour tube count data was not available, Existing ADT volumes were based upon factored intersection peak hour counts collected by Urban Crossroads, Inc. using the following formula for each intersection leg:

Weekday PM Peak Hour (Approach Volume + Exit Volume) x 10.66 = Leg Volume

EXHIBIT 3-12: EXISTING (2019) AVERAGE DAILY TRAFFIC (ADT) (IN PCE)



LEGEND:

10.0 = ACTUAL (COUNT-BASED) VEHICLES PER DAY (1000'S)

10.0 = ESTIMATED VEHICLES PER DAY (1000'S)

NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

N

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URBAN CROSSROADS

A comparison of the PM peak hour and daily traffic volumes of various roadway segments within the study area indicated that the peak-to-daily relationship is approximately 9.38 percent. As such, the above equation utilizing a factor of 10.66 estimates the ADT volumes on the study area roadway segments assuming a peak-to-daily relationship of approximately 9.38 percent (i.e., 1/0.0938 = 10.66) and was assumed to sufficiently estimate average daily traffic (ADT) volumes for planning-level analyses. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are shown on Exhibit 3-13.

3.8 INTERSECTION OPERATIONS ANALYSIS

Existing peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2.2 *Intersection Capacity Analysis* of this report. The intersection operations analysis results are summarized in Table 3-1, which indicates that the following study area intersections are currently operating at an unacceptable LOS during the peak hours (i.e., LOS E or worse):

- US Highway 395 & Yucca Terrace Drive (#11) – LOS F PM peak hour only
- US Highway 395 & Poplar Street (#13) – LOS F AM and PM peak hours

Consistent with Table 3-1, a summary of the peak hour intersection LOS for Existing conditions is shown on Exhibit 3-14. The intersection operations analysis worksheets are included in Appendix 3.2 of this TIA.

3.9 TRAFFIC SIGNAL WARRANTS ANALYSIS

Traffic signal warrants for Existing (2019) traffic conditions are based on existing peak hour intersection turning volumes. The following study area intersection currently warrants a traffic signal under Existing (2019) traffic conditions:

- Escondido Avenue & Sultana Street (#24)

Existing (2019) traffic conditions traffic signal warrant analysis worksheets are provided in Appendix 3.3.

EXHIBIT 3-13: EXISTING (2019) TRAFFIC VOLUMES (IN PCE)

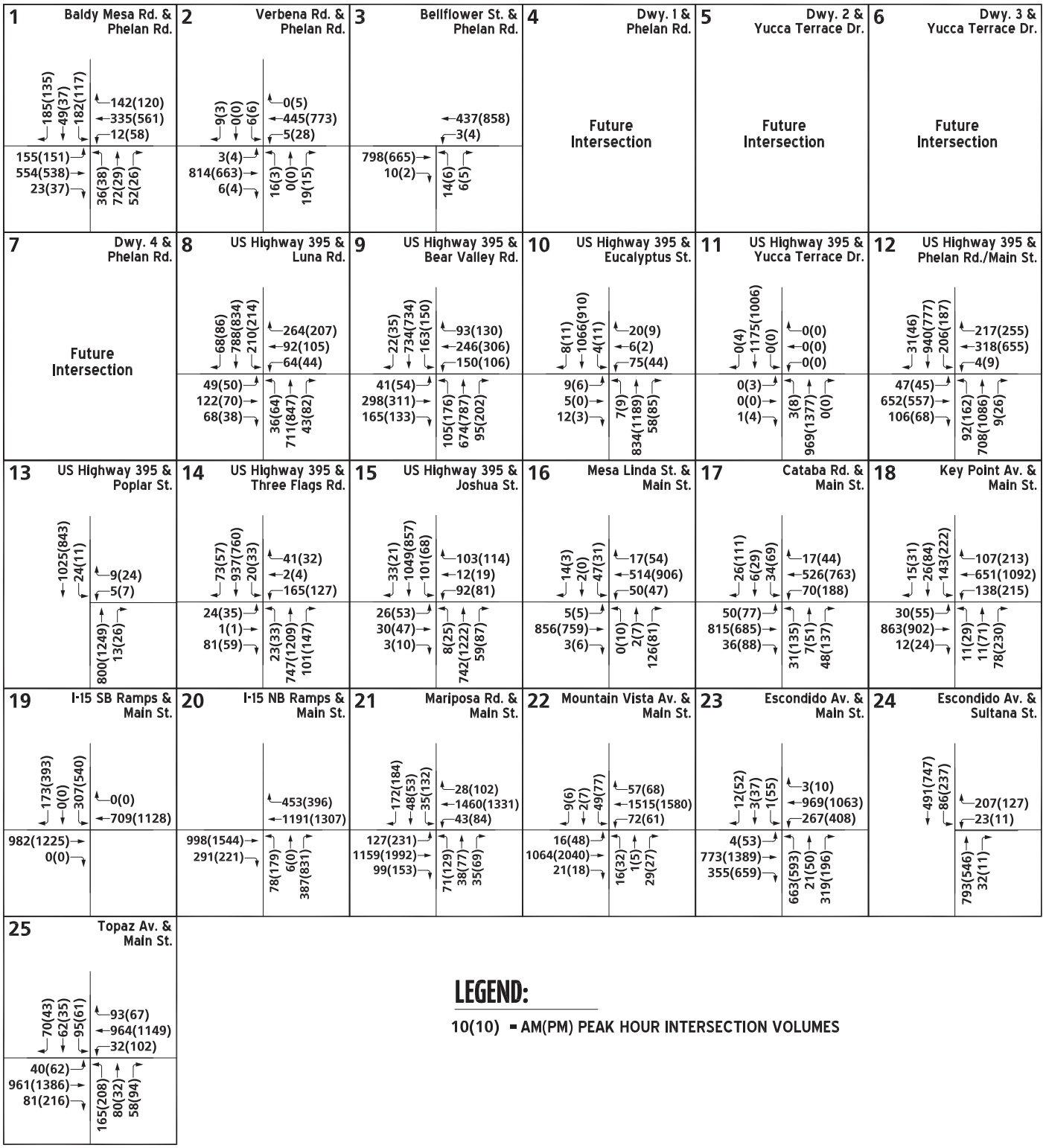

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EXHIBIT 3-14: EXISTING (2019) SUMMARY OF LOS

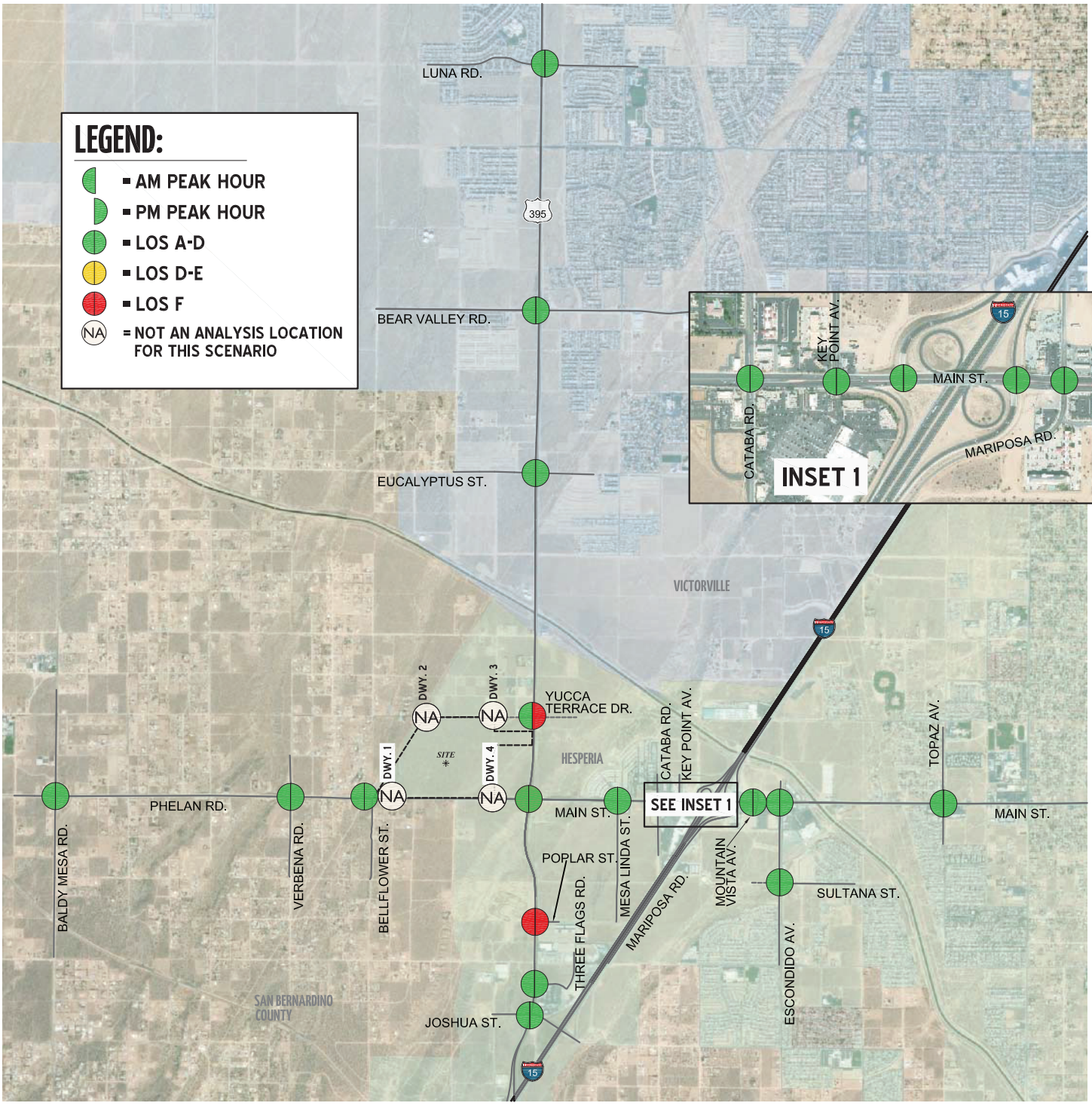


Table 3-1

Intersection Analysis for Existing (2019) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service		Acceptable LOS
			Northbound			Southbound			Eastbound			Westbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	Baldy Mesa Rd. & Phelan Rd.	TS	1	1	1	1	1	1	1	2	0	1	2	d	28.0	23.1	C	C	C
2	Verbena Rd. & Phelan Rd.	CSS	0	1	0	0	1	0	1	1	1	1	1	1	21.0	20.6	C	C	C
3	Bellflower St. & Phelan Rd.	CSS	0	1	0	0	0	0	0	1	0	1	1	0	18.2	16.7	C	C	C
4	Driveway 1 & Phelan Rd.		Future Intersection																
5	Driveway 2 & Yucca Terrace Dr.		Future Intersection																
6	Driveway 3 & Yucca Terrace Dr.		Future Intersection																
7	Driveway 4 & Phelan Rd.		Future Intersection																
8	US Highway 395 & Luna Rd.	TS	1	2	1	1	2	1	1	1	1	1	1	0	24.5	22.0	C	C	D
9	US Highway 395 & Bear Valley Rd.	TS	1	2	d	1	2	d	1	2	d	1	2	1	27.0	27.5	C	C	D
10	US Highway 395 & Eucalyptus St.	TS	1	2	1	1	2	1	1	1	0	1	1	0	11.3	9.3	B	A	D
11	US Highway 395 & Yucca Terrace Dr.	CSS	0	1	0	0	1	0	0	1	0	0	1	0	22.7	**77.2**	C	**F**	D
12	US Highway 395 & Phelan Rd./Main St.	TS	1	2	0	1	2	0	1	2	0	1	2	0	24.5	36.3	C	D	D
13	US Highway 395 & Poplar St.	CSS	0	2	0	1	1	0	0	0	0	1	0	1	**69.6**	**85.0**	**F**	**F**	D
14	US Highway 395 & Three Flags Rd.	TS	1	2	1	1	2	1	1	1	0	1	1	d	13.8	11.9	B	B	D
15	US Highway 395 & Joshua St.	TS	1	2	1	1	2	d	1	1	0	1	1	1	11.0	11.1	B	B	D
16	Mesa Linda St. & Main St.	TS	0	1	1	0	1	1	1	3	0	1	3	d	16.2	10.9	B	B	D
17	Cataba Rd. & Main St.	TS	1	1	1	1	1	1	1	3	1	2	3	d	15.3	22.4	B	C	D
18	Key Point Av. & Main St.	TS	1	1	1	1	1	0	1	3	1	1	3	0	14.2	22.9	B	C	D
19	I-15 SB Ramps & Main St.	TS	0	0	0	2	0	1	0	3	1>>	0	3	1>>	5.7	8.7	A	A	D
20	I-15 NB Ramps & Main St.	TS	1	1	1	0	0	0	0	3	1>>	0	3	1	4.8	9.9	A	B	D
21	Mariposa Rd. & Main St.	TS	1	1	0	1	1	0	1	4	0	1	4	0	16.3	25.1	B	C	D
22	Mountain Vista Av. & Main St.	TS	1	2	2>	1	1	0	2	4	0	1	3	1	12.2	16.5	B	B	D
23	Escondido Av. & Main St.	TS	2	1	1>	1	1	0	1	3	1>	2	2	1	32.9	46.6	C	D	D
24	Escondido Av. & Sultana St.	CSS	0	2	0	1	2	0	0	0	0	1	0	1	21.1	23.9	C	C	D
25	Topaz Av. & Main St.	TS	1	1	0	1	1	0	1	2	1	1	2	0	17.6	23.1	B	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free-Right Turn Lane; d= Defacto Right Turn Lane

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[3] CSS = Cross-street Stop; TS = Traffic Signal

3.10 QUEUING ANALYSIS

3.10.1 ARTERIAL ANALYSIS

A queuing analysis was performed for US Highway 395 from Luna Road to Joshua Street to assess vehicle queues along the roadways. Queuing analysis findings are presented in Table 3-2. It is important to note that the available stacking distances are consistent with the measured turn pocket lengths. As shown in Table 3-2, there are no intersection turning movements that currently experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows. Worksheets for Existing (2019) traffic conditions queuing analysis are provided in Appendix 3.4.

3.10.2 FREEWAY OFF-RAMP ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Main Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 3-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 3-2, there are no off-ramp movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for Existing (2019) traffic conditions queuing analysis are provided in Appendix 3.4.

3.11 FREEWAY FACILITY ANALYSIS

Existing (2019) mainline directional volumes for the AM and PM peak hours are provided on Exhibit 3-15. As shown in Table 3-3, the following study area freeway segments and merge/diverge ramp junctions analyzed for this study are currently operating at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Existing (2019) traffic conditions:

- I-15 Freeway Northbound, North of Main Street (#9) – LOS E PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS E PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS E PM peak hour only

Existing (2019) freeway facility analysis worksheets are provided in Appendix 3.5.

Table 3-2

Peak Hour Queuing Summary for Existing (2019) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Luna Rd.	NBL	360	67	99	Yes	Yes
	NBR	455	4	31	Yes	Yes
	SBL	400	240	242	Yes	Yes
	SBR	400	24	28	Yes	Yes
US Highway 395 & Bear Valley Rd.	NBL	220	160 [2]	228 [2,3]	Yes	Yes
	SBL	230	232 [2,3]	224 [2]	Yes	Yes
US Highway 395 & Eucalyptus St.	NBL	475	23	25	Yes	Yes
	NBR	345	10	28	Yes	Yes
	SBL	440	15	30	Yes	Yes
	SBR	300	0	0	Yes	Yes
US Highway 95 & Phelan Rd./Main St.	NBL	280	128	198	Yes	Yes
	SBL	250	238	263 [2,3]	Yes	No
US Highway 395 & Poplar St.	SBL	375	3	3	Yes	Yes
US Highway 395 & Three Flags Rd.	NBL	190	45	58	Yes	Yes
	NBR	190		26	Yes	Yes
	SBL	225	41	58	Yes	Yes
	SBR	225	22	12	Yes	Yes
US Highway 395 & Joshua St.	NBL	190	24	51	Yes	Yes
	NBR	330	14	29	Yes	Yes
	SBL	220	138	101	Yes	Yes
I-15 SB Ramps & Main St.	SBL	1,750	48	122	Yes	Yes
	SBR	1,200	30	211	Yes	Yes
I-15 NB Ramps & Main St.	NBL	1,290	51	133	Yes	Yes
	NBT/R	1,200	65	342	Yes	Yes
	NBR	700	66	342	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance providec

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

Table 3-3

Freeway Facility Analysis for Existing (2019) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes[2]	Volume		LOS[4]	
				AM	PM	AM	PM
I-15 Freeway	SB	North of Main St.	3	20.1	22.0	C	C
		Off-Ramp at Main St.	3	27.2	29.6	C	D
		Loop On-Ramp at Main St.	3	24.0	22.0	C	C
		On-Ramp at Main St.	3	22.4	21.2	C	C
		South of Main St.	3	20.9	19.7	C	C
		North of US Highway 395	3	16.9	17.6	B	B
		On-Ramp at US Highway 395	4	12.5	13.0	B	B
		South of US Highway 395	4	16.9	16.6	B	B
	NB	North of Main St.	3	18.3	**35.1**	C	**E**
		On-Ramp at Main St.	3	21.6	32.3	C	D
		Loop On-Ramp at Main St.	3	18.2	29.3	B	D
		Off-Ramp at Main St.	3	23.6	**38.0**	C	**E**
		South of Main St.	3	16.7	**37.7**	B	**E**
		North of US Highway 395	4	11.4	18.0	B	B
		Off-Ramp at US Highway 395	4	18.0	29.7	B	D
		South of US Highway 395	4	14.4	23.6	B	C

[1] NB = Northbound; SB = Southbound

[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

EXHIBIT 3-15: EXISTING (2019) FREEWAY MAINLINE VOLUMES



3.12 DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

This section provides a summary of existing deficiencies and recommended improvements. Based on the City of Hesperia deficiency criteria discussed in Section 2.7 *Minimum Acceptable Levels of Service (LOS) and Intersection Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

3.12.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended improvements is presented in Table 3-4 for Existing (2019) traffic conditions. The intersection operations analysis worksheets for Existing (2019) traffic conditions, with improvements, are included in Appendix 3.6 of this TIA.

Recommended Improvement – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.

Recommended Improvement – US Highway 395 & Poplar Street (#13) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound through lane.

3.12.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUING DEFICIENCIES

As shown previously in Table 3-2, there are currently no peak hour queuing issues for Existing (2019) traffic conditions. As such, no improvements have been recommended.

3.12.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 3-3, there are study area freeway mainline segments and ramp junctions that currently operate at an unacceptable LOS for Existing (2019) traffic conditions. At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Hesperia (or other neighboring jurisdictions) on the SHS roadway segments. As such, no improvements have been recommended to address the Existing (2019) deficiencies on the SHS.

Table 3-4

Intersection Analysis for Existing (2019) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
11	US Highway 395 & Yucca Terrace Dr.																	
	- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	22.7	**77.2**	C	**F**
	- With Improvements	CSS	0	**2**	0	0	**2**	0	0	1	0	0	1	0	13.5	32.5	B	D
13	US Highway 395 & Poplar St.																	
	- Without Improvements	CSS	0	2	0	1	1	0	0	0	0	1	0	1	**69.6**	**85.0**	**F**	**F**
	- With Improvements	CSS	0	2	0	1	**2**	0	0	0	0	1	0	1	19.4	24.3	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop

4 PROJECTED FUTURE TRAFFIC

This section presents the traffic volumes estimated to be generated by the Project, as well as the Project's trip assignment, onto the study area roadway network. The proposed Project consists of the following uses:

- 2,361,648 square feet of High-Cube Fulfillment Center use (65% of the total square footage of Building 1 and Building 2)
- 1,383,781 square feet of General Light Industrial use; 1,271,656 square feet within Building 1 and Building 2 (35% of the total square footage of Building 1 and Building 2) and 112,125 square feet within Building 3

The Project is anticipated to be developed within a single phase with an anticipated opening year of 2021. Regional access to the Project site is available from the I-15 Freeway at Main Street interchange. The Project is located north of Phelan Road and west of US Highway 395 in the City of Hesperia. Vehicular and truck traffic access will be provided via the following driveways:

- Driveway 1 via Phelan Road – Right-In/Right-Out/Left-Out access for both passenger cars and trucks
- Driveway 2 via Yucca Terrace Drive – Full access for both passenger cars and trucks
- Driveway 3 via Yucca Terrace Drive – Full access for both passenger cars and trucks
- Driveway 4 via Phelan Road – Full access for both passenger cars and trucks

4.1 PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development, and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, the trip generation rates used for this analysis are based upon information collected by the ITE as provided in their Trip Generation Manual, 10th Edition, 2017 and the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019). (3) (4) Trip generation rates for the Project are shown in Table 4-1. The trip generation summary illustrating daily, and peak hour trip generation estimates for the proposed Project in actual vehicles and PCE are shown in Table 4-2.

Table 4-1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicle Trip Generation Rates									
General Light Industrial[5]	TSF	110	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars (AM-84.3%; PM-87.2%; Daily-82.2%)			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (AM-6.3%; PM-6.4%; Daily-7.6%)			0.006	0.002	0.008	0.003	0.008	0.011	0.162
5+-Axle Trucks (AM-9.4%; PM-6.4%; Daily-10.2%)			0.008	0.003	0.011	0.003	0.007	0.010	0.217
Passenger Car Equivalent (PCE) Trip Generation Rates[5]									
General Light Industrial[5]	TSF	110	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars (AM-84.3%; PM-87.2%; Daily-82.2%)			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (AM-6.3%; PM-6.4%; Daily-7.6%) (PCE = 2.0)			0.012	0.004	0.016	0.006	0.016	0.022	0.324
5+-Axle Trucks (AM-9.4%; PM-6.4%; Daily-10.2%) (PCE = 3.0)			0.025	0.008	0.033	0.008	0.022	0.030	0.651

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle mix source: ITE Trip Generation Handbook, 2017. Truck Mix Source: City of Fontana Truck Trip Generation Study (Land Use 150), August 2003.

[4] Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.
Inbound and outbound split source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

[5] Vehicle Mix Source: Truck mix (by axle type) source from City of Fontana Truck Trip Generation Study (August 2003). PCE rates are per SBCTA.

Table 4-2

Project Trip Generation Summary

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary (Actual)									
High-Cube Fulfillment Center Warehouse (65% of Bldg. 1, 2)	2,361.648	TSF							
Passenger Cars:			187	56	243	95	245	340	4,134
Truck Trips:									
2-4 axle:			15	4	19	7	19	26	384
5+-axle:			20	6	26	7	17	24	512
- Net Truck Trips			35	10	45	14	36	50	896
FULFILLMENT CENTER TOTAL NET TRIPS (Actual Vehicles) [2]			**222**	**66**	**288**	**109**	**281**	**390**	**5,030**
General Light Industrial (35% of Bldg. 1, 2)	1,271.656	TSF							
Passenger Cars:			616	84	700	82	548	630	4,958
Truck Trips:									
2-axle:			63	9	72	8	56	64	506
3-axle:			31	4	35	4	27	31	246
4+-axle:			74	10	84	10	66	76	600
- Net Truck Trips			168	23	191	22	149	171	1,352
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles) [2]			**784**	**107**	**891**	**104**	**697**	**801**	**6,310**
General Light Industrial (Bldg. 3)	112.125	TSF							
Passenger Cars:			54	7	61	7	48	55	438
Truck Trips:									
2-axle:			6	1	7	1	5	6	44
3-axle:			3	0	3	0	2	2	22
4+-axle:			7	1	8	1	6	7	54
- Net Truck Trips			16	2	18	2	13	15	120
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles) [2]			**70**	**9**	**79**	**9**	**61**	**70**	**558**
Passenger Car Total			**857**	**147**	**1,004**	**184**	**841**	**1,025**	**9,530**
Truck Total (Actual Vehicles)			**219**	**35**	**254**	**38**	**198**	**236**	**2,368**
TOTAL PROPOSED PROJECT (Actual Vehicles)			**1,076**	**182**	**1,258**	**222**	**1,039**	**1,261**	**11,898**
Project Trip Generation Summary (PCE)									
High-Cube Fulfillment Center Warehouse (65% of Bldg. 1, 2)	2,361.648	TSF							
Passenger Cars:			187	56	243	95	245	340	4,134
Truck Trips:									
2-4 axle:			29	9	38	15	37	52	766
5+-axle:			60	18	78	20	51	71	1,538
- Net Truck Trips			89	27	116	35	88	123	2,304
FULFILLMENT CENTER TOTAL NET TRIPS (PCE) [2]			**276**	**83**	**359**	**130**	**333**	**463**	**6,438**
General Light Industrial (35% of Bldg. 1, 2)	1,271.656	TSF							
Passenger Cars:			616	84	700	82	548	630	4,958
Truck Trips:									
2-axle:			94	13	107	12	84	96	758
3-axle:			61	8	69	8	54	62	492
4+-axle:			223	30	253	30	199	229	1,798
- Net Truck Trips			378	51	429	50	337	387	3,048
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (PCE) [2]			**994**	**135**	**1,129**	**132**	**885**	**1,017**	**8,006**
General Light Industrial (Bldg. 3)	112.125	TSF							
Passenger Cars:			54	7	61	7	48	55	438
Truck Trips:									
2-axle:			8	1	9	1	7	8	68
3-axle:			5	1	6	1	5	6	44
4+-axle:			20	3	23	3	18	21	158
- Net Truck Trips			33	5	38	5	30	35	270
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (PCE) [2]			**87**	**12**	**99**	**12**	**78**	**90**	**708**
Passenger Car Total			**857**	**147**	**1,004**	**184**	**841**	**1,025**	**9,530**
Truck Total (PCE)			**500**	**83**	**583**	**90**	**455**	**545**	**5,622**
TOTAL PROPOSED PROJECT (PCE)			**1,357**	**230**	**1,587**	**274**	**1,296**	**1,570**	**15,152**

[1] TSF = thousand square feet

[2] TOTAL NET TRIPS = Passenger Cars + Net Truck Trips.

For purposes of this analysis, the following ITE land use codes and vehicle mixes have been utilized for the proposed Project:

- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for up to 2,361,648 square feet of the proposed Project. The ITE Trip Generation Manual (2017) has trip generation rates for high-cube fulfillment center use (ITE land use code 155), however, these rates are unreliable because they are based on limited data (i.e., one to two surveyed sites) and the ITE Trip Generation Manual recommends the use of local data sources where available. As such, the trip-generation statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update, has been utilized for the high-cube fulfillment center use. The WSP trip generation rates were published in January 2019 and are based on data collected at 11 local high-cube fulfillment center sites. However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016) have been utilized. (10)
- ITE land use code 110 (General Light Industrial) has been used to derive site specific trip generation estimates for up to 1,383,781 square feet of the proposed Project. The ITE Trip Generation Manual includes very limited data regarding the types of vehicles that are generated for general light industrial uses (passenger cars and various sizes of trucks). As such, data regarding the vehicle mix has been obtained from a separate report; the City of Fontana's Truck Trip Generation Study (August 2003) for the general light industrial uses proposed as part of the Project. The "Light Industrial" vehicle mix data has been utilized: 8.0% 2-axle trucks, 3.9% 3-axle trucks, and 9.5% 4+-axle trucks (total of 21.4% trucks). (11)

As shown in Table 4-1, refinements to the raw trip generation estimates have been made to provide a more detailed breakdown of trips between passenger cars and trucks. Trip generation for heavy trucks was further broken down by truck type (or axle type). The total truck percentage is comprised of 3 different truck types: 2-axle, 3-axle, and 4+-axle trucks for General Light Industrial and 2 different truck types: 2-4-axle and 5+-axle for High-Cube Fulfillment Center Warehouse use. PCE factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP) (2016 Update). (9)

As shown in Table 4-2, the proposed Project is anticipated to generate a total of 11,898 actual vehicle trip-ends per day, with 1,258 AM peak hour trips and 1,261 PM peak hour trips. Consistent with the City's traffic study guidelines, the peak hour operations analysis has been conducted using PCE volumes. The proposed Project is anticipated to generate a total of 15,152 PCE trip-ends per day, 1,587 PCE AM peak hour trips and 1,570 PCE PM peak hour trips, as shown in Table 4-2.

4.2 PROJECT TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute.

The Project trip distribution was developed based on anticipated travel patterns to and from the Project site for both passenger cars and truck traffic. The Project trip distribution patterns have been developed based on the anticipated travel patterns for the warehousing trucks. For both passenger cars and trucks, the Project trip distribution was developed based on an understanding of existing travel patterns in the area, the geographical location of the site, and the site's proximity to the regional arterial and state highway system.

The Project truck trip distribution pattern is graphically depicted on Exhibit 4-1. The Project passenger car trip distribution pattern is graphically depicted on Exhibit 4-2. Each of these distribution patterns was reviewed by the City of Hesperia as part of the traffic study scoping process (see Appendix 1.1).

4.3 MODAL SPLIT

The traffic reducing potential of public transit, walking, or bicycling have not been considered in this TIA. Essentially, the traffic projections are "conservative" in that these alternative travel modes might be able to reduce the forecasted traffic volumes (employee trips only).

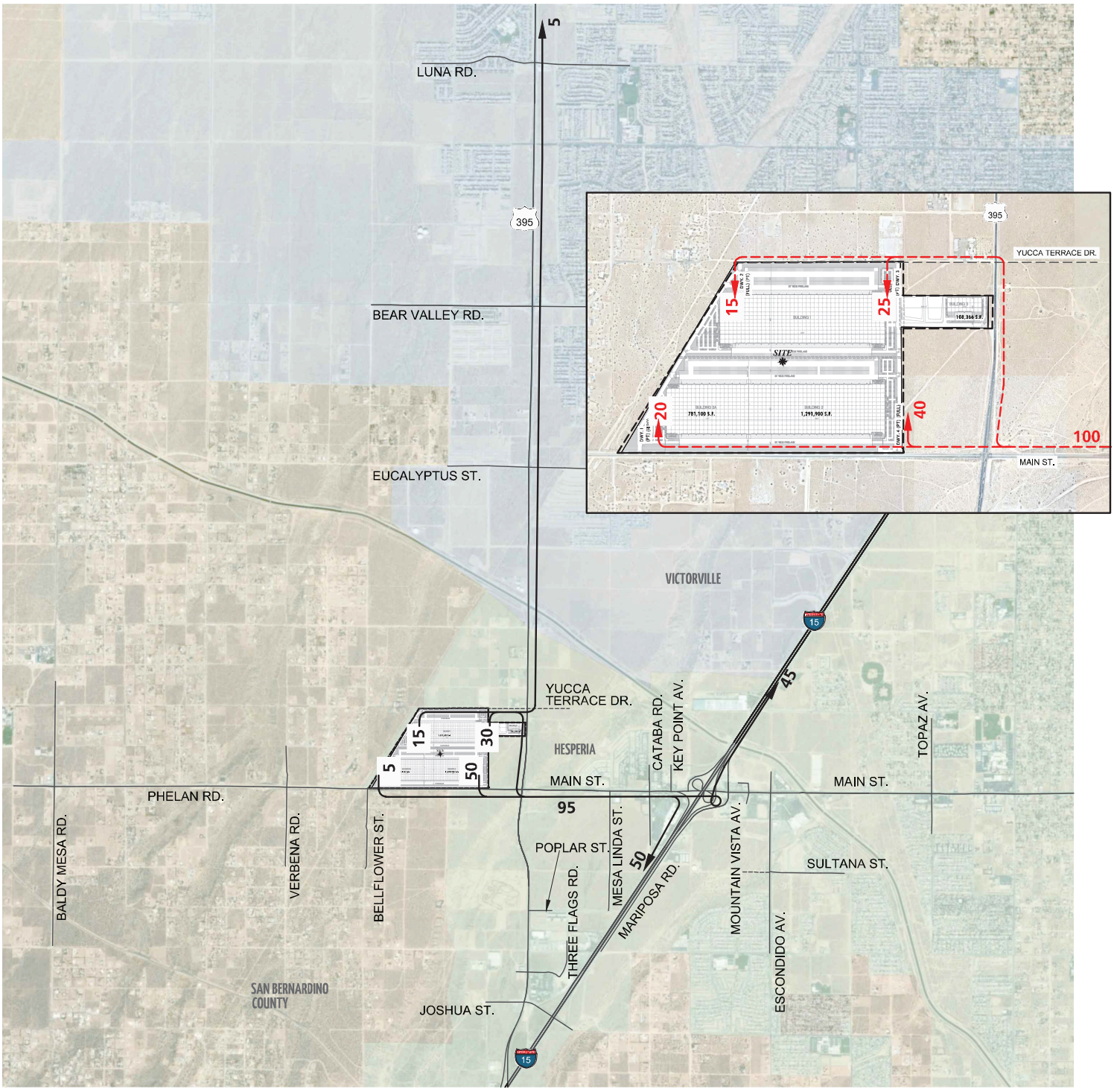
4.4 PROJECT TRIP ASSIGNMENT

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of initial occupancy of the Project. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes in PCE are shown on Exhibits 4-3 and 4-4, respectively.

4.5 BACKGROUND TRAFFIC

Future year traffic forecasts have been based upon two years of background (ambient) growth at 2% per year for 2021 traffic conditions. The total ambient growth is 4.04% for 2021 traffic conditions (growth of 2 percent per year, compounded over two years or $1.02^{2\ years}$). This ambient growth factor is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies.

EXHIBIT 4-1: PROJECT (TRUCK) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

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EXHIBIT 4-2: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

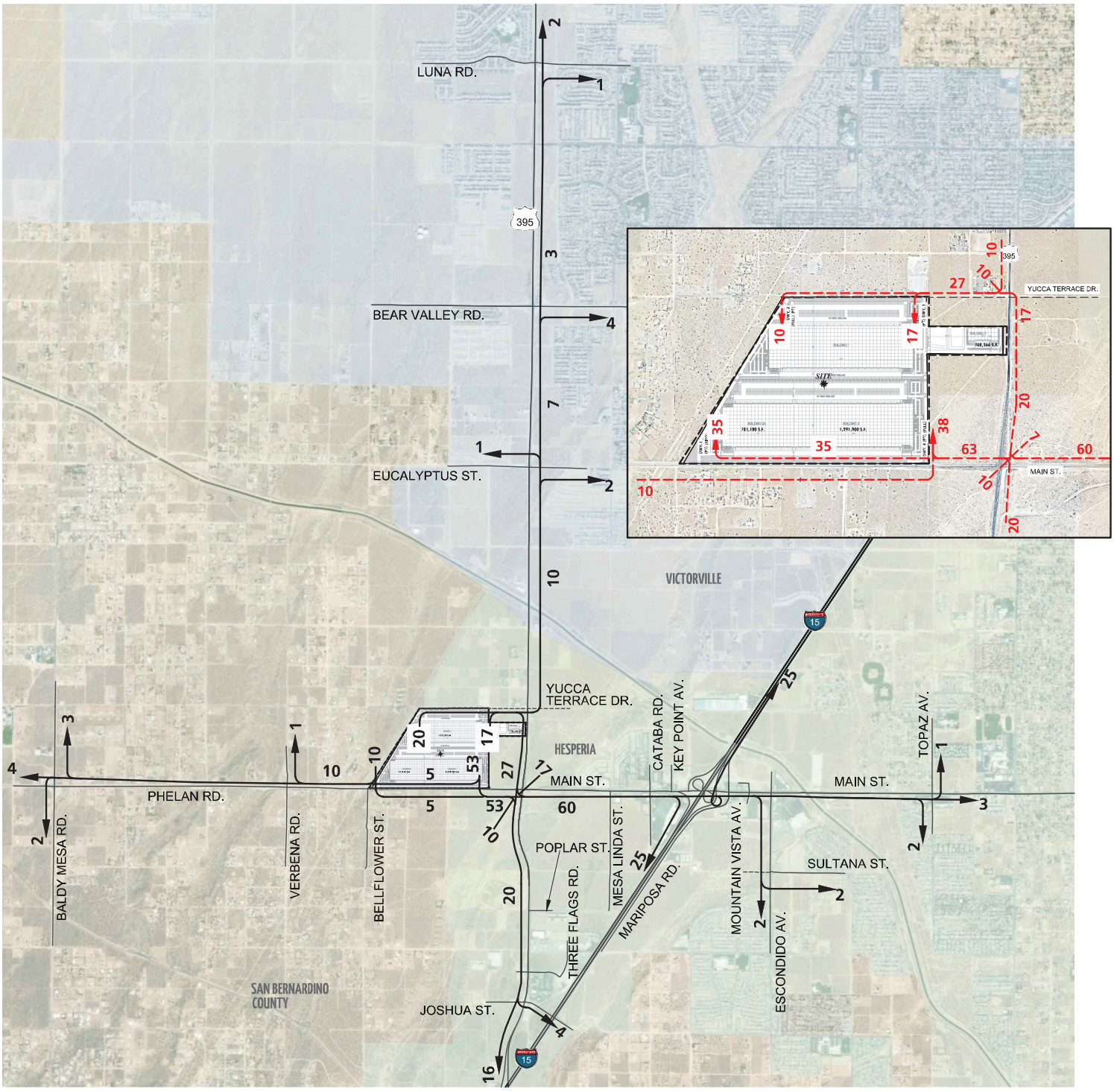


EXHIBIT 4-3: PROJECT ONLY AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

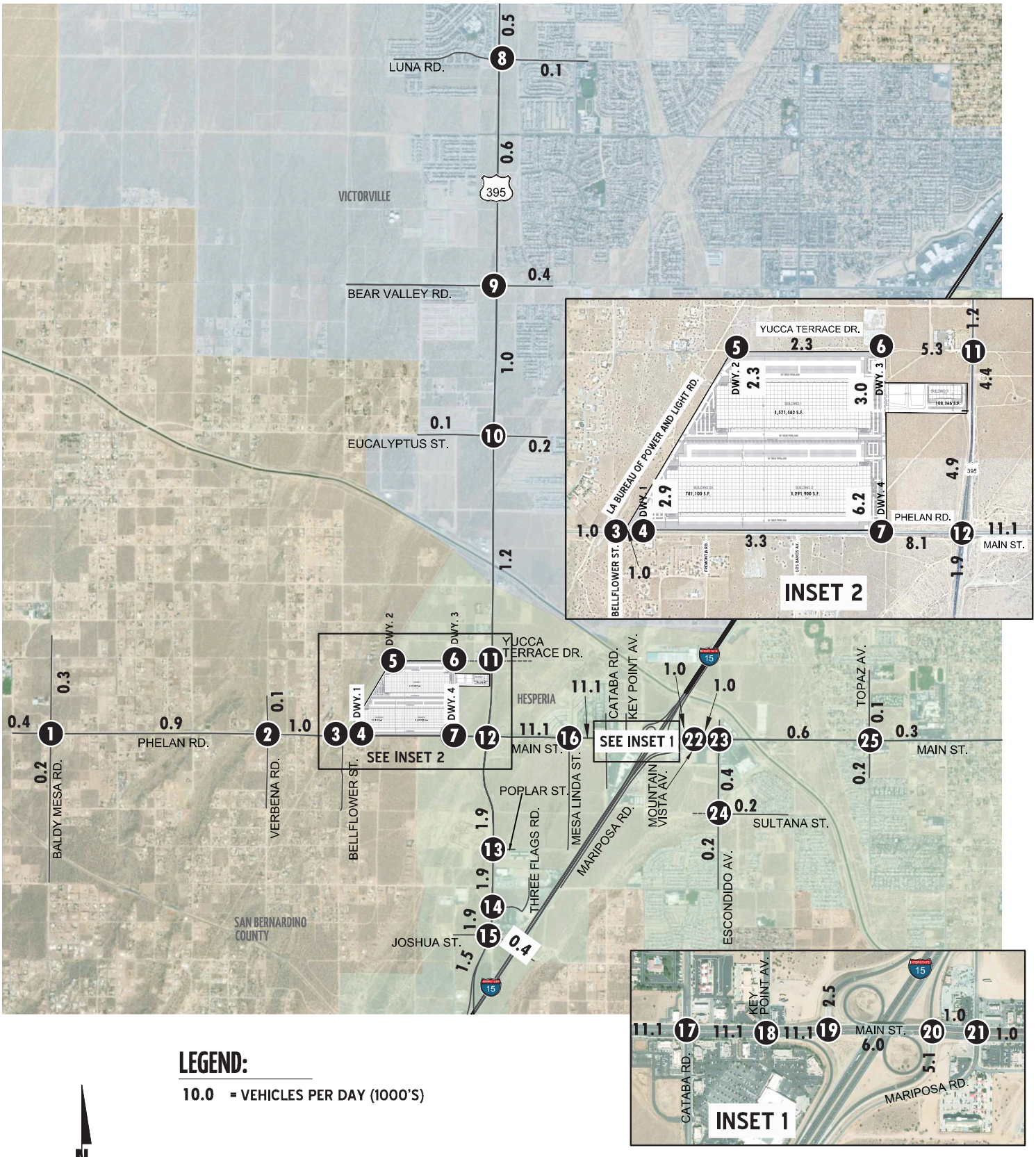
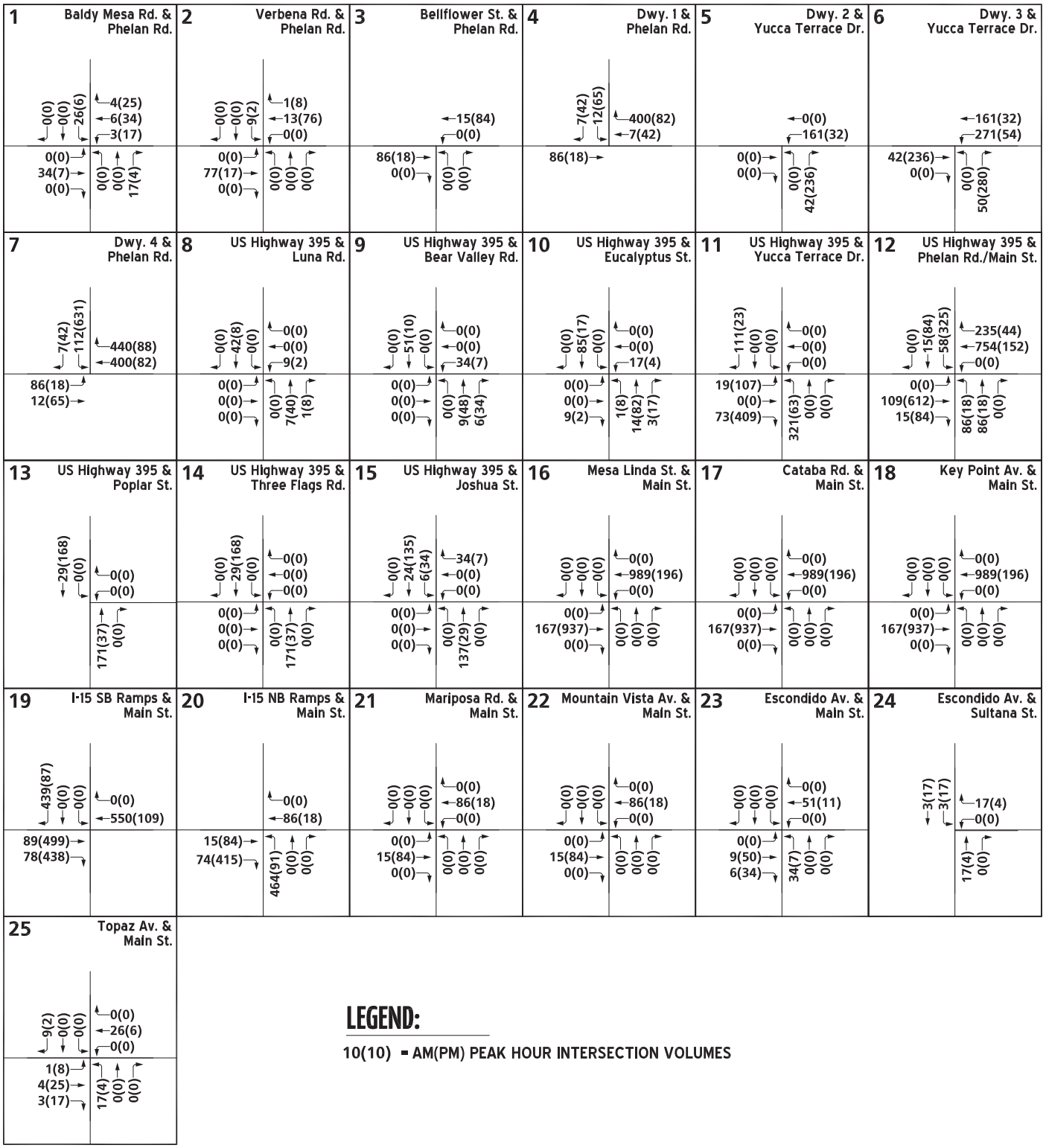


EXHIBIT 4-4: PROJECT ONLY TRAFFIC VOLUMES (IN PCE)



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

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The 2.0 percent annual growth rate is intended to capture non-specific ambient traffic growth. Conservatively, the TIA estimates area-wide traffic growth, then adds traffic generated by other known or probable related projects. These related projects are at least in part already accounted for in the assumed annual 2.0 percent ambient growth in traffic noted above; and in some instances, these related projects would likely not be implemented and operational within the 2021 Opening Year Cumulative time frame assumed for the Project. The resulting traffic growth rate used in the TIA (2.0 percent compounded annual ambient growth plus traffic generated by related projects) would therefore tend to overstate rather than understate background cumulative traffic deficiencies under 2021 traffic conditions.

The currently adopted Southern California Association of Governments (SCAG) 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (April 2016) growth forecasts for the City of Hesperia identifies projected growth in population of 91,5100 in 2012 to 129,100 in 2040, or a 41.7 percent increase over the 28-year period. The change in population equates to roughly a 1.25 percent growth rate, compounded annually. Similarly, growth over the same 28-year period in households is projected to increase by 48.1 percent, or 1.41 percent annual growth rate. Finally, growth in employment over the same 28-year period is projected to increase by 89.9 percent, or a 2.32 percent annual growth rate.

Therefore, the use of an annual growth rate of 2.0 percent would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Hesperia, especially when considered along with the addition of Project-related traffic and traffic generated by other known development projects. As such, the growth in traffic volumes assumed in this TIA would tend to overstate as opposed to understate the potential deficiencies to traffic and circulation.

4.6 CUMULATIVE DEVELOPMENT TRAFFIC

California Environmental Quality Act (CEQA) guidelines require that other reasonably foreseeable development projects which are either approved or being processed concurrently in the study area also be included as part of a cumulative analysis scenario. A cumulative project list was developed for the purposes of this analysis through consultation with planning and engineering staff from the City of Hesperia, City of Victorville, and County of San Bernardino. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections.

Where applicable, cumulative projects anticipated to contribute measurable traffic (i.e. 50 or more peak hour trips) to study area intersections have been manually added to the study area network to generate Opening Year Cumulative (2021) forecasts. In other words, this list of cumulative development projects has been reviewed to determine which projects would likely contribute measurable traffic through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Exhibit 4-5, listed in Table 4-3, and have been considered for inclusion.

EXHIBIT 4-5: CUMULATIVE DEVELOPMENT LOCATION MAP

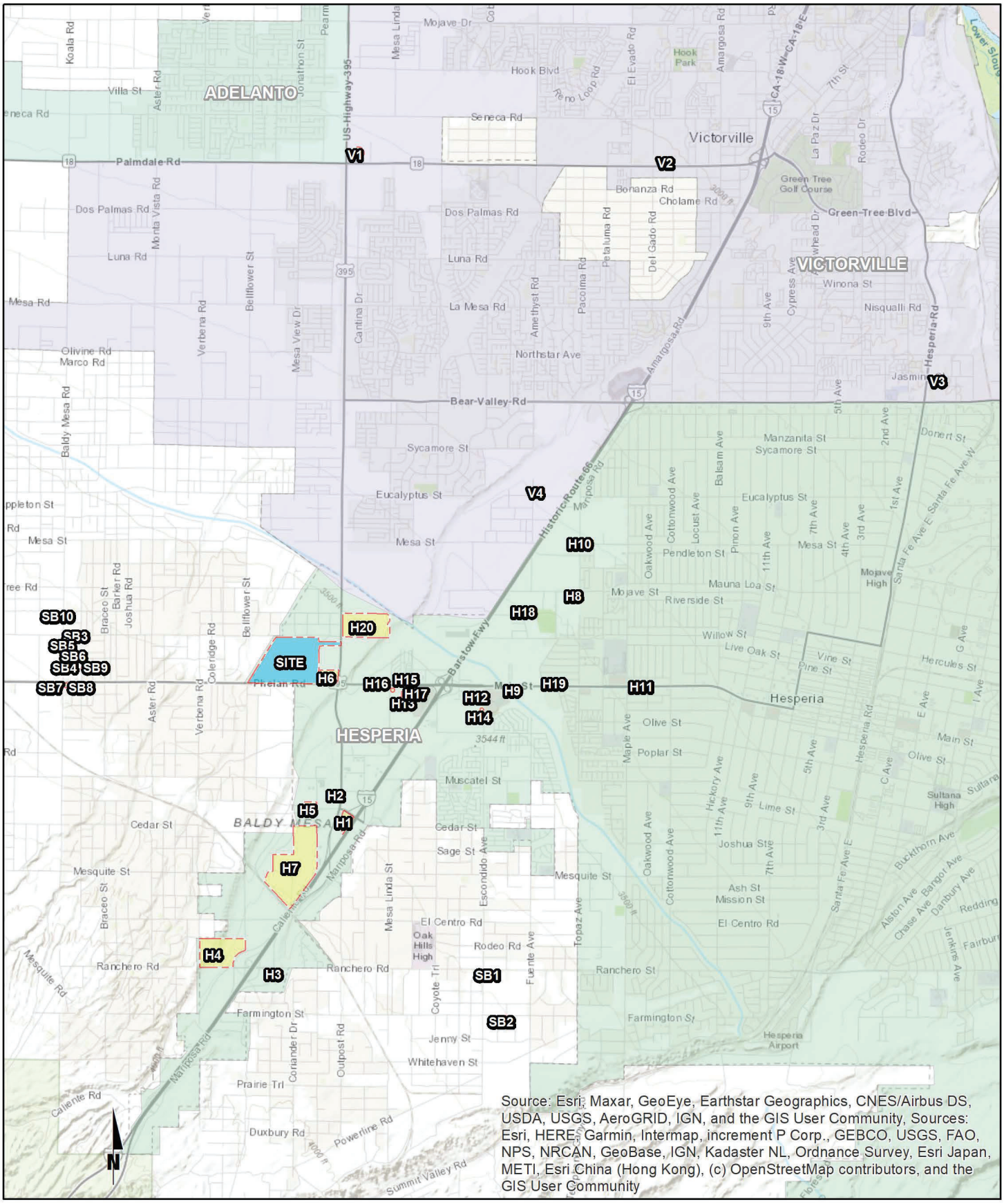


Table 4-3

Cumulative Development Land Use Summary

#	Case No.	Land Use	Quantity	Units[1]
City of Hesperia				
H1	CUP12-10189: SEC of Outpost Rd. & Joshua St.	Travel Center	12.271	TSF
H2	CUP15-00009: SWC of US-395 & Three Flags Rd.	Gas Station w/ Convenience Market and Car Wash	12	VFP
		High-Turnover Sit-Down Restaurant	1.300	TSF
		Fast Food w/ Drive Thru	3.000	TSF
H3	CUP16-00007: SEC of Mariposa Rd. & Ranchero Rd.	Gas Station w/ Convenience Market and Car Wash	8	VFP
		Fast Food w/ Drive Thru	2.546	TSF
H4	CUPE16-00002: SEC of Verbena Rd. & Rodeo St.	Hotel	212	RM
		Quality Restaurant	11.600	TSF
		Golf Course	9	Holes
H5	SPR16-00016: south of Muscatel St., west of Caliente Rd.	Manufacturing	75.000	TSF
H6	CUP18-00003	Gas Station	9	VFP
		High-Turnover Sit-Down Restaurant	4.188	TSF
H7	Hesperia Commerce Center	High-Cube Fulfillment Center	4382.800	TSF
H8	TTE 19-00007 (TT 17916)	Single Family Detached Residential	177	DU
H9	TPM 19-00001	Shopping Center	13.0	Acres
H10	TTE 16-00002 (TT 17243)	Single Family Detached Residential	125	DU
H11	SPR 19-00005	Shopping Center	4.889	TSF
H12	Kaiser Medical Office	Medical Office	54.168	TSF
H13	Hesperia West	Shopping Center	34.675	TSF
		Department Store	40.400	TSF
		Furniture Store	38.000	TSF
		Walk in Bank	4.500	TSF
		High-Turnover Sit-Down Restaurant	5.926	TSF
		Fast Food w/ Drive Thru	3.260	TSF
H14	Hesperia Walmart	Fast Food w/ Drive Thru	2.500	TSF
H15	SPR 16-00011	Shopping Center	4.377	TSF
H16	CUP 16-00011	Shopping Center	5.423	TSF
H17	High Desert Gateway West I & II	Shopping Center	3.000	TSF
		Shopping Center	9.450	TSF
H18	SPRE16-00004 ext	Senior Adult Housing - Detached	96	DU
H19	SPR18-00002	Medical Office	8.400	TSF
H20	US Cold Storage	High-Cube Cold Storage Warehouse	1012.816	TSF
County of San Bernardino				
SB1	P201400514/RMC PM 19030	Gasoline/Service Station w/Conven. Mkt.	8	VFP
		High Turnover (Sit-Down) Restaurant	2.700	TSF
SB2	P201600125/TT	Assisted Living	12	BEDS
SB3	P201800466/CUP	Church	17.355	TSF
		Recreation Area with Restroom	0.5850	TSF
SB4	P201200482/CUP	General Office/Retail	20.4500	TSF
		Fast Food w/ Drive Thru	2.850	TSF
SB5	P201400478/CUP	Church	3.996	TSF

Table 4-3

Cumulative Development Land Use Summary

#	Case No.	Land Use	Quantity	Units[1]
SB6	P201400342/PREAPPDR PM 19590	Commercial Retail	881.285	TSF
SB7	P201600418/CUP	Church	1.440	TSF
SB8	P201400220/CUP	Church	2.3	Acres
SB9	P201300184/PREAPPDR	Commercial Retail	70.000	TSF
SB10	P201500257/PREAPPDR	Commercial Retail	9.100	TSF
City of Victorville				
V1	ADMN19-00068	Shopping Center	4.300	TSF
V2	ADMN19-00058	Church	2.800	TSF
V3	PLAN19-00023	Medical Office	16.500	TSF
V4	PLAN19-00020	Single Family Detached Residential	168	DU

[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions; RM = Room; DU = Dwelling Units

Any other cumulative projects located beyond the study area that are not expected to contribute measurable traffic to study area intersections have not been included since the traffic would dissipate due to the distance from the Project site and study area intersections. Any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections as discussed in Section 4.5 *Background Traffic*. Cumulative only ADT and peak hour traffic volumes are shown on Exhibits 4-6 and 4-7, respectively.

4.7 TRAFFIC FORECASTS

To provide a comprehensive assessment of the deficiencies, two types of analyses, "buildup" and "buildout", were performed in support of this work effort. The "buildup" method was used to approximate E+P and Opening Year Cumulative (2021) traffic conditions and is intended to identify the near-term deficiencies on both the existing and planned near-term circulation system. The Opening Year Cumulative (2021) traffic conditions includes background traffic, traffic generated by other cumulative development projects within the study area, and traffic generated by the proposed Project. The "buildout" method was utilized for Horizon Year traffic conditions and is based on the regional traffic model for 2040 traffic conditions.

4.8 NEAR-TERM TRAFFIC CONDITIONS

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast Opening Year Cumulative (2021) traffic conditions. An ambient growth factor of 2.0% per year has been used to account for background (area-wide) traffic increases that occur over time up to the year 2021 from the year 2019 (2.0 percent per year growth rate, compounded annually over a 2-year period). Traffic volumes generated by the Project are then added to assess the near-term traffic conditions. The 2021 roadway networks are similar to the Existing conditions roadway network, with the exception of future driveways proposed to be developed by the Project.

The near-term traffic analyses include the following traffic conditions, with the various traffic components:

- Opening Year Cumulative (2021) Without Project
    - Existing 2019 counts
    - Ambient growth (4.04%)
    - Cumulative Development traffic
- Opening Year Cumulative (2021) With Project
    - Existing 2019 counts
    - Ambient growth (4.04%)
    - Cumulative Development traffic
    - Project traffic

EXHIBIT 4-6: CUMULATIVE ONLY AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

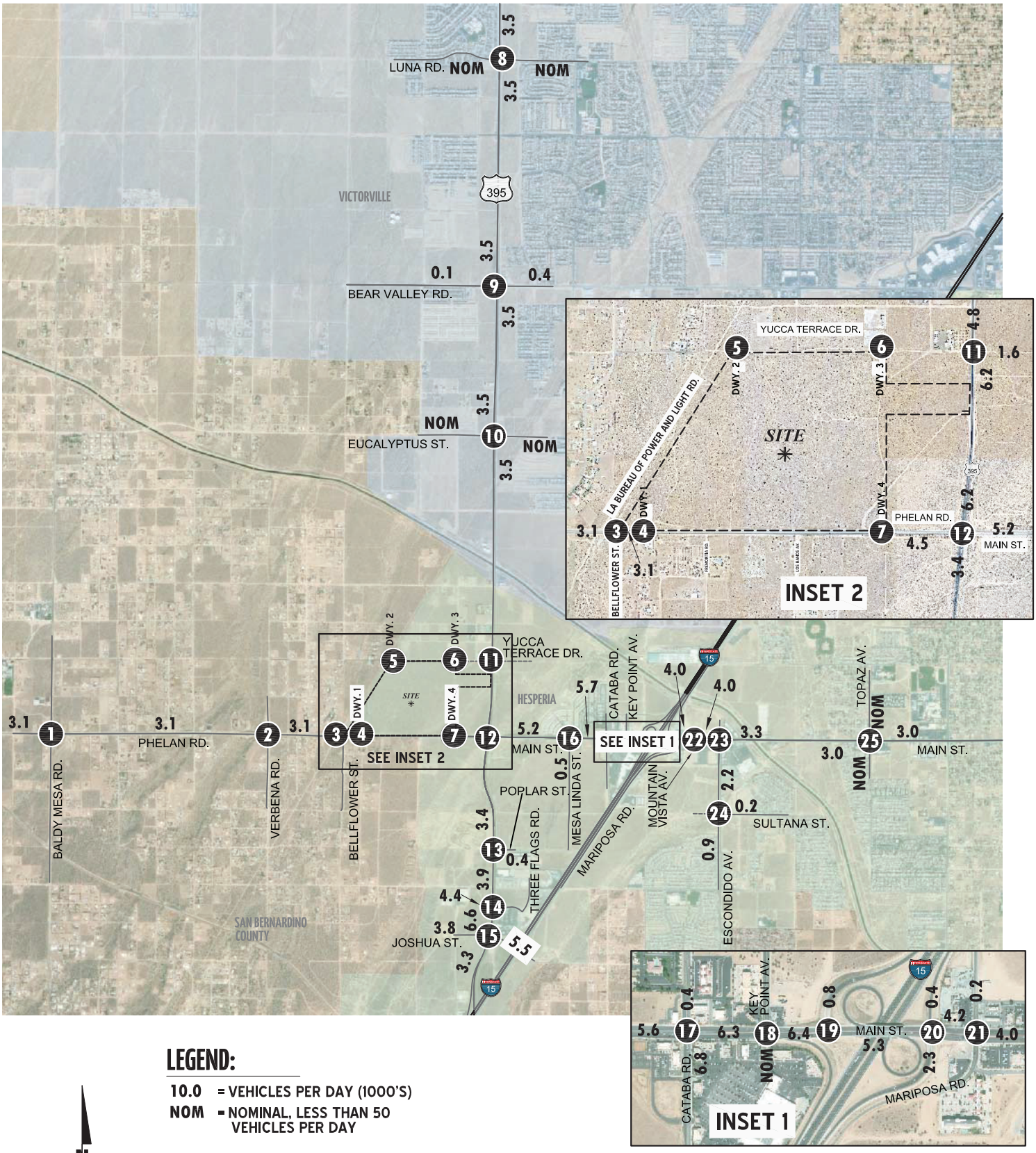
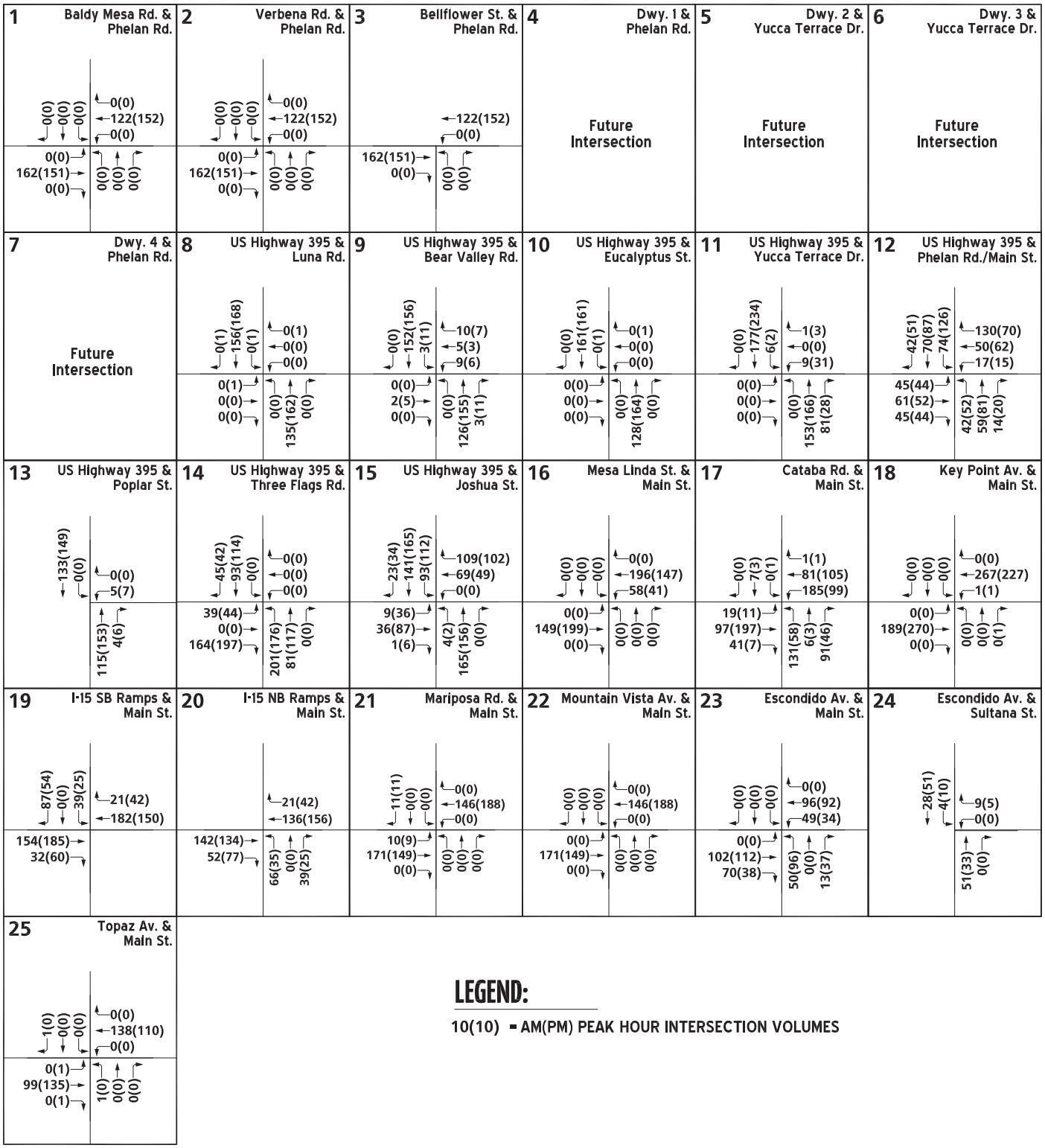


EXHIBIT 4-7: CUMULATIVE ONLY TRAFFIC VOLUMES (IN PCE)



4.9 HORIZON YEAR (2040) CONDITIONS

Traffic projections for Horizon Year (2040) with Project conditions were derived from the SBTAM modified to represent buildout of the City of Hesperia. The SBTAM uses an AM peak period-to-peak hour factor of 0.35 and a PM peak period-to-peak hour factor of 0.27. These factors represent the relationship of the highest single AM peak hour to the modeled 3-hour AM peak period (an even distribution would result in a factor of 0.33) and the highest single PM peak hour to the modeled 4-hour PM peak period (an even distribution would result in a factor of 0.25).

In some instances, the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Horizon Year (2040) turning volumes were compared to Opening Year Cumulative (2021) volumes in order to ensure a minimum growth as a part of the refinement process, where applicable. The minimum growth includes any additional growth between Opening Year Cumulative (2021) and Horizon Year traffic conditions that is not accounted for by the traffic generated by cumulative development projects and the ambient growth between Existing and Opening Year Cumulative (2021) traffic conditions. The initial estimate of the future Horizon Year (2040) peak hour turning movements were then reviewed by Urban Crossroads for reasonableness at intersections where model results showed unreasonable turning movements. The initial raw model estimates were adjusted to achieve flow conservation (where applicable), reasonable growth, and reasonable diversion between parallel routes. Post-processing worksheets for Horizon Year with Project traffic conditions are provided in Appendix 4.1.

The Horizon Year (2040) conditions analysis will be utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the City's DIF program or other approved funding mechanisms, can accommodate the long-range cumulative traffic at the target LOS identified by the City of Hesperia (lead agency). If the planned and funded improvements can provide the target LOS, then the Project's payment into established fee programs will be considered as cumulative improvements. Other improvements needed beyond the "funded" improvements (such as localized improvements to non-DIF facilities) are identified as such.

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5 E+P TRAFFIC ANALYSIS

This section discusses the traffic forecasts for Existing plus Project (E+P) conditions and the resulting peak hour intersection operations, traffic signal warrant, queuing, and freeway facility operations analyses.

5.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for E+P conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for E+P conditions only (e.g., intersection and roadway improvements at the Project's frontage and driveways).

5.2 E+P TRAFFIC VOLUME FORECASTS

This scenario includes Existing traffic volumes plus Project traffic. The ADT volumes and weekday AM and PM peak hour intersection turning movement volumes which can be expected for E+P traffic conditions are shown on Exhibits 5-1 and 5-2, respectively.

5.3 INTERSECTION OPERATIONS ANALYSIS

E+P peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 5-1, which indicates that with the addition of Project traffic, the following additional study area intersection is anticipated to operate at unacceptable LOS for E+P traffic conditions, in addition to the intersections previously identified under Existing (2019) traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) – LOS F AM and PM peak hours

A summary of the peak hour intersection LOS for E+P traffic conditions is shown on Exhibit 5-3. The intersection operations analysis worksheets for E+P traffic conditions are included in Appendix 5.1.

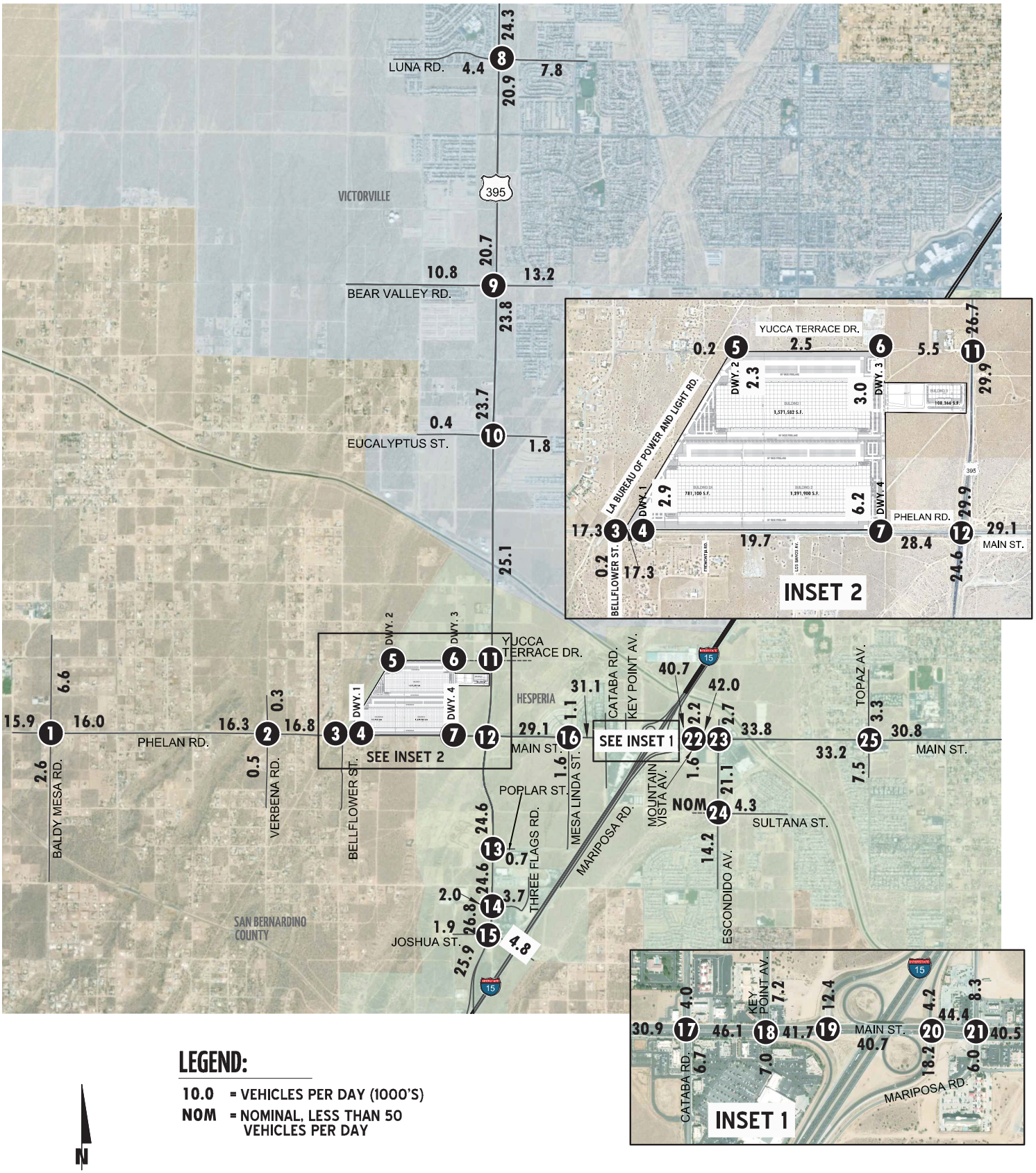
5.4 TRAFFIC SIGNAL WARRANTS ANALYSIS

The following study area intersection is anticipated to meet a traffic signal warrant for E+P traffic conditions:

- Driveway 4 & Phelan Road (#7)

A traffic signal will be constructed by the Project at the intersection of Driveway 4 & Phelan Road as part of the site adjacent Project design features. For all Project design features, see Section 1.7 *Recommendations* of this report. Driveway 4 is proposed to provide reciprocal access to both the proposed Project and future adjacent not-a-part development.

EXHIBIT 5-1: E+P AVERAGE DAILY TRAFFIC (ADT) (IN PCE)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)
NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

N

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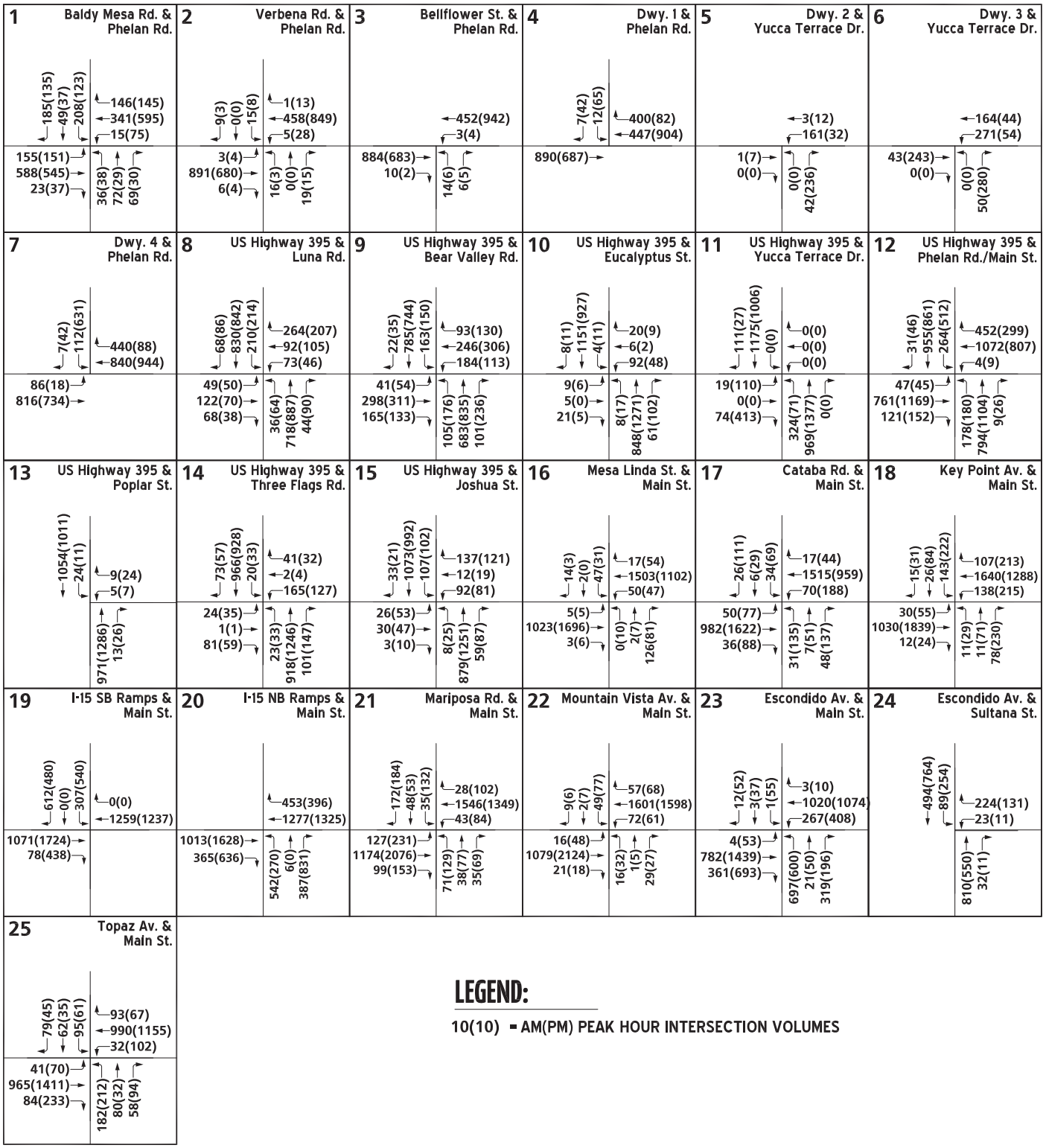
URBAN CROSSROADS

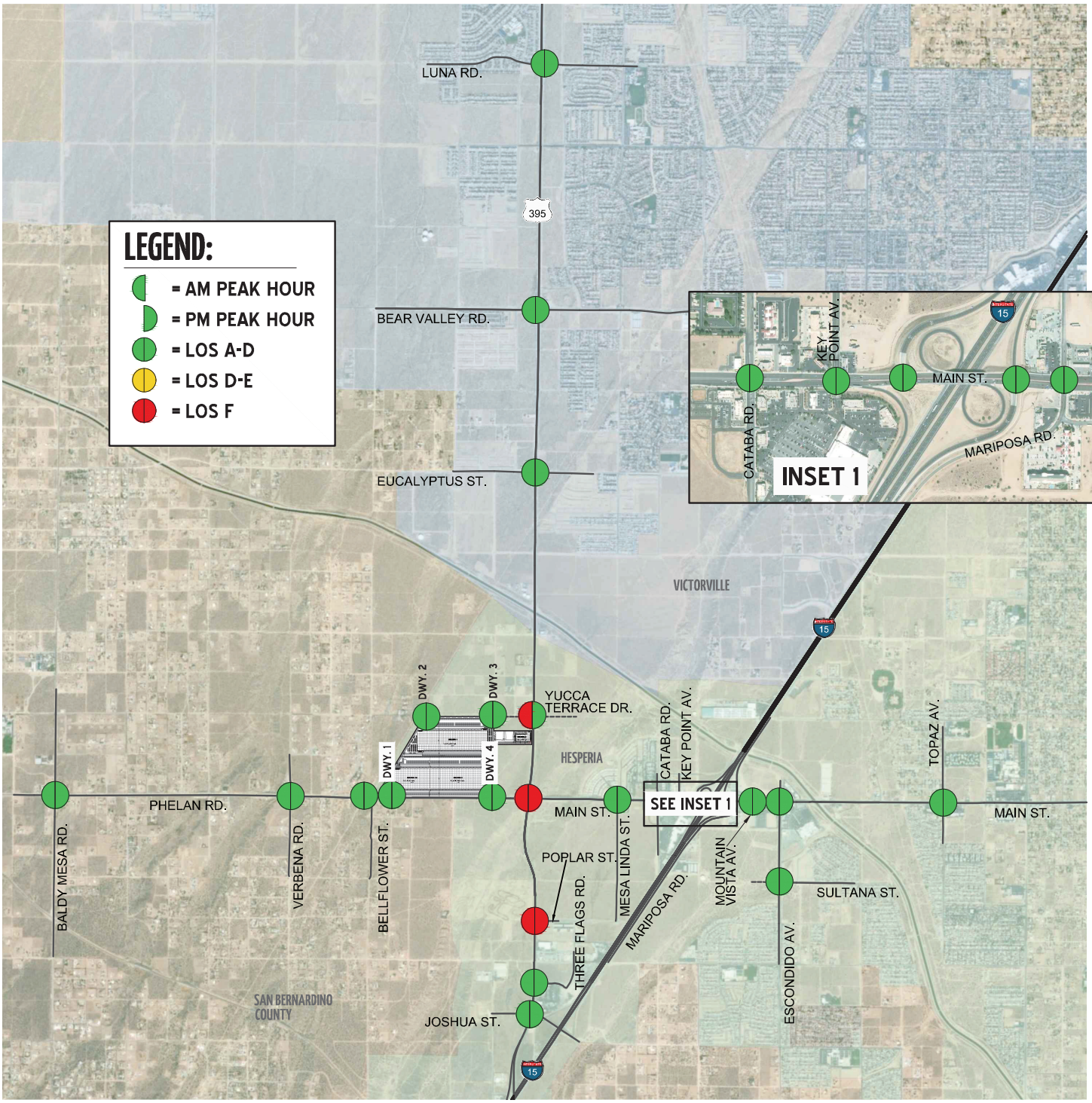
EXHIBIT 5-2: E+P TRAFFIC VOLUMES (IN PCE)



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

EXHIBIT 5-3: E+P SUMMARY OF LOS



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URBAN CROSSROADS

Table 5-1

Intersection Analysis for E+P Conditions

#	Intersection	Traffic Control[2]	Existing (2019) Delay[1] (secs.) AM	Existing (2019) Delay[1] (secs.) PM	Existing (2019) Level of Service AM	Existing (2019) Level of Service PM	E+P Delay[1] (secs.) AM	E+P Delay[1] (secs.) PM	E+P Level of Service AM	E+P Level of Service PM	Acceptable LOS
1	Baldy Mesa Rd. & Phelan Rd.	TS	28.0	23.1	C	C	30.1	23.8	C	C	C
2	Verbena Rd. & Phelan Rd.	CSS	21.0	20.6	C	C	23.2	22.9	C	C	C
3	Bellflower St. & Phelan Rd.	CSS	18.2	16.7	C	C	20.0	17.6	C	C	C
4	Driveway 1 & Phelan Rd.	**CSS**	Future Intersection				16.3	21.4	C	C	D
5	Driveway 2 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.4	9.4	A	A	D
6	Driveway 3 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.7	12.5	A	B	D
7	Driveway 4 & Phelan Rd.	**TS**	Future Intersection				15.1	46.9	B	D	D
8	US Highway 395 & Luna Rd.	TS	24.5	22.0	C	C	24.5	22.1	C	C	D
9	US Highway 395 & Bear Valley Rd.	TS	27.0	27.5	C	C	29.2	27.7	C	C	D
10	US Highway 395 & Eucalyptus St.	TS	11.3	9.3	B	A	12.9	10.1	B	B	D
11	US Highway 395 & Yucca Terrace Dr.	CSS/**TS**[3]	22.7	**77.2**	C	**F**	**92.8**	45.3	**F**	D	D
12	US Highway 395 & Phelan Rd./Main St.	TS	24.5	36.3	C	D	**85.1**	**118.9**	**F**	**F**	D
13	US Highway 395 & Poplar St.	CSS	**69.6**	**85.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**	D
14	US Highway 395 & Three Flags Rd.	TS	13.8	11.9	B	B	13.8	11.8	B	B	D
15	US Highway 395 & Joshua St.	TS	11.0	11.1	B	B	11.4	12.0	B	B	D
16	Mesa Linda St. & Main St.	TS	16.2	10.9	B	B	16.7	13.1	B	B	D
17	Cataba Rd. & Main St.	TS	15.3	22.4	B	C	17.9	28.7	B	C	D
18	Key Point Av. & Main St.	TS	14.2	22.9	B	C	13.4	27.6	B	C	D
19	I-15 SB Ramps & Main St.	TS	5.7	8.7	A	A	13.5	11.8	B	B	D
20	I-15 NB Ramps & Main St.	TS	4.8	9.9	A	B	12.1	11.1	B	B	D
21	Mariposa Rd. & Main St.	TS	16.3	25.1	B	C	16.6	25.8	B	C	D
22	Mountain Vista Av. & Main St.	TS	12.2	16.5	B	B	12.4	16.7	B	B	D
23	Escondido Av. & Main St.	TS	32.9	46.6	C	D	40.4	54.4	D	D	D
24	Escondido Av. & Sultana St.	CSS	21.1	23.9	C	C	17.0	25.3	C	D	D
25	Topaz Av. & Main St.	TS	17.6	23.1	B	C	18.8	24.1	B	C	D

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

[3] The Project will construct a traffic signal as part of the Project design features.

E+P traffic conditions traffic signal warrant analysis worksheets are provided in Appendix 5.2.

5.5 QUEUING ANALYSIS

5.5.1 ARTERIAL ANALYSIS

A queuing analysis was performed for US Highway 395 from Luna Road to Joshua Street to assess vehicle queues along the roadways. Queuing analysis findings are presented in Table 5-2. It is important to note that the available stacking distances are consistent with the measured turn pocket lengths. As shown in Table 5-2, the following intersection turning movement is anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows with the addition of Project traffic under E+P traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours

Worksheets for E+P traffic conditions queuing analysis are provided in Appendix 5.3.

5.5.2 FREEWAY OFF-RAMP ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Main Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 5-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 5-2 and consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. Worksheets for E+P traffic conditions queuing analysis are provided in Appendix 5.3.

5.6 FREEWAY FACILITY ANALYSIS

E+P mainline directional volumes for the AM and PM peak hours are provided on Exhibit 5-4. As shown in Table 5-3, there are no additional study area freeway segments and merge/diverge ramp junctions analyzed for this study that are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours with the addition of Project traffic for E+P traffic conditions in addition to the deficient locations identified under Existing traffic conditions. E+P freeway facility analysis worksheets are provided in Appendix 5.4.

Table 5-2

Peak Hour Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)				E+P			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Luna Rd.	NBL	360	67	99	Yes	Yes	67	99	Yes	Yes
	NBR	455	4	31	Yes	Yes	5	36	Yes	Yes
	SBL	400	240	242	Yes	Yes	240	242	Yes	Yes
	SBR	400	24	28	Yes	Yes	24	28	Yes	Yes
US Highway 395 & Bear Valley Rd.	NBL	220	160 [2]	228 [2,3]	Yes	Yes	160 [2]	228 [2]	Yes	Yes
	SBL	230	232 [2,3]	224 [2]	Yes	Yes	232 [2,3]	224 [2]	Yes	Yes
US Highway 395 & Eucalyptus St.	NBL	475	23	25	Yes	Yes	25	39	Yes	Yes
	NBR	345	10	28	Yes	Yes	12	36	Yes	Yes
	SBL	440	15	30	Yes	Yes	15	30	Yes	Yes
	SBR	300	0	0	Yes	Yes	0	0	Yes	Yes
US Highway 95 & Phelan Rd./Main St.	NBL	280	128	198	Yes	Yes	289 [2,3]	218	Yes	Yes
	SBL	250	238	263 [2,3]	Yes	Yes	**337** [2]	**879** [2]	**No**	**No**
US Highway 395 & Poplar St.	SBL	375	3	3	Yes	Yes	3	3	Yes	Yes
US Highway 395 & Three Flags Rd.	NBL	190	45	58	Yes	Yes	45	58	Yes	Yes
	NBR	190	0	26	Yes	Yes	25	26	Yes	Yes
	SBL	225	41	58	Yes	Yes	41	58	Yes	Yes
	SBR	225	22	12	Yes	Yes	22	12	Yes	Yes

Table 5-2
Page 2 of 2

Peak Hour Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)				E+P			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Joshua St.	NBL	190	24	51	Yes	Yes	24	51	Yes	Yes
	NBR	330	14	29	Yes	Yes	14	29	Yes	Yes
	SBL	220	138	101	Yes	Yes	143	152 [2]	Yes	Yes
I-15 SB Ramps & Main St.	SBL	1,750	48	122	Yes	Yes	77	171	Yes	Yes
	SBR	1,200	30	211	Yes	Yes	454 [2]	383	Yes	Yes
I-15 NB Ramps & Main St.	NBL	1,290	51	133	Yes	Yes	402	199	Yes	Yes
	NBT/R	1,200	65	342	Yes	Yes	80	360	Yes	Yes
	NBR	700	66	342	Yes	Yes	81	358	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

Table 5-3

Freeway Facility Analysis for E+P Conditions

Freeway	Direction[1]	Mainline Segment	Lanes[2]	Existing (2019)				E+P			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	North of Main St.	3	20.1	22.0	C	C	22.3	22.3	C	C
		Off-Ramp at Main St.	3	27.2	29.6	C	D	29.8	30.1	D	D
		Loop On-Ramp at Main St.	3	24.0	22.0	C	C	24.0	22.0	C	C
		On-Ramp at Main St.	3	22.4	21.2	C	C	20.5	24.2	C	C
		South of Main St.	3	20.9	19.7	C	C	21.4	21.8	C	C
		North of US Highway 395	3	16.9	17.6	B	B	17.4	19.9	B	C
		On-Ramp at US Highway 395	4	12.5	13.0	B	B	12.9	14.3	B	B
		South of US Highway 395	4	16.9	16.6	B	B	17.3	18.8	B	C
	NB	North of Main St.	3	18.3	**35.1**	C	**E**	18.6	**37.8**	C	**E**
		On-Ramp at Main St.	3	21.6	32.3	C	D	21.9	34.3	C	D
		Loop On-Ramp at Main St.	3	18.2	29.3	B	D	18.7	32.4	B	D
		Off-Ramp at Main St.	3	23.6	**38.0**	C	**E**	26.9	**38.4**	C	**E**
		South of Main St.	3	16.7	**37.7**	B	**E**	19.0	**38.5**	C	**E**
		North of US Highway 395	4	11.4	18.0	B	B	13.1	18.3	B	C
		Off-Ramp at US Highway 395	4	18.0	29.7	B	D	21.0	30.3	C	D
		South of US Highway 395	4	14.4	23.6	B	C	16.6	24.1	B	C

[1] NB = Northbound; SB = Southbound

[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

EXHIBIT 5-4: E+P FREEWAY MAINLINE VOLUMES



5.7 RECOMMENDED IMPROVEMENTS

This section provides a summary of E+P deficiencies and recommended improvements. Based on the deficiency criteria discussed in Section 2.7 *Minimum Acceptable Levels of Service (LOS) and Intersection Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

5.7.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended improvements is presented in Table 5-4 for E+P traffic conditions. The intersection operations analysis worksheets for E+P traffic conditions, with improvements, are included in Appendix 5.5 of this TIA.

Recommended Improvement – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.
- Install a traffic signal (Project design feature).
- Add a northbound left turn lane (Project design feature).
- Add an eastbound left turn lane (Project design feature).

Recommended Improvement – US Highway 395 & Phelan Road/Main Street (#12) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound left turn lane.
- Add a 2nd southbound left turn lane.

Recommended Improvement – US Highway 395 & Poplar Street (#13) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound through lane.

5.7.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUING DEFICIENCIES

As shown previously in Table 5-2, there is one peak hour queuing issue at the intersection of US Highway 395 & Phelan Road/Main Street. Recommended improvements to address queuing issues for E+P traffic conditions are shown in Table 5-5 and reflect the recommended improvements to address intersection deficiencies, as previously described in Section 5.8.1 *Recommended Improvements to Address Deficiencies at Intersections*. In order to accommodate the 95th percentile peak hour queues for E+P traffic conditions, a 475-foot southbound left turn pocket is recommended at the intersection of US Highway 395 & Phelan Road/Main Street. Worksheets for E+P traffic conditions off-ramp queuing analysis, with improvements, are provided in Appendix 5.6.

Table 5-4

Intersection Analysis for E+P Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
11	US Highway 395 & Yucca Terrace Dr.																	
	Existing (2019)																	
	- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	22.7	**77.2**	C	**F**
	- With Improvements	CSS	0	**2**	0	0	**2**	0	0	1	0	0	1	0	21.0	32.5	C	D
	E+P																	
	- Without Improvements	CSS	0	1	0	0	1	0	0	1	0	0	1	0	**92.8**	45.3	**F**	D
	- With Improvements	**TS**	**1**	**2**	0	0	**2**	0	**1**	1	0	0	1	0	21.8	40.4	C	D
12	US Highway 395 & Phelan Rd./Main St.																	
	Existing (2019)																	
	- Without Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	24.5	36.3	C	D
	- With Improvements		Not Applicable															
	E+P																	
	- Without Improvements	TS	1	2	0	1	2	0	1	2	0	1	2	0	**85.1**	**118.9**	**F**	**F**
	- With Improvements	TS	**2**	2	0	**2**	2	0	1	2	0	1	2	0	52.4	54.3	D	D
13	US Highway 395 & Poplar St.																	
	Existing (2019)																	
	- Without Improvements	CSS	0	2	0	1	1	0	0	0	0	1	0	1	**69.6**	**85.0**	**F**	**F**
	- With Improvements	CSS	0	2	0	1	**2**	0	0	0	0	1	0	1	19.4	24.3	C	C
	E+P																	
	- Without Improvements	CSS	0	2	0	1	1	0	0	0	0	1	0	1	**>100.0**	**>100.0**	**F**	**F**
	- With Improvements	CSS	0	2	0	1	**2**	0	0	0	0	1	0	1	22.9	27.9	C	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

Table 5-5

Peak Hour Queuing Summary for E+P Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2019)				E+P			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 95 & Phelan Rd./Main St.	NBL	280	Not Applicable				145 [2]	109	Yes	Yes
	SBL	**475**					196 [2]	312 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

5.7.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 5-3, there are study area freeway mainline segments and ramp junctions that are anticipated to operate at an unacceptable LOS for E+P traffic conditions. At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Hesperia (or other neighboring jurisdictions) on the SHS roadway segments. As such, no improvements have been recommended to address the E+P deficiencies on the SHS.

6 OPENING YEAR CUMULATIVE (2021) TRAFFIC ANALYSIS

This section discusses the traffic forecasts for Opening Year Cumulative (2021) conditions and the resulting peak hour intersection operations, traffic signal warrant, queuing, and freeway facility operations analyses.

6.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Opening Year Cumulative (2021) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Driveways and those facilities assumed to be constructed by cumulative developments to provide site access are also assumed to be in place for Opening Year Cumulative conditions only (e.g., intersection and roadway improvements along the cumulative development's frontages and driveways).

6.2 OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 4.04% of ambient growth for Opening Year Cumulative traffic conditions. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) Without Project traffic conditions are shown on Exhibits 6-1 and 6-2, respectively.

6.3 OPENING YEAR CUMULATIVE (2021) WITH PROJECT VOLUME FORECASTS

To account for background traffic, other known cumulative development projects in the study area were included in addition to 4.04% of ambient growth for Opening Year Cumulative traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Opening Year Cumulative (2021) With Project traffic conditions are shown on Exhibits 6-3 and 6-4, respectively.

6.4 INTERSECTION OPERATIONS ANALYSIS

Opening Year Cumulative (2021) Without and With Project peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 6-1 for both Opening Year Cumulative (2021) Without and With Project traffic conditions.

EXHIBIT 6-1: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

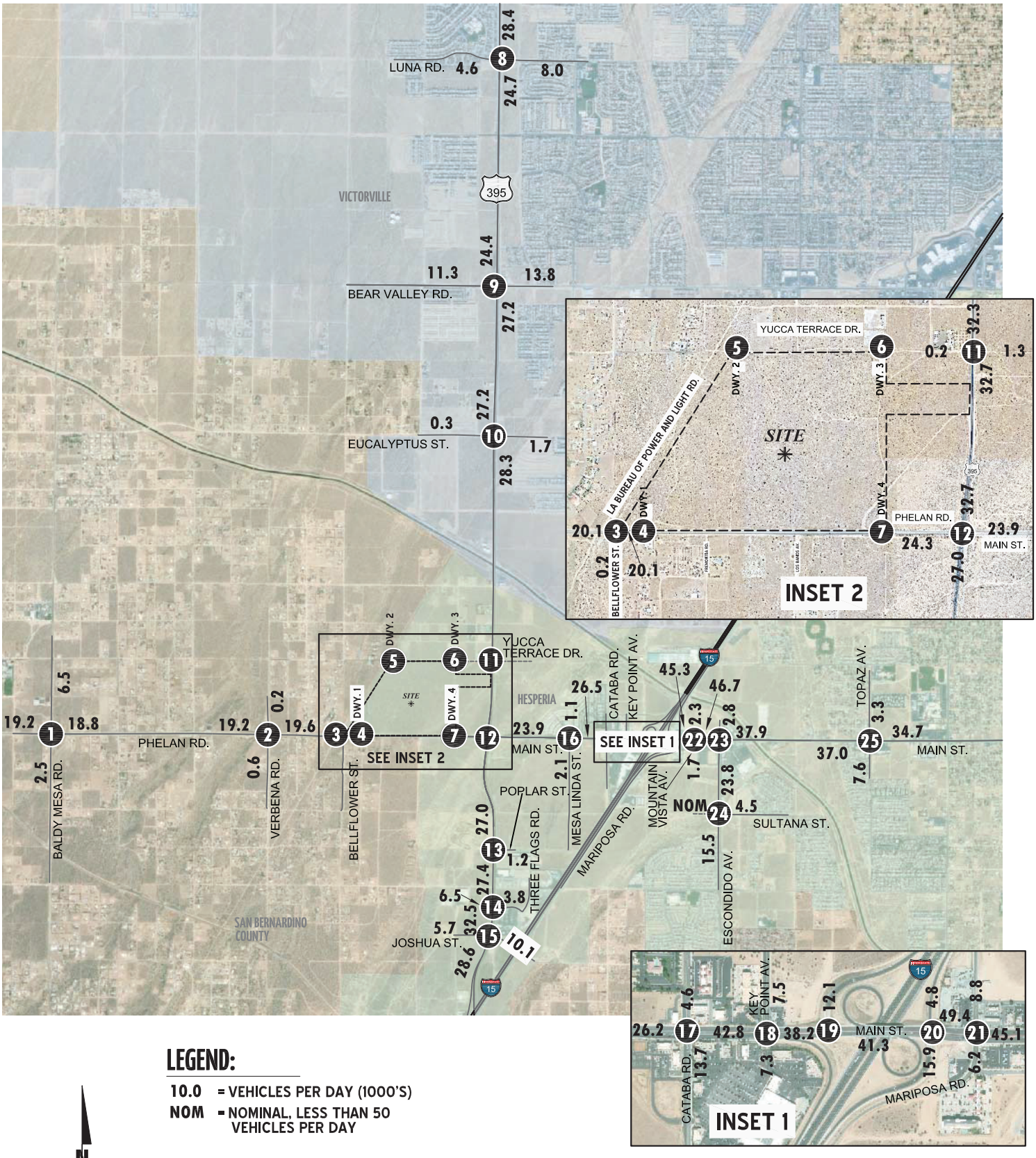

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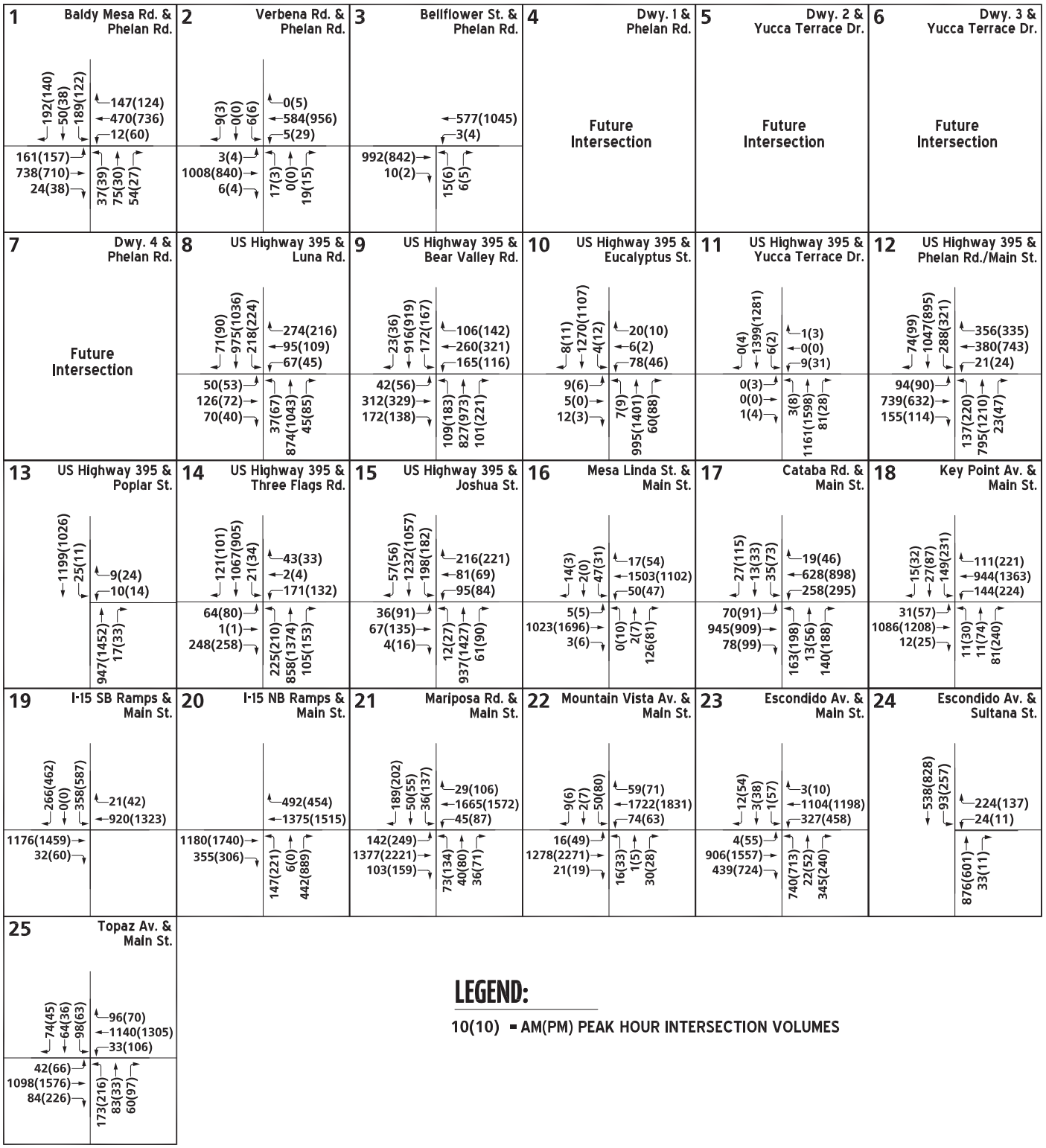
EXHIBIT 6-2: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)



LEGEND:

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

EXHIBIT 6-3: OPENING YEAR CUMULATIVE (2021) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

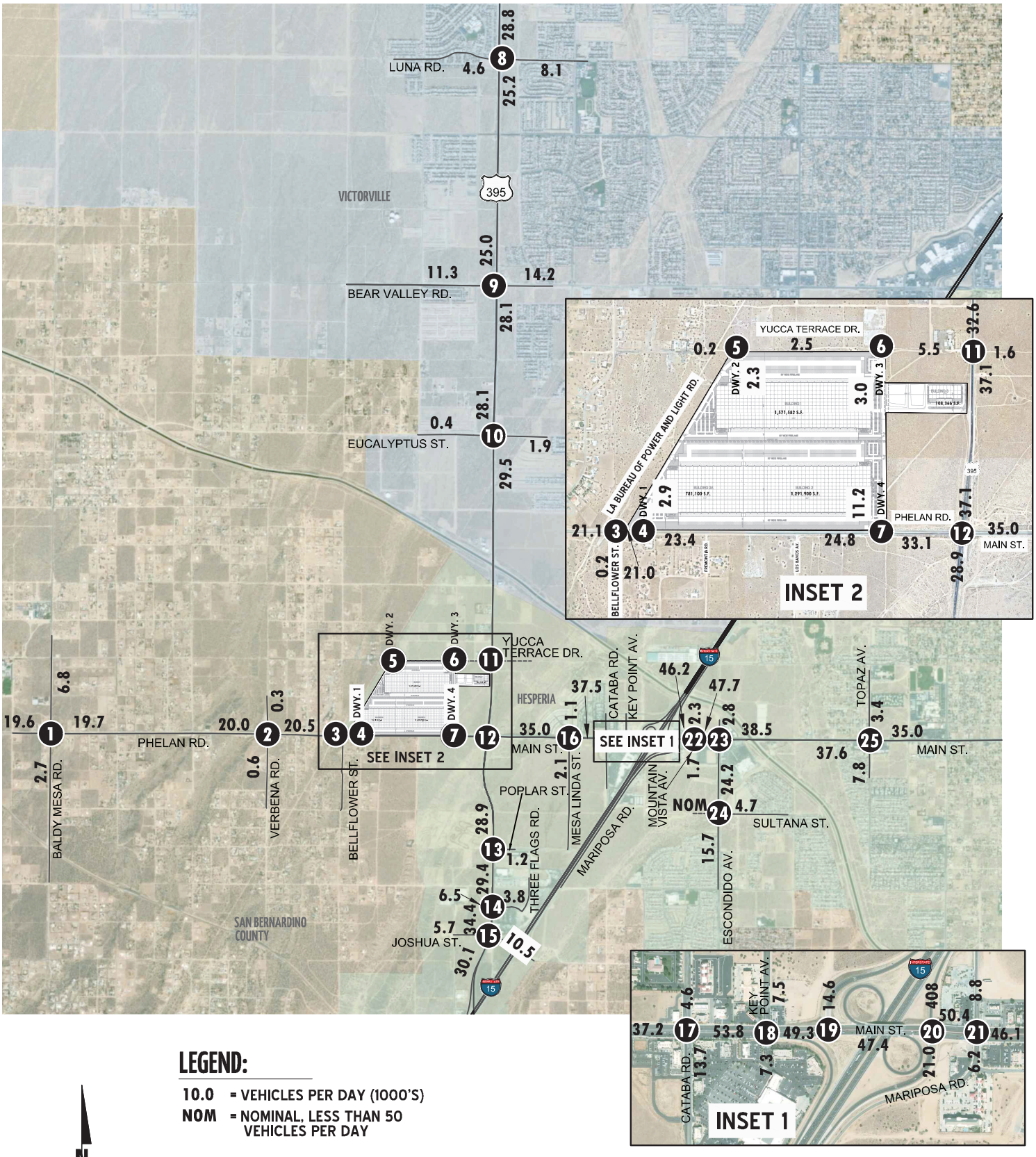


EXHIBIT 6-4: OPENING YEAR CUMULATIVE (2021) WITH PROJECT TRAFFIC VOLUMES (IN PCE)

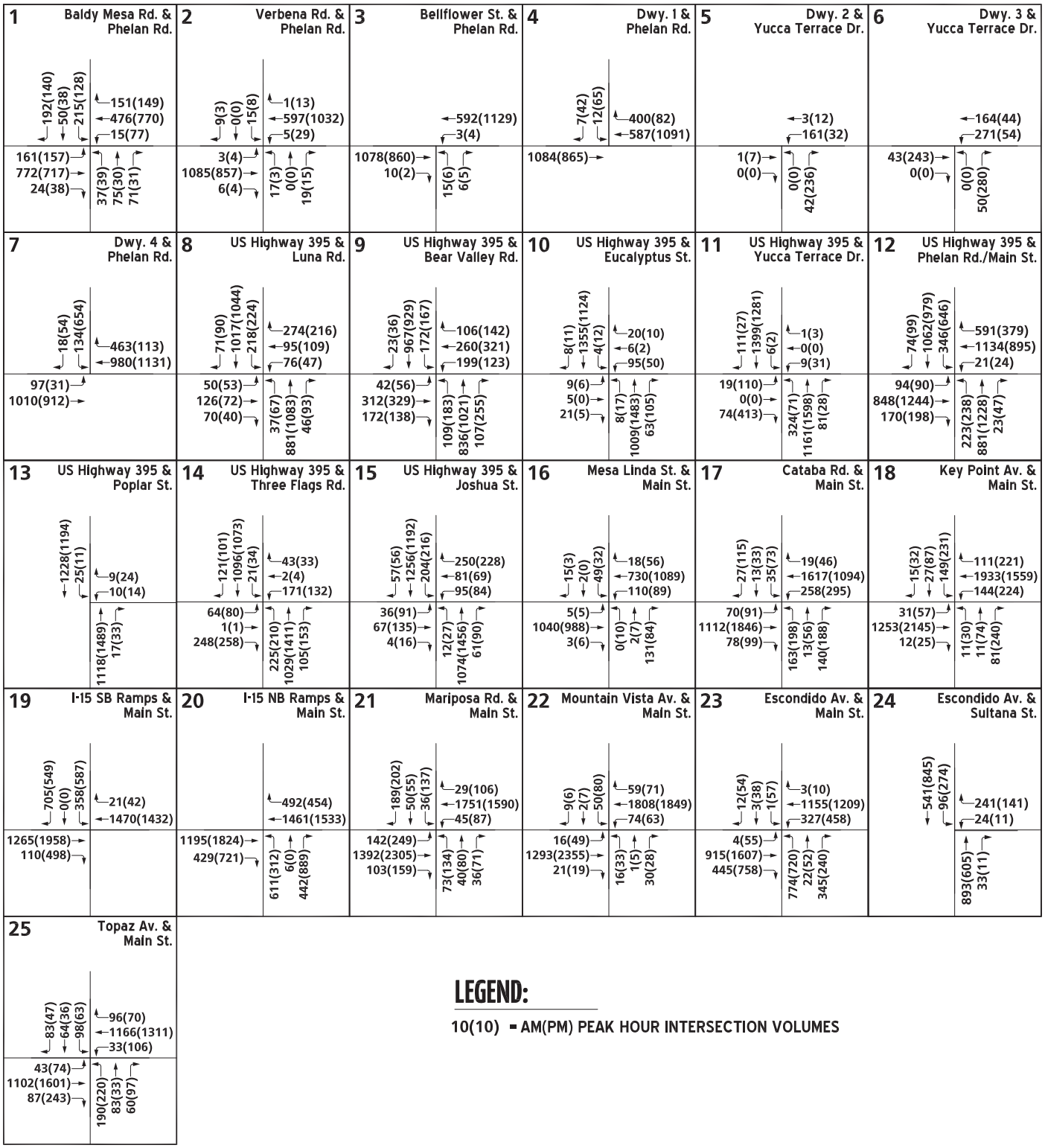


Table 6-1

Intersection Analysis for Opening Year Cumulative (2021) Conditions

#	Intersection	Traffic Control[2]	2021 Without Project				2021 With Project				Acceptable LOS
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	Baldy Mesa Rd. & Phelan Rd.	TS	28.5	23.7	C	C	30.7	24.5	C	C	C
2	Verbena Rd. & Phelan Rd.	CSS	**28.9**	**26.6**	**D**	**D**	**32.5**	**29.9**	**D**	**D**	C
3	Bellflower St. & Phelan Rd.	CSS	23.4	20.5	C	C	24.9	21.5	C	C	C
4	Driveway 1 & Phelan Rd.	**CSS**	Future Intersection				19.8	30.4	C	D	D
5	Driveway 2 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.4	9.4	A	A	D
6	Driveway 3 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.7	12.5	A	B	D
7	Driveway 4 & Phelan Rd.	**CSS/TS**[3]	15.4	22.3	C	C	19.4	54.4	B	D	D
8	US Highway 395 & Luna Rd.	TS	25.4	23.2	C	C	25.5	23.3	C	C	D
9	US Highway 395 & Bear Valley Rd.	TS	28.9	29.6	C	C	32.9	30.3	C	C	D
10	US Highway 395 & Eucalyptus St.	TS	12.2	10.4	B	B	14.2	11.4	B	B	D
11	US Highway 395 & Yucca Terrace Dr.	CSS/**TS**[3]	**>100.0**	**>100.0**	**F**	**F**	**162.8**	**104.3**	**F**	**F**	D
12	US Highway 395 & Phelan Rd./Main St.	TS	39.3	**79.5**	D	**E**	**148.6**	**189.3**	**F**	**F**	D
13	US Highway 395 & Poplar St.	TS	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**	D
14	US Highway 395 & Three Flags Rd.	TS	30.9	25.5	C	C	31.0	26.1	C	C	D
15	US Highway 395 & Joshua St.	TS	15.6	18.6	B	B	17.1	19.3	B	B	D
16	Mesa Linda St. & Main St.	TS	16.7	13.1	B	B	18.9	13.3	B	B	D
17	Cataba Rd. & Main St.	TS	29.8	30.4	C	C	34.9	51.5	C	D	D
18	Key Point Av. & Main St.	TS	14.0	24.6	B	C	14.5	45.8	B	D	D
19	I-15 SB Ramps & Main St.	TS	6.9	10.6	A	B	20.4	15.3	C	B	D
20	I-15 NB Ramps & Main St.	TS	5.6	12.3	A	B	16.0	13.0	B	B	D
21	Mariposa Rd. & Main St.	TS	18.1	28.7	B	C	18.2	29.3	B	C	D
22	Mountain Vista Av. & Main St.	TS	12.9	17.9	B	B	13.1	18.3	B	B	D
23	Escondido Av. & Main St.	TS	50.6	**70.4**	D	**E**	**60.9**	**79.7**	**E**	**E**	D
24	Escondido Av. & Sultana St.	CSS	23.5	27.0	C	D	24.1	28.7	C	D	D
25	Topaz Av. & Main St.	TS	19.7	27.8	B	C	21.4	29.2	C	C	D

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

6.4.1 OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS

Opening Year Cumulative (2021) peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 6-1 and shown on Exhibit 6-5, which indicates that the following intersections are anticipated to operate at an unacceptable LOS during the peak hours:

- Verbena Road & Phelan Road (#2) – LOS D AM and PM peak hours
- US Highway 395 & Yucca Terrace Drive (#11) – LOS F AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) – LOS E PM peak hour only
- US Highway 395 & Poplar Street (#13) – LOS F AM and PM peak hours
- Escondido Avenue & Main Street (#23) – LOS E PM peak hour only

The intersection operations analysis worksheets for Opening Year Cumulative (2021) Without Project traffic conditions are included in Appendix 6.1 of this TIA.

6.4.2 OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS

With the addition of Project traffic, there are no additional study area intersections that are anticipated to operate at an unacceptable LOS during the peak hours. Consistent with Table 6-1, a summary of the peak hour intersection LOS for Opening Year Cumulative (2021) With Project conditions are shown on Exhibit 6-6. The intersection operations analysis worksheets for Opening Year Cumulative (2021) With Project traffic conditions are included in Appendix 6.2 of this TIA.

6.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

There are no additional intersections anticipated to meet traffic signal warrants for Opening Year Cumulative (2021) Without Project. The following intersection is anticipated to meet traffic signal warrants with the addition of Project traffic for Opening Year Cumulative (2021) With Project:

- US Highway 395 & Yucca Terrace Drive (#11)

A traffic signal will be constructed by the Project at the intersection of US Highway 395 & Yucca Terrace Drive as part of the site adjacent Project design features. For all Project design features, see Section 1.7 *Recommendations* of this report. Worksheets for Opening Year Cumulative (2021) Without and With Project traffic conditions signal warrants are provided in Appendices 6.3 and 6.4, respectively.

EXHIBIT 6-5: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT SUMMARY OF LOS

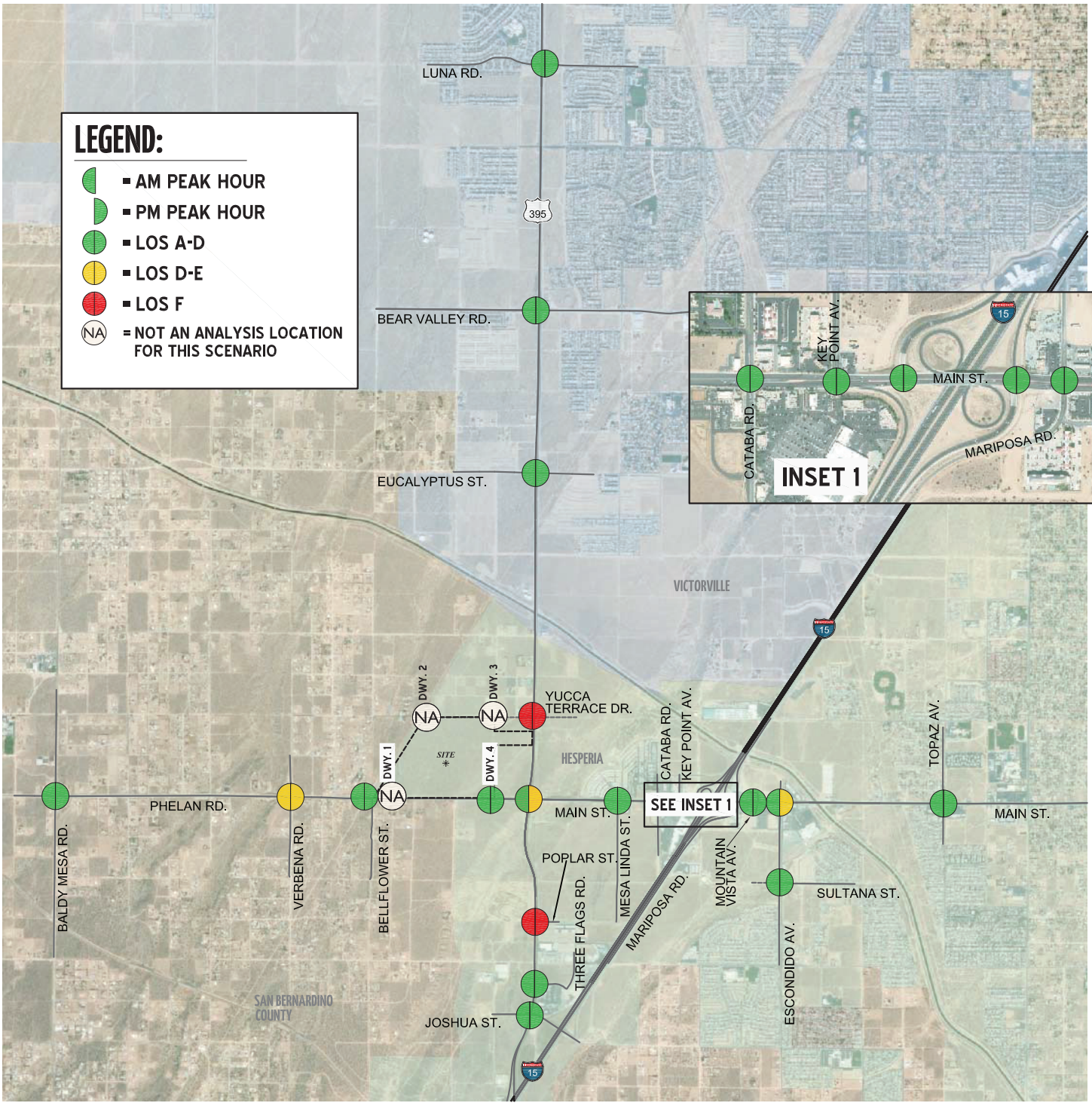
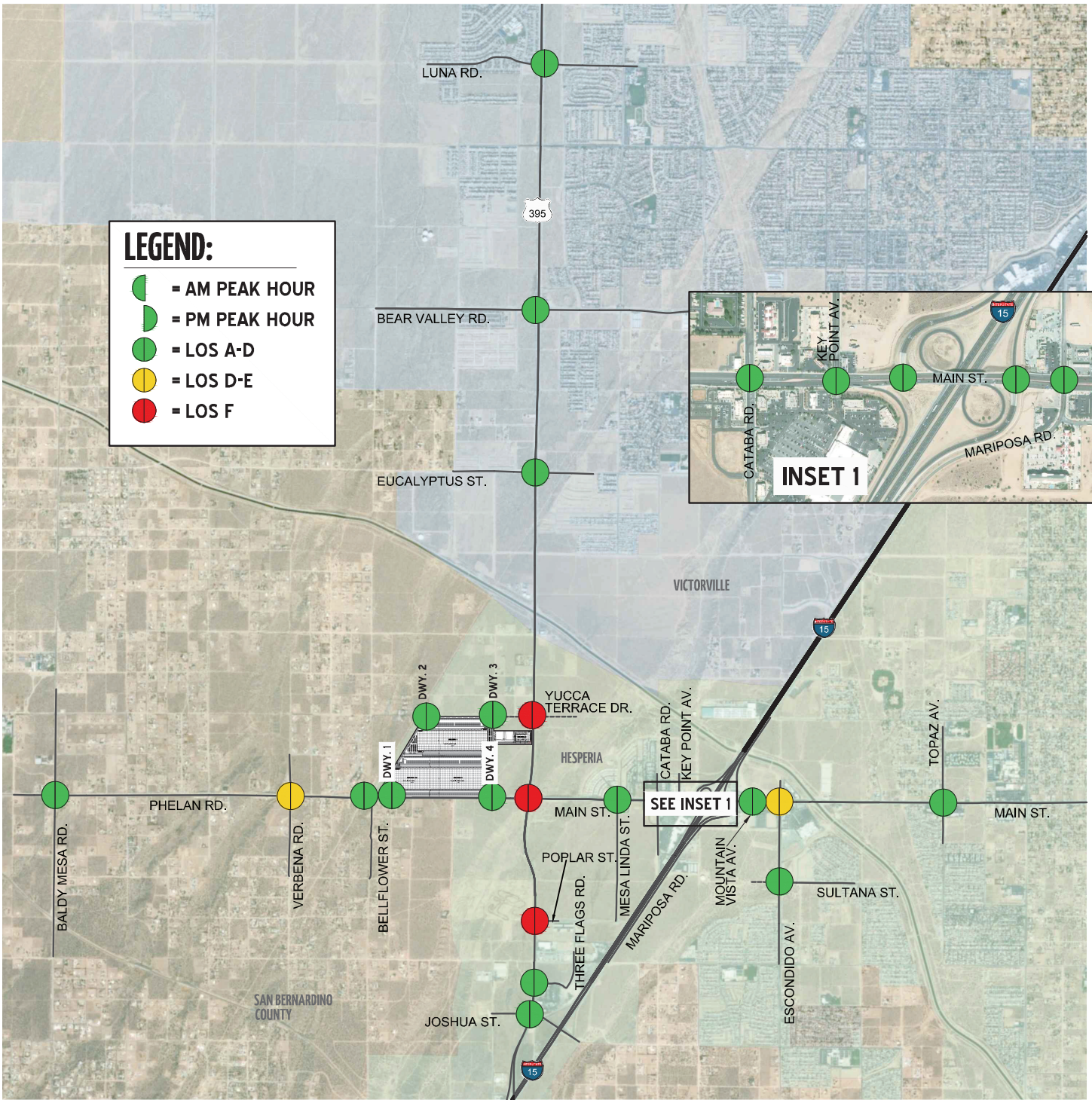


EXHIBIT 6-6: OPENING YEAR CUMULATIVE (2021) WITH PROJECT SUMMARY OF LOS



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URBAN CROSSROADS

6.6 QUEUING ANALYSIS

6.6.1 ARTERIAL ANALYSIS

A queuing analysis was performed for US Highway 395 from Luna Road to Joshua Street to assess vehicle queues along the roadways. Queuing analysis findings are presented in Table 6-2. It is important to note that the available stacking distances are consistent with the measured turn pocket lengths. As shown in Table 6-2, the following intersection turning movements are anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Opening Year Cumulative (2021) Without Project traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) Northbound Left – AM and PM peak hours

Worksheets for Opening Year Cumulative (2021) Without Project traffic conditions queuing analysis are provided in Appendix 6.5.

The following additional intersection turning movement is anticipated to experience queuing issues during the peak hours based on the 95th percentile peak hour traffic flows with the addition of Project traffic for Opening Year Cumulative (2021) With Project traffic conditions:

- US Highway 395 & Phelan Road/Main Street (#12) Northbound Left – AM and PM peak hours

Worksheets for Opening Year Cumulative (2021) With Project traffic conditions queuing analysis are provided in Appendix 6.6.

6.6.2 FREEWAY OFF-RAMP ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Main Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 6-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 6-2 and consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2021) Without Project traffic conditions. Worksheets for Opening Year Cumulative (2021) Without Project traffic conditions off-ramp queuing analysis are provided in Appendix 6.5.

There are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Opening Year Cumulative (2021) With Project traffic conditions. Worksheets for Opening Year Cumulative (2021) With Project traffic conditions off-ramp queuing analysis are provided in Appendix 6.6.

Table 6-2

Peak Hour Queuing Summary for Opening Year Cumulative (2021) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2021 Without Project				2021 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Luna Rd.	NBL	360	67	102	Yes	Yes	67	102 [3]	Yes	Yes
	NBR	455	6	34	Yes	Yes	6	36	Yes	Yes
	SBL	400	246	253	Yes	Yes	246	253	Yes	Yes
	SBR	400	24	28	Yes	Yes	24	28	Yes	Yes
US Highway 395 & Bear Valley Rd.	NBL	220	166 [2]	225 [2,3]	Yes	Yes	166 [2]	225 [2,3]	Yes	Yes
	SBL	230	236 [2,3]	235 [2,3]	Yes	Yes	236 [2,3]	235 [2,3]	Yes	Yes
US Highway 395 & Eucalyptus St.	NBL	475	23	25	Yes	Yes	25	39	Yes	Yes
	NBR	345	12	30	Yes	Yes	14	42	Yes	Yes
	SBL	440	15	32	Yes	Yes	15	32	Yes	Yes
	SBR	300	0	0	Yes	Yes	0	0	Yes	Yes
US Highway 95 & Phelan Rd./Main St.	NBL	280	207 [2]	293 [2,3]	Yes	Yes	**378** [2]	**330** [2]	**No**	**No**
	SBL	250	**382** [2]	**526** [2]	**No**	**No**	**492** [2]	**1,122** [2]	**No**	**No**
US Highway 395 & Poplar St.	SBL	375	3	3	Yes	Yes	3	3	Yes	Yes
US Highway 395 & Three Flags Rd.	NBL	190	**263**	**241**	**No**	**No**	**263**	**241**	**No**	**No**
	NBR	190	28	35	Yes	Yes	28	37	Yes	Yes
	SBL	225	46	66 [2]	Yes	Yes	46	66 [2]	Yes	Yes
	SBR	225	50	28	Yes	Yes	50	28	Yes	Yes

Table 6-2

Peak Hour Queuing Summary for Opening Year Cumulative (2021) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2021 Without Project				2021 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Joshua St.	NBL	190	32	53	Yes	Yes	32	53	Yes	Yes
	NBR	330	18	37	Yes	Yes	18	39	Yes	Yes
	SBL	220	230 [2,3]	207	Yes	Yes	235 [3]	235 [3]	Yes	Yes
I-15 SB Ramps & Main St.	SBL	1,750	71	175	Yes	Yes	109	184	Yes	Yes
	SBR	1,200	96	342	Yes	Yes	737 [2]	460	Yes	Yes
I-15 NB Ramps & Main St.	NBL	1,290	107	163	Yes	Yes	633 [2]	234	Yes	Yes
	NBT/R	1,200	129	394	Yes	Yes	143	394	Yes	Yes
	NBR	700	131	394	Yes	Yes	145	394	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

6.7 FREEWAY FACILITY ANALYSIS

Opening Year Cumulative (2021) Without Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-7. As shown in Table 6-3, the following study area freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Opening Year Cumulative (2021) Without Project traffic conditions:

- I-15 Freeway Northbound, North of Main Street (#9) – LOS E PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS E PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS E PM peak hour only

Opening Year Cumulative (2021) Without Project freeway facility analysis worksheets are provided in Appendix 6.7.

Opening Year Cumulative (2021) With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 6-8. The following additional study area ramp junction is anticipated to operate at an unacceptable LOS with the addition of Project traffic under Horizon Year (2040) With Project traffic conditions, resulting in a cumulative deficiency:

- I-15 Freeway Northbound, On-Ramp at Main Street (#10) – LOS E PM peak hour only

Opening Year Cumulative (2021) With Project freeway facility analysis worksheets are provided in Appendix 6.8.

6.8 RECOMMENDED IMPROVEMENTS

This section provides a summary of Opening Year Cumulative (2021) deficiencies and recommended improvements. Based on the deficiency criteria discussed in Section 2.7 *Minimum Acceptable Levels of Service (LOS) and Intersection Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

6.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended improvements is presented in Table 6-4 for Opening Year Cumulative (2021) traffic conditions. The intersection operations analysis worksheets for Opening Year Cumulative (2021) Without Project and With Project traffic conditions, with improvements, are included in Appendices 6.9 and 6.10, respectively.

EXHIBIT 6-7: OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



EXHIBIT 6-8: OPENING YEAR CUMULATIVE (2021) WITH PROJECT FREEWAY MAINLINE VOLUMES



Table 6-3

Freeway Facility Analysis for Opening Year Cumulative (2021) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes[2]	2021 Without Project				2021 With Project			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	North of Main St.	3	21.3	23.2	C	C	23.6	23.5	C	C
		Off-Ramp at Main St.	3	28.4	30.7	D	D	31.1	31.1	D	D
		Loop On-Ramp at Main St.	3	25.0	23.1	C	C	25.0	23.1	C	C
		On-Ramp at Main St.	3	23.4	22.5	C	C	23.9	25.5	C	C
		South of Main St.	3	22.0	20.9	C	C	22.6	22.9	C	C
		North of US Highway 395	3	17.7	18.8	B	C	18.2	21.1	C	C
		On-Ramp at US Highway 395	4	13.4	14.0	B	B	13.5	15.5	B	B
		South of US Highway 395	4	17.8	17.6	B	B	18.1	20.0	C	C
	NB	North of Main St.	3	19.2	**36.4**	C	**E**	19.5	**41.6**	C	**E**
		On-Ramp at Main St.	3	22.6	34.0	C	D	22.8	**36.0**	C	**E**
		Loop On-Ramp at Main St.	3	18.9	30.7	B	D	19.4	33.8	B	D
		Off-Ramp at Main St.	3	25.1	**39.2**	C	**E**	28.1	**39.6**	C	**E**
		South of Main St.	3	17.9	**41.2**	B	**E**	20.1	**42.1**	C	**E**
		North of US Highway 395	4	12.2	18.9	B	C	13.9	19.2	B	C
		Off-Ramp at US Highway 395	4	19.5	31.3	B	D	22.3	31.9	C	D
		South of US Highway 395	4	15.3	25.1	B	C	17.6	25.6	B	C

[1] NB = Northbound; SB = Southbound

[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

Table 6-4

Intersection Analysis for Opening Year Cumulative (2021) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
11	US Highway 395 & Yucca Terrace Dr.																	
	- Without Project	CSS	0	**2**	0	0	**2**	0	0	1	0	0	1	0	15.5	21.0	B	C
	- With Project	**TS**	**1**	**2**	0	0	**2**	0	**1**	1	0	0	1	0	22.2	26.3	C	C
12	US Highway 395 & Phelan Rd./Main St.																	
	- Without Project	TS	**2**	2	0	**2**	2	0	1	**3**	0	1	**3**	**1>**	27.1	33.1	C	C
	- With Project	TS	**2**	2	0	**2**	2	0	1	**3**	0	1	**3**	**1>**	44.0	54.4	D	D
13	US Highway 395 & Poplar St.																	
	- Without Project	CSS	0	2	0	1	**2**	0	0	0	0	1	0	1	23.9	32.5	C	D
	- With Project	CSS	0	2	0	1	**2**	0	0	0	0	1	0	1	27.9	34.8	D	D
23	Escondido Av. & Main St.																	
	- Without Project	TS	2	1	1>	1	1	0	1	3	1>	2	**3**	1	47.6	51.7	D	D
	- With Project	TS	2	1	1>	1	1	0	1	3	1>	2	**3**	1	52.5	53.0	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

Recommended Improvement – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.

Recommended Improvement – US Highway 395 & Phelan Road/Main Street (#12) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound left turn lane.
- Add a 2nd southbound left turn lane.
- Add a 3rd eastbound through lane.
- Add a 3rd westbound through lane.
- Add a westbound right turn lane.
- Modify the traffic signal to implement overlap phasing for the westbound right turn lane.

Recommended Improvement – US Highway 395 & Poplar Street (#13) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add a 2nd southbound through lane.

Recommended Improvement – Escondido Avenue & Main Street (#23) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add a 3rd westbound through lane.

Although the intersection of Verbena Road and Phelan Road is anticipated to operate at an unacceptable LOS (i.e., LOS D or worse) during the peak hours for Opening Year Cumulative (2021) traffic conditions, the Project does not contribute 10 or more peak hour trips to the minor street and the addition of Project traffic does not cause the intersection to meet a traffic signal warrant. As such, according to the County of San Bernardino deficiency criteria, the deficiency at this location does not require improvements.

The following additional improvements are required for Opening Year Cumulative (2021) With Project traffic conditions:

Recommended Improvement – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.
- Install a traffic signal (Project design feature).
- Add a northbound left turn lane (Project design feature).
- Add an eastbound left turn lane (Project design feature).

6.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUING DEFICIENCIES

As shown previously in Table 6-2, there are peak hour queuing issues at three intersection turning movements. Recommended improvements to address queuing issues for Opening Year Cumulative (2021) traffic conditions are shown in Table 6-5 and reflect the recommended improvements to address intersection deficiencies, as previously described in Section 6.8.1 *Recommended Improvements to Address Deficiencies at Intersections*. In order to accommodate the 95th percentile peak hour queues for Opening Year Cumulative (2021) traffic conditions, a 475-foot southbound left turn pocket is recommended at the intersection of US Highway 395 & Phelan Road/Main Street, and a 275-foot northbound left turn pocket is recommended at the intersection of US Highway 395 & Three Flags Road. The turn pocket recommendation at US Highway 395 & Three Flags Road only requires restriping of existing pavement. Opening Year Cumulative (2021) Without Project and With Project traffic conditions with improvements queuing analysis worksheets are provided in Appendices 6.11 and 6.12, respectively.

6.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

As shown previously in Table 6-3, there are study area freeway mainline segments and ramp junctions that are anticipated to operate at an unacceptable LOS for Opening Year Cumulative (2021) traffic conditions. At this time, Caltrans has no fee programs or other improvement programs in place to address the deficiencies caused by development projects in the City of Hesperia (or other neighboring jurisdictions) on the SHS roadway segments. As such, no improvements have been recommended to address the Opening Year Cumulative (2021) deficiencies on the SHS.

Table 6-5

Peak Hour Queuing Summary for Opening Year Cumulative (2021) Conditions With Improvements

Intersection	Movement	Available Stacking Distance (Feet)	2021 Without Project				2021 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 95 & Phelan Rd./Main St.	NBL	280	80	132	Yes	Yes	163 [2]	142	Yes	Yes
	SBL	**475**	142	173	Yes	Yes	194	429 [2]	Yes	Yes
US Highway 395 & Three Flags Rd.	NBL	**275**	263	241	Yes	Yes	263	241	Yes	Yes
	NBR	190	28	35	Yes	Yes	28	37	Yes	Yes
	SBL	225	46	66 [2]	Yes	Yes	46	66 [2]	Yes	Yes
	SBR	225	50	28	Yes	Yes	50	28	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

[4] **100** = Improvement

7 HORIZON YEAR (2040) TRAFFIC ANALYSIS

This section discusses the methods used to develop Horizon Year (2040) Without and With Project traffic forecasts and the resulting peak hour intersection operations, traffic signal warrant, queuing, freeway facility operations analyses.

7.1 ROADWAY IMPROVEMENTS

The lane configurations and traffic controls assumed to be in place for Horizon Year (2040) conditions are consistent with those shown previously on Exhibit 3-1, with the exception of the following:

- Project driveways and those facilities assumed to be constructed by the Project to provide site access are also assumed to be in place for Horizon Year (2040) traffic conditions only (e.g., intersection and roadway improvements along the Project's frontage and driveways).
- Other parallel facilities, that although not evaluated for the purposes of this analysis, are anticipated to be in place for Horizon Year traffic conditions and would affect the travel patterns within the study area.
- The future I-15 Freeway and Muscatel interchange is assumed to be constructed. Although the interchange is not included as part of this analysis, the shift in traffic patterns due to the future Muscatel Interchange has been assumed.

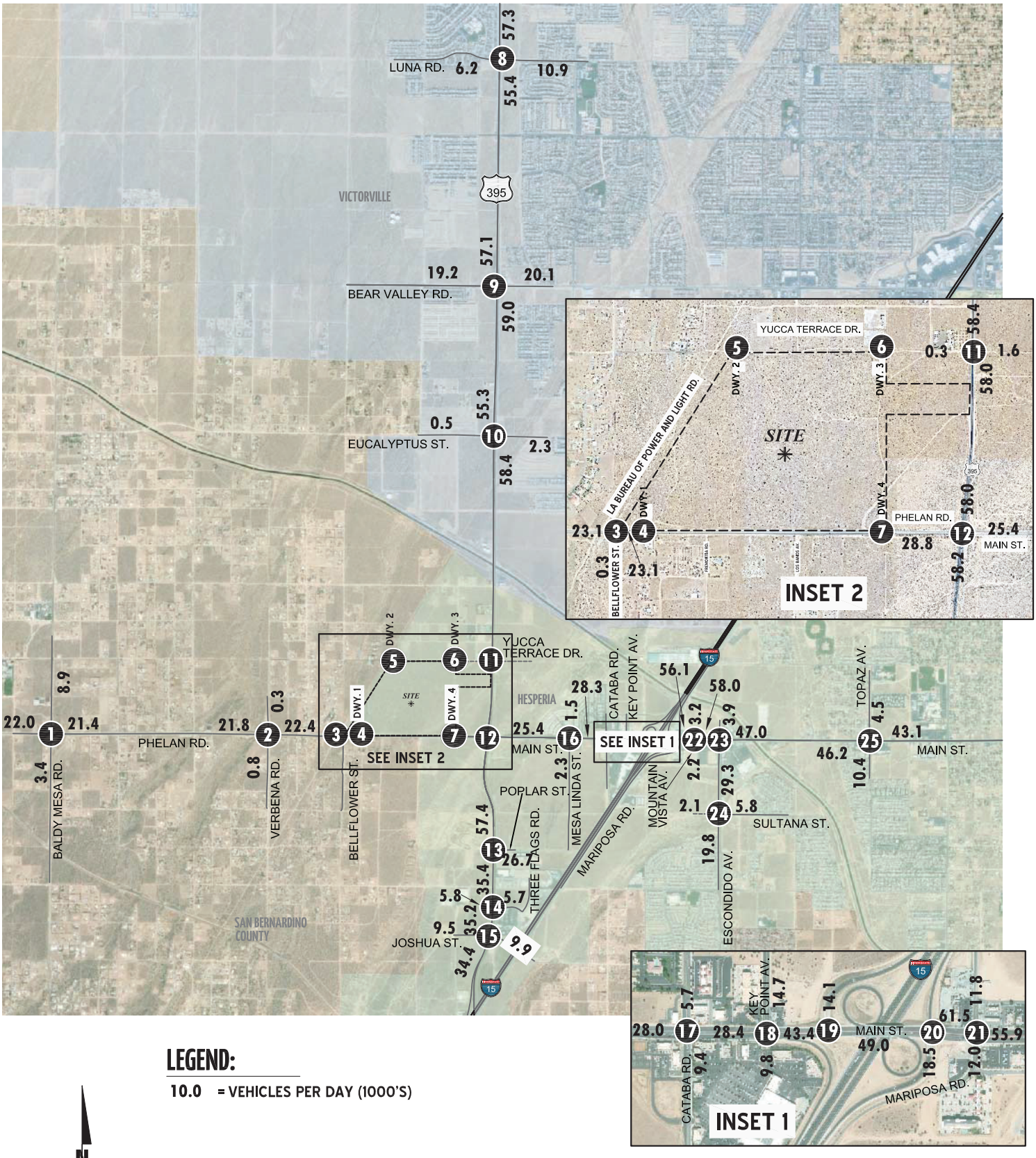
7.2 HORIZON YEAR (2040) WITHOUT PROJECT VOLUME FORECASTS

The Horizon Year (2040) Without Project analysis scenario includes the refined post-process volumes obtained from the SBTAM (see Section 4.9 *Horizon Year (2040) Conditions* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) Without Project traffic conditions are shown on Exhibits 7-1 and 7-2, respectively.

7.3 HORIZON YEAR (2040) WITH PROJECT VOLUME FORECASTS

The Horizon Year (2040) Without Project analysis scenario includes the refined post-process volumes obtained from the SBTAM, plus the traffic generated by the buildout of the proposed Project (see Section 4.9 *Horizon Year (2040) Conditions* of this TIA for a detailed discussion on the post-processing methodology). The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year (2040) With Project traffic conditions are shown on Exhibits 7-3 and 7-4, respectively.

EXHIBIT 7-1: HORIZON YEAR (2040) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)



LEGEND:

10.0 = VEHICLES PER DAY (1000'S)

N

EXHIBIT 7-2: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)

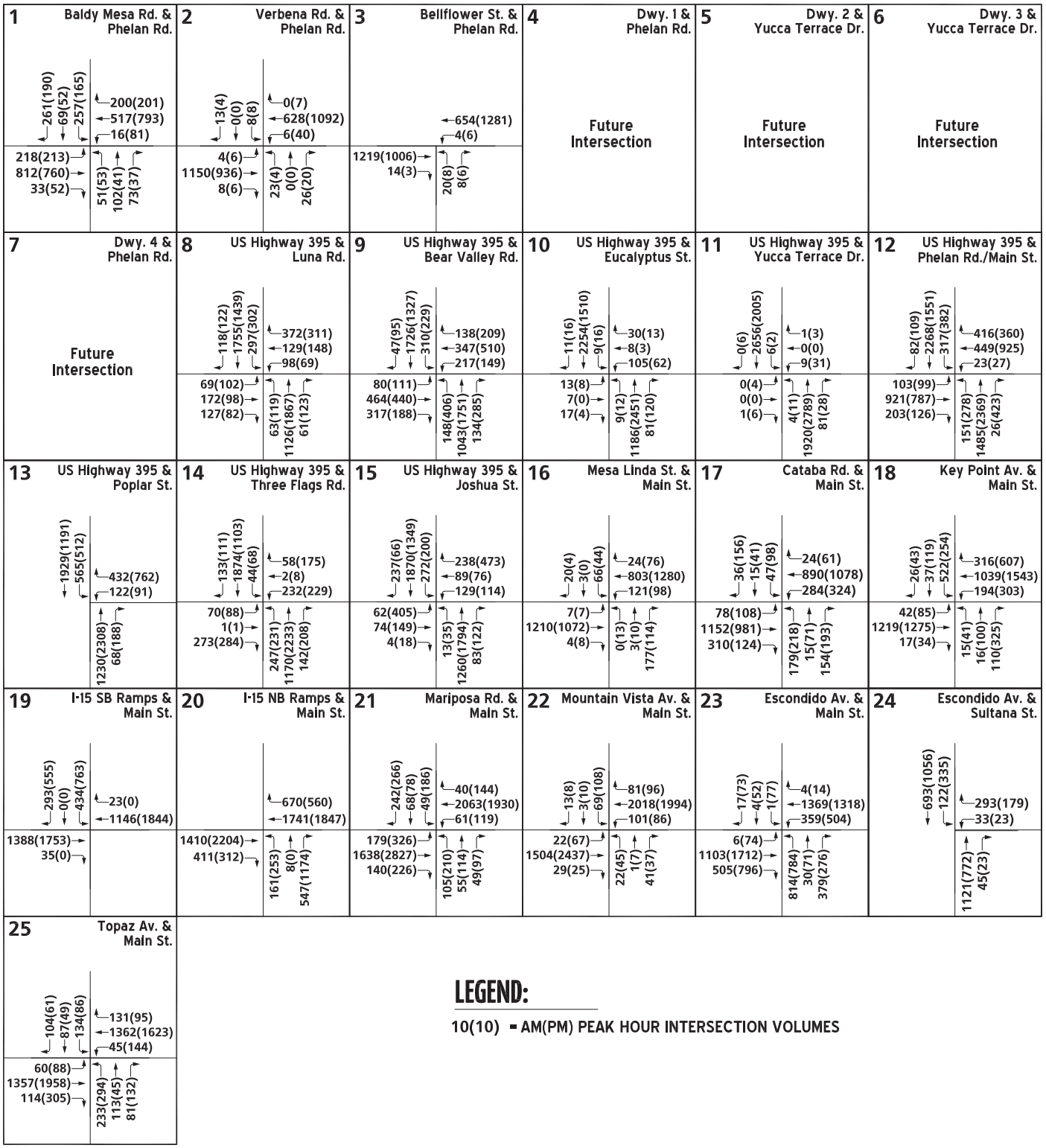


EXHIBIT 7-3: HORIZON YEAR (2040) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)

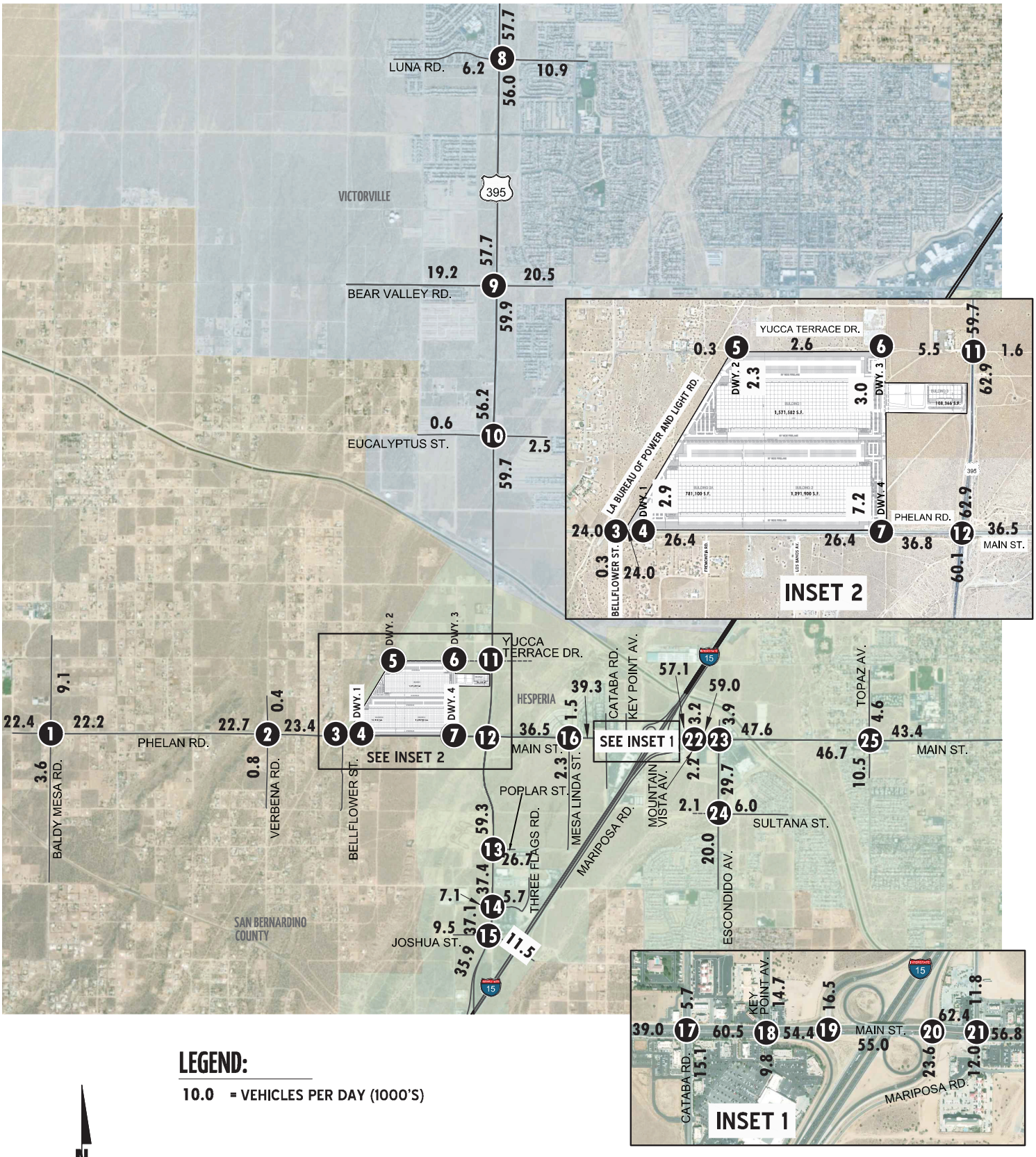
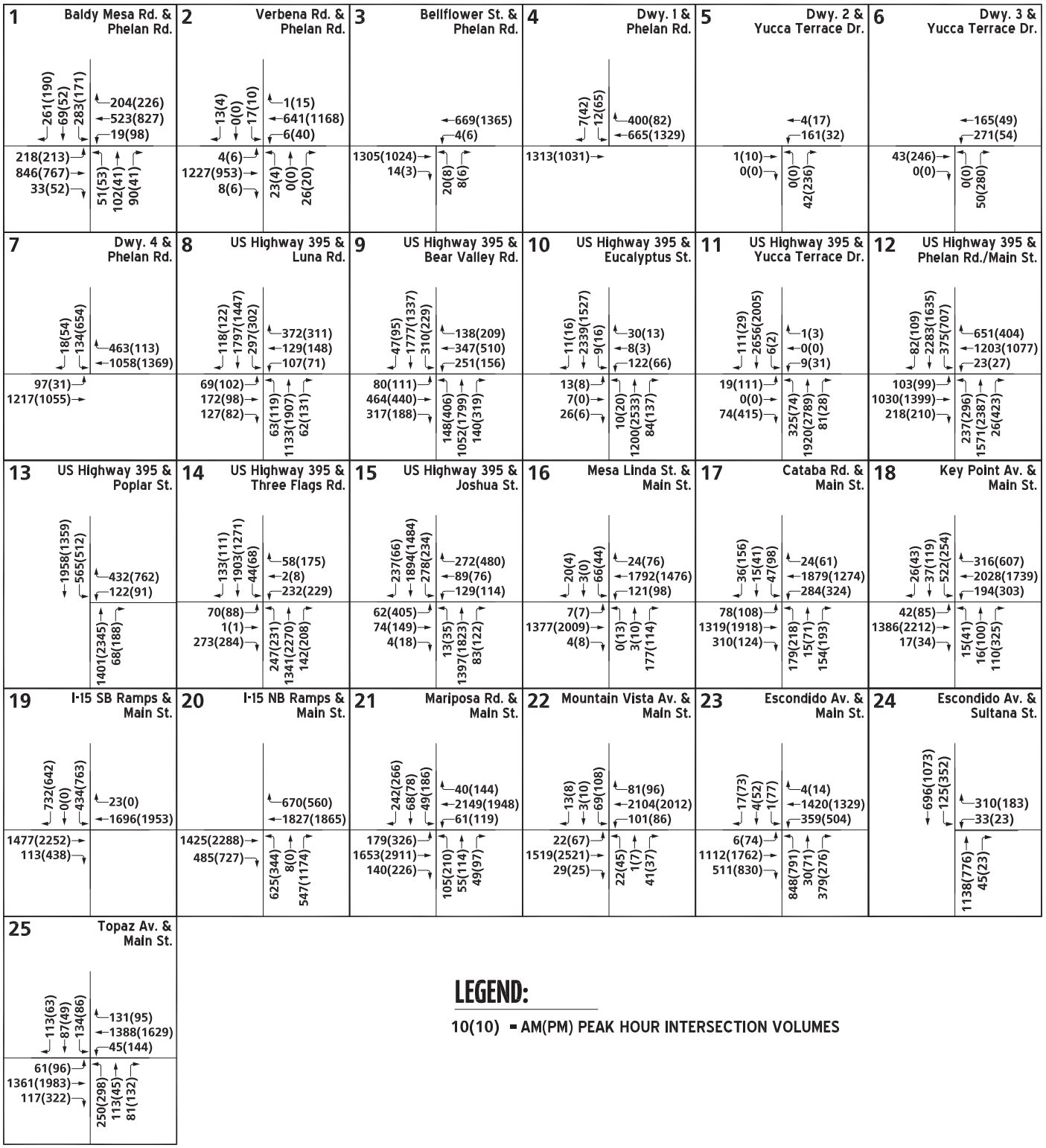


EXHIBIT 7-4: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



7.4 INTERSECTION OPERATIONS ANALYSIS

Horizon Year (2040) Without and With Project peak hour traffic operations have been evaluated for the study area intersections based on the analysis methodologies presented in Section 2 *Methodologies* of this TIA. The intersection analysis results are summarized in Table 7-1 for both Horizon Year (2040) Without and With Project traffic conditions.

7.4.1 HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS

As shown in Table 7-1, the following study area intersections are anticipated to operate at an unacceptable LOS during the peak hours under Horizon Year (2040) Without Project conditions:

- Verbena Road & Phelan Road (#2) – LOS E AM peak hour; LOS D PM peak hour
- Bellflower Street & Phelan Road (#3) – LOS D AM and PM peak hours
- US Highway 395 & Luna Road (#8) – LOS E AM peak hour; LOS F PM peak hour
- US Highway 395 & Bear Valley Road (#9) – LOS E AM peak hour; LOS F PM peak hour
- US Highway 395 & Eucalyptus Road (#10) – LOS E AM and PM peak hours
- US Highway 395 & Yucca Terrace Drive (#11) – LOS F AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) – LOS F AM and PM peak hours
- US Highway 395 & Poplar Street (#13) – LOS F AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) – LOS F AM peak hour only
- US Highway 395 & Joshua Street (#15) – LOS F PM peak hour only
- Escondido Avenue & Main Street (#23) – LOS E AM and PM peak hours
- Escondido Avenue & Sultana Street (#24) – LOS E AM peak hour; LOS F PM peak hour
- Topaz Avenue & Main Street (#25) – LOS E PM peak hour only

A summary of the peak hour intersection LOS for Horizon Year Without Project conditions are shown on Exhibit 7-5. The intersection operations analysis worksheets for Horizon Year Without Project traffic conditions are included in Appendix 7.1 of this TIA.

7.4.2 HORIZON YEAR (2040) WITH PROJECT CONDITIONS

With the addition of Project traffic, there are no additional study area intersections that are anticipated to operate at an unacceptable LOS during the peak hours. A summary of the peak hour intersection LOS for Horizon Year With Project conditions are shown on Exhibit 7-6. The intersection operations analysis worksheets for Horizon Year (2040) With Project traffic conditions are included in Appendix 7.2 of this TIA.

Table 7-1

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control[2]	2040 Without Project				2040 With Project				Acceptable LOS
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service		
			AM	PM	AM	PM	AM	PM	AM	PM	
1	Baldy Mesa Rd. & Phelan Rd.	TS	32.9	27.6	C	C	34.8	28.7	C	C	C
2	Verbena Rd. & Phelan Rd.	CSS	**35.6**	**33.7**	**E**	**D**	**39.0**	**38.2**	**E**	**E**	C
3	Bellflower St. & Phelan Rd.	CSS	**29.4**	**26.4**	**D**	**D**	**32.5**	**27.9**	**D**	**D**	C
4	Driveway 1 & Phelan Rd.	**CSS**	Future Intersection				20.0	32.5	C	D	D
5	Driveway 2 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.4	9.4	A	A	D
6	Driveway 3 & Yucca Terrace Dr.	**CSS**	Future Intersection				8.7	12.6	A	B	D
7	Driveway 4 & Phelan Rd.	**CSS/TS**[3]	17.2	29.6	C	D	12.1	40.6	B	D	D
8	US Highway 395 & Luna Rd.	TS	**58.0**	**118.8**	**E**	**F**	**62.1**	**124.9**	**E**	**F**	D
9	US Highway 395 & Bear Valley Rd.	TS	**74.7**	**97.2**	**E**	**F**	**85.8**	**103.4**	**F**	**F**	D
10	US Highway 395 & Eucalyptus St.	TS	**77.0**	**63.8**	**E**	**E**	**97.8**	**74.7**	**F**	**E**	D
11	US Highway 395 & Yucca Terrace Dr.	CSS/**TS**[3]	**>100.0**	**>100.0**	**F**	**F**	**>200.0**	**>200.0**	**F**	**F**	D
12	US Highway 395 & Phelan Rd./Main St.	TS	**>200.0**	**>200.0**	**F**	**F**	**>200.0**	**>200.0**	**F**	**F**	D
13	US Highway 395 & Poplar St.	TS	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**	D
14	US Highway 395 & Three Flags Rd.	TS	**87.5**	53.0	**F**	D	**88.8**	**55.3**	**F**	**E**	D
15	US Highway 395 & Joshua St.	TS	20.6	**87.5**	C	**F**	23.3	**101.6**	C	**F**	D
16	Mesa Linda St. & Main St.	TS	20.8	14.9	C	B	21.6	19.3	C	B	D
17	Cataba Rd. & Main St.	TS	36.9	48.4	D	D	39.5	52.3	D	D	D
18	Key Point Av. & Main St.	TS	35.9	33.5	D	C	45.0	53.2	D	D	D
19	I-15 SB Ramps & Main St.	TS	7.9	15.9	A	B	26.1	23.7	C	C	D
20	I-15 NB Ramps & Main St.	TS	7.2	22.4	A	C	22.9	23.5	C	C	D
21	Mariposa Rd. & Main St.	TS	24.9	52.4	C	D	25.3	53.4	C	D	D
22	Mountain Vista Av. & Main St.	TS	16.1	20.7	B	C	16.4	21.1	B	C	D
23	Escondido Av. & Main St.	TS	**63.3**	**77.7**	**E**	**E**	**70.5**	**79.4**	**E**	**E**	D
24	Escondido Av. & Sultana St.	CSS	**35.3**	**51.4**	**E**	**F**	**40.0**	**56.6**	**E**	**F**	D
25	Topaz Av. & Main St.	TS	30.8	**61.3**	C	**E**	34.8	**65.5**	C	**E**	D

[1] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

[2] CSS = Cross-street Stop; TS = Traffic Signal; **CSS** = Improvement

EXHIBIT 7-5: HORIZON YEAR (2040) WITHOUT PROJECT SUMMARY OF LOS

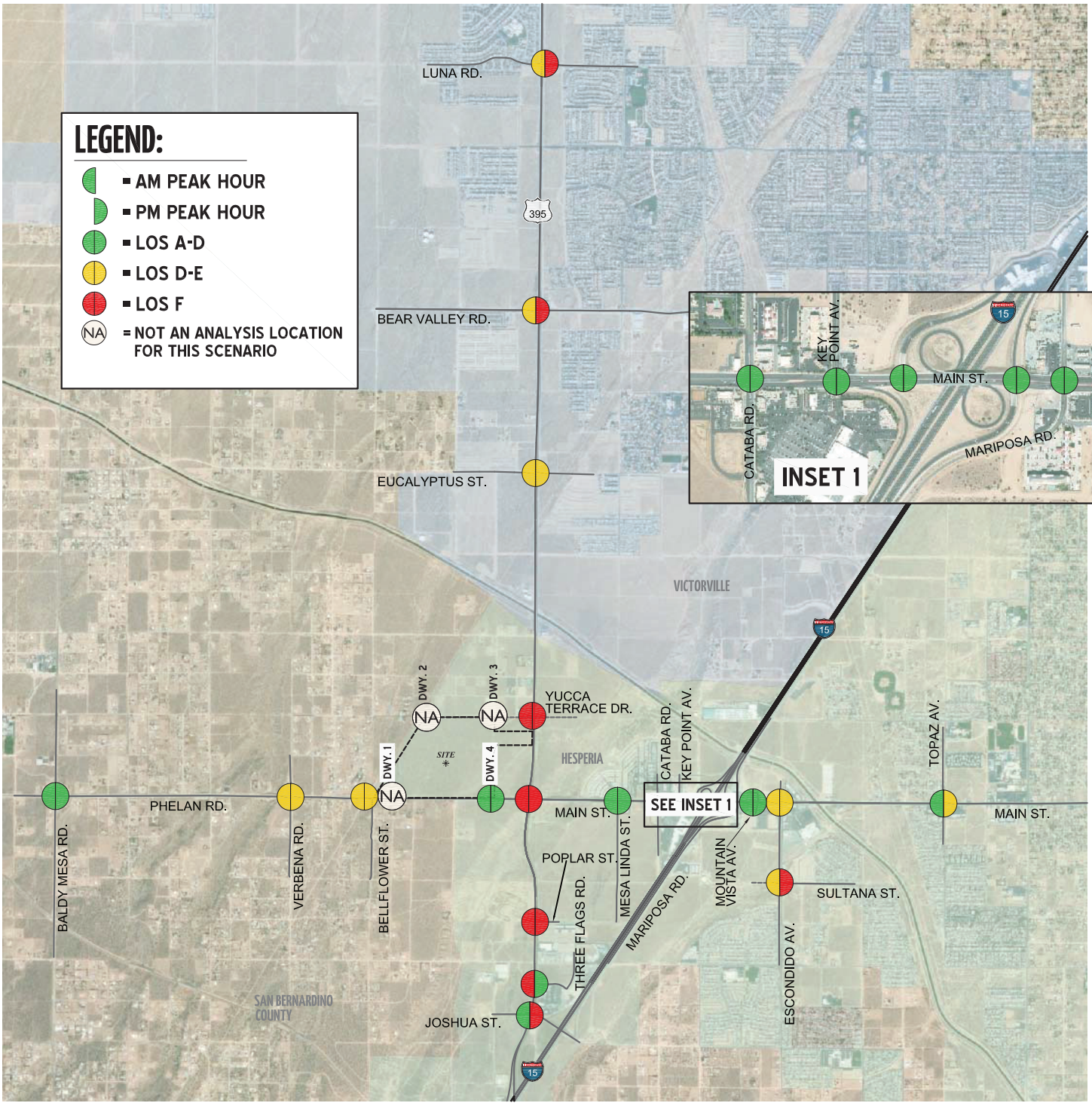
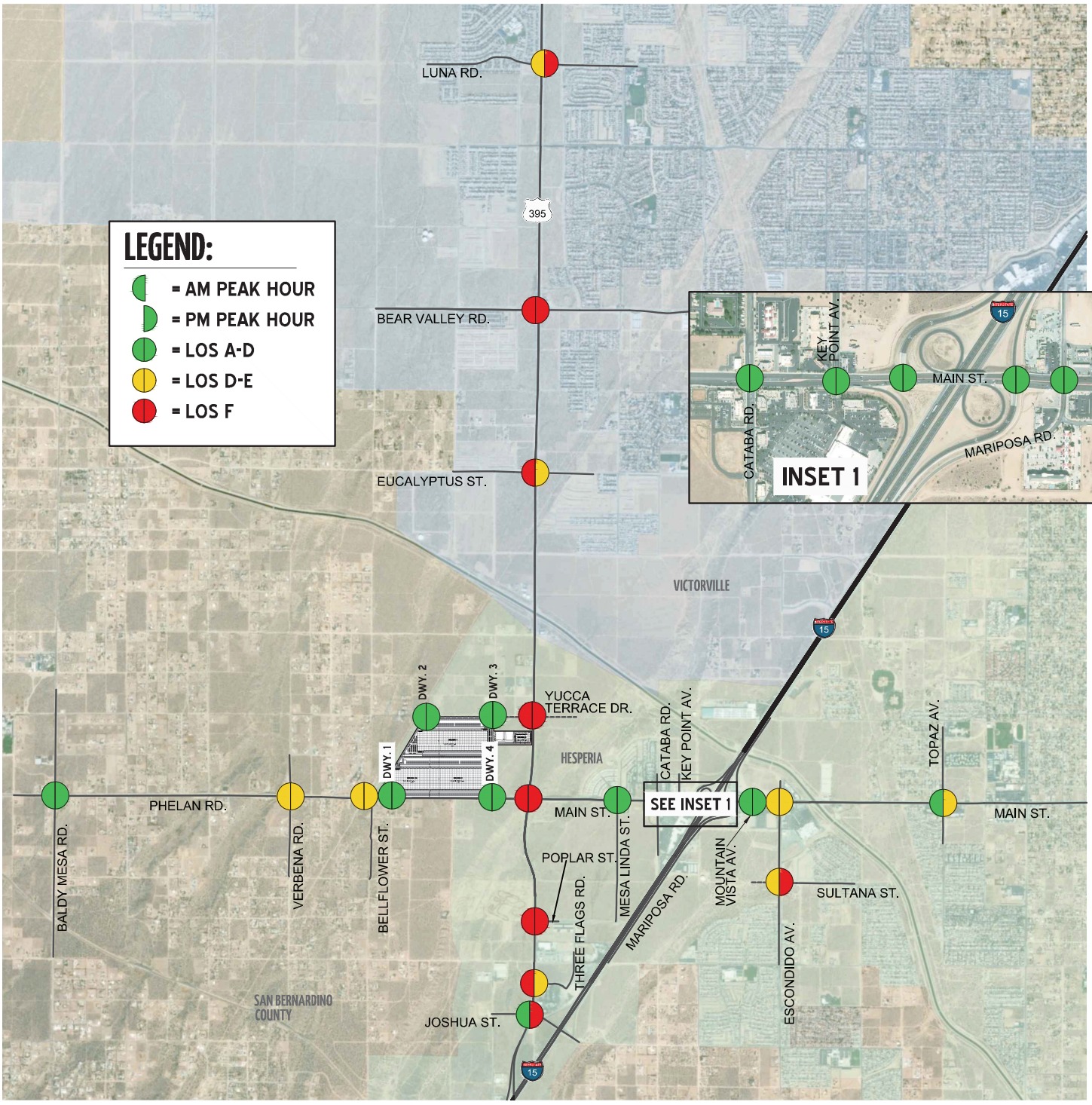


EXHIBIT 7-6: HORIZON YEAR (2040) WITH PROJECT SUMMARY OF LOS



7.5 TRAFFIC SIGNAL WARRANTS ANALYSIS

In addition to the locations previously warranted under Existing (2019), E+P, and Opening Year Cumulative (2021) traffic conditions, the following study area intersection is anticipated to meet a traffic signal warrant for Horizon Year (2040) Without Project traffic conditions:

- US Highway 395 & Poplar Street (#13)

There are no additional study area intersections that are anticipated to meet a traffic signal warrant for Horizon Year (2040) With Project traffic conditions. Worksheets for Horizon Year (2040) Without and With Project traffic conditions signal warrants are provided in Appendices 7.3 and 7.4, respectively.

7.6 QUEUING ANALYSIS

7.6.1 ARTERIAL ANALYSIS

A queuing analysis was performed for US Highway 395 from Luna Road to Joshua Street to assess vehicle queues along the roadways. Queuing analysis findings are presented in Table 7-2. It is important to note that the available stacking distances are consistent with the measured turn pocket lengths. As shown in Table 7-2, the following intersection turning movements are anticipated to experience periodic queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Horizon Year (2040) Without Project traffic conditions:

- US Highway 395 & Bear Valley Road (#9) Northbound Left – AM and PM peak hours
- US Highway 395 & Bear Valley Road (#9) Southbound Left – AM and PM peak hours
- US Highway 395 & Phelan Road/Main Street (#12) Northbound Left – PM peak hour only
- US Highway 395 & Phelan Road/Main Street (#12) Southbound Left – AM and PM peak hours
- US Highway 395 & Poplar Street (#13) Southbound Left – AM and PM peak hours
- US Highway 395 & Three Flags Road (#14) Northbound Left – AM and PM peak hours
- US Highway 395 & Joshua Street (#15) Southbound Left – AM and PM peak hours

There are no additional intersection turning movements that are anticipated to experience queuing issues during the peak hours based on the 95th percentile peak hour traffic flows for Horizon Year (2040) With Project traffic conditions, in addition to the movements identified under Horizon Year (2040) Without Project traffic conditions.

Table 7-2

Peak Hour Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Luna Rd.	NBL	360	134 [2]	204 [2]	Yes	Yes	134 [2]	204 [2]	Yes	Yes
	NBR	455	18	49	Yes	Yes	19	52	Yes	Yes
	SBL	400	377 [2]	387 [2]	Yes	Yes	377 [2]	387 [2]	Yes	Yes
	SBR	400	31	32	Yes	Yes	32	32	Yes	Yes
US Highway 395 & Bear Valley Rd.	NBL	220	**250** [2]	**659** [2]	**No**	**No**	**250** [2]	**659** [2]	**No**	**No**
	SBL	230	**504** [2]	**359** [2]	**No**	**No**	**504** [2]	**359** [2]	**No**	**No**
US Highway 395 & Eucalyptus St.	NBL	475	26	32	Yes	Yes	29	44	Yes	Yes
	NBR	345	27	52	Yes	Yes	29	64	Yes	Yes
	SBL	440	26	38	Yes	Yes	26	38	Yes	Yes
	SBR	300	0	0	Yes	Yes	0	0	Yes	Yes
US Highway 95 & Phelan Rd./Main St.	NBL	280	234 [2]	**406** [2]	Yes	**No**	**407** [2]	**441** [2]	**No**	**No**
	SBL	250	**439** [2]	**640** [2]	**No**	**No**	**546** [2]	**1,230** [2]	**No**	**No**
US Highway 395 & Poplar St.	SBL	375	**590**	**1,183**	**No**	**No**	**765**	**1,200**	**No**	**No**
US Highway 395 & Three Flags Rd.	NBL	190	**482** [2]	**259**	**No**	**No**	**482** [2]	**259**	**No**	**No**
	NBR	190	32	51	Yes	Yes	38	51	Yes	Yes
	SBL	225	78 [2]	149 [2]	Yes	Yes	78	149 [2]	Yes	Yes
	SBR	225	61	31	Yes	Yes	61	31	Yes	Yes

Table 7-2

Peak Hour Queuing Summary for Horizon Year (2040) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable? [1]		95th Percentile Queue (Feet)		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Joshua St.	NBL	190	33	70 [2]	Yes	Yes	33	70 [2]	Yes	Yes
	NBR	330	36	63	Yes	Yes	36	65	Yes	Yes
	SBL	220	**314**	**224**	**No**	**No**	**324** [2]	**254**	**No**	**No**
I-15 SB Ramps & Main St.	SBL	1,750	112	250	Yes	Yes	160	250	Yes	Yes
	SBR	1,200	155	467	Yes	Yes	923 [2]	597	Yes	Yes
I-15 NB Ramps & Main St.	NBL	1,290	155	187	Yes	Yes	802	261	Yes	Yes
	NBT/R	1,200	253	648 [2]	Yes	Yes	254	648 [2]	Yes	Yes
	NBR	700	258	648 [2]	Yes	Yes	258	648 [2]	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

7.6.2 FREEWAY OFF-RAMP ANALYSIS

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Main Street interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 7-2. It is important to note that off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown in Table 7-2 and consistent with Existing (2019) traffic conditions, there are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows under Horizon Year (2040) Without Project traffic conditions. Worksheets for Horizon Year (2040) Without Project traffic conditions off-ramp queuing analysis are provided in Appendix 7.5.

There are no off-ramp movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows with the addition of Project traffic under Horizon Year (2040) With Project traffic conditions. Worksheets for Horizon Year (2040) Without Project traffic conditions off-ramp queuing analysis are provided in Appendix 7.6.

7.7 FREEWAY FACILITY ANALYSIS

Horizon Year (2040) Without Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-7. As shown in Table 7-3, the following study area freeway segments and merge/diverge ramp junctions analyzed for this study are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours for Horizon Year (2040) Without Project traffic conditions:

- I-15 Freeway Southbound, North of Main Street (#1) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, Off-Ramp at Main Street (#2) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, South of Main Street (#5) – LOS E AM peak hour only
- I-15 Freeway Southbound, North of US Highway 395 (#6) – LOS F AM peak hour; LOS E PM peak hour
- I-15 Freeway Southbound, On-Ramp at US Highway 395 (#7) – LOS F AM peak hour only
- I-15 Freeway Southbound, South of US Highway 395 (#8) – LOS F AM peak hour; LOS E PM peak hour
- I-15 Freeway Northbound, North of Main Street (#9) – LOS F PM peak hour only
- I-15 Freeway Northbound, On-Ramp at Main Street (#10) – LOS F PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS F PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at US Highway 395 (#15) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of US Highway 395 (#16) – LOS F PM peak hour only

EXHIBIT 7-7: HORIZON YEAR (2040) WITHOUT PROJECT FREEWAY MAINLINE VOLUMES



Table 7-3

Freeway Facility Analysis for Horizon Year (2040) Conditions

Freeway	Direction[1]	Mainline Segment	Lanes[2]	2040 Without Project				2040 With Project			
				Density[3]		LOS[4]		Density[3]		LOS[4]	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	North of Main St.	3	**36.2**	**39.2**	**E**	**E**	**40.6**	**40.0**	**E**	**E**
		Off-Ramp at Main St.	3	**37.3**	**39.2**	**E**	**E**	**39.4**	**39.6**	**E**	**E**
		Loop On-Ramp at Main St.	3	34.5	29.7	D	D	34.5	29.7	D	D
		On-Ramp at Main St.	3	35.0	29.1	D	D	**35.5**	32.1	**E**	D
		South of Main St.	3	**40.4**	29.9	**E**	D	**41.2**	33.6	**E**	D
		North of US Highway 395	3	**45.0**	**42.8**	**F**	**E**	**45.0**	**45.0**	**F**	**F**
		On-Ramp at US Highway 395	4	**40.2**	26.8	**F**	D	**40.4**	**42.7**	**F**	**E**
		South of US Highway 395	4	**35.7**	**38.4**	**F**	**E**	**35.6**	**40.7**	**F**	**E**
	NB	North of Main St.	3	26.5	**36.3**	D	**F**	26.9	**39.9**	D	**F**
		On-Ramp at Main St.	3	29.0	**34.5**	D	**F**	29.3	**36.0**	D	**F**
		Loop On-Ramp at Main St.	3	24.1	30.3	C	D	24.6	**33.0**	C	**F**
		Off-Ramp at Main St.	3	30.7	**41.2**	D	**F**	33.7	**41.3**	D	**F**
		South of Main St.	3	23.9	**45.0**	C	**F**	27.1	**45.0**	D	**F**
		North of US Highway 395	4	19.2	27.4	C	D	21.1	27.3	C	D
		Off-Ramp at US Highway 395	4	33.6	**46.3**	D	**F**	**36.6**	**46.5**	**E**	**F**
		South of US Highway 395	4	26.7	**45.0**	D	**F**	30.0	**45.0**	D	**F**

[1] NB = Northbound; SB = Southbound

[2] Number of lanes are in the specified direction and is based on existing conditions.

[3] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[4] LOS = Level of Service

Horizon Year (2040) Without Project freeway facility analysis worksheets are provided in Appendix 7.7.

Horizon Year (2040) With Project mainline directional volumes for the AM and PM peak hours are provided on Exhibit 7-8. The following additional study area ramp junctions are anticipated to operate at an unacceptable LOS with the addition of Project traffic under Horizon Year (2040) With Project traffic conditions, resulting in a cumulative deficiency:

- I-15 Freeway Southbound, On-Ramp at Main Street (#4) – LOS E AM peak hour only
- I-15 Freeway Northbound, Loop On-Ramp at Main Street (#11) – LOS E PM peak hour only

Horizon Year (2040) With Project freeway facility analysis worksheets are provided in Appendix 7.8.

7.8 RECOMMENDED IMPROVEMENTS

This section provides a summary of Horizon Year (2040) deficiencies and recommended improvements. Based on the City of Hesperia deficiency criteria discussed in Section 2.7 *Minimum Acceptable Levels of Service (LOS) and Intersection Deficiency Criteria*, the following intersections were found to be deficient. Improvements necessary to improve traffic deficiencies back to acceptable levels are also discussed below.

7.8.1 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES AT INTERSECTIONS

The effectiveness of the proposed recommended improvements is presented in Table 7-4 for Horizon Year (2040) traffic conditions. The intersection operations analysis worksheets for Horizon Year (2040) Without Project and With Project traffic conditions, with improvements, are included in Appendices 7.9 and 7.10, respectively.

Recommended Improvement – US Highway 395 & Luna Road (#8) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 3rd northbound through lane.
- Restripe the southbound right turn lane to a 3rd southbound through lane.

Recommended Improvement – US Highway 395 & Bear Valley Road (#9) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound left turn lane.
- Add a 3rd northbound through lane.
- Add a northbound right turn lane.
- Add a 2nd southbound left turn lane.
- Add a 3rd southbound through lane.
- Add a southbound right turn lane.

EXHIBIT 7-8: HORIZON YEAR (2040) WITH PROJECT FREEWAY MAINLINE VOLUMES



Table 7-4

Intersection Analysis for Horizon Year (2040) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
8	US Highway 395 & Luna Rd.																	
	- Without Project	TS	1	**3**	1	1	**3**	**0**	1	1	1	1	1	0	37.0	45.2	D	D
	- With Project	TS	1	**3**	1	1	**3**	**0**	1	1	1	1	1	0	37.3	47.4	D	D
9	US Highway 395 & Bear Valley Rd.																	
	- Without Project	TS	**2**	**3**	**1**	**2**	**3**	**1**	1	2	d	1	2	1	37.5	37.9	D	D
	- With Project	TS	**2**	**3**	**1**	**2**	**3**	**1**	1	2	d	1	2	1	43.1	38.9	D	D
10	US Highway 395 & Eucalyptus St.																	
	- Without Project	TS	1	**3**	1	1	**3**	1	1	1	0	1	1	0	16.5	12.9	B	B
	- With Project	TS	1	**3**	1	1	**3**	1	1	1	0	1	1	0	19.2	13.9	B	B
11	US Highway 395 & Yucca Terrace Dr.																	
	- Without Project	**TS**	**1**	**3**	0	0	**3**	0	**1**	1	0	0	1	0	3.0	3.7	A	A
	- With Project	**TS**	**1**	**3**	0	0	**3**	0	**1**	1	0	0	1	0	32.5	37.0	C	D
12	US Highway 395 & Phelan Rd./Main St.																	
	- Without Project	TS	**2**	**3**	**1**	**2**	**3**	**1**	1	**3**	**1**	1	**3**	**1>**	34.6	40.7	C	D
	- With Project	TS	**2**	**3**	**1**	**2**	**3**	**1**	1	**3**	**1**	1	**3**	**1>**	51.2	54.5	D	D
13	US Highway 395 & Poplar St.																	
	- Without Project	**TS**	0	**3**	**1**	**2**	**3**	0	0	0	0	1	0	1	28.6	50.0	C	D
	- With Project	**TS**	0	**3**	**1**	**2**	**3**	0	0	0	0	1	0	1	28.9	51.4	C	D
14	US Highway 395 & Three Flags Rd.																	
	- Without Project	TS	1	**3**	1	1	**3**	1	1	1	0	1	1	d	42.2	33.3	D	C
	- With Project	TS	1	**3**	1	1	**3**	1	1	1	0	1	1	d	43.1	34.2	D	C
15	US Highway 395 & Joshua St.																	
	- Without Project	TS	1	**3**	1	1	**3**	**1**	1	1	0	1	1	1	15.5	39.5	B	D
	- With Project	TS	1	**3**	1	1	**3**	**1**	1	1	0	1	1	1	16.6	42.3	B	D
23	Escondido Av. & Main St.																	
	- Without Project	TS	2	1	1>	1	1	0	1	3	1>	2	**3**	1	49.1	52.0	D	D
	- With Project	TS	2	1	1>	1	1	0	1	3	1>	2	**3**	1	53.4	53.4	D	D
24	Escondido Av. & Sultana St.																	
	- Without Project	**TS**	0	2	0	1	2	0	0	0	0	1	0	1	25.4	20.8	C	C
	- With Project	**TS**	0	2	0	1	2	0	0	0	0	1	0	1	27.2	21.7	C	C
25	Topaz Av. & Main St.																	
	- Without Project	TS	1	1	0	1	1	0	1	**3**	**0**	1	**3**	0	21.9	27.4	C	C
	- With Project	TS	1	1	0	1	1	0	1	**3**	**0**	1	**3**	0	23.3	28.3	C	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; **1** = Improvement

[2] Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

[3] CSS = Cross-street Stop; TS = Traffic Signal; **TS** = Improvement

Recommended Improvement – US Highway 395 & Eucalyptus Street (#10) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 3rd northbound through lane.
- Add a 3rd southbound through lane.

Recommended Improvement – US Highway 395 & Yucca Terrace Drive (#11) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound through lane.
- Add a 2nd southbound through lane.
- Install a traffic signal (Project design feature).
- Add a northbound left turn lane (Project design feature).
- Add an eastbound left turn lane (Project design feature).
- Add a 3rd northbound through lane.
- Add a 3rd southbound through lane.

Recommended Improvement – US Highway 395 & Phelan Road/Main Street (#12) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 2nd northbound left turn lane.
- Add a 2nd southbound left turn lane.
- Add a 3rd eastbound through lane.
- Add a 3rd westbound through lane.
- Add a westbound right turn lane.
- Modify the traffic signal to implement overlap phasing for the westbound right turn lane.
- Add a 3rd northbound through lane.
- Add a northbound right turn lane.
- Add a 3rd southbound through lane.
- Add a southbound right turn lane.
- Add an eastbound right turn lane.

Recommended Improvement – US Highway 395 & Poplar Street (#13) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Install a traffic signal.
- Add a 3rd northbound through lane.
- Add a northbound right turn lane.
- Add a 2nd southbound left turn lane.
- Add a 2nd southbound through lane.
- Add a 3rd southbound through lane.

Recommended Improvement – US Highway 395 & Three Flags Road (#14) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 3rd northbound through lane.
- Add a 3rd southbound through lane.

Recommended Improvement – US Highway 395 & Joshua Street (#15) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Add a 3rd northbound through lane.
- Add a 3rd southbound through lane.
- Add a southbound right turn lane.

Recommended Improvement – Escondido Avenue & Main Street (#23) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Add a 3rd westbound through lane.

Recommended Improvement – Escondido Avenue & Sultana Street (#24) – The following improvement is necessary to bring the LOS back to acceptable levels:

- Install a traffic signal.

Recommended Improvement – Topaz Avenue & Main Street (#25) – The following improvements are necessary to bring the LOS back to acceptable levels:

- Restripe the eastbound right turn lane to a 3rd eastbound through lane.
- Add a 3rd westbound through lane.

Although the intersections of Verbena Road at Phelan Road (#2) and Bellflower Street at Phelan Road (#3) are anticipated to operate at an unacceptable LOS (i.e., LOS D or worse) during the peak hours for Horizon Year (2040) traffic conditions, the Project does not contribute 10 or more peak hour trips to the minor street and the addition of Project traffic does not cause the intersection to meet a traffic signal warrant. As such, according to the County of San Bernardino deficiency criteria, the deficiency at this location does not require improvements.

7.8.2 RECOMMENDED IMPROVEMENTS TO ADDRESS QUEUING DEFICIENCIES

As shown previously in Table 7-2, there are peak hour queuing issues at seven intersection turning movements. Recommended improvements to address queuing issues for Horizon Year (2040) traffic conditions are shown in Table 7-5 and reflect the recommended improvements to address intersection deficiencies, as previously described in Section 7.8.1 *Recommended Improvements to Address Deficiencies at Intersections*.

In order to accommodate the 95th percentile peak hour queues for Horizon Year (2040) traffic conditions, the following improvements are necessary:

- US Highway 395 & Bear Valley Road (#9) – 150-foot northbound right turn pocket
- US Highway 395 & Bear Valley Road (#9) – 100-foot southbound right turn pocket
- US Highway 395 & Phelan Road/Main Street (#12) – 325-foot northbound right turn pocket
- US Highway 395 & Phelan Road/Main Street (#12) – 475-foot southbound left turn pocket
- US Highway 395 & Phelan Road/Main Street (#12) – 100-foot southbound right turn pocket
- US Highway 395 & Poplar Street (#13) – 100-foot northbound right turn pocket
- US Highway 395 & Three Flags Road (#14) – 275-foot northbound left turn pocket (restriping of existing pavement)
- US Highway 395 & Joshua Street (#15) – 300-foot southbound left turn pocket (restriping of existing pavement)
- US Highway 395 & Joshua Street (#15) – 100-foot southbound right turn pocket

Table 7-5

Peak Hour Queuing Summary for Horizon Year (2040) Conditions With Improvements

Intersection	Movement[4]	Available Stacking Distance (Feet)[5]	2040 Without Project				2040 With Project			
			95th Percentile Queue (Feet)		Acceptable?[1]		95th Percentile Queue (Feet)		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM	AM Peak Hour	PM Peak Hour	AM	PM
US Highway 395 & Bear Valley Rd.	NBL	220	94	222 [3]	Yes	Yes	94	222 [3]	Yes	Yes
	NBR	**150**	46	105	Yes	Yes	46	137	Yes	Yes
	SBL	230	173	133	Yes	Yes	173	133	Yes	Yes
	SBR	**100**	4	44	Yes	Yes	4	44	Yes	Yes
US Highway 95 & Phelan Rd./Main St.	NBL	280	97	149	Yes	Yes	181 [2]	158	Yes	Yes
	NBR	**325**	0	303	Yes	Yes	0	323	Yes	Yes
	SBL	**475**	169	193	Yes	Yes	195	431 [2]	Yes	Yes
	SBR	**100**	21	25	Yes	Yes	21	25	Yes	Yes
US Highway 395 & Poplar St.	**NBR**	**100**	31	90	Yes	Yes	36	90	Yes	Yes
	SBL	375	286	345 [2]	Yes	Yes	287	345 [2]	Yes	Yes
US Highway 395 & Three Flags Rd.	NBL	**275**	274	259	Yes	Yes	274	259	Yes	Yes
	NBR	190	32	31	Yes	Yes	32	30	Yes	Yes
	SBL	225	78	149 [2]	Yes	Yes	78	149 [2]	Yes	Yes
	SBR	225	62	31	Yes	Yes	62	31	Yes	Yes
US Highway 395 & Joshua St.	NBL	190	31	70 [2]	Yes	Yes	31	70 [2]	Yes	Yes
	NBR	330	39	63	Yes	Yes	39	65	Yes	Yes
	SBL	**300**	284	224	Yes	Yes	289	254	Yes	Yes
	SBR	**100**	79	23	Yes	Yes	80	23	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided.

[2] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

[3] An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table.

[4] **NBR** = Improvement

[5] **100** = Improvement

7.8.3 RECOMMENDED IMPROVEMENTS TO ADDRESS DEFICIENCIES ON FREEWAY FACILITIES

According to the Caltrans I-15 Transportation Concept Report (TCR), the I-15 Freeway is anticipated to be constructed to include the addition of a carpool or High Occupancy Vehicle (HOV) lane. (12) For the purposes of this TIA, this improvement has been analyzed. Caltrans typically assumes a reduction of 14 percent to the freeway mainline through volumes in this region to account for vehicles utilizing the HOV lanes. The reduction to the I-15 Freeway mainline volumes has been applied to account for the proposed HOV lanes. The analysis has been performed assuming the same on and off-ramp configurations as existing baseline conditions at the I-15 Freeway and Main Street interchange.

As shown in Table 7-6, the I-15 Freeway mainline segment operations are anticipated to improve operations with the proposed Caltrans HOV lanes. Although the freeway facilities are anticipated to improve operations with the improvements, the following freeway segments and merge/diverge ramp junctions are anticipated to continue to operate at an unacceptable LOS during the weekday AM or PM peak hours with the improvements to the I-15 Freeway:

- I-15 Freeway Southbound, Off-Ramp at Main Street (#2) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, North of US Highway 395 (#6) – LOS E AM and PM peak hours
- I-15 Freeway Southbound, South of US Highway 395 (#8) – LOS E AM and PM peak hours
- I-15 Freeway Northbound, North of Main Street (#9) – LOS E PM peak hour only
- I-15 Freeway Northbound, On-Ramp at Main Street (#10) – LOS E PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at Main Street (#12) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of Main Street (#13) – LOS F PM peak hour only
- I-15 Freeway Northbound, Off-Ramp at US Highway 395 (#15) – LOS F PM peak hour only
- I-15 Freeway Northbound, South of US Highway 395 (#16) – LOS F PM peak hour only

The Project is anticipated to have a cumulative deficiency to the identified freeway mainline segments and merge/diverge ramp junctions; however, no improvements have been identified as no other improvements beyond those planned by the I-15 Freeway Project have been evaluated. Worksheets for Horizon Year (2040) With Project conditions freeway facility level of service analysis, with improvements, are provided in Appendix 7.13.

Neither Caltrans nor the State have adopted a fee program that can ensure that locally-contributed impact fees will be tied to improvements to freeway mainlines, and only Caltrans has the jurisdiction over mainline improvements. Because Caltrans has exclusive control over state highway improvements, ensuring that fair share contributions to mainline improvements are actually part of a program tied to implementation is within the jurisdiction of Caltrans.

Table 7-6

Freeway Facility Analysis for Horizon Year (2040) Conditions With Improvements

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	2040 With Project			
				AM Peak Hour		PM Peak Hour	
				Density[2]	LOS[3]	Density[2]	LOS[3]
I-15	Southbound	North of Main St.	3	31.7	D	31.3	D
		Off-Ramp at Main St.	3	**36.2**	**E**	**36.5**	**E**
		Loop On-Ramp at Main St.	3	30.3	D	25.6	C
		On-Ramp at Main St.	3	27.9	D	27.9	D
		South of Main St.	3	32.2	D	26.5	D
		North of US Highway 395	3	**42.2**	**E**	**36.4**	**E**
		Southbound On-Ramp at US Highway 395	4	26.2	D	23.8	C
		South of US Highway 395	4	**43.5**	**E**	**35.4**	**E**
	Northbound	North of Main St.	3	22.4	C	**39.9**	**E**
		Northbound On-Ramp at Main St.	3	26.1	C	**36.0**	**E**
		Northbound Loop On-Ramp at Main St.	3	21.4	C	33.0	D
		Northbound Off-Ramp at Main St.	3	30.7	D	**41.3**	**F**
		South of Main St.	3	22.7	C	**45.0**	**F**
		North of US Highway 395	4	18.2	C	27.3	D
		Northbound Off-Ramp at US Highway 395	4	33.8	D	**46.5**	**F**
		South of US Highway 395	4	25.9	C	**45.0**	**F**

* **BOLD** = Unacceptable Level of Service

[1] Number of lanes are in the specified direction and is based on planned toll lanes (2 toll lanes in each direction).

[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).

[3] LOS = Level of Service

8 LOCAL AND REGIONAL FUNDING MECHANISMS

Transportation improvements within the City of Hesperia are funded through a combination of construction of off-site improvements by the Project, development impact fee programs or fair share contributions, such as the City of Hesperia Development Impact Fee (DIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

8.1 MEASURE "I" FUNDS

In 2004, the voters of San Bernardino County approved the 30-year extension of Measure "I", a one-half of one percent sales tax on retail transactions, through the year 2040, for transportation projects including, but not limited to, infrastructure improvements, commuter rail, public transit, and other identified improvements. The Measure "I" extension requires that a regional traffic impact fee be created to ensure development is paying its fair share. A regional Nexus study was prepared by SBCTA and concluded that each jurisdiction should include a regional fee component in their local programs to meet the Measure "I" requirement. The regional component assigns specific facilities and cost sharing formulas to each jurisdiction and was most recently updated in September 2017. Revenues collected through these programs are used in tandem with Measure "I" funds to deliver projects identified in the Nexus Study.

While Measure "I" is a self-executing sales tax administered by SBCTA, it bears discussion here because the funds raised through Measure "I" have funded in the past, and will continue to fund, new transportation facilities in San Bernardino County, including within the City of Hesperia.

8.2 CITY OF HESPERIA DEVELOPMENT IMPACT FEE PROGRAM

The City of Hesperia has created its own local DIF program to impose and collect fees from new residential, commercial and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City's DIF includes a Regional Circulation System Fee to comply with Measure "I" and a Local Circulation System Fee to address transportation improvements which are locally noteworthy. The City of Hesperia DIF facilities list has been provided by City staff.

Under the City's DIF program, the City may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the DIF program. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City are also periodically performed by City staff and consultants. The City uses this data to determine the timing of implementing the improvements listed in its facilities list. The City also uses this data to ensure that the improvements listed on the facilities list are constructed before the LOS falls below the LOS performance standards adopted by the City. In this way, the improvements are constructed before the LOS falls below the City's LOS performance thresholds.

The Project Applicant will be subject to the City's DIF fee program and will pay the requisite City DIF fees at the rates then in effect. The Project Applicant's payment of the requisite DIF fees at the rates then in effect pursuant to the DIF Program will reduce its deficiencies to DIF-funded facilities. After the City's DIF fees are collected, they are placed in a separate interest-bearing account pursuant to the requirements of Government Code § 66000 *et seq*. The timing to use the DIF fees is established through periodic capital improvement programs which are overseen by the City's Public Works Department.

8.3 FAIR SHARE CONTRIBUTION

Project improvements may include a combination of fee payments to established programs (e.g., DIF), construction of specific improvements, payment of a fair share contribution toward future improvements or a combination of these approaches. Improvements constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate (to be determined at the City of Hesperia's discretion).

When off-site improvements are identified with a minor share of responsibility assigned to proposed development, the approving jurisdiction may elect to collect a fair share contribution or require the development to construct improvements. Detailed fair share calculations, for each peak hour, have been provided in Table 8-1 for the applicable deficient intersections shown previously in Table 1-3. Improvements included in a defined program and constructed by development may be eligible for a fee credit or reimbursement through the program where appropriate.

Table 8-1

Project Fair Share Calculations

#	Intersection		Existing	Project Only	Horizon Year (2040) With Project	Net New Traffic	Project % of New Traffic
9	US Highway 395 & Bear Valley Rd.						
		AM:	2,783	100	5,071	2,288	**4.37%**
		PM:	3,121	99	5,799	2,678	3.70%
11	US Highway 395 & Yucca Terrace Dr.						
		AM:	2,148	524	5,201	3,053	17.16%
		PM:	2,402	602	5,487	3,085	**19.51%**
12	US Highway 395 & Phelan Rd./Main St.						
		AM:	3,327	1,358	7,801	4,474	**30.35%**
		PM:	3,870	1,337	8,772	4,902	27.27%
13	US Highway 395 & Poplar St.						
		AM:	1,874	200	4,546	2,672	**7.49%**
		PM:	2,159	205	5,257	3,098	6.62%
14	US Highway 395 & Three Flags Rd.						
		AM:	2,213	200	4,448	2,235	**8.95%**
		PM:	2,496	205	4,945	2,449	8.37%
15	US Highway 395 & Joshua St.						
		AM:	2,255	201	4,532	2,277	**8.83%**
		PM:	2,602	205	5,007	2,405	8.52%
23	Escondido Av. & Main St.						
		AM:	3,389	100	4,691	1,302	7.68%
		PM:	4,563	102	5,855	1,292	**7.89%**
24	Escondido Av. & Sultana St.						
		AM:	1,631	40	2,485	854	**4.68%**
		PM:	1,680	42	2,640	960	4.38%
25	Topaz Av. & Main St.						
		AM:	2,698	60	3,882	1,184	**5.07%**
		PM:	3,454	62	4,943	1,489	4.16%

BOLD = Denotes highest fair share percentage.

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APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Hesperia requirements for Traffic impact analysis of the following project. The analysis must follow either the Riverside County Transportation Department Traffic Study Guidelines dated **April 2008**; or San Bernardino County Transportation Authority (SBCTA) congestion management plan (CMP) guidelines as applicable.

Case No.

Related Cases-

SP No.

EIR No.

GPA No.

CZ No.

Project Name: Hesperia Commerce Center II

Project Address: northwest of U.S. Highway 395 and Main Street/Phelan Road in the City of Hesperia

Project Description: 2,361,648 square feet (sf) of High-Cube Fulfillment Center Warehouse use (65% total sf of buildings 1 and 2), 1,271,656 sf of General Light Industrial (35% total sf of buildings 1 and 2), and 112,125 sf of General Light Industrial (within building 3). The project will be evaluated in a single phase

	Consultant	Developer
Name:	Urban Crossroads - Charlene So	Covington Group
Address:	260 E. Baker St., Suite 200 Costa Mesa, CA 92626	14180 Dallas Parkway, Suite 730 Dallas, TX 75254
Telephone:	949-336-5982	
Fax:		

A. Trip Generation Source: High Cube Warehouse Trip Generation Study (WSP, January 29, 2019) and Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017)

Current GP Land Use CIBP — Proposed Land Use CIBP

Current Zoning CIBP — Proposed Zoning CIBP

	Current Trip Generation			Proposed Trip Generation **(PCE)**		
	In	Out	Total	In	Out	Total
AM Trips	0	0	0	1,357	230	1,587
PM Trips	0	0	0	274	1,296	1,570

Internal Trip Allowance Yes **No** (___%Trip Discount)

Pass-By Trip Allowance Yes **No** (___%Trip Discount)

B. Trip Geographic Distribution: N____% S____% E____% W____% **(VARIES)**
(See attached exhibits for detailed assignment)

C. Background Traffic

Project Build-out Year 2021 — Annual Ambient Growth Rate: 2.0/year

Phase Year(s) 2021

Other area projects to be analyzed: List has been obtained from City of Hesperia and County of San Bernardino

Model/ Forecast methodology: San Bernardino County Transportation Analysis Model (SBTAM)

D. Study Intersections: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies)

See attachment for all locations

E. Study Roadway Segments: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies)

None

F. Other Jurisdictional Impacts

Is this project within a City's Sphere of Influence or one- mile radius of City boundaries? **Yes** No
If so, name of City Jurisdiction: Unincorporated County of San Bernardino, Caltrans, Victorville

G. Site Plan (Provide reduced copy) **See Exhibit 1**

H. Specific issues to be addressed in the Study (in addition to the standard analysis described in the Guideline) (To be filled out by local agency)

Per Attachment/memo

J. Existing Conditions

Traffic count data must be new or recent within one year. Provide traffic count dates if using other than new counts.
Date of counts Traffic counts to be conducted on a Tuesday, Wednesday, or Thursday when schools are in session and operating on normal bell schedules.

Recommended by:

Charlene So

Consultant's Representative

12/13/2019
Date

Scoping Agreement Submitted on 9/5/19
Revised on 12/13/19

Approved Scoping Agreement:

City Engineer

Date

D. Study Intersections: *(NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments form other agencies).* (See Exhibit 2)

1. Baldy Mesa Rd. & Phelan Rd.
2. Verbena Rd. & Phelan Rd.
3. Bellflower St. & Phelan Rd.
4. Driveway 1 & Phelan Rd.
5. Driveway 2 & Yucca Terrace Dr.
6. Driveway 3 & Yucca Terrace Dr.
7. Driveway 4 & Phelan Rd.
8. US Highway 395 & Luna Rd.
9. US Highway 395 & Bear Valley Rd.
10. US Highway 395 & Eucalyptus St.
11. US Highway 395 & Yucca Terrace Dr.
12. US Highway 395 & Driveway 5
13. US Highway 395 & Main St./Phelan Rd.
14. US Highway 395 & Poplar St.
15. US Highway 395 & Three Flags Rd.
16. US Highway 395 & Joshua St.
17. Mesa Linda St. & Main St.
18. Cataba Rd. & Main St.
19. Key Point Av. & Main St.
20. I-15 SB Ramps & Main St.
21. I-15 NB Ramps & Main St.
22. Mariposa Rd. & Main St.
23. Mountain Vista Av. & Main St.
24. Escondido Av. & Main St.
25. Escondido Av. & Sultana St.
26. Topaz Av. & Main St.

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

December 13, 2019

Mr. Mike Thornton
City of Hesperia
9700 Seventh Avenue
Hesperia, CA 92345

SUBJECT: HESPERIA COMMERCE CENTER II TRAFFIC IMPACT ANALYSIS SCOPING AGREEMENT (REVISED)

Dear Mr. Mike Thornton:

Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic impact analysis for Hesperia Commerce Center II ("Project"), which is located northwest of U.S. Highway 395 and Main Street/Phelan Road in the City of Hesperia. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations.

PROJECT DESCRIPTION

A preliminary site use plan for the proposed Project is shown on Exhibit 1. Exhibit 2 depicts the location of the proposed project in relation to the existing roadway network. The Project is anticipated to have an Opening Year of 2021. Access to the Project site will be provided via 2 driveways on Phelan Road, 2 driveways on the future Yucca Terrace Drive, and 1 proposed driveway on US Highway 395. The access on US Highway 395 is subject to Caltrans approval and Driveway 1 on Phelan Road is subject to County of San Bernardino approval. Both Caltrans and the County have reviewed the proposed access as shown. Driveway 4 shall be a shared driveway that will provide reciprocal access to the parcel on the southwest corner of US Highway 395 and Phelan Road. Signal modification will be required and coordination with the adjacent development to accommodate the reciprocal access agreement. It is our understanding that the Project is to consist of 2,361,648 square feet (sf) of High-Cube Fulfillment Center Warehouse use (65% of the total sf of buildings 1 and 2), 1,271,656 sf of General Light Industrial use (35% of the total sf of buildings 1 and 2), and 112,125 sf of General Light Industrial use within building 3. The Project will be evaluated in a single phase.

TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed Project, trip-generation statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) for the High-Cube Fulfillment Center Warehouse use and in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017) for the General Light Industrial use were utilized. Trip generation rates for the Project are shown in Table 1 for

both passenger car equivalent (PCE) and actual vehicles. The trip generation summary show in Table 2 indicates the daily and peak hour trip generation estimates for the proposed Project in actual vehicles and PCE. For purposes of this analysis, the following land use and vehicle mix has been utilized:

- High-Cube Fulfillment Center Warehouse has been used to derive site specific trip generation estimates for buildings 1 and 2 of the proposed Project. The Institute of Transportation Engineers Trip Generation Manual (10th Edition, 2017) has trip generation rates for high-cube fulfillment center use (ITE land use code 155), however, these rates are unreliable because they are based on limited data (i.e., one to two surveyed sites) and the ITE Trip Generation Manual recommends the use of local data sources where available. As such, the trip-generation statistics published in the High-Cube Warehouse Trip Generation Study (WSP, January 29, 2019) which was commissioned by the Western Riverside Council of Governments (WRCOG) in support of the Transportation Uniform Mitigation Fee (TUMF) update, has been utilized for the high-cube fulfillment center use. The WSP trip generation rates were published in January 2019 and are based on data collected at 11 local high-cube fulfillment center sites. However, the WSP study does not include a split for inbound and outbound vehicles, as such, the inbound and outbound splits per the ITE High-Cube Warehouse Vehicle Trip Generation Analysis (October 2016) have been utilized.
- General Light Industrial (ITE 110): A light industrial facility is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. The ITE Trip Generation Manual and the ITE Trip Generation Handbook does not provide a vehicle mix for the General Light Industrial (ITE land use code 110) land use. As such, the vehicle mix identified in the City of Fontana Truck Trip Generation Study has been utilized for the General Light Industrial land use.

Finally, PCE factors were applied to the trip generation rates to convert trips made by heavy trucks (large 2-axles, 3-axles, 4+-axles) to PCE values. PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP) (2016 Update).

As shown on Table 2, the proposed Project is anticipated to generate a total of 11,898 actual vehicle trip-ends per day with 1,258 AM peak hour trips and 1,261 PM peak hour trips. In comparison, the proposed Project is anticipated to generate a total of 15,152 PCE trip-ends per day, 1,587 PCE AM peak hour trips and 1,570 PCE PM peak hour trips (see Table 2).

TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that

will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered to identify the route where the Project traffic would distribute. Truck distribution patterns will be based on truck routes, the site's proximity to the regional freeway system and likely distribution of traffic if a future tenant is known. Passenger car distribution patterns will be based on existing and planned land uses in the area along with the planned circulation system. Exhibit 3 illustrates the truck trip distribution patterns for the Project and Exhibit 4 illustrates the passenger car trip distribution patterns.

ANALYSIS SCENARIOS

Consistent with the County's TIA guidelines, intersection analysis will be provided for the following analysis scenarios:

- Existing (2019) Conditions
- Existing plus Project (E+P) Conditions
- Opening Year Cumulative (2021) Without Project Conditions
- Opening Year Cumulative (2021) With Project Conditions (Project Buildout)
- Horizon Year (2040) Without Project Conditions
- Horizon Year (2040) With Project Conditions (Project Buildout)

* Ambient growth assumptions are included for Opening Year Cumulative traffic conditions.

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology. The following study intersections will be evaluated:

1. Baldy Mesa Rd. & Phelan Rd.
2. Verbena Rd. & Phelan Rd.
3. Bellflower St. & Phelan Rd.
4. Driveway 1 & Phelan Rd.
5. Driveway 2 & Yucca Terrace Dr.
6. Driveway 3 & Yucca Terrace Dr.
7. Driveway 4 & Phelan Rd.
8. US Highway 395 & Luna Rd.
9. US Highway 395 & Bear Valley Rd.
10. US Highway 395 & Eucalyptus St.
11. US Highway 395 & Yucca Terrace Dr.
12. US Highway 395 & Driveway 5
13. US Highway 395 & Main St./Phelan Rd.

14. US Highway 395 & Poplar St.
15. US Highway 395 & Three Flags Rd.
16. US Highway 395 & Joshua St.
17. Mesa Linda St. & Main St.
18. Catawba Rd. & Main St.
19. Key Point Av. & Main St.
20. I-15 SB Ramps & Main St.
21. I-15 NB Ramps & Main St.
22. Mariposa Rd. & Main St.
23. Mountain Vista Av. & Main St.
24. Escondido Av. & Main St.
25. Escondido Av. & Sultana St.
26. Topaz Av. & Main St.

Pursuant to discussions with County of San Bernardino staff, Driveway 1 on Phelan Road will be restricted to right-in/right-out access only. Note that Driveway 4 on Phelan Road is proposed to provide reciprocal access to the adjacent parcel. The access at Driveway 5 on US Highway 395 is subject to Caltrans District 8 approval.

CUMULATIVE PROJECTS

Exhibit 5 and Table 3 show the locations and list of proposed cumulative projects within the study area. These cumulative projects have been provided by the City of Hesperia and County of San Bernardino.

TRAFFIC COUNTS

Traffic counts are to be conducted once the scoping agreement has been approved. Counts will be conducted on a Tuesday, Wednesday, or Thursday when schools are in session and operating on normal bell schedules.

CALTRANS FACILITIES

The following Caltrans facilities will also be evaluated as part of the traffic study:

- Conduct freeway segment analysis for the following mainline freeway segments based on the currently accepted Highway Capacity Manual (HCM) Freeway Facilities Analysis methodology for each analysis scenario for the following freeway segments, in each direction of travel:
    - I-15 Freeway Southbound, north of Main Street
    - I-15 Freeway Southbound, south of US Highway 395
    - I-15 Freeway Northbound, south of Main Street
    - I-15 Freeway Northbound, south of US Highway 395
- Perform Merge/Diverge analysis for the following ramp junctions for each analysis scenario using the HCM Freeway Facilities Analysis methodology:
    - I-15 Freeway Southbound, Off-Ramp at Main Street
    - I-15 Freeway Southbound, On-Ramp at Main Street
    - I-15 Freeway Southbound, On-Ramp at US Highway 395
    - I-15 Freeway Northbound, Loop On-Ramp at Main Street
    - I-15 Freeway Northbound, Off-Ramp at Main Street
    - I-15 Freeway Northbound, Off-Ramp at US Highway 395
- Conduct queuing analysis to identify the storage necessary to accommodate 95th percentile queues during peak hour traffic flows for each analysis scenario, at the following locations:
    - US Highway 395 & Luna Road
    - US Highway 395 & Bear Valley Road
    - US Highway 395 & Eucalyptus Street
    - US Highway 395 & Main Street/Phelan Road
    - US Highway 395 & Poplar Street
    - US Highway 395 & Three Flags Road
    - US Highway 395 & Joshua Street
    - I-15 Southbound Off-Ramp & Main Street
    - I-15 Northbound Off-Ramp & Main Street

SPECIAL ISSUES

The following special issues will be addressed in the traffic study:

- Truck turning templates will be used to address how Project truck traffic (e.g., large trucks such as a WB-67) would enter and exit the Project site to determine radii at curb returns, radii of streets per Highway Design Manual, and widths/radii required for on-site maneuvering for two-way truck traffic.
- Traffic signal warrant analysis will be conducted for all unsignalized study area intersections, as applicable.
- "Fair-share" contributions for improvements within the City's DIF program and within in other jurisdictions will be included in the TIA. It is recommended that the City provide a list of facilities and improvements that are included in the City's DIF and/or CIP programs.
- Caltrans signal timing has been obtained from District 8 and will be utilized for Caltrans ramp locations. The scoping agreement has also been shared with Caltrans District 8 to obtain comments with respect to analysis methodology for Caltrans facilities and on the proposed driveway on US Highway 395.
- Review the initial estimates of the raw peak hour turning movement volumes for reasonableness, including the review of traffic flow conservation and peak-to-daily volume ratios.
- Adjust the initial raw model estimates to achieve flow conservation, reasonable growth, and plausible diversion between parallel routes through post-processing.
- Conduct a queuing analysis for all Project driveways and site adjacent intersections, including Driveway 4 on Phelan Road (planned shared driveway with the adjacent development).

CONCLUSION

Urban Crossroads, Inc. is pleased to submit this letter documenting the Project trip generation, trip distribution, and the recommended intersection analysis locations for the Hesperia Commerce Center II Traffic Impact Study. We will continue to move forward towards completing the traffic study after receiving jurisdiction approval or comments finalizing the study area.

If you have any questions, please contact me directly at (949) 336-5982.

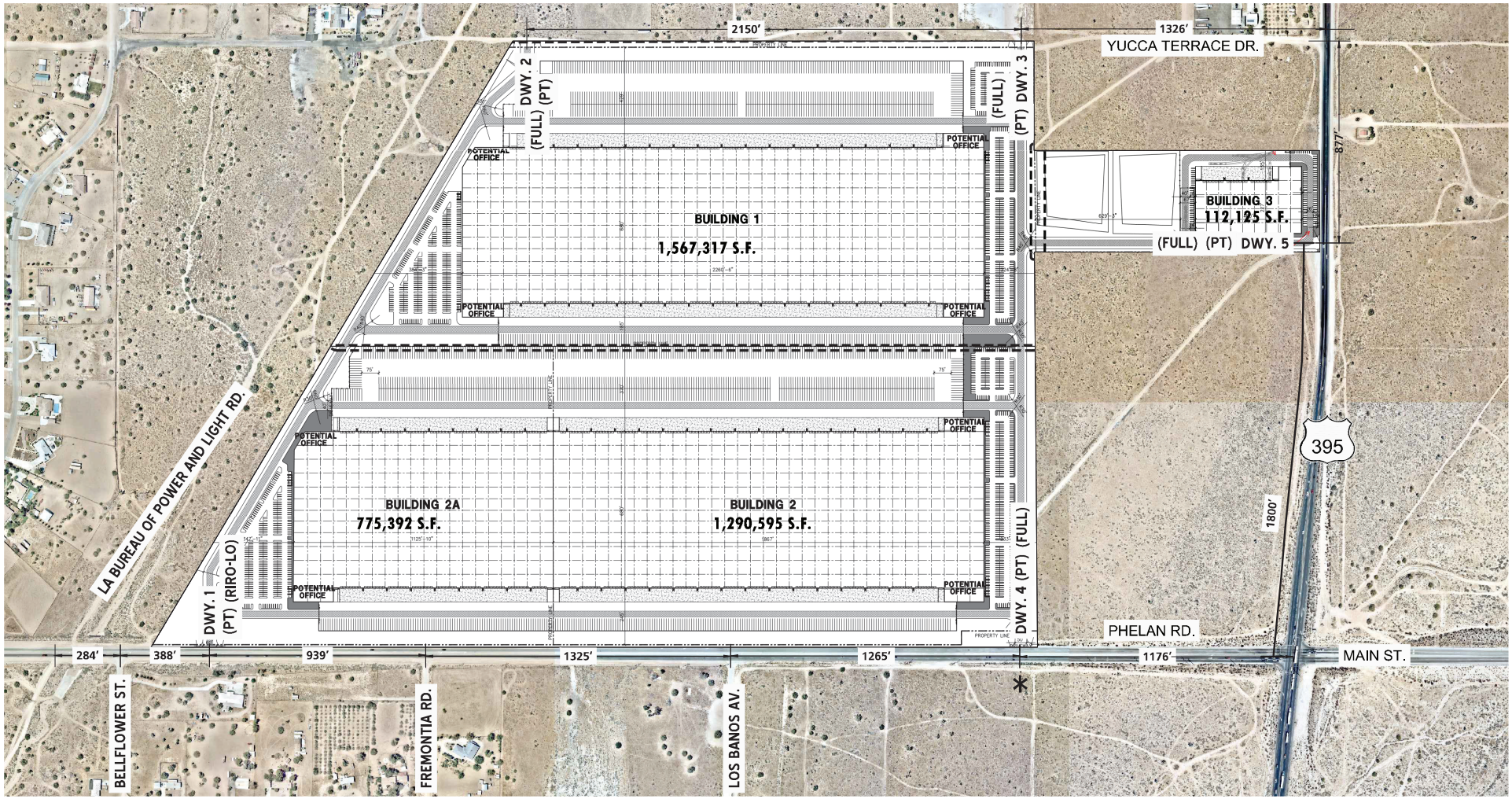
Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Associate Principal

EXHIBIT 1: PRELIMINARY SITE PLAN



LEGEND:

RIRO	= RIGHT-IN/RIGHT-OUT ONLY ACCESS
FULL	= FULL ACCESS
PT	= PASSENGER CARS AND TRUCKS
LO	= LEFT OUT

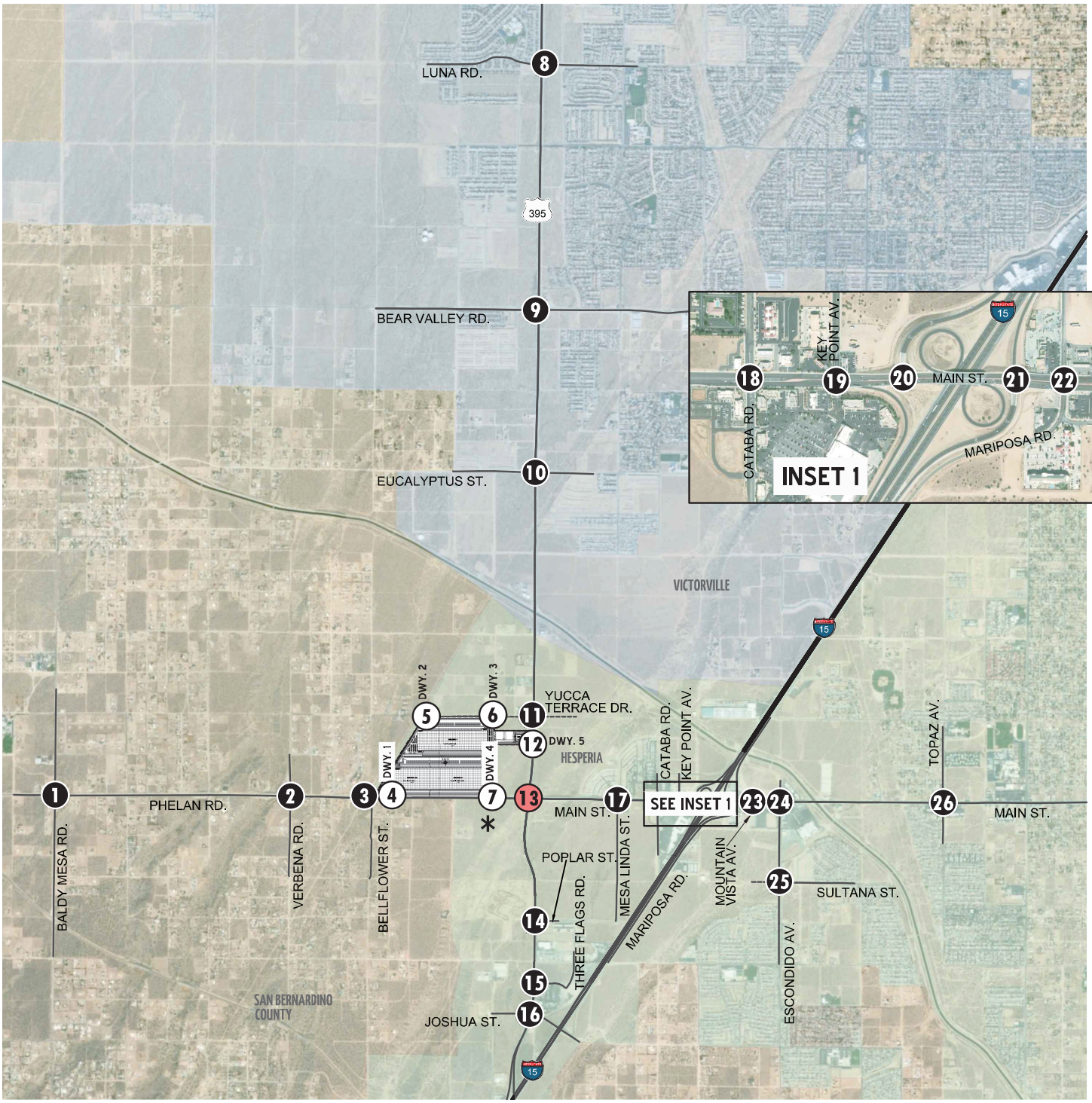
N

* NOTE: DRIVEWAY 4 IS A PROPOSED SIGNALIZED DRIVEWAY THAT WILL PROVIDE RECIPROCAL ACCESS WITH THE ADJACENT USE. A SIGNAL MODIFICATION WILL BE NECESSARY AT THIS LOCATION.

12778 - siteplan-b.dwg

URBAN CROSSROADS

EXHIBIT 2: LOCATION MAP



LEGEND:

- 0 = EXISTING INTERSECTION ANALYSIS LOCATION
- 0 = FUTURE INTERSECTION ANALYSIS LOCATION
- 0 = SBCTA INTERSECTION
- ---- = DIRT ROAD

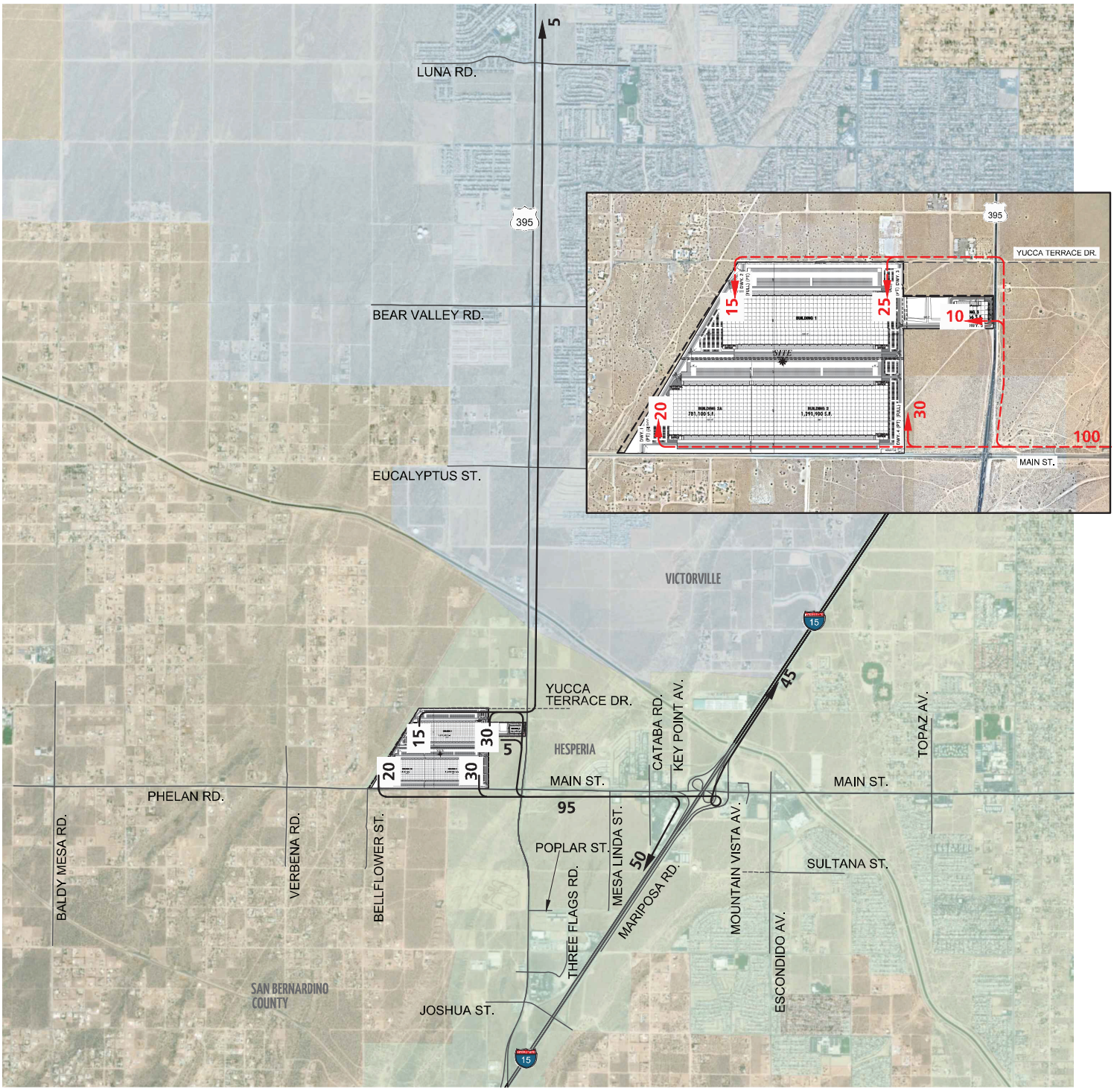
N

* NOTE: DRIVEWAY 4 IS A PROPOSED SIGNALIZED DRIVEWAY THAT WILL PROVIDE RECIPROCAL ACCESS WITH THE ADJACENT USE.

12778 - locmap-c-1.dwg

URBAN CROSSROADS

EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

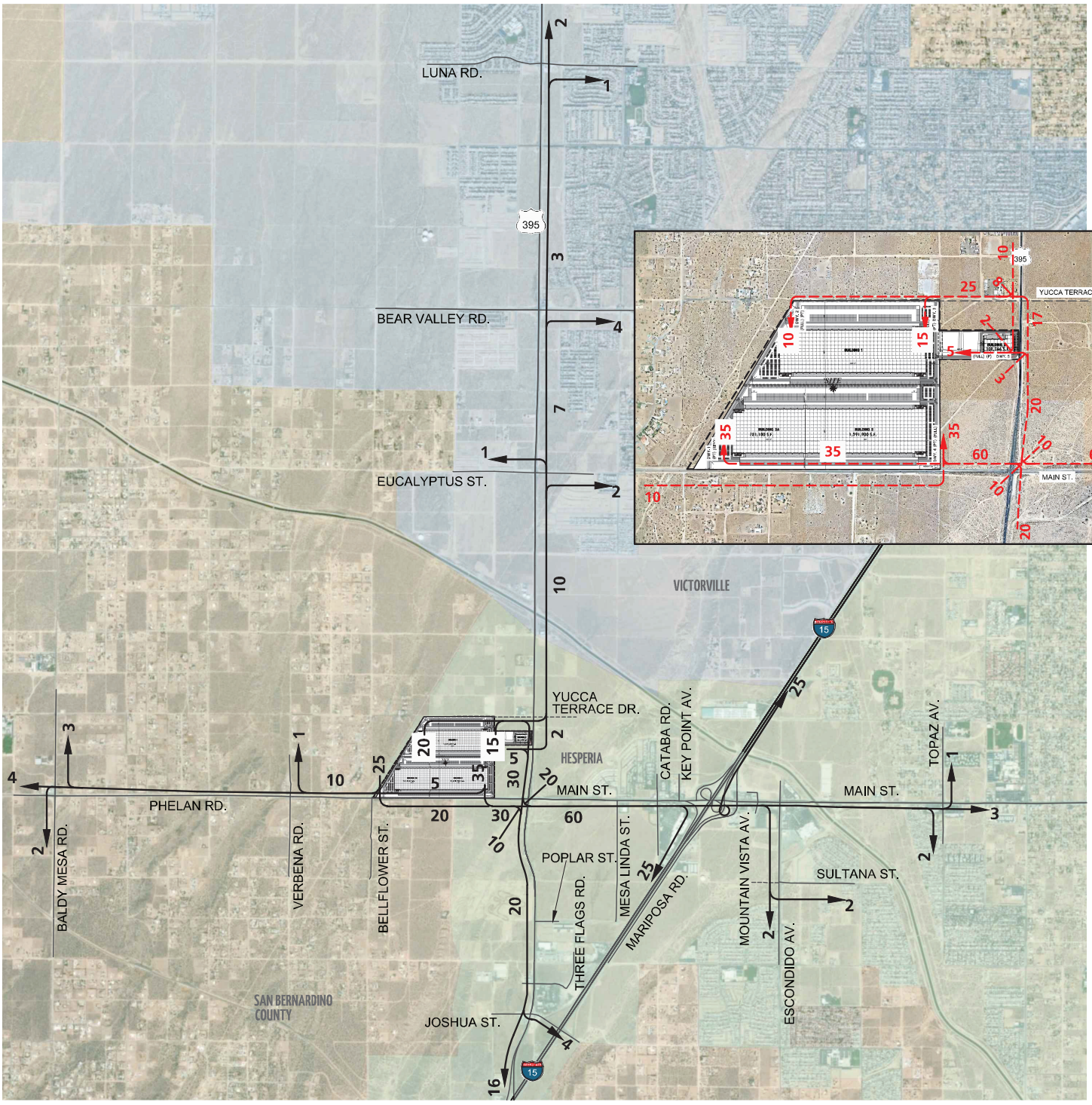
= INBOUND

N

12778 - trip-b1.dwg

URBAN CROSSROADS

EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



LEGEND:

10 = PERCENT TO/FROM PROJECT

= OUTBOUND

= INBOUND

N

12778 - trip-b1.dwg

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EXHIBIT 5: CUMULATIVE DEVELOPMENT LOCATION MAP

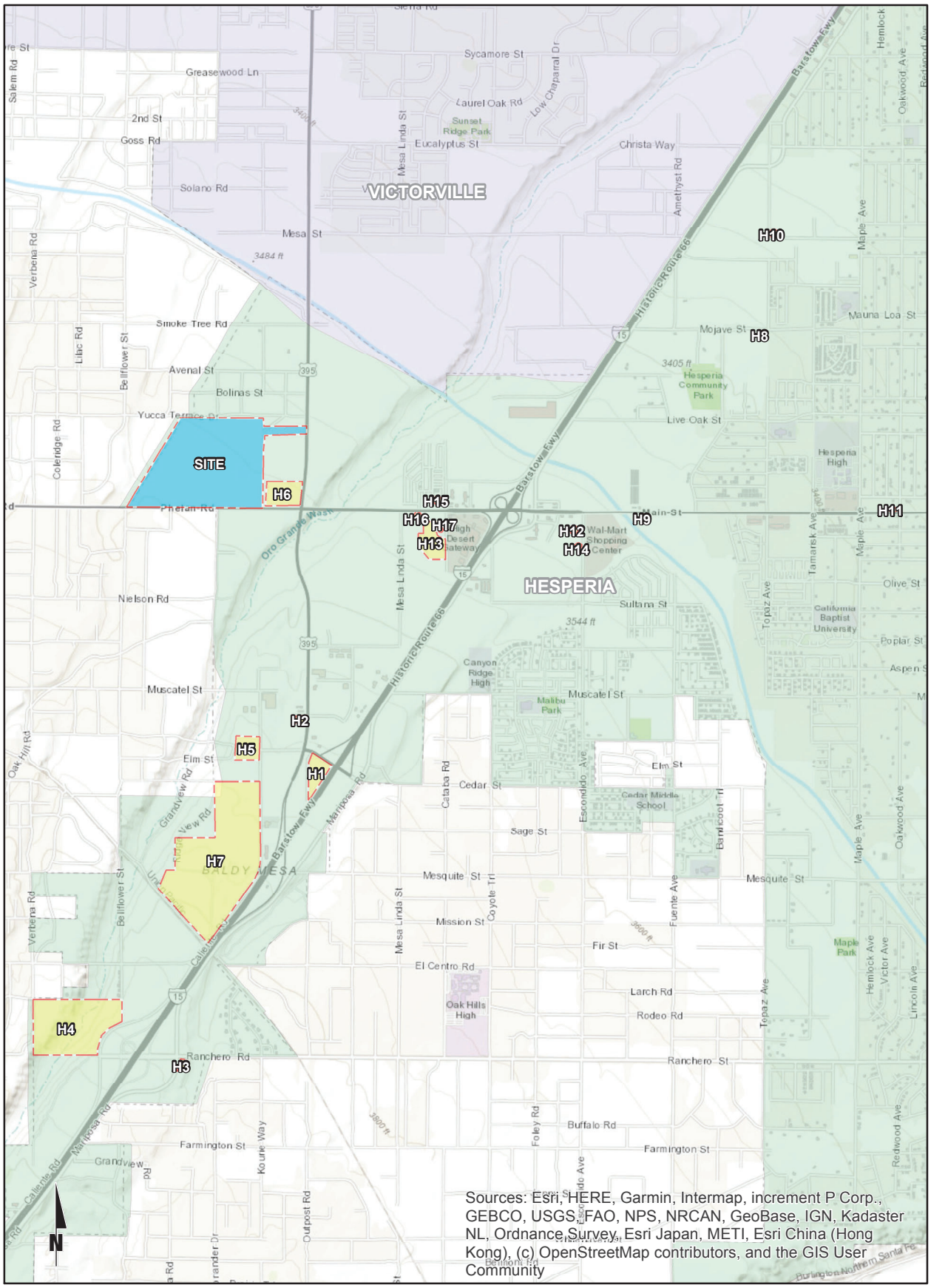

Table 1

Project Trip Generation Rates

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicle Trip Generation Rates									
General Light Industrial[5]	TSF	110	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%)			0.049	0.007	0.056	0.007	0.044	0.050	0.397
3-Axle Trucks (3.9%)			0.024	0.003	0.027	0.003	0.021	0.025	0.193
4-Axle+ Trucks (9.5%)			0.059	0.008	0.067	0.008	0.052	0.060	0.471
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars (AM-84.3%; PM-87.2%; Daily-82.2%)			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (AM-6.3%; PM-6.4%; Daily-7.6%)			0.006	0.002	0.008	0.003	0.008	0.011	0.162
5+-Axle Trucks (AM-9.4%; PM-6.4%; Daily-10.2%)			0.008	0.003	0.011	0.003	0.007	0.010	0.217
Passenger Car Equivalent (PCE) Trip Generation Rates[5]									
General Light Industrial[5]	TSF	110	0.616	0.084	0.700	0.082	0.548	0.630	4.960
Passenger Cars (78.6%)			0.484	0.066	0.550	0.064	0.431	0.495	3.899
2-Axle Trucks (8.0%) (PCE = 1.5)			0.074	0.010	0.084	0.010	0.066	0.076	0.595
3-Axle Trucks (3.9%) (PCE = 2.0)			0.048	0.007	0.055	0.006	0.043	0.049	0.387
4-Axle+ Trucks (9.5%) (PCE = 3.0)			0.176	0.024	0.200	0.023	0.156	0.180	1.414
High-Cube Fulfillment Center Warehouse[4]	TSF	--	0.094	0.028	0.122	0.046	0.119	0.165	2.129
Passenger Cars (AM-84.3%; PM-87.2%; Daily-82.2%)			0.079	0.024	0.103	0.040	0.104	0.144	1.750
2-4 Axle Trucks (AM-6.3%; PM-6.4%; Daily-7.6%) (PCE = 2.0)			0.012	0.004	0.016	0.006	0.016	0.022	0.324
5+-Axle Trucks (AM-9.4%; PM-6.4%; Daily-10.2%) (PCE = 3.0)			0.025	0.008	0.033	0.008	0.022	0.030	0.651

[1] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Tenth Edition (2017).

[2] TSF = thousand square feet

[3] Vehicle mix source: ITE Trip Generation Handbook, 2017. Truck Mix Source: City of Fontana Truck Trip Generation Study (Land Use 150), August 2003.

[4] Vehicle Mix Source: High Cube Warehouse Trip Generation Study, WSP, January 29, 2019.
Inbound and outbound split source: High Cube Warehouse Vehicle Trip Generation Analysis, October 2016, ITE.

[5] Vehicle Mix Source: Truck mix (by axle type) source from City of Fontana Truck Trip Generation Study (August 2003). PCE rates are per SBCTA.

Table 2

Project Trip Generation Summary

Land Use	Quantity	Units[1]	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Project Trip Generation Summary (Actual)									
High-Cube Fulfillment Center Warehouse (65% of Bldg. 1, 2)	2,361.648	TSF							
Passenger Cars:			187	56	243	95	245	340	4,134
Truck Trips:									
2-4 axle:			15	4	19	7	19	26	384
5+-axle:			20	6	26	7	17	24	512
- Net Truck Trips			35	10	45	14	36	50	896
FULFILLMENT CENTER TOTAL NET TRIPS (Actual Vehicles) [2]			**222**	**66**	**288**	**109**	**281**	**390**	**5,030**
General Light Industrial (35% of Bldg. 1, 2)	1,271.656	TSF							
Passenger Cars:			616	84	700	82	548	630	4,958
Truck Trips:									
2-axle:			63	9	72	8	56	64	506
3-axle:			31	4	35	4	27	31	246
4+-axle:			74	10	84	10	66	76	600
- Net Truck Trips			168	23	191	22	149	171	1,352
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles) [2]			**784**	**107**	**891**	**104**	**697**	**801**	**6,310**
General Light Industrial (Bldg. 3)	112.125	TSF							
Passenger Cars:			54	7	61	7	48	55	438
Truck Trips:									
2-axle:			6	1	7	1	5	6	44
3-axle:			3	0	3	0	2	2	22
4+-axle:			7	1	8	1	6	7	54
- Net Truck Trips			16	2	18	2	13	15	120
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles) [2]			**70**	**9**	**79**	**9**	**61**	**70**	**558**
Passenger Car Total			**857**	**147**	**1,004**	**184**	**841**	**1,025**	**9,530**
Truck Total (Actual Vehicles)			**219**	**35**	**254**	**38**	**198**	**236**	**2,368**
TOTAL PROPOSED PROJECT (Actual Vehicles)			**1,076**	**182**	**1,258**	**222**	**1,039**	**1,261**	**11,898**
Project Trip Generation Summary (PCE)									
High-Cube Fulfillment Center Warehouse (65% of Bldg. 1, 2)	2,361.648	TSF							
Passenger Cars:			187	56	243	95	245	340	4,134
Truck Trips:									
2-4 axle:			29	9	38	15	37	52	766
5+-axle:			60	18	78	20	51	71	1,538
- Net Truck Trips			89	27	116	35	88	123	2,304
FULFILLMENT CENTER TOTAL NET TRIPS (PCE) [2]			**276**	**83**	**359**	**130**	**333**	**463**	**6,438**
General Light Industrial (35% of Bldg. 1, 2)	1,271.656	TSF							
Passenger Cars:			616	84	700	82	548	630	4,958
Truck Trips:									
2-axle:			94	13	107	12	84	96	758
3-axle:			61	8	69	8	54	62	492
4+-axle:			223	30	253	30	199	229	1,798
- Net Truck Trips			378	51	429	50	337	387	3,048
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (PCE) [2]			**994**	**135**	**1,129**	**132**	**885**	**1,017**	**8,006**
General Light Industrial (Bldg. 3)	112.125	TSF							
Passenger Cars:			54	7	61	7	48	55	438
Truck Trips:									
2-axle:			8	1	9	1	7	8	68
3-axle:			5	1	6	1	5	6	44
4+-axle:			20	3	23	3	18	21	158
- Net Truck Trips			33	5	38	5	30	35	270
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (PCE) [2]			**87**	**12**	**99**	**12**	**78**	**90**	**708**
Passenger Car Total			**857**	**147**	**1,004**	**184**	**841**	**1,025**	**9,530**
Truck Total (PCE)			**500**	**83**	**583**	**90**	**455**	**545**	**5,622**
TOTAL PROPOSED PROJECT (PCE)			**1,357**	**230**	**1,587**	**274**	**1,296**	**1,570**	**15,152**

[1] TSF = thousand square feet

[2] TOTAL NET TRIPS = Passenger Cars + Net Truck Trips.

Table 3

Cumulative Development Land Use Summary

#	Case No.	Land Use	Quantity	Units[1]
H1	CUP12-10189: SEC of Outpost Rd. & Joshua St.	Travel Center	12.271	TSF
H2	CUP15-00009: SWC of US-395 & Three Flags Rd.	Gas Station w/ Convenience Market and Car Wash	12	VFP
		High-Turnover Sit-Down Restaurant	1.300	TSF
		Fast Food w/ Drive Thru	3.000	TSF
H3	CUP16-00007: SEC of Mariposa Rd. & Ranchero Rd.	Gas Station w/ Convenience Market and Car Wash	8	VFP
		Fast Food w/ Drive Thru	2.546	TSF
H4	CUPE16-00002: SEC of Verbena Rd. & Rodeo St.	Hotel	212	RM
		Quality Restaurant	11.600	TSF
		Golf Course	9	Holes
H5	SPR16-00016: south of Muscatel St., west of Caliente Rd.	Manufacturing	75.000	TSF
H6	CUP18-00003	Gas Station	9	VFP
		High-Turnover Sit-Down Restaurant	4.188	TSF
H7	Hesperia Commerce Center	High-Cube Fulfillment Center	4382.800	TSF
H8	TTE 19-00002 (TT 17916)	Single Family Detached Residential	177	DU
H9	TPM 19-00001	Shopping Center	13.0	Acres
H10	TTE 19-00001 (TT 17243)	Single Family Detached Residential	125	DU
H11	SPR 19-00005	Shopping Center	4.889	TSF
H12	Kaiser Medical Office	Medical Office	54.168	TSF
H13	Hesperia West	Shopping Center	34.675	TSF
		Department Store	40.400	TSF
		Furniture Store	38.000	TSF
		Walk in Bank	4.500	TSF
		High-Turnover Sit-Down Restaurant	5.926	TSF
		Fast Food w/ Drive Thru	3.260	TSF
H14	Hesperia Walmart	Gas Station w/ Convenience Market and Car Wash	12	VFP
		Home Improvement Store	141.038	TSF
		Fast Food w/ Drive Thru	2.500	TSF
H15	SPR 16-00011	Shopping Center	4.377	TSF
H16	CUP 16-00011	Shopping Center	5.423	TSF
H17	High Desert Gateway West I & II	Shopping Center	3.000	TSF
		Shopping Center	9.450	TSF

[1] TSF = Thousand Square Feet; VFP = Vehicle Fueling Positions; RM = Room; DU = Dwelling Units

APPENDIX 1.2:

SITE ADJACENT QUEUING WORKSHEETS

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Intersection: 4: Phelan Rd. & Driveway 1

Movement	SB
Directions Served	LR
Maximum Queue (ft)	47
Average Queue (ft)	16
95th Queue (ft)	44
Link Distance (ft)	460
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Driveway 2 & Yucca Terrace Dr.

Movement	NB
Directions Served	LR
Maximum Queue (ft)	34
Average Queue (ft)	13
95th Queue (ft)	28
Link Distance (ft)	372
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Driveway 3 & Yucca Terrace Dr.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	64	43
Average Queue (ft)	11	26
95th Queue (ft)	41	47
Link Distance (ft)		440
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Phelan Rd. & Driveway 4

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	TR	LR
Maximum Queue (ft)	141	171	150	200	160	239	183
Average Queue (ft)	71	55	73	97	74	102	94
95th Queue (ft)	123	132	135	164	143	193	157
Link Distance (ft)		3374	3374	564	564	564	666
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	8	1					
Queuing Penalty (veh)	46	1					

Intersection: 11: US-395 & Yucca Terrace Dr.

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	T	TR
Maximum Queue (ft)	52	106	249	372	253	140	838	846	852
Average Queue (ft)	15	44	182	115	71	46	521	539	542
95th Queue (ft)	41	86	258	286	162	108	985	1001	995
Link Distance (ft)		1201		786	786	786	3924	3924	3924
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200						
Storage Blk Time (%)		1	9	0					
Queuing Penalty (veh)		0	56	0					

Intersection: 12: US-395 & Driveway 5

Movement	EB	NB	SB	SB	SB
Directions Served	LR	L	T	T	TR
Maximum Queue (ft)	47	100	185	182	191
Average Queue (ft)	11	46	6	12	6
95th Queue (ft)	38	85	117	165	118
Link Distance (ft)	1207		786	786	786
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 103

Intersection: 4: Phelan Rd. & Driveway 1

Movement	SB
Directions Served	LR
Maximum Queue (ft)	116
Average Queue (ft)	51
95th Queue (ft)	94
Link Distance (ft)	460
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 5: Driveway 2 & Yucca Terrace Dr.

Movement	NB
Directions Served	LR
Maximum Queue (ft)	64
Average Queue (ft)	31
95th Queue (ft)	55
Link Distance (ft)	372
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Driveway 3 & Yucca Terrace Dr.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	32	152
Average Queue (ft)	8	57
95th Queue (ft)	31	96
Link Distance (ft)		440
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: Phelan Rd. & Driveway 4

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	TR	LR
Maximum Queue (ft)	149	297	306	410	353	244	681
Average Queue (ft)	33	171	184	288	246	139	517
95th Queue (ft)	91	262	274	386	348	232	782
Link Distance (ft)		3374	3374	564	564	564	666
Upstream Blk Time (%)							8
Queuing Penalty (veh)							0
Storage Bay Dist (ft)	100						
Storage Blk Time (%)	0	20					
Queuing Penalty (veh)	2	6					

Intersection: 11: US-395 & Yucca Terrace Dr.

Movement	EB	EB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	T	TR
Maximum Queue (ft)	150	833	248	263	303	242	326	338	342
Average Queue (ft)	116	392	67	195	190	166	187	213	211
95th Queue (ft)	192	742	150	260	257	237	288	297	298
Link Distance (ft)		1201		786	786	786	10558	10558	10558
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	100		200						
Storage Blk Time (%)	4	63		4					
Queuing Penalty (veh)	17	59		3					

Intersection: 12: US-395 & Driveway 5

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	1210	31
Average Queue (ft)	966	10
95th Queue (ft)	1361	31
Link Distance (ft)	1207	
Upstream Blk Time (%)	31	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		200
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 87

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – SEPTEMBER 2019 & JANUARY 2020

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INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
	EAST & WEST:	Phelan	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Baldy Mesa)			SOUTHBOUND (Baldy Mesa)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
AM	7:00 AM	6	8	11	23	5	24	37	105	9	5	53	9	295
	7:15 AM	4	12	12	26	3	35	24	123	1	3	75	23	341
	7:30 AM	11	24	14	36	8	58	51	142	4	1	75	46	470
	7:45 AM	11	29	11	63	13	46	44	119	6	3	98	53	496
	8:00 AM	8	2	11	55	24	41	33	136	11	4	53	18	396
	8:15 AM	4	10	8	25	7	19	21	104	7	4	62	20	291
	8:30 AM	5	13	8	31	8	35	15	128	5	5	70	43	366
	8:45 AM	10	15	10	57	17	28	18	120	2	6	87	24	394
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	59	113	85	316	85	286	243	977	45	31	573	236	3,049
	APPROACH %	23%	44%	33%	46%	12%	42%	19%	77%	4%	4%	68%	28%	
	APP/DEPART	257	/	592	687	/	161	1,265	/	1,378	840	/	918	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	34	67	48	180	48	180	152	520	22	11	301	140	1,703
	APPROACH %	23%	45%	32%	44%	12%	44%	22%	75%	3%	2%	67%	31%	
	PEAK HR FACTOR		0.730			0.836			0.881			0.734		0.858
	APP/DEPART	149	/	359	408	/	81	694	/	748	452	/	515	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	12	9	3	49	13	32	34	136	6	16	113	26	449
	4:15 PM	10	4	8	26	10	42	34	120	10	14	146	23	447
	4:30 PM	8	5	7	23	8	36	36	155	8	15	145	31	477
	4:45 PM	7	7	7	19	6	23	40	101	11	11	129	32	393
	5:00 PM	4	4	4	26	3	20	30	113	5	27	129	26	391
	5:15 PM	6	2	13	13	5	29	19	125	12	13	162	24	423
	5:30 PM	7	1	7	15	4	26	21	111	12	14	172	24	414
	5:45 PM	5	2	10	11	2	26	23	107	7	17	114	30	354
	VOLUMES	59	34	59	182	51	234	237	968	71	127	1,110	216	3,348
	APPROACH %	39%	22%	39%	39%	11%	50%	19%	76%	6%	9%	76%	15%	
	APP/DEPART	152	/	487	467	/	249	1,276	/	1,209	1,453	/	1,403	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	37	25	25	117	37	133	144	512	35	56	533	112	1,766
	APPROACH %	43%	29%	29%	41%	13%	46%	21%	74%	5%	8%	76%	16%	
	PEAK HR FACTOR		0.906			0.763			0.868			0.918		0.926
	APP/DEPART	87	/	281	287	/	128	691	/	654	701	/	703	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
5	10	2	2
3	17	0	2
3	25	2	16
8	19	3	26
10	31	4	4
2	14	1	6
4	18	2	11
5	13	1	10
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
40	147	15	77
24	92	9	48
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	15	3	9
2	17	2	5
3	14	2	10
4	12	1	13
2	9	1	11
9	20	3	5
4	16	2	7
7	19	1	10
32	122	15	70
10	58	8	37

Baldy Mesa

NORTH SIDE

Phelan WEST SIDE EAST SIDE **Phelan**

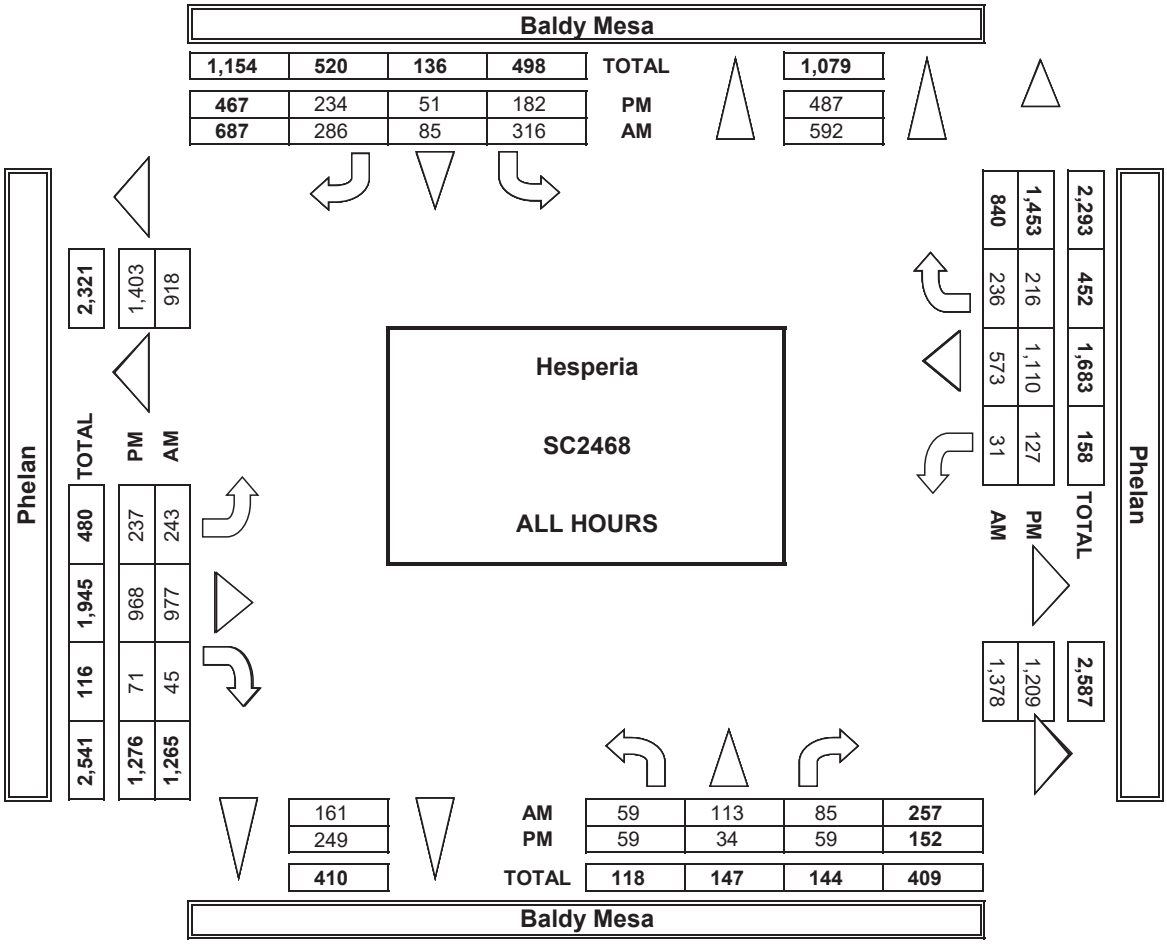
SOUTH SIDE

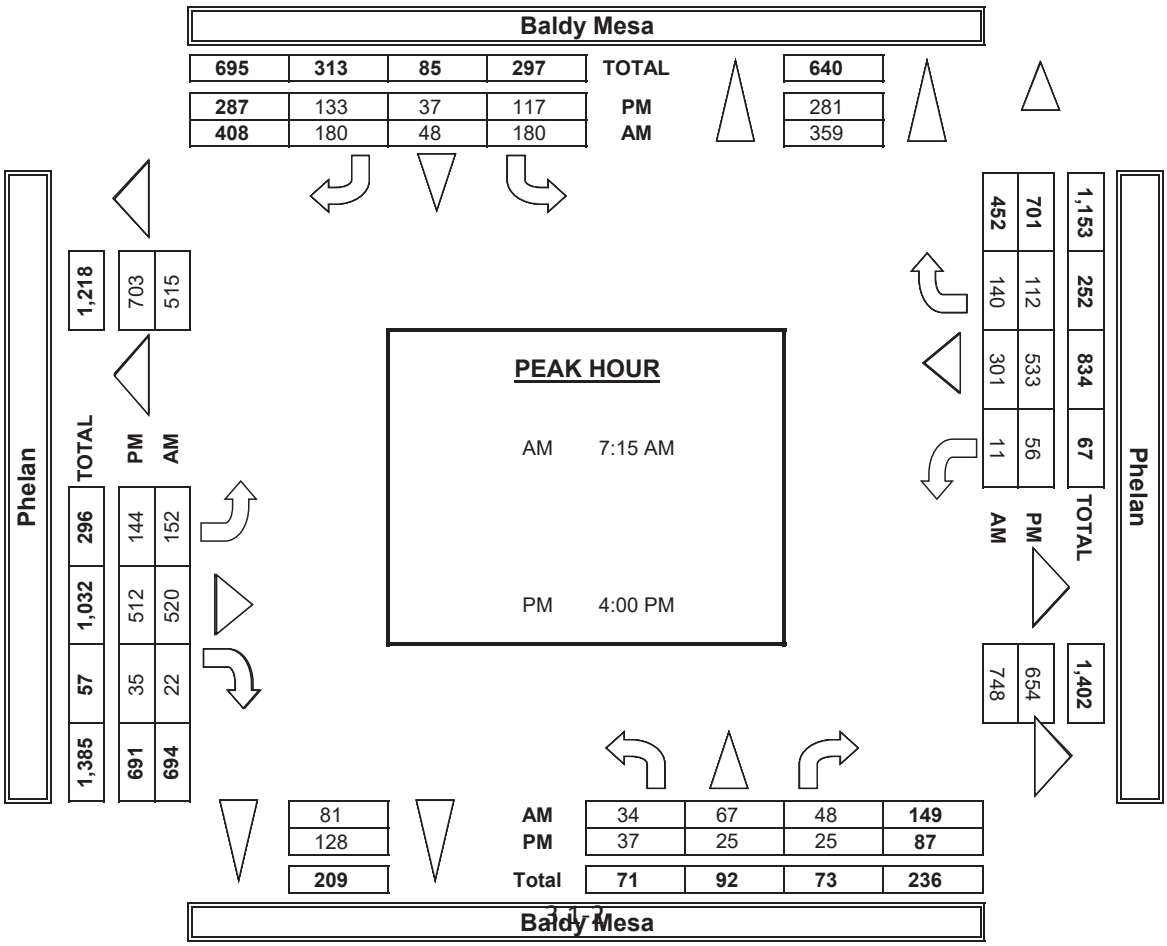
Baldy Mesa

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	3	3	0	6	0	3	3	0	6	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	3	3	0	6	0	3	3	0	6	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	0	0	2	4	2	0	0	2	4	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0
	5:00 PM	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	2	0	0	8	10	2	0	0	8	10	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND (Baldy Mesa)			SOUTHBOUND (Baldy Mesa)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
7:00 AM	4	8	11	23	5	20	33	100	9	4	41	7	265
7:15 AM	4	8	10	26	3	31	20	113	0	2	66	22	305
7:30 AM	11	24	13	35	7	54	51	130	4	1	64	44	438
7:45 AM	11	29	11	62	13	45	42	110	6	3	85	50	467
8:00 AM	6	2	10	55	23	40	30	129	11	4	43	18	371
8:15 AM	3	9	8	24	5	19	17	97	5	3	57	20	267
8:30 AM	4	12	8	29	8	27	15	125	5	4	63	40	340
8:45 AM	9	14	9	56	16	18	14	107	1	5	80	24	353
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	52	106	80	310	80	254	222	911	41	26	499	225	2,806
APPROACH %	22%	45%	34%	48%	12%	39%	19%	78%	3%	3%	67%	30%	
APP/DEPART	238	/	553	644	/	147	1,174	/	1,301	750	/	805	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	32	63	44	178	46	170	143	482	21	10	258	134	1,581
APPROACH %	23%	45%	32%	45%	12%	43%	22%	75%	3%	2%	64%	33%	
PEAK HR FACTOR		0.681			0.821			0.873			0.728		0.846
APP/DEPART	139	/	340	394	/	77	646	/	704	402	/	460	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	9	7	3	48	13	31	33	128	6	15	106	23	422
4:15 PM	10	4	8	24	10	34	33	116	8	14	136	21	418
4:30 PM	8	5	7	23	8	36	36	146	8	15	137	27	456
4:45 PM	6	6	7	19	6	22	35	94	11	10	120	29	365
5:00 PM	4	4	3	26	3	18	29	108	4	26	124	23	372
5:15 PM	6	2	11	12	5	29	18	116	11	12	154	21	397
5:30 PM	7	1	7	15	4	26	18	107	12	14	168	22	401
5:45 PM	4	2	10	11	2	26	21	104	6	17	110	27	340
VOLUMES	54	31	56	178	51	222	223	919	66	123	1,055	193	3,171
APPROACH %	38%	22%	40%	39%	11%	49%	18%	76%	5%	9%	77%	14%	
APP/DEPART	141	/	447	451	/	240	1,208	/	1,153	1,371	/	1,331	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	33	22	25	114	37	123	137	484	33	54	499	100	1,661
APPROACH %	41%	28%	31%	42%	14%	45%	21%	74%	5%	8%	76%	15%	
PEAK HR FACTOR		0.909			0.745			0.861			0.912		0.911
APP/DEPART	80	/	259	274	/	124	654	/	623	653	/	655	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
5	8	2	1
3	13	0	2
3	25	2	16
8	19	3	24
9	30	4	4
2	14	0	6
4	15	2	11
4	10	1	10
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
38	134	14	74
23	87	9	46
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	15	3	9
2	15	1	5
3	14	2	10
4	12	1	11
2	7	1	10
8	20	3	5
4	16	2	7
7	19	1	10
31	118	14	67
10	56	7	35

Baldy Mesa NORTH SIDE

Phelan WEST SIDE — EAST SIDE **Phelan**

SOUTH SIDE **Baldy Mesa**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
TUESDAY	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND (Baldy Mesa)			SOUTHBOUND (Baldy Mesa)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
7:00 AM	0	0	0	0	0	1	2	3	0	1	6	2	15
7:15 AM	0	0	1	0	0	3	0	6	0	1	4	1	16
7:30 AM	0	0	1	1	1	0	0	5	0	0	6	1	15
7:45 AM	0	0	0	0	0	0	1	5	0	0	11	1	18
8:00 AM	0	0	1	0	0	1	0	3	0	0	8	0	13
8:15 AM	1	0	0	0	1	0	1	4	2	1	3	0	13
8:30 AM	1	1	0	2	0	2	0	2	0	0	2	0	10
8:45 AM	1	1	1	0	1	0	2	6	0	1	7	0	20
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	3	2	4	3	3	7	6	34	2	4	47	5	120
APPROACH %	33%	22%	44%	23%	23%	54%	14%	81%	5%	7%	84%	9%	
APP/DEPART	9	/	13	13	/	9	42	/	41	56	/	57	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	0	2	1	1	4	3	19	0	2	27	5	64
APPROACH %	0%	0%	100%	17%	17%	67%	14%	86%	0%	6%	79%	15%	
PEAK HR FACTOR		0.500			0.500			0.917			0.708		0.889
APP/DEPART	2	/	8	6	/	3	22	/	22	34	/	31	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	2	0	0	1	0	0	1	3	0	1	4	3	15
4:15 PM	0	0	0	2	0	1	0	2	1	0	6	1	13
4:30 PM	0	0	0	0	0	0	0	5	0	0	4	2	11
4:45 PM	1	0	0	0	0	1	3	6	0	1	2	3	17
5:00 PM	0	0	1	0	0	2	1	4	0	1	3	2	14
5:15 PM	0	0	1	0	0	0	1	4	0	1	5	2	14
5:30 PM	0	0	0	0	0	0	2	2	0	0	1	1	6
5:45 PM	1	0	0	0	0	0	1	2	0	0	2	2	8
VOLUMES	4	0	2	3	0	4	9	28	1	4	27	16	98
APPROACH %	67%	0%	33%	43%	0%	57%	24%	74%	3%	9%	57%	34%	
APP/DEPART	6	/	25	7	/	5	38	/	33	47	/	35	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	1	0	2	0	0	3	5	19	0	3	14	9	56
APPROACH %	33%	0%	67%	0%	0%	100%	21%	79%	0%	12%	54%	35%	
PEAK HR FACTOR		0.375			0.250			0.667			0.813		0.824
APP/DEPART	3	/	14	3	/	3	24	/	21	26	/	18	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	1
0	3	0	0
0	0	0	0
0	0	0	1
1	1	0	0
0	0	1	0
0	1	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
2	5	1	2
0	3	0	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	2	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	2	0	3
0	2	0	3

Baldy Mesa

NORTH SIDE

Phelan WEST SIDE EAST SIDE **Phelan**

SOUTH SIDE

Baldy Mesa

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
TUESDAY	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Baldy Mesa)			SOUTHBOUND (Baldy Mesa)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
AM	7:00 AM	1	0	0	0	0	2	0	2	0	0	2	0	7
	7:15 AM	0	1	0	0	0	0	0	0	1	0	1	0	3
	7:30 AM	0	0	0	0	0	1	0	2	0	0	2	0	5
	7:45 AM	0	0	0	1	0	0	0	0	0	0	1	0	2
	8:00 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
	8:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
	8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:45 AM	0	0	0	0	0	2	1	3	0	0	0	0	6
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	1	0	1	1	5	1	9	1	0	9	0	29
	APPROACH %	50%	50%	0%	14%	14%	71%	9%	82%	9%	0%	100%	0%	
	APP/DEPART	2	/	2	7	/	2	11	/	10	9	/	15	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	1	1	0	1	0	3	0	4	1	0	6	0	17
	APPROACH %	50%	50%	0%	25%	0%	75%	0%	80%	20%	0%	100%	0%	
	PEAK HR FACTOR		0.500			0.500			0.625			0.750		0.607
	APP/DEPART	2	/	1	4	/	1	5	/	5	6	/	10	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	0	0	0	0	1	0	0	2	0	5
	4:15 PM	0	0	0	0	0	0	1	0	0	0	2	1	4
	4:30 PM	0	0	0	0	0	0	0	2	0	0	1	2	5
	4:45 PM	0	0	0	0	0	0	1	1	0	0	2	0	4
	5:00 PM	0	0	0	0	0	0	0	0	0	0	2	1	3
	5:15 PM	0	0	1	0	0	0	0	1	1	0	1	1	5
	5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	5:45 PM	0	0	0	0	0	0	1	0	0	0	1	1	3
	VOLUMES	0	2	1	0	0	0	3	6	1	0	11	6	30
	APPROACH %	0%	67%	33%	0%	0%	0%	30%	60%	10%	0%	65%	35%	
	APP/DEPART	3	/	11	0	/	1	10	/	7	17	/	11	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	2	0	0	0	0	2	4	0	0	7	3	18
	APPROACH %	0%	100%	0%	0%	0%	0%	33%	67%	0%	0%	70%	30%	
	PEAK HR FACTOR		0.250			0.000			0.750			0.833		0.900
	APP/DEPART	2	/	7	0	/	0	6	/	4	10	/	7	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	2	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	3	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0

Baldy Mesa

NORTH SIDE

Phelan WEST SIDE EAST SIDE **Phelan**

SOUTH SIDE

Baldy Mesa

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
TUESDAY	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

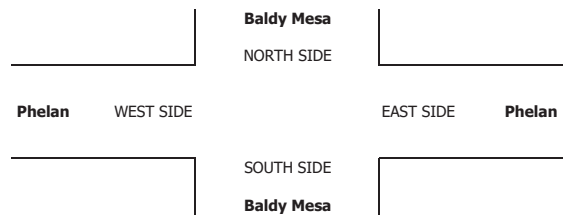
	NORTHBOUND Baldy Mesa			SOUTHBOUND Baldy Mesa			EASTBOUND Phelan			WESTBOUND Phelan			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
7:00 AM	1	0	0	0	0	1	0	0	0	0	4	0	6
7:15 AM	0	2	1	0	0	0	0	2	0	0	4	0	9
7:30 AM	0	0	0	0	0	1	0	4	0	0	1	0	6
7:45 AM	0	0	0	0	0	0	0	3	0	0	1	0	4
8:00 AM	1	0	0	0	0	0	1	1	0	0	1	0	4
8:15 AM	0	1	0	1	0	0	2	2	0	0	1	0	7
8:30 AM	0	0	0	0	0	0	0	1	0	1	4	0	6
8:45 AM	0	0	0	1	0	2	0	4	1	0	0	0	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	2	3	1	2	0	4	3	17	1	1	16	0	50
APPROACH %	33%	50%	17%	33%	0%	67%	14%	81%	5%	6%	94%	0%	
APP/DEPART	6	/	6	6	/	2	21	/	20	17	/	22	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	1	2	1	0	0	2	0	9	0	0	10	0	25
APPROACH %	25%	50%	25%	0%	0%	100%	0%	100%	0%	0%	100%	0%	
PEAK HR FACTOR		0.333			0.500			0.563			0.625		0.694
APP/DEPART	4	/	2	2	/	0	9	/	10	10	/	13	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	2	1	0	1	0	4
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
4:45 PM	0	1	0	0	0	0	1	0	0	0	4	0	6
5:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	2
5:15 PM	0	0	0	1	0	0	0	4	0	0	2	0	7
5:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
5:45 PM	0	0	0	0	0	0	0	1	1	0	1	0	3
VOLUMES	0	1	0	1	0	0	1	13	3	0	12	0	31
APPROACH %	0%	100%	0%	100%	0%	0%	6%	76%	18%	0%	100%	0%	
APP/DEPART	1	/	2	1	/	3	17	/	14	12	/	12	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	1	0	1	0	0	1	6	1	0	8	0	18
APPROACH %	0%	100%	0%	100%	0%	0%	13%	75%	13%	0%	100%	0%	
PEAK HR FACTOR		0.250			0.250			0.500			0.500		0.643
APP/DEPART	1	/	2	1	/	1	8	/	7	8	/	8	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	1	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
TUESDAY	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Baldy Mesa			SOUTHBOUND Baldy Mesa			EASTBOUND Phelan			WESTBOUND Phelan			
	LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	2	0	2
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	2	/	2	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	2	0	2
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.500		0.500
	APP/DEPART	0	/	0	0	/	0	0	/	0	2	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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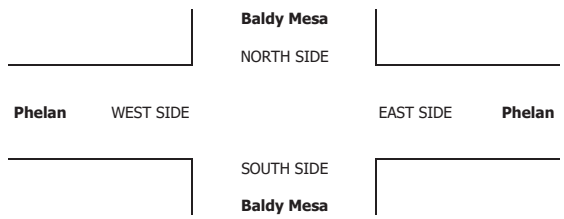
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Baldy Mesa	LOCATION #:	1
TUESDAY	EAST & WEST:	Phelan	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND (Baldy Mesa)			SOUTHBOUND (Baldy Mesa)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
LANES:	NL 1	NT 1	NR 1	SL 1	ST 1	SR 1	EL 1	ET 1.5	ER 0.5	WL 1	WT 1.5	WR 0.5	TOTAL
7:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	2
7:15 AM	0	1	0	0	0	1	4	2	0	0	0	0	8
7:30 AM	0	0	0	0	0	2	0	1	0	0	2	1	6
7:45 AM	0	0	0	0	0	1	1	1	0	0	0	2	5
8:00 AM	1	0	0	0	1	0	2	1	0	0	0	0	5
8:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	2
8:30 AM	0	0	0	0	0	6	0	0	0	0	0	3	9
8:45 AM	0	0	0	0	0	6	1	0	0	0	0	0	7
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	1	0	0	1	16	11	6	0	0	2	6	44
APPROACH %	50%	50%	0%	0%	6%	94%	65%	35%	0%	0%	25%	75%	
APP/DEPART	2	/	18	17	/	1	17	/	6	8	/	19	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	1	1	0	0	1	4	7	5	0	0	2	3	24
APPROACH %	50%	50%	0%	0%	20%	80%	58%	42%	0%	0%	40%	60%	
PEAK HR FACTOR		0.500			0.625			0.500			0.417		0.750
APP/DEPART	2	/	11	5	/	1	12	/	5	5	/	7	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	0	0	0	0	1	0	1	0	0	0	0	3
4:15 PM	0	0	0	0	0	7	0	0	0	0	1	0	8
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	1	1	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	0	0	0	0	8	1	2	0	0	3	1	16
APPROACH %	100%	0%	0%	0%	0%	100%	33%	67%	0%	0%	75%	25%	
APP/DEPART	1	/	2	8	/	0	3	/	2	4	/	12	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	1	0	0	0	0	8	0	2	0	0	2	0	13
APPROACH %	100%	0%	0%	0%	0%	100%	0%	100%	0%	0%	100%	0%	
PEAK HR FACTOR		0.250			0.286			0.500			0.500		0.406
APP/DEPART	1	/	0	8	/	0	2	/	2	2	/	11	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	Verbena	LOCATION #:	2
	EAST & WEST:	Phelan	CONTROL:	STOP N/S

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	2	0	6	0	0	0	0	160	2	1	80	1	252
	7:15 AM	2	0	5	1	0	2	0	167	0	2	80	0	259
	7:30 AM	6	0	2	2	0	5	2	197	2	2	125	0	343
	7:45 AM	6	0	5	2	0	0	1	210	1	0	138	0	363
	8:00 AM	2	0	5	1	0	0	0	203	3	0	71	0	285
	8:15 AM	1	0	4	3	0	0	0	150	1	0	88	1	248
	8:30 AM	5	0	3	1	0	3	0	168	1	4	103	0	288
	8:45 AM	1	0	0	1	0	0	3	183	1	2	106	1	298
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	25	0	30	11	0	10	6	1,438	11	11	791	3	2,336
	APPROACH %	45%	0%	55%	52%	0%	48%	0%	99%	1%	1%	98%	0%	
	APP/DEPART	55	/	9	21	/	22	1,455	/	1,479	805	/	826	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	16	0	17	6	0	7	3	777	6	4	414	0	1,250
	APPROACH %	48%	0%	52%	46%	0%	54%	0%	99%	1%	1%	99%	0%	
	PEAK HR FACTOR		0.750			0.464			0.927			0.757		0.861
	APP/DEPART	33	/	3	13	/	10	786	/	800	418	/	437	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	0	2	0	0	0	1	182	2	6	168	1	364
	4:15 PM	1	0	2	1	0	1	1	169	0	7	195	1	378
	4:30 PM	0	0	5	1	0	1	0	154	1	7	190	0	359
	4:45 PM	0	0	5	2	0	1	2	136	1	5	186	3	341
	5:00 PM	2	0	1	1	0	2	0	154	0	6	189	0	355
	5:15 PM	2	0	2	1	0	1	2	150	1	3	193	0	355
	5:30 PM	0	0	2	1	0	0	1	109	1	12	210	1	337
	5:45 PM	3	0	1	2	0	1	1	104	2	7	157	1	279
	VOLUMES	10	0	20	9	0	7	8	1,158	8	53	1,488	7	2,768
	APPROACH %	33%	0%	67%	56%	0%	44%	1%	99%	1%	3%	96%	0%	
	APP/DEPART	30	/	15	16	/	61	1,174	/	1,187	1,548	/	1,505	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	3	0	14	4	0	3	4	641	4	25	739	5	1,442
	APPROACH %	18%	0%	82%	57%	0%	43%	1%	99%	1%	3%	96%	1%	
	PEAK HR FACTOR		0.850			0.583			0.877			0.947		0.954
	APP/DEPART	17	/	9	7	/	29	649	/	659	769	/	745	0

U-TURNS

NB 0	SB 0	EB 0	WB 0	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Verbena

NORTH SIDE

Phelan WEST SIDE EAST SIDE **Phelan**

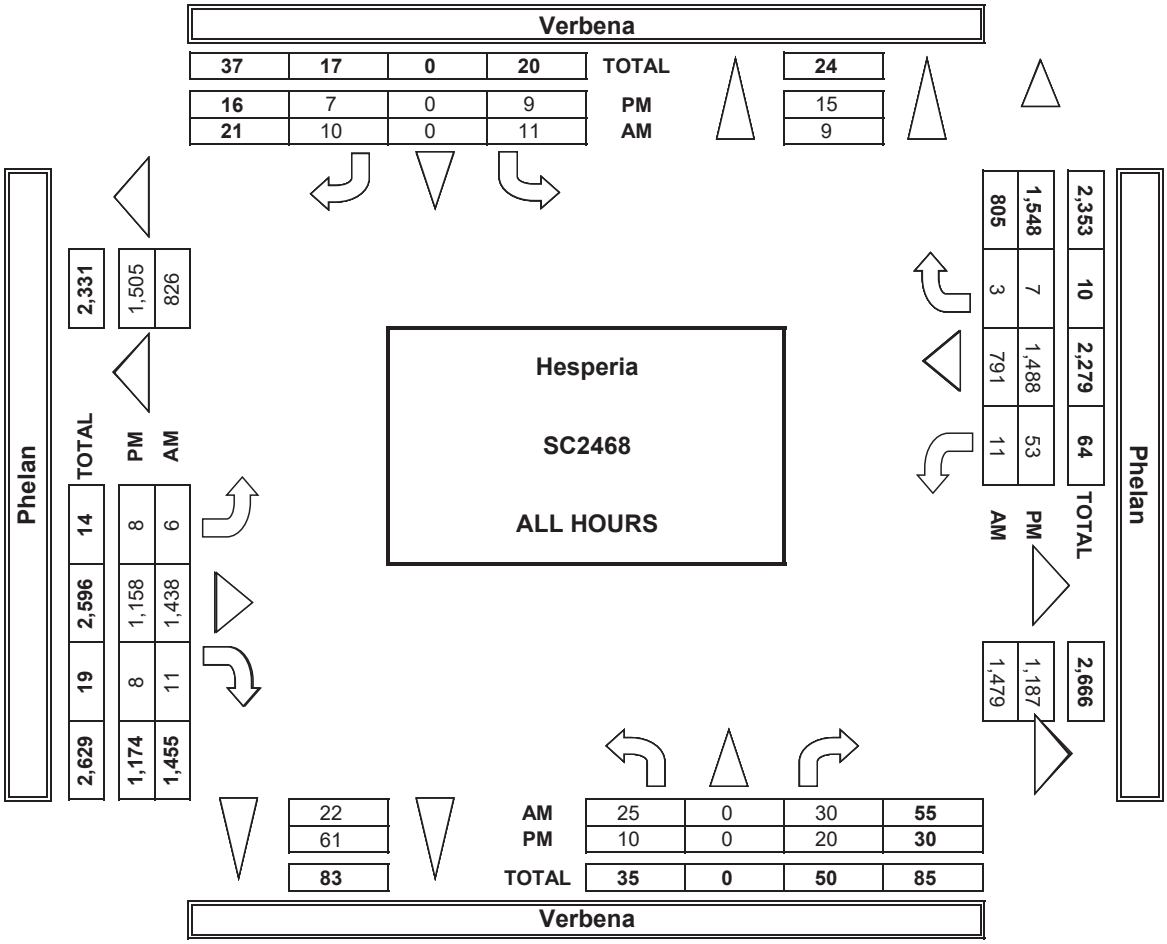
SOUTH SIDE

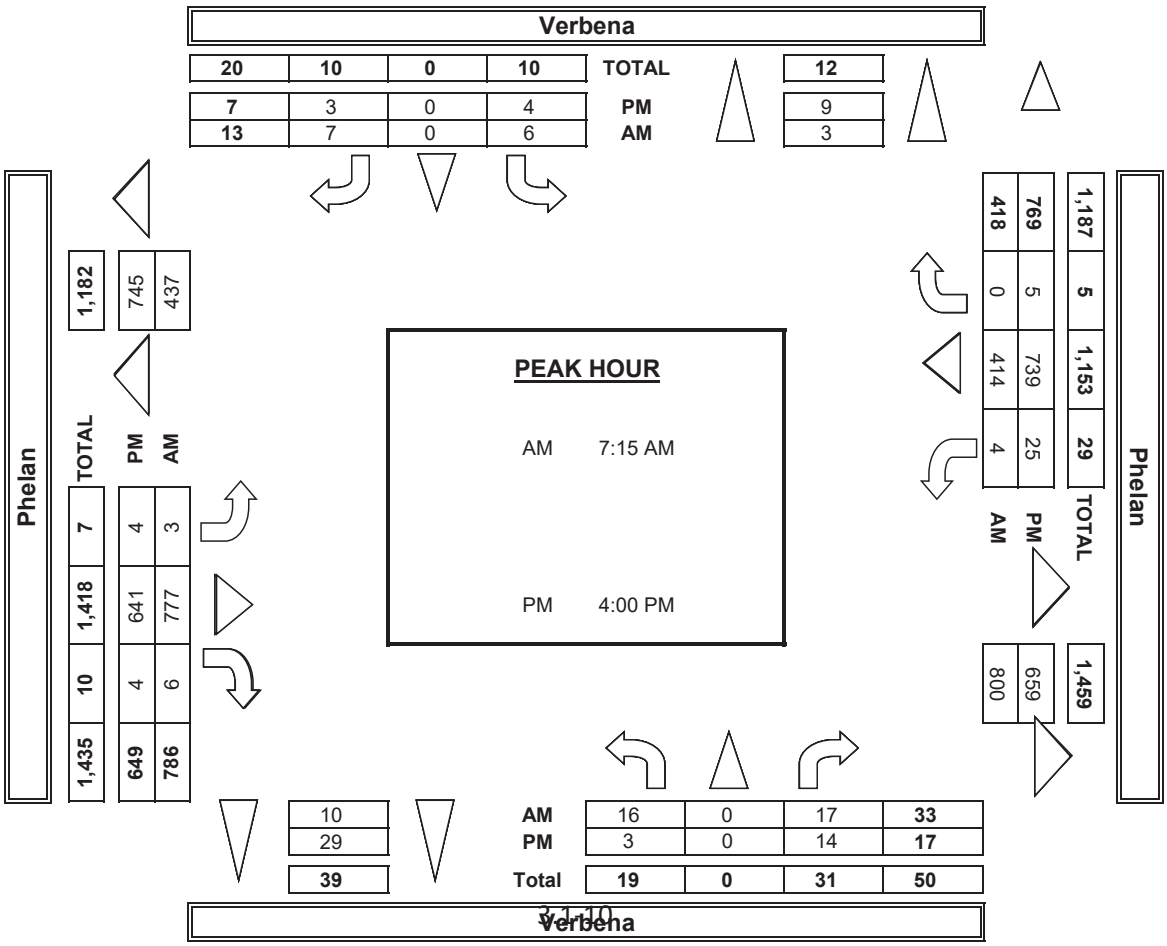
Verbena

	ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM 3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	2	0	2	0	0	1	0	1	0	0	1	0	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 1:	NOTES:
PASSENGER VEHICLES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	2	0	6	0	0	0	0	153	2	1	66	1	231
	7:15 AM	2	0	4	1	0	1	0	161	0	2	69	0	240
	7:30 AM	6	0	1	2	0	5	2	182	2	1	113	0	314
	7:45 AM	6	0	5	2	0	0	1	200	1	0	124	0	339
	8:00 AM	2	0	5	1	0	0	0	195	3	0	65	0	271
	8:15 AM	1	0	4	3	0	0	0	143	1	0	78	1	231
	8:30 AM	5	0	3	1	0	3	0	161	1	3	92	0	269
	8:45 AM	1	0	0	1	0	0	3	173	1	2	103	1	285
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	25	0	28	11	0	9	6	1,368	11	9	710	3	2,180
	APPROACH %	47%	0%	53%	55%	0%	45%	0%	99%	1%	1%	98%	0%	
	APP/DEPART	53	/	9	20	/	20	1,385	/	1,407	722	/	744	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	16	0	15	6	0	6	3	738	6	3	371	0	1,164
	APPROACH %	52%	0%	48%	50%	0%	50%	0%	99%	1%	1%	99%	0%	
	PEAK HR FACTOR		0.705			0.429			0.925			0.754		0.858
	APP/DEPART	31	/	3	12	/	9	747	/	759	374	/	393	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	0	2	0	0	0	1	174	2	6	158	1	346
	4:15 PM	1	0	2	0	0	1	1	161	0	7	183	1	357
	4:30 PM	0	0	5	1	0	1	0	145	1	6	180	0	339
	4:45 PM	0	0	4	2	0	1	2	130	1	3	175	3	321
	5:00 PM	1	0	1	1	0	2	0	150	0	5	180	0	340
	5:15 PM	2	0	2	0	0	1	1	141	1	3	185	0	336
	5:30 PM	0	0	2	1	0	0	1	105	1	12	203	1	326
	5:45 PM	3	0	1	2	0	1	1	101	2	7	155	1	274
	VOLUMES	9	0	19	7	0	7	7	1,107	8	49	1,419	7	2,639
	APPROACH %	32%	0%	68%	50%	0%	50%	1%	99%	1%	3%	96%	0%	
	APP/DEPART	28	/	14	14	/	57	1,122	/	1,133	1,475	/	1,435	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	3	0	13	3	0	3	4	610	4	22	696	5	1,363
	APPROACH %	19%	0%	81%	50%	0%	50%	1%	99%	1%	3%	96%	1%	
	PEAK HR FACTOR		0.800			0.500			0.873			0.946		0.954
	APP/DEPART	16	/	9	6	/	26	618	/	626	723	/	702	0

U-TURNS					
	NB	SB	EB	WB	TTL
AM	0	0	0	0	0
PM	0	0	0	0	0
TOTAL	0	0	0	0	0

RTOR				
	NRR X	SRR X	ERR X	WRR X
AM	0	0	0	0
PM	0	0	0	0
TOTAL	0	0	0	0

Verbena — NORTH SIDE

Phelan — WEST SIDE — EAST SIDE — **Phelan**

SOUTH SIDE — **Verbena**

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	4	0	0	8	0	12
	7:15 AM	0	0	0	0	0	0	0	3	0	0	6	0	9
	7:30 AM	0	0	1	0	0	0	0	8	0	1	7	0	17
	7:45 AM	0	0	0	0	0	0	0	4	0	0	10	0	14
	8:00 AM	0	0	0	0	0	0	0	4	0	0	4	0	8
	8:15 AM	0	0	0	0	0	0	0	2	0	0	6	0	8
	8:30 AM	0	0	0	0	0	0	0	5	0	0	5	0	10
	8:45 AM	0	0	0	0	0	0	0	5	0	0	3	0	8
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	1	0	0	0	0	35	0	1	49	0	86
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	2%	98%	0%	
	APP/DEPART	1	/	0	0	/	1	35	/	36	50	/	49	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	1	0	0	0	0	19	0	1	31	0	52
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	3%	97%	0%	
	PEAK HR FACTOR		0.250			0.000			0.594			0.800		0.765
	APP/DEPART	1	/	0	0	/	1	19	/	20	32	/	31	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	4	0	0	5	0	9
	4:15 PM	0	0	0	0	0	0	0	5	0	0	7	0	12
	4:30 PM	0	0	0	0	0	0	0	5	0	1	7	0	13
	4:45 PM	0	0	1	0	0	0	0	4	0	0	4	0	9
	5:00 PM	0	0	0	0	0	0	0	3	0	1	5	0	9
	5:15 PM	0	0	0	0	0	0	0	3	0	0	5	0	8
	5:30 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
	5:45 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	VOLUMES	0	0	1	0	0	0	0	28	0	2	37	0	68
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	5%	95%	0%	
	APP/DEPART	1	/	0	0	/	2	28	/	29	39	/	37	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	1	0	0	0	0	17	0	2	23	0	43
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	8%	92%	0%	
	PEAK HR FACTOR		0.250			0.000			0.850			0.781		0.827
	APP/DEPART	1	/	0	0	/	2	17	/	18	25	/	23	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
	7:15 AM	0	0	1	0	0	0	0	0	0	0	2	0	3
	7:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
	7:45 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
	8:00 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
	8:15 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
	8:30 AM	0	0	0	0	0	0	0	1	0	1	2	0	4
	8:45 AM	0	0	0	0	0	0	0	3	0	0	0	0	3
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	1	0	0	0	0	13	0	1	11	0	26
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	100%	0%	8%	92%	0%	
	APP/DEPART	1	/	0	0	/	1	13	/	14	12	/	11	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	0	0	0	0	0	0	8	0	1	5	0	14
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	17%	83%	0%	
	PEAK HR FACTOR		0.000			0.000			0.667			0.500		0.875
	APP/DEPART	0	/	0	0	/	1	8	/	8	6	/	5	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	4
	4:15 PM	0	0	0	0	0	0	0	1	0	0	4	0	5
	4:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	4:45 PM	0	0	0	0	0	0	0	2	0	2	3	0	7
	5:00 PM	1	0	0	0	0	0	0	1	0	0	3	0	5
	5:15 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
	5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	0	0	0	0	0	0	11	0	2	16	0	30
	APPROACH %	100%	0%	0%	0%	0%	0%	0%	100%	0%	11%	89%	0%	
	APP/DEPART	1	/	0	0	/	2	11	/	11	18	/	17	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	1	0	0	0	0	0	0	6	0	2	11	0	20
	APPROACH %	100%	0%	0%	0%	0%	0%	0%	100%	0%	15%	85%	0%	
	PEAK HR FACTOR		0.250			0.000			0.750			0.650		0.714
	APP/DEPART	1	/	0	0	/	2	6	/	6	13	/	12	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Verbena

NORTH SIDE

Phelan WEST SIDE EAST SIDE **Phelan**

SOUTH SIDE

Verbena

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

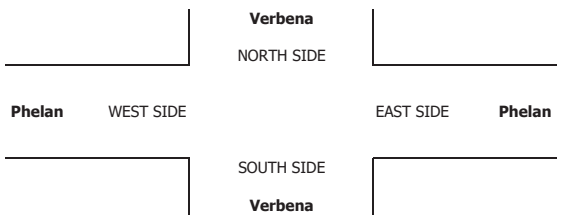
		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
	7:15 AM	0	0	0	0	0	1	0	2	0	0	3	0	6
	7:30 AM	0	0	0	0	0	0	0	5	0	0	1	0	6
	7:45 AM	0	0	0	0	0	0	0	3	0	0	1	0	4
	8:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
	8:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
	8:30 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
	8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	1	0	17	0	0	13	0	31
	APPROACH %	0%	0%	0%	0%	0%	100%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	1	/	0	17	/	17	13	/	14	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	1	0	11	0	0	9	0	21
	APPROACH %	0%	0%	0%	0%	0%	100%	0%	100%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.250			0.550			0.563		0.875
	APP/DEPART	0	/	0	1	/	0	11	/	11	9	/	10	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	4:15 PM	0	0	0	1	0	0	0	1	0	0	0	0	2
	4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
	4:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	3
	5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:15 PM	0	0	0	1	0	0	1	4	0	0	0	0	6
	5:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
	5:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	VOLUMES	0	0	0	2	0	0	1	9	0	0	10	0	22
	APPROACH %	0%	0%	0%	100%	0%	0%	10%	90%	0%	0%	100%	0%	
	APP/DEPART	0	/	1	2	/	0	10	/	11	10	/	10	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	1	0	0	1	5	0	0	6	0	13
	APPROACH %	0%	0%	0%	100%	0%	0%	17%	83%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.250			0.300			0.500		0.542
	APP/DEPART	0	/	1	1	/	0	6	/	6	6	/	6	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Verbena			SOUTHBOUND Verbena			EASTBOUND Phelan			WESTBOUND Phelan			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	2	0	2
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	2	/	2	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	2	0	2
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.500		0.500
	APP/DEPART	0	/	0	0	/	0	0	/	0	2	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
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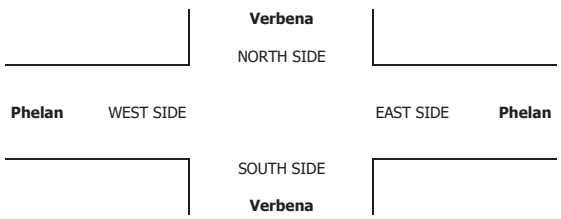
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Verbena	LOCATION #:	2
TUESDAY	EAST & WEST:	Phelan	CONTROL:	STOP N/S

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND (Verbena)			SOUTHBOUND (Verbena)			EASTBOUND (Phelan)			WESTBOUND (Phelan)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
	7:30 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
	7:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
	8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
	8:15 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
	8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	5	0	0	8	0	13
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	5	/	5	8	/	8	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	0	0	0	0	0	0	0	4	0	0	7	0	11
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			1.000			0.583		0.688
	APP/DEPART	0	/	0	0	/	0	4	/	4	7	/	7	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	4:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	3	0	0	4	0	7
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	3	/	3	4	/	4	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	0	0	0	0	0	3	0	0	2	0	5
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.750			0.500		0.625
	APP/DEPART	0	/	0	0	/	0	3	/	3	2	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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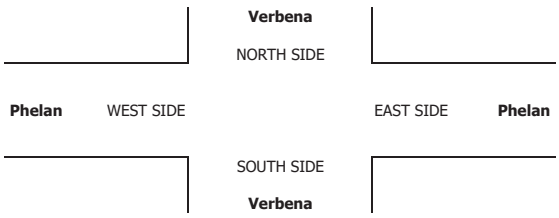

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	88	88	2	0	2	168	2	170	260
07:15 AM	0	101	101	2	1	3	194	0	194	298
07:30 AM	1	130	131	7	0	7	207	0	207	345
07:45 AM	1	97	98	4	1	5	193	3	196	299
Total	2	416	418	15	2	17	762	5	767	1202
08:00 AM	1	73	74	1	4	5	178	7	185	264
08:15 AM	0	85	85	1	1	2	188	1	189	276
08:30 AM	1	110	111	1	1	2	184	0	184	297
08:45 AM	1	78	79	1	0	1	171	3	174	254
Total	3	346	349	4	6	10	721	11	732	1091
Grand Total	5	762	767	19	8	27	1483	16	1499	2293
Apprch %	0.7	99.3		70.4	29.6		98.9	1.1		
Total %	0.2	33.2	33.4	0.8	0.3	1.2	64.7	0.7	65.4	
Passenger Vehicles	5	711	716	19	8	27	1443	16	1459	2202
% Passenger Vehicles	100	93.3	93.4	100	100	100	97.3	100	97.3	96
Large 2 Axle Vehicles	0	40	40	0	0	0	22	0	22	62
% Large 2 Axle Vehicles	0	5.2	5.2	0	0	0	1.5	0	1.5	2.7
3 Axle Vehicles	0	7	7	0	0	0	8	0	8	15
% 3 Axle Vehicles	0	0.9	0.9	0	0	0	0.5	0	0.5	0.7
4+ Axle Trucks	0	4	4	0	0	0	10	0	10	14
% 4+ Axle Trucks	0	0.5	0.5	0	0	0	0.7	0	0.7	0.6

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	101	101	2	1	3	194	0	194	298
07:30 AM	**1**	**130**	**131**	**7**	0	**7**	**207**	0	**207**	**345**
07:45 AM	1	97	98	4	1	5	193	3	196	299
08:00 AM	1	73	74	1	**4**	5	178	**7**	185	264
Total Volume	3	401	404	14	6	20	772	10	782	1206
% App. Total	0.7	99.3		70	30		98.7	1.3		
PHF	.750	.771	.771	.500	.375	.714	.932	.357	.944	.874

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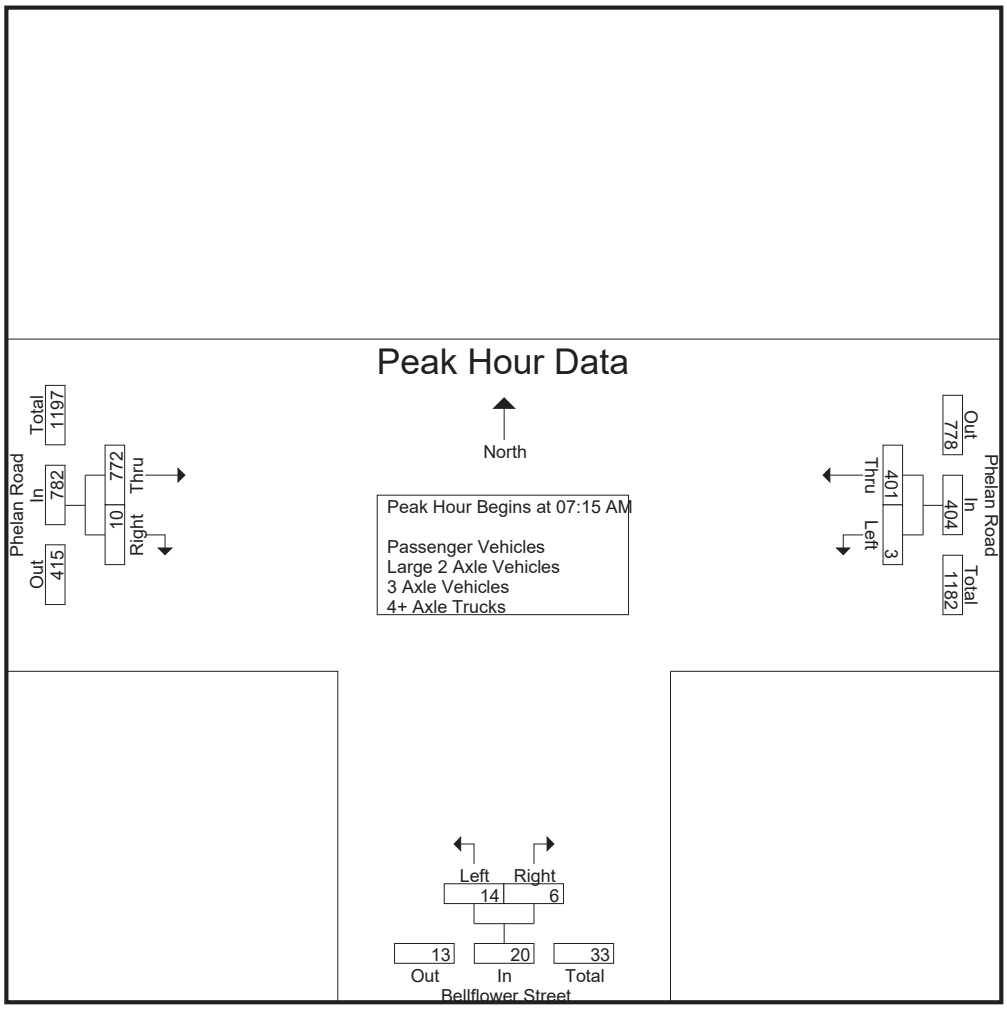
City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:15 AM			07:15 AM		
+0 mins.	0	88	88	2	1	3	194	0	194
+15 mins.	0	101	101	**7**	0	**7**	**207**	0	**207**
+30 mins.	**1**	**130**	**131**	4	1	5	193	3	196
+45 mins.	1	97	98	1	**4**	5	178	**7**	185
Total Volume	2	416	418	14	6	20	772	10	782
% App. Total	0.5	99.5		70	30		98.7	1.3	
PHF	.500	.800	.798	.500	.375	.714	.932	.357	.944

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City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	80	80	2	0	2	163	2	165	247
07:15 AM	0	95	95	2	1	3	190	0	190	288
07:30 AM	1	122	123	7	0	7	197	0	197	327
07:45 AM	1	90	91	4	1	5	188	3	191	287
Total	2	387	389	15	2	17	738	5	743	1149
08:00 AM	1	67	68	1	4	5	172	7	179	252
08:15 AM	0	79	79	1	1	2	184	1	185	266
08:30 AM	1	103	104	1	1	2	181	0	181	287
08:45 AM	1	75	76	1	0	1	168	3	171	248
Total	3	324	327	4	6	10	705	11	716	1053
Grand Total	5	711	716	19	8	27	1443	16	1459	2202
Apprch %	0.7	99.3		70.4	29.6		98.9	1.1		
Total %	0.2	32.3	32.5	0.9	0.4	1.2	65.5	0.7	66.3	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	95	95	2	1	3	190	0	190	288
07:30 AM	**1**	**122**	**123**	**7**	0	**7**	**197**	0	**197**	**327**
07:45 AM	1	90	91	4	1	5	188	3	191	287
08:00 AM	1	67	68	1	**4**	5	172	**7**	179	252
Total Volume	3	374	377	14	6	20	747	10	757	1154
% App. Total	0.8	99.2		70	30		98.7	1.3		
PHF	.750	.766	.766	.500	.375	.714	.948	.357	.961	.882

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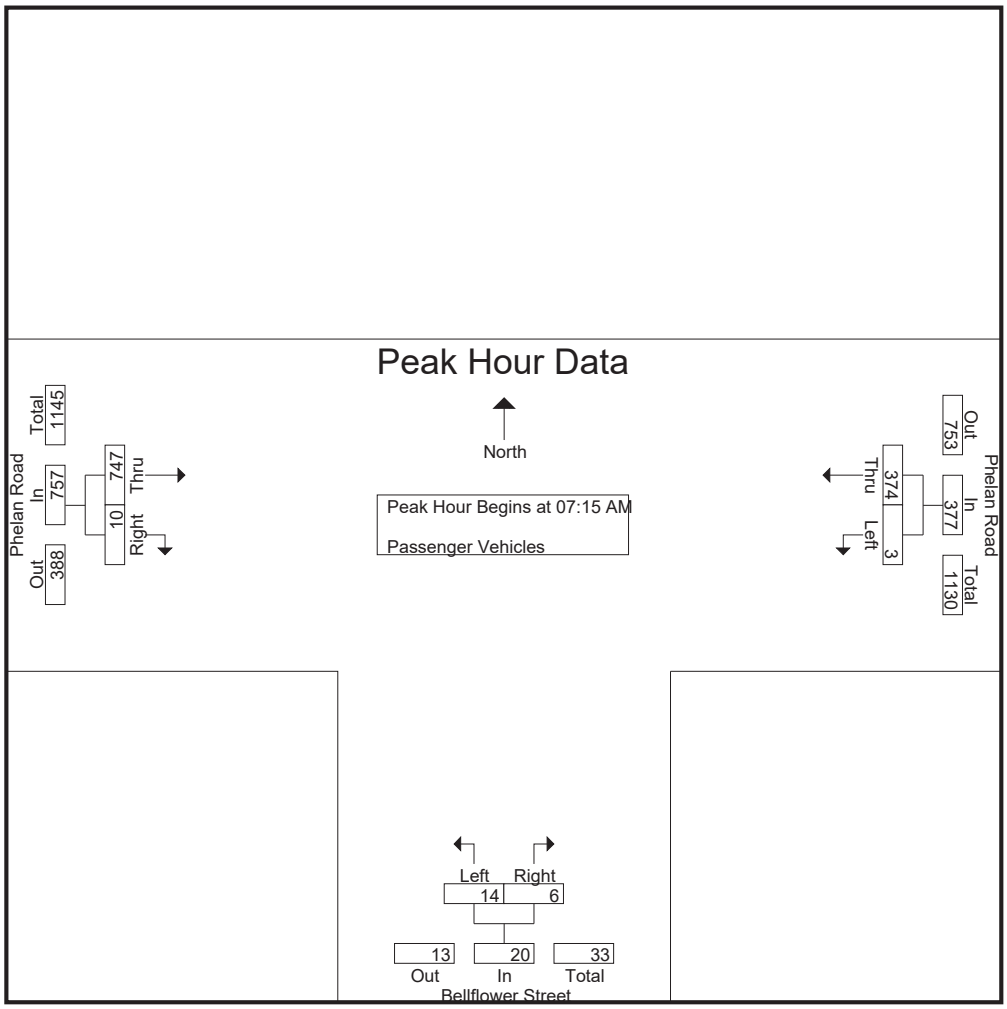
City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	95	95	2	1	3	190	0	190
+15 mins.	**1**	**122**	**123**	**7**	0	**7**	**197**	0	**197**
+30 mins.	1	90	91	4	1	5	188	3	191
+45 mins.	1	67	68	1	**4**	5	172	**7**	179
Total Volume	3	374	377	14	6	20	747	10	757
% App. Total	0.8	99.2		70	30		98.7	1.3	
PHF	.750	.766	.766	.500	.375	.714	.948	.357	.961

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City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	8	8	0	0	0	2	0	2	10
07:15 AM	0	4	4	0	0	0	2	0	2	6
07:30 AM	0	6	6	0	0	0	4	0	4	10
07:45 AM	0	5	5	0	0	0	2	0	2	7
Total	0	23	23	0	0	0	10	0	10	33
08:00 AM	0	4	4	0	0	0	6	0	6	10
08:15 AM	0	5	5	0	0	0	2	0	2	7
08:30 AM	0	6	6	0	0	0	3	0	3	9
08:45 AM	0	2	2	0	0	0	1	0	1	3
Total	0	17	17	0	0	0	12	0	12	29
Grand Total	0	40	40	0	0	0	22	0	22	62
Apprch %	0	100		0	0		100	0		
Total %	0	64.5	64.5	0	0	0	35.5	0	35.5	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	4	4	0	0	0	2	0	2	6
07:30 AM	0	**6**	**6**	0	0	0	4	0	4	**10**
07:45 AM	0	5	5	0	0	0	2	0	2	7
08:00 AM	0	4	4	0	0	0	**6**	0	**6**	10
Total Volume	0	19	19	0	0	0	14	0	14	33
% App. Total	0	100		0	0		100	0		
PHF	.000	.792	.792	.000	.000	.000	.583	.000	.583	.825

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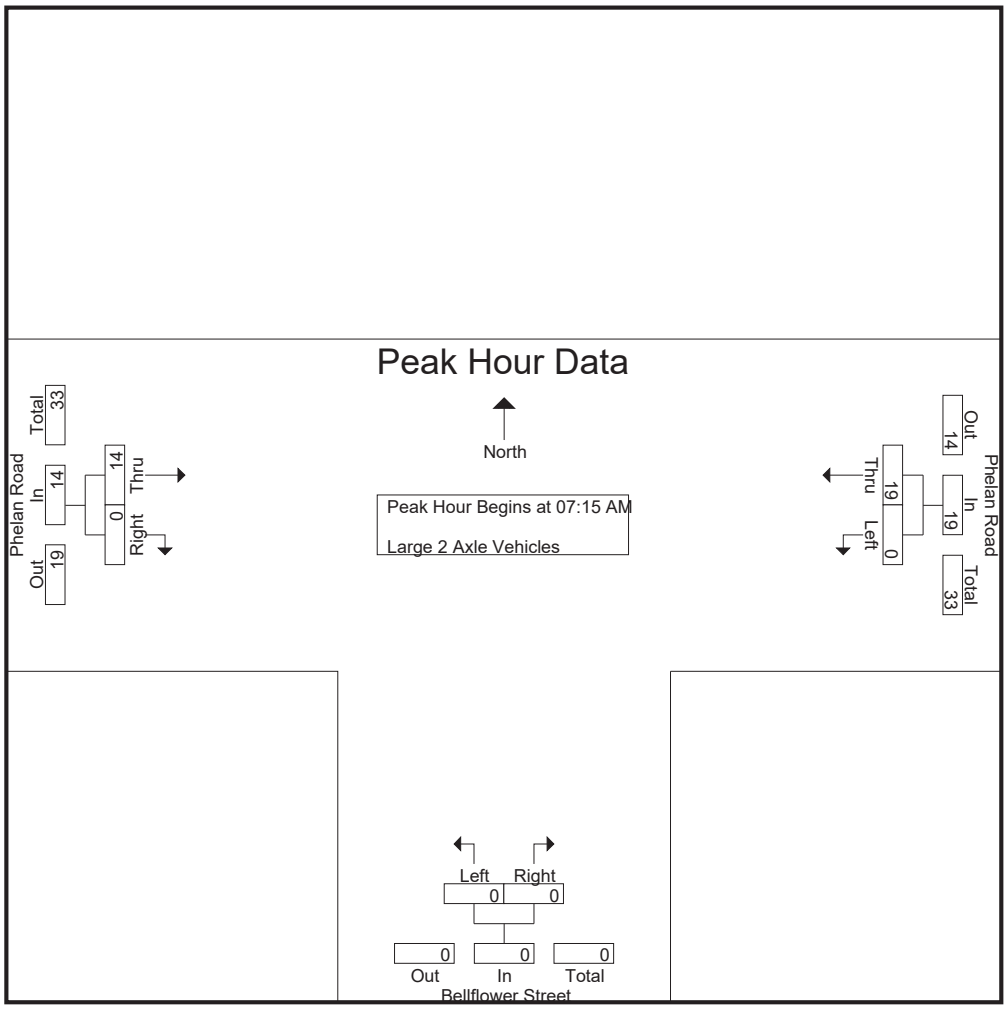
City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	4	4	0	0	0	2	0	2
+15 mins.	0	**6**	**6**	0	0	0	4	0	4
+30 mins.	0	5	5	0	0	0	2	0	2
+45 mins.	0	4	4	0	0	0	**6**	0	**6**
Total Volume	0	19	19	0	0	0	14	0	14
% App. Total	0	100		0	0		100	0	
PHF	.000	.792	.792	.000	.000	.000	.583	.000	.583

Counts Unlimited
PO Box 1178
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City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	2	0	2	2
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	2	2	0	0	0	2	0	2	4
07:45 AM	0	2	2	0	0	0	1	0	1	3
Total	0	4	4	0	0	0	6	0	6	10
08:00 AM	0	2	2	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	1	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	3	3	0	0	0	2	0	2	5
Grand Total	0	7	7	0	0	0	8	0	8	15
Apprch %	0	100		0	0		100	0		
Total %	0	46.7	46.7	0	0	0	53.3	0	53.3	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	**2**	**2**	0	0	0	**2**	0	**2**	**4**
07:45 AM	0	2	2	0	0	0	1	0	1	3
08:00 AM	0	2	2	0	0	0	0	0	0	2
Total Volume	0	6	6	0	0	0	4	0	4	10
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.500	.000	.500	.625

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City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
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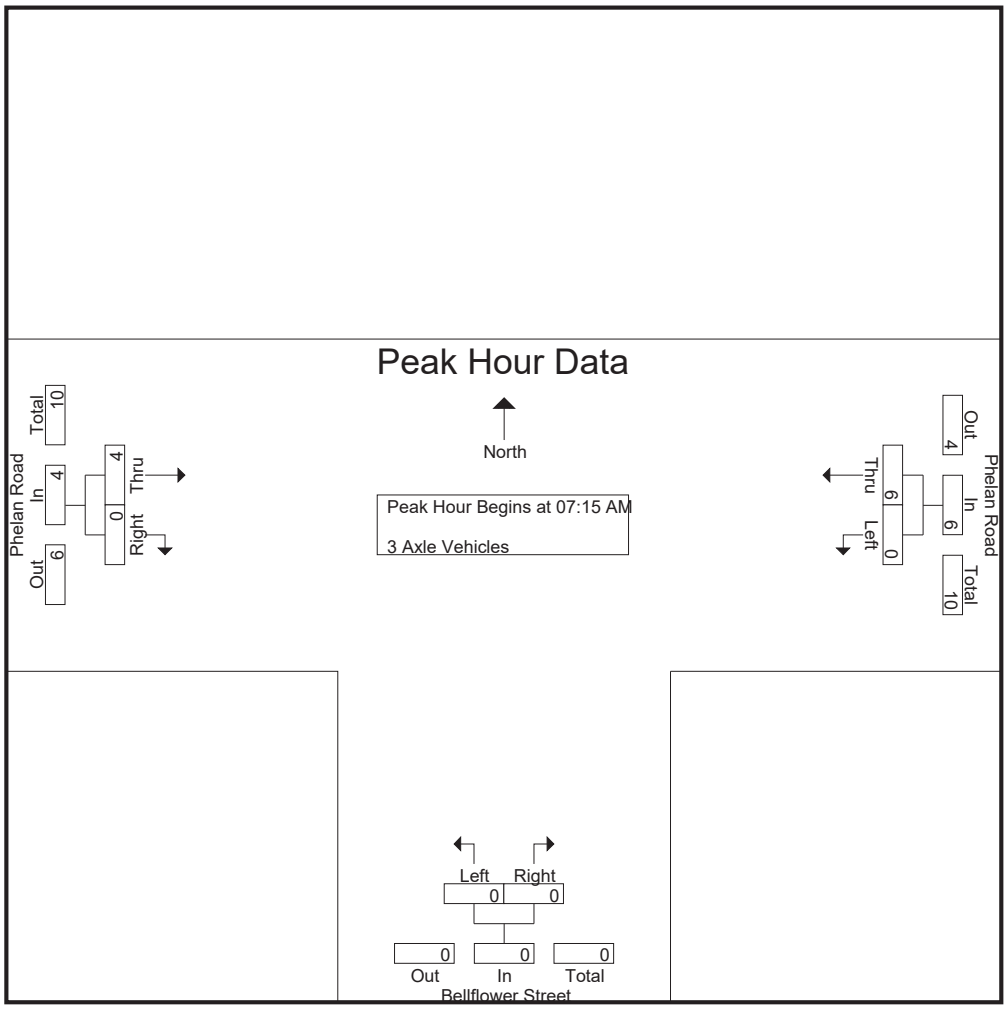

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	1	0	1
+15 mins.	0	**2**	**2**	0	0	0	**2**	0	**2**
+30 mins.	0	2	2	0	0	0	1	0	1
+45 mins.	0	2	2	0	0	0	0	0	0
Total Volume	0	6	6	0	0	0	4	0	4
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.500	.000	.500

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City of Hesperia
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E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan AM
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Groups Printed- 4+ Axle Trucks

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	2	2	0	0	0	1	0	1	3
07:30 AM	0	0	0	0	0	0	4	0	4	4
07:45 AM	0	0	0	0	0	0	2	0	2	2
Total	0	2	2	0	0	0	8	0	8	10
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	1	0	0	0	1	0	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	1	0	0	0	1	0	1	2
Total	0	2	2	0	0	0	2	0	2	4
Grand Total	0	4	4	0	0	0	10	0	10	14
Apprch %	0	100		0	0		100	0		
Total %	0	28.6	28.6	0	0	0	71.4	0	71.4	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	**2**	**2**	0	0	0	1	0	1	3
07:30 AM	0	0	0	0	0	0	**4**	0	**4**	**4**
07:45 AM	0	0	0	0	0	0	2	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	7	0	7	9
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.438	.000	.438	.563

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City of Hesperia
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File Name : 15_HES_Bellflower_Phelan AM
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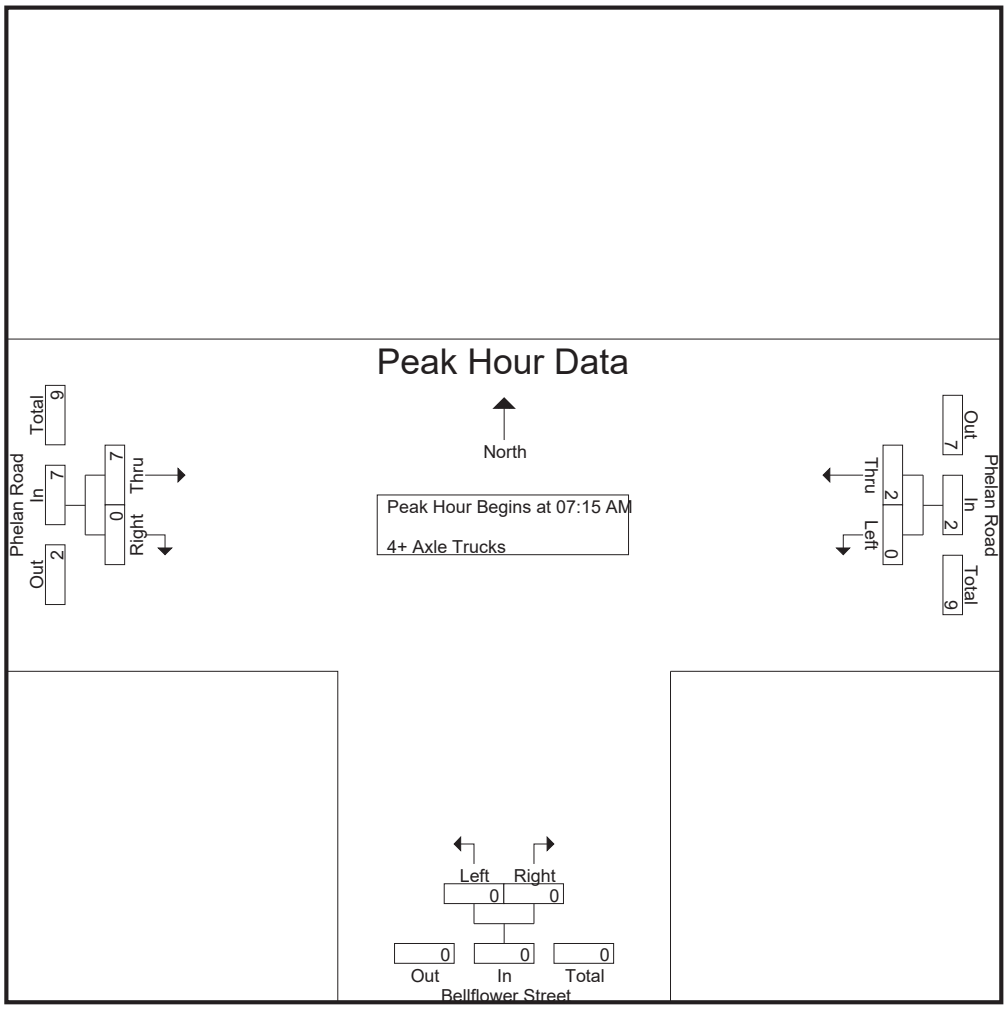

Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	**2**	**2**	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	**4**	0	**4**
+30 mins.	0	0	0	0	0	0	2	0	2
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	7	0	7
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.438	.000	.438

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City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
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File Name : 15_HES_Bellflower_Phelan PM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	2	204	206	0	0	0	158	1	159	365
04:15 PM	3	225	228	0	1	1	151	1	152	381
04:30 PM	1	183	184	1	0	1	160	2	162	347
04:45 PM	1	220	221	3	1	4	163	0	163	388
Total	7	832	839	4	2	6	632	4	636	1481
05:00 PM	2	214	216	0	1	1	150	1	151	368
05:15 PM	1	171	172	2	2	4	175	1	176	352
05:30 PM	0	219	219	1	0	1	161	0	161	381
05:45 PM	0	156	156	1	2	3	127	1	128	287
Total	3	760	763	4	5	9	613	3	616	1388
Grand Total	10	1592	1602	8	7	15	1245	7	1252	2869
Apprch %	0.6	99.4		53.3	46.7		99.4	0.6		
Total %	0.3	55.5	55.8	0.3	0.2	0.5	43.4	0.2	43.6	
Passenger Vehicles	9	1564	1573	8	6	14	1206	7	1213	2800
% Passenger Vehicles	90	98.2	98.2	100	85.7	93.3	96.9	100	96.9	97.6
Large 2 Axle Vehicles	1	14	15	0	1	1	27	0	27	43
% Large 2 Axle Vehicles	10	0.9	0.9	0	14.3	6.7	2.2	0	2.2	1.5
3 Axle Vehicles	0	2	2	0	0	0	4	0	4	6
% 3 Axle Vehicles	0	0.1	0.1	0	0	0	0.3	0	0.3	0.2
4+ Axle Trucks	0	12	12	0	0	0	8	0	8	20
% 4+ Axle Trucks	0	0.8	0.7	0	0	0	0.6	0	0.6	0.7

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	1	**220**	**221**	**3**	1	**4**	163	0	163	**388**
05:00 PM	**2**	214	216	0	1	1	150	**1**	151	368
05:15 PM	1	171	172	2	**2**	4	**175**	1	**176**	352
05:30 PM	0	219	219	1	0	1	161	0	161	381
Total Volume	4	824	828	6	4	10	649	2	651	1489
% App. Total	0.5	99.5		60	40		99.7	0.3		
PHF	.500	.936	.937	.500	.500	.625	.927	.500	.925	.959

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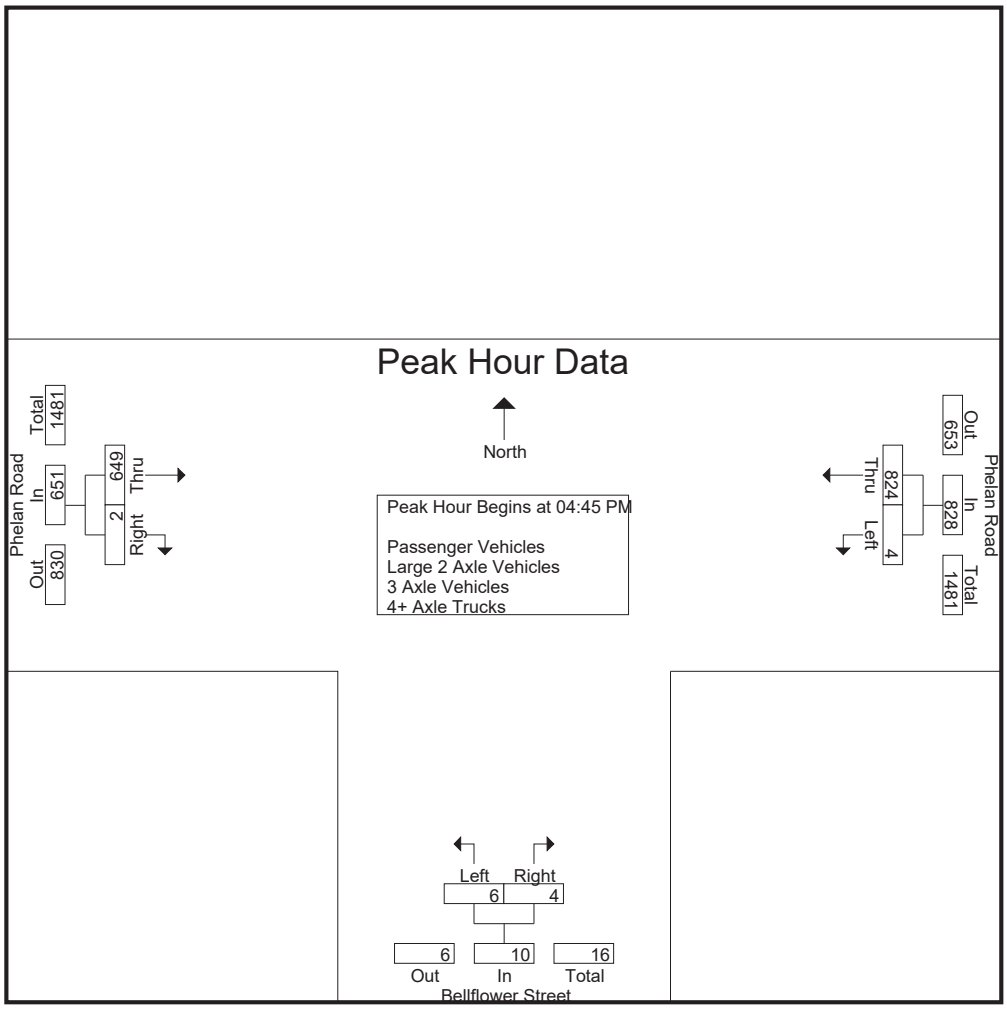

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM			04:30 PM			04:30 PM		
+0 mins.	**3**	**225**	**228**	1	0	1	160	**2**	162
+15 mins.	1	183	184	**3**	1	**4**	163	0	163
+30 mins.	1	220	221	0	1	1	150	1	151
+45 mins.	2	214	216	2	**2**	4	**175**	1	**176**
Total Volume	7	842	849	6	4	10	648	4	652
% App. Total	0.8	99.2		60	40		99.4	0.6	
PHF	.583	.936	.931	.500	.500	.625	.926	.500	.926

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Groups Printed- Passenger Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	2	198	200	0	0	0	158	1	159	359
04:15 PM	2	220	222	0	1	1	150	1	151	374
04:30 PM	1	180	181	1	0	1	149	2	151	333
04:45 PM	1	215	216	3	1	4	158	0	158	378
Total	6	813	819	4	2	6	615	4	619	1444
05:00 PM	2	210	212	0	1	1	144	1	145	358
05:15 PM	1	169	170	2	1	3	171	1	172	345
05:30 PM	0	218	218	1	0	1	156	0	156	375
05:45 PM	0	154	154	1	2	3	120	1	121	278
Total	3	751	754	4	4	8	591	3	594	1356
Grand Total	9	1564	1573	8	6	14	1206	7	1213	2800
Apprch %	0.6	99.4		57.1	42.9		99.4	0.6		
Total %	0.3	55.9	56.2	0.3	0.2	0.5	43.1	0.2	43.3	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	1	215	216	**3**	**1**	**4**	158	0	158	**378**
05:00 PM	**2**	210	212	0	1	1	144	**1**	145	358
05:15 PM	1	169	170	2	1	3	**171**	1	**172**	345
05:30 PM	0	**218**	**218**	1	0	1	156	0	156	375
Total Volume	4	812	816	6	3	9	629	2	631	1456
% App. Total	0.5	99.5		66.7	33.3		99.7	0.3		
PHF	.500	.931	.936	.500	.750	.563	.920	.500	.917	.963

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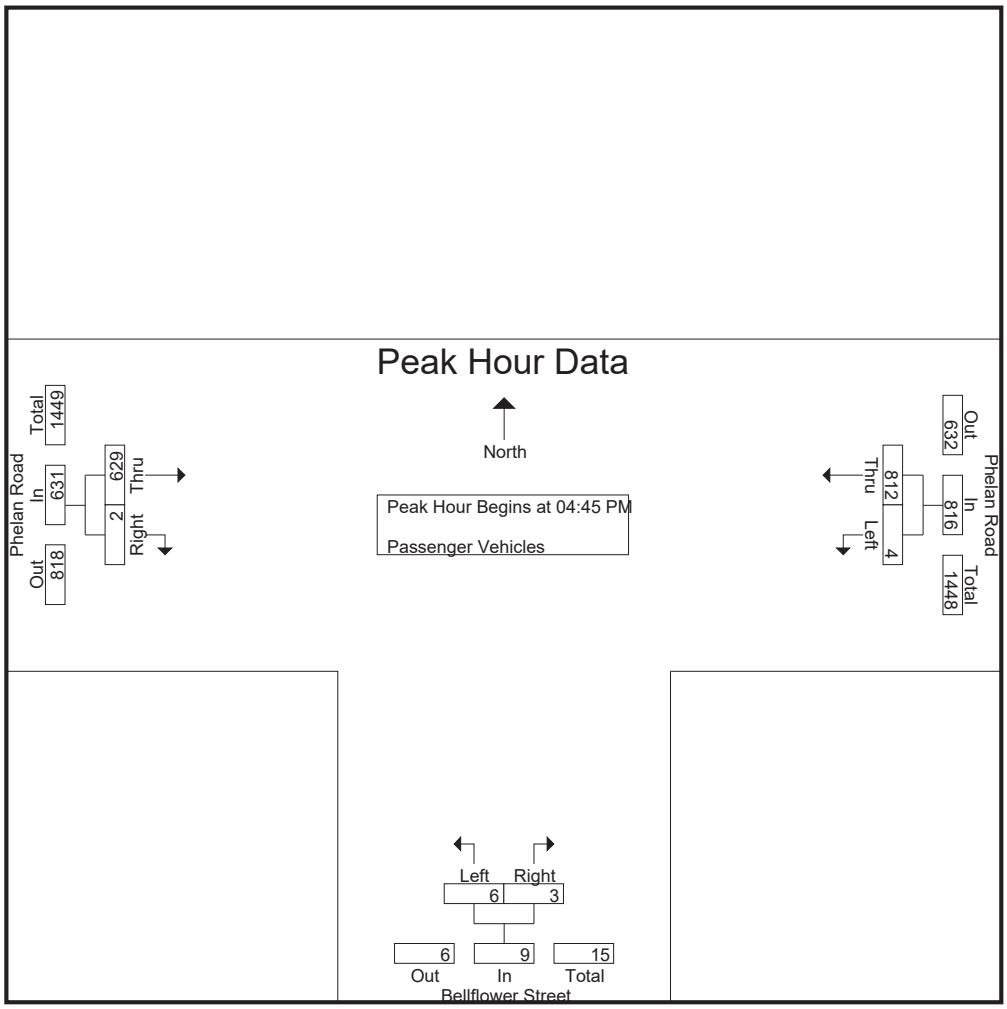

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	1	215	216	**3**	**1**	**4**	158	0	158
+15 mins.	**2**	210	212	0	1	1	144	**1**	145
+30 mins.	1	169	170	2	1	3	**171**	1	**172**
+45 mins.	0	**218**	**218**	1	0	1	156	0	156
Total Volume	4	812	816	6	3	9	629	2	631
% App. Total	0.5	99.5		66.7	33.3		99.7	0.3	
PHF	.500	.931	.936	.500	.750	.563	.920	.500	.917

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City of Hesperia
N/S: Bellflower Street
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Weather: Clear

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Groups Printed- Large 2 Axle Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	4	4	0	0	0	0	0	0	4
04:15 PM	1	1	2	0	0	0	1	0	1	3
04:30 PM	0	3	3	0	0	0	8	0	8	11
04:45 PM	0	2	2	0	0	0	5	0	5	7
Total	1	10	11	0	0	0	14	0	14	25
05:00 PM	0	2	2	0	0	0	6	0	6	8
05:15 PM	0	0	0	0	1	1	0	0	0	1
05:30 PM	0	1	1	0	0	0	4	0	4	5
05:45 PM	0	1	1	0	0	0	3	0	3	4
Total	0	4	4	0	1	1	13	0	13	18
Grand Total	1	14	15	0	1	1	27	0	27	43
Apprch %	6.7	93.3		0	100		100	0		
Total %	2.3	32.6	34.9	0	2.3	2.3	62.8	0	62.8	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	**2**	**2**	0	0	0	5	0	5	7
05:00 PM	0	2	2	0	0	0	**6**	0	**6**	**8**
05:15 PM	0	0	0	0	**1**	**1**	0	0	0	1
05:30 PM	0	1	1	0	0	0	4	0	4	5
Total Volume	0	5	5	0	1	1	15	0	15	21
% App. Total	0	100		0	100		100	0		
PHF	.000	.625	.625	.000	.250	.250	.625	.000	.625	.656

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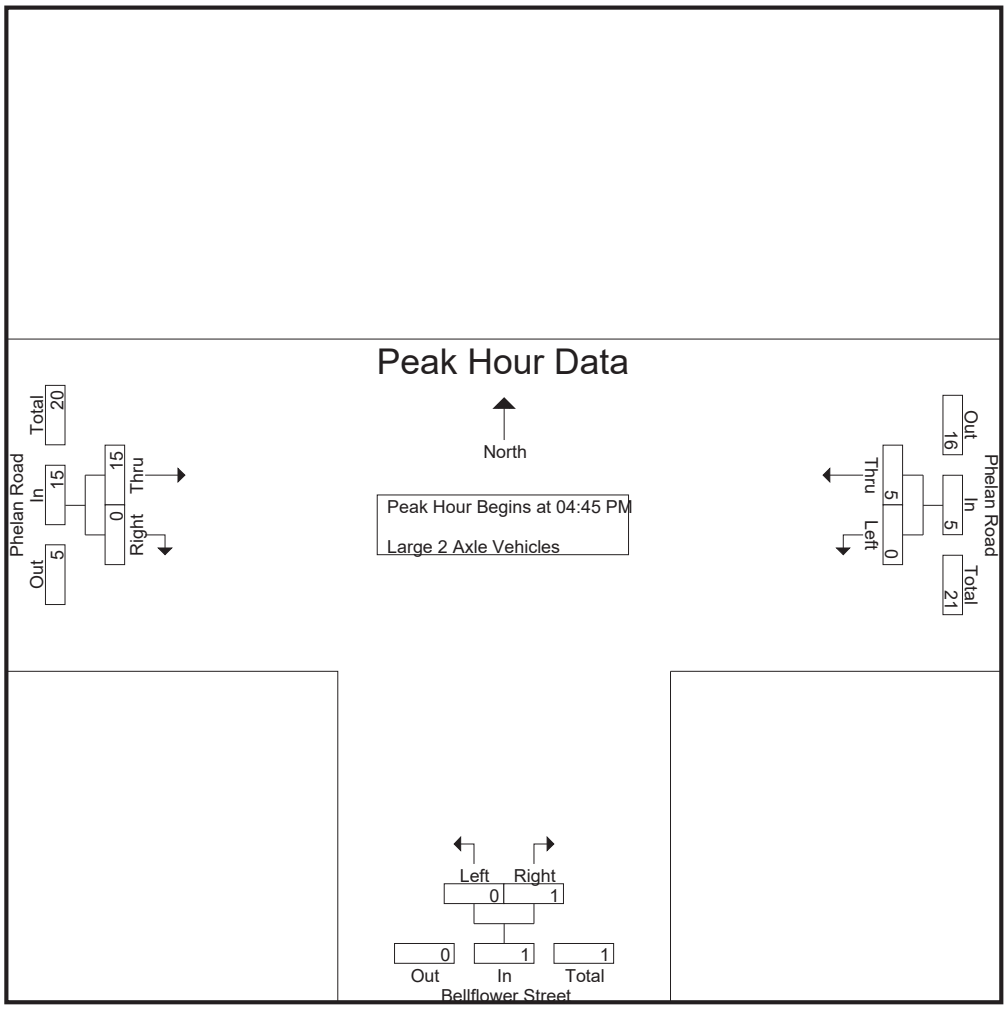

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	**2**	**2**	0	0	0	5	0	5
+15 mins.	0	2	2	0	0	0	**6**	0	**6**
+30 mins.	0	0	0	0	**1**	**1**	0	0	0
+45 mins.	0	1	1	0	0	0	4	0	4
Total Volume	0	5	5	0	1	1	15	0	15
% App. Total	0	100		0	100		100	0	
PHF	.000	.625	.625	.000	.250	.250	.625	.000	.625

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City of Hesperia
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File Name : 15_HES_Bellflower_Phelan PM
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Groups Printed- 3 Axle Vehicles

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	1	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	1	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	1	1	0	0	0	3	0	3	4
Grand Total	0	2	2	0	0	0	4	0	4	6
Apprch %	0	100		0	0		100	0		
Total %	0	33.3	33.3	0	0	0	66.7	0	66.7	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	**1**	**1**	0	0	0	**1**	0	**1**	**2**
05:30 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	1	1	0	0	0	2	0	2	3
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500	.375

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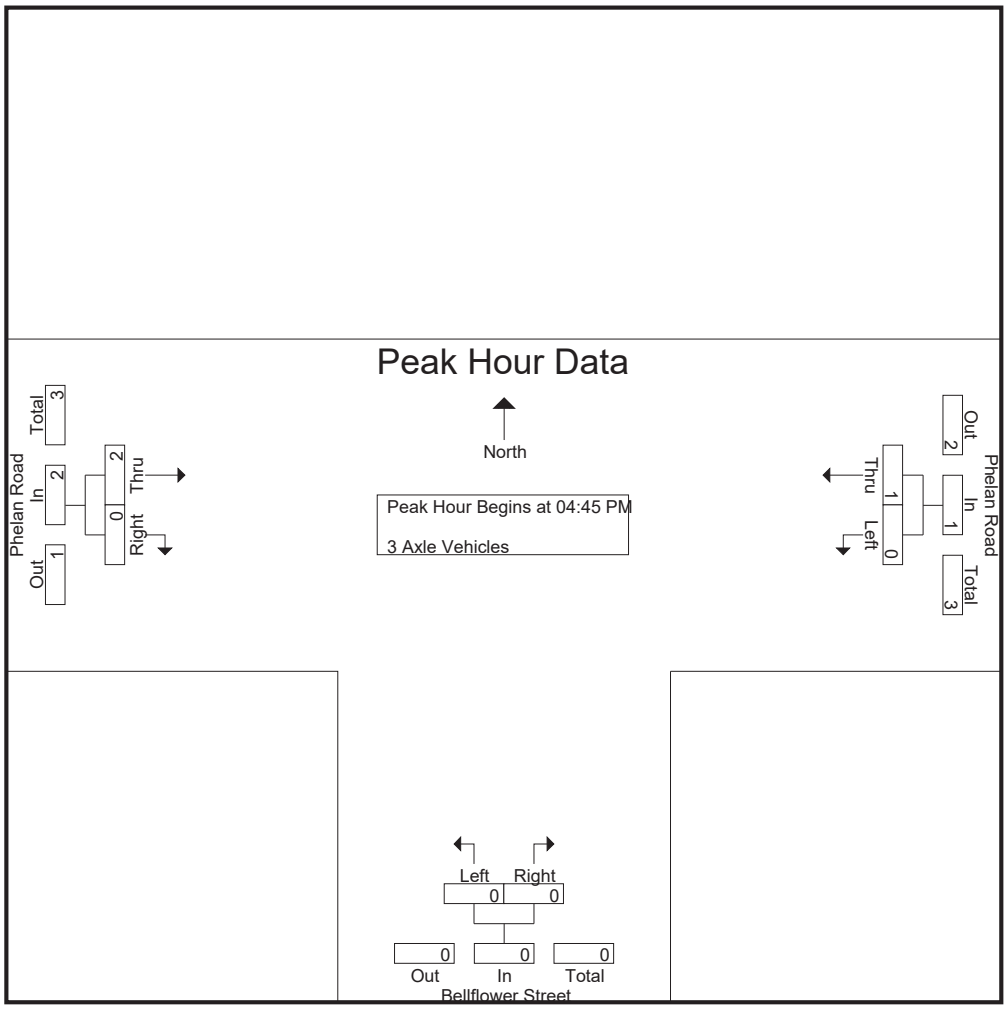

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	**1**	**1**	0	0	0	**1**	0	**1**
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	1	1	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.500	.000	.500

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City of Hesperia
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Weather: Clear

File Name : 15_HES_Bellflower_Phelan PM
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Groups Printed- 4+ Axle Trucks

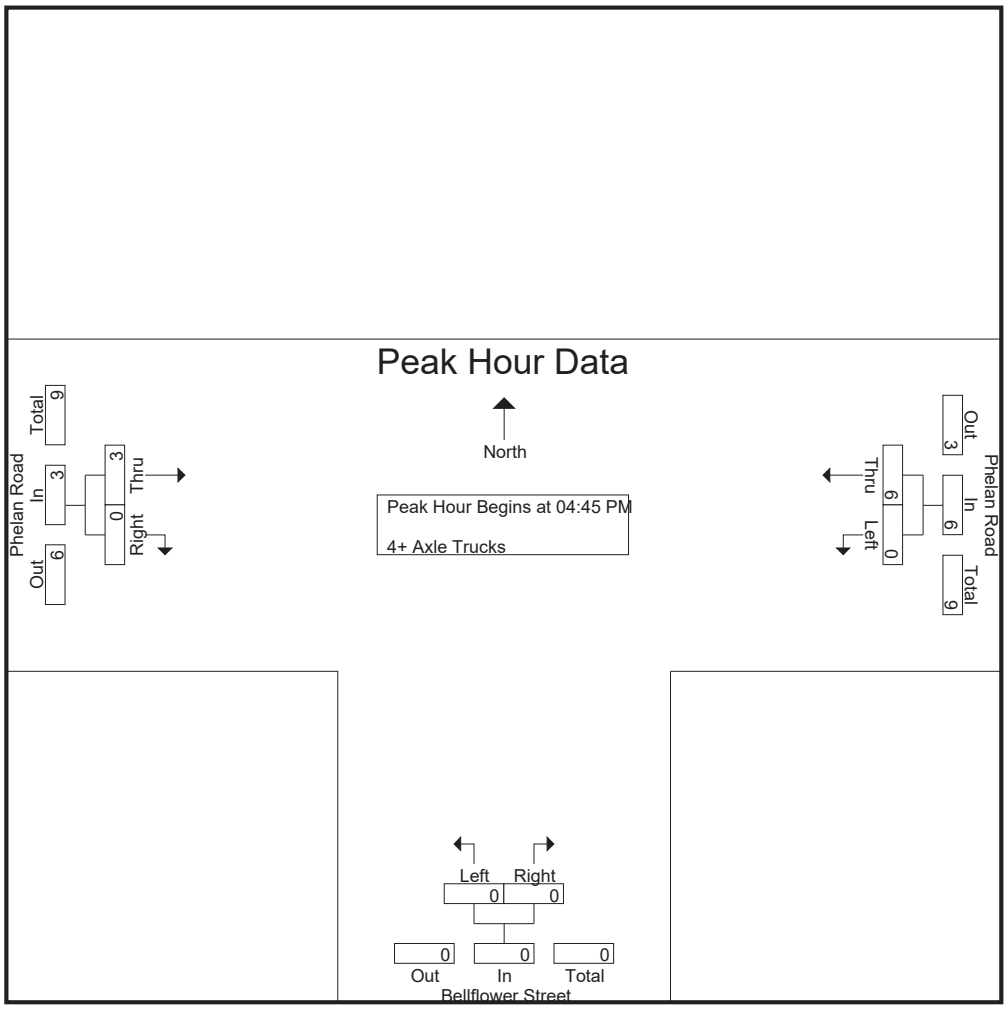
	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	2	2	0	0	0	0	0	0	2
04:15 PM	0	3	3	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	2	0	2	2
04:45 PM	0	3	3	0	0	0	0	0	0	3
Total	0	8	8	0	0	0	2	0	2	10
05:00 PM	0	2	2	0	0	0	0	0	0	2
05:15 PM	0	1	1	0	0	0	3	0	3	4
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	1	0	0	0	3	0	3	4
Total	0	4	4	0	0	0	6	0	6	10
Grand Total	0	12	12	0	0	0	8	0	8	20
Apprch %	0	100		0	0		100	0		
Total %	0	60	60	0	0	0	40	0	40	

	Phelan Road Westbound			Bellflower Street Northbound			Phelan Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	**3**	**3**	0	0	0	0	0	0	3
05:00 PM	0	2	2	0	0	0	0	0	0	2
05:15 PM	0	1	1	0	0	0	**3**	0	**3**	**4**
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	6	6	0	0	0	3	0	3	9
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.250	.000	.250	.563

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Hesperia
N/S: Bellflower Street
E/W: Phelan Road
Weather: Clear

File Name : 15_HES_Bellflower_Phelan PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	**3**	**3**	0	0	0	0	0	0
+15 mins.	0	2	2	0	0	0	0	0	0
+30 mins.	0	1	1	0	0	0	**3**	0	**3**
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	6	6	0	0	0	3	0	3
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.250	.000	.250

Location: Hesperia
N/S: Bellflower Street
E/W: Phelan Road

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg Dead End	East Leg Phelan Road	South Leg Bellflower Street	West Leg Phelan Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Dead End	East Leg Phelan Road	South Leg Bellflower Street	West Leg Phelan Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Counts Unlimited, Inc.
PO Box 1178
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951-268-6268

Location: Hesperia
N/S: Bellflower Street
E/W: Phelan Road

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound Dead End			Westbound Phelan Road			Northbound Bellflower Street			Eastbound Phelan Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Dead End			Westbound Phelan Road			Northbound Bellflower Street			Eastbound Phelan Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Jan 7, 20

LOCATION: Hesperia
NORTH & SOUTH: SR-395
EAST & WEST: Luna

PROJECT #: SC2468
LOCATION #: 8
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

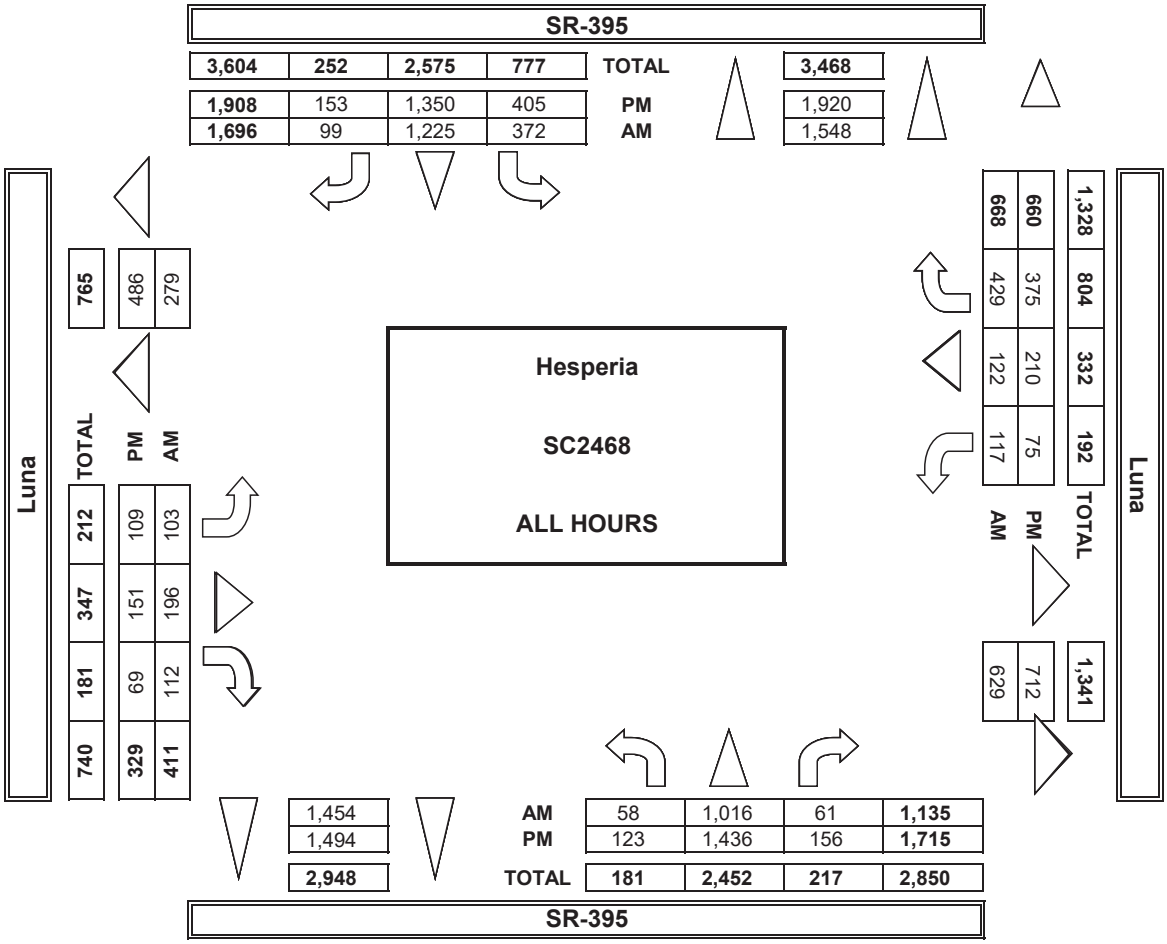
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	4	116	6	68	155	13	14	22	14	20	10	47	489
	7:15 AM	8	143	16	58	154	9	16	21	14	20	19	75	553
	7:30 AM	5	151	11	56	153	20	10	32	15	16	21	101	591
	7:45 AM	15	138	10	45	163	25	9	35	19	11	29	31	530
	8:00 AM	7	120	3	49	156	11	13	33	19	16	20	44	491
	8:15 AM	9	103	3	41	153	7	17	22	11	12	10	51	439
	8:30 AM	9	116	7	28	137	6	12	20	13	11	4	42	405
	8:45 AM	1	129	5	27	154	8	12	11	7	11	9	38	412
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	58	1,016	61	372	1,225	99	103	196	112	117	122	429	3,910
	APPROACH %	5%	90%	5%	22%	72%	6%	25%	48%	27%	18%	18%	64%	
	APP/DEPART	1,135	/	1,548	1,696	/	1,454	411	/	629	668	/	279	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	35	552	40	208	626	65	48	121	67	63	89	251	2,165
	APPROACH %	6%	88%	6%	23%	70%	7%	20%	51%	28%	16%	22%	62%	
	PEAK HR FACTOR		0.939			0.965			0.908			0.730		0.916
	APP/DEPART	627	/	851	899	/	756	236	/	369	403	/	189	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	14	191	17	52	194	17	16	27	10	12	27	41	618
	4:15 PM	9	139	20	44	175	15	20	17	10	13	27	43	532
	4:30 PM	20	171	19	50	184	17	10	18	9	5	25	43	571
	4:45 PM	16	187	22	51	142	18	13	20	4	3	27	42	545
	5:00 PM	13	185	17	45	170	19	13	21	15	9	21	50	578
	5:15 PM	18	164	22	54	175	26	11	12	7	15	25	53	582
	5:30 PM	19	180	22	48	151	20	11	20	8	13	32	51	575
	5:45 PM	14	219	17	61	159	21	15	16	6	5	26	52	611
	VOLUMES	123	1,436	156	405	1,350	153	109	151	69	75	210	375	4,612
	APPROACH %	7%	84%	9%	21%	71%	8%	33%	46%	21%	11%	32%	57%	
	APP/DEPART	1,715	/	1,920	1,908	/	1,494	329	/	712	660	/	486	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	64	748	78	208	655	86	50	69	36	42	104	206	2,346
	APPROACH %	7%	84%	9%	22%	69%	9%	32%	45%	23%	12%	30%	59%	
	PEAK HR FACTOR		0.890			0.930			0.791			0.917		0.960
	APP/DEPART	890	/	1,004	949	/	733	155	/	355	352	/	254	0

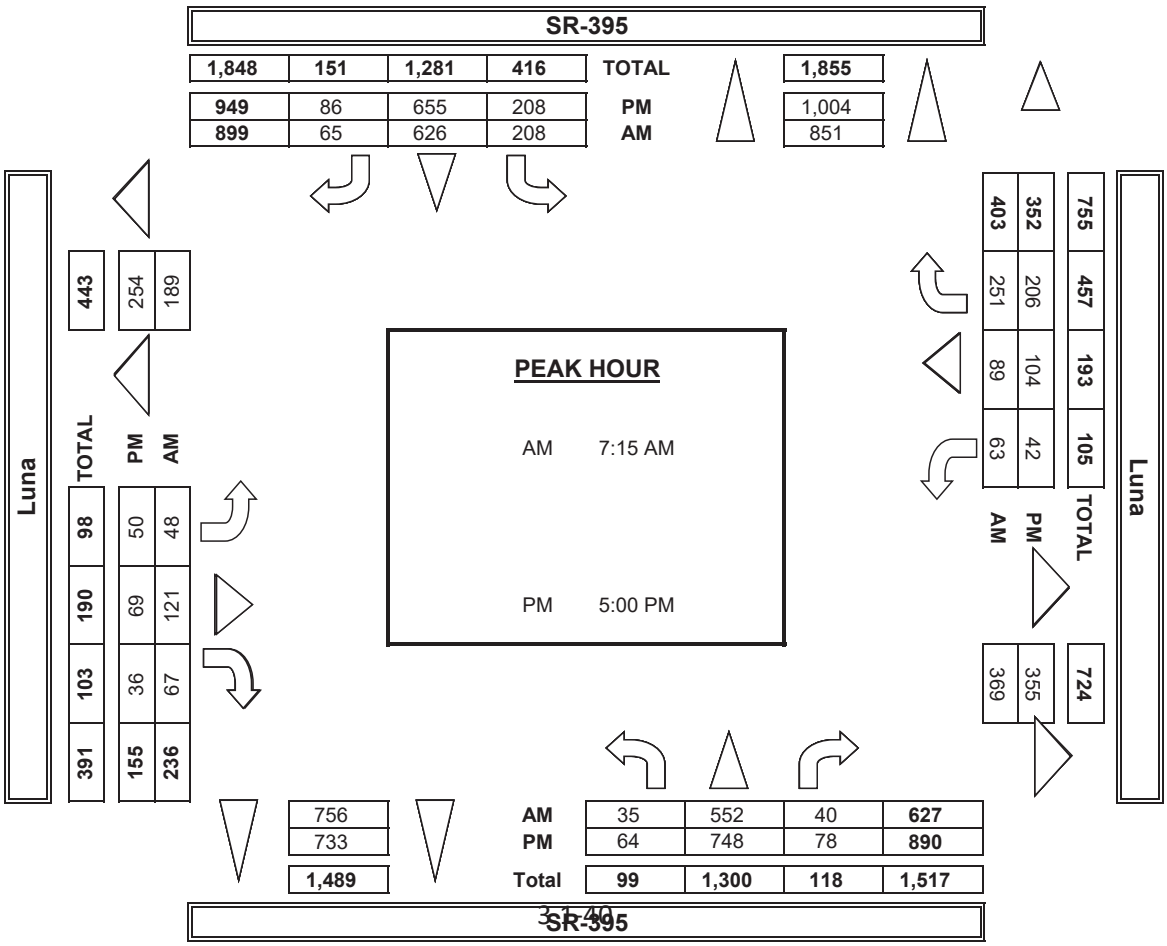
U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 1:	NOTES:
PASSENGER VEHICLES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (SR-395)			SOUTHBOUND (SR-395)			EASTBOUND (Luna)			WESTBOUND (Luna)			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	4	102	4	63	140	13	14	22	13	19	10	45	449
	7:15 AM	7	119	14	54	135	8	15	21	13	19	19	67	491
	7:30 AM	5	124	11	55	128	17	10	30	15	16	20	97	528
	7:45 AM	15	115	10	43	136	24	9	35	19	11	29	29	475
	8:00 AM	7	92	2	47	129	9	12	33	19	15	19	40	424
	8:15 AM	9	84	3	39	127	7	17	21	9	12	9	49	386
	8:30 AM	8	93	5	28	115	5	10	20	13	11	4	37	349
	8:45 AM	1	92	5	26	129	8	11	9	6	11	8	34	340
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	56	821	54	355	1,039	91	98	191	107	114	118	398	3,442
	APPROACH %	6%	88%	6%	24%	70%	6%	25%	48%	27%	18%	19%	63%	
	APP/DEPART	931	/	1,317	1,485	/	1,260	396	/	600	630	/	265	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	31	460	39	215	539	62	48	108	60	65	78	238	1,943
	APPROACH %	6%	87%	7%	26%	66%	8%	22%	50%	28%	17%	20%	62%	
	PEAK HR FACTOR		0.946			0.944			0.857			0.716		0.920
	APP/DEPART	530	/	746	816	/	664	216	/	362	381	/	171	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	13	174	16	49	160	16	16	27	9	12	27	41	560
	4:15 PM	9	127	20	44	151	15	20	16	10	12	27	42	493
	4:30 PM	20	160	17	48	164	16	10	18	8	5	23	42	531
	4:45 PM	16	166	20	51	122	18	13	19	4	3	27	40	499
	5:00 PM	13	171	17	44	143	19	13	21	15	9	21	49	535
	5:15 PM	18	142	21	53	154	26	11	12	7	15	25	52	536
	5:30 PM	19	166	21	45	126	19	10	20	7	12	31	51	527
	5:45 PM	14	205	16	60	123	21	14	15	6	4	25	52	555
	VOLUMES	122	1,311	148	394	1,143	150	107	148	66	72	206	369	4,236
	APPROACH %	8%	83%	9%	23%	68%	9%	33%	46%	21%	11%	32%	57%	
	APP/DEPART	1,581	/	1,787	1,687	/	1,281	321	/	690	647	/	478	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	64	684	75	202	546	85	48	68	35	40	102	204	2,153
	APPROACH %	8%	83%	9%	24%	66%	10%	32%	45%	23%	12%	29%	59%	
	PEAK HR FACTOR		0.876			0.894			0.770			0.920		0.970
	APP/DEPART	823	/	936	833	/	621	151	/	345	346	/	251	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
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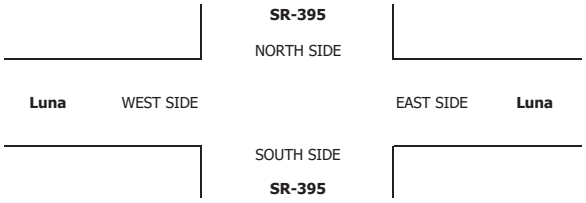
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
2	0	9	14
4	4	9	20
6	6	9	15
3	2	6	6
1	4	5	14
0	2	7	26
1	2	10	21
1	1	1	9
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
18	21	56	125
15	12	33	55
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
3	2	2	12
2	2	5	23
5	5	5	9
4	2	2	16
6	3	8	19
6	3	4	8
6	10	1	14
5	2	4	19
37	29	31	120
23	18	17	60



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	0	3	1	1	3	0	0	0	0	1	0	2	11
	7:15 AM	1	4	2	0	3	0	1	0	1	1	0	2	15
	7:30 AM	0	7	0	1	3	0	0	1	0	0	1	1	14
	7:45 AM	0	5	0	0	5	0	0	0	0	0	0	0	10
	8:00 AM	0	7	0	1	6	2	0	0	0	1	0	2	19
	8:15 AM	0	7	0	1	6	0	0	0	1	0	0	0	15
	8:30 AM	0	3	0	0	4	0	1	0	0	0	0	5	13
	8:45 AM	0	10	0	0	6	0	0	1	0	0	0	3	20
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	46	3	4	36	2	2	2	2	3	1	15	117
	APPROACH %	2%	92%	6%	10%	86%	5%	33%	33%	33%	16%	5%	79%	
	APP/DEPART	50	/	63	42	/	41	6	/	9	19	/	4	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	27	0	2	22	2	1	1	1	1	0	10	67
	APPROACH %	0%	100%	0%	8%	85%	8%	33%	33%	33%	9%	0%	91%	
	PEAK HR FACTOR		0.675			0.722			0.750			0.550		0.838
	APP/DEPART	27	/	38	26	/	24	3	/	3	11	/	2	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	3	1	2	9	1	0	0	0	0	0	0	17
	4:15 PM	0	2	0	0	3	0	0	1	0	1	0	0	7
	4:30 PM	0	2	1	1	4	0	0	0	1	0	2	0	11
	4:45 PM	0	4	0	0	3	0	0	1	0	0	0	2	10
	5:00 PM	0	3	0	1	6	0	0	0	0	0	0	1	11
	5:15 PM	0	6	0	0	2	0	0	0	0	0	0	0	8
	5:30 PM	0	4	0	2	4	0	0	0	0	0	0	0	10
	5:45 PM	0	5	1	1	6	0	0	1	0	1	1	0	16
	VOLUMES	1	29	3	7	37	1	0	3	1	2	3	3	90
	APPROACH %	3%	88%	9%	16%	82%	2%	0%	75%	25%	25%	38%	38%	
	APP/DEPART	33	/	32	45	/	40	4	/	13	8	/	5	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	18	1	4	18	0	0	1	0	1	1	1	45
	APPROACH %	0%	95%	5%	18%	82%	0%	0%	100%	0%	33%	33%	33%	
	PEAK HR FACTOR		0.792			0.458			0.250			0.375		0.662
	APP/DEPART	19	/	19	22	/	19	1	/	6	3	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
	7:15 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
	7:30 AM	0	2	0	0	1	0	0	0	0	0	0	1	4
	7:45 AM	0	0	0	1	4	0	0	0	0	0	0	1	6
	8:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
	8:15 AM	0	2	0	1	3	0	0	0	0	0	0	0	6
	8:30 AM	1	1	1	0	4	0	0	0	0	0	0	0	7
	8:45 AM	0	4	0	0	2	0	0	0	1	0	0	1	8
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	14	1	2	19	0	0	0	1	0	0	3	41
	APPROACH %	6%	88%	6%	10%	90%	0%	0%	0%	100%	0%	0%	100%	
	APP/DEPART	16	/	17	21	/	20	1	/	3	3	/	1	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	1	7	1	1	12	0	0	0	1	0	0	1	24
	APPROACH %	11%	78%	11%	8%	92%	0%	0%	0%	100%	0%	0%	100%	
	PEAK HR FACTOR		0.563			0.813			0.250			0.250		0.750
	APP/DEPART	9	/	8	13	/	13	1	/	2	1	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	1	0	1	1	0	0	0	0	0	0	0	3
	4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	4:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	4:45 PM	0	1	2	0	3	0	0	0	0	0	0	0	6
	5:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	5:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	5:30 PM	0	1	1	0	1	0	0	0	0	1	0	0	4
	5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	VOLUMES	0	4	3	1	18	0	0	0	0	1	0	0	27
	APPROACH %	0%	57%	43%	5%	95%	0%	0%	0%	0%	100%	0%	0%	
	APP/DEPART	7	/	4	19	/	19	0	/	4	1	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	3	3	0	9	0	0	0	0	1	0	0	16
	APPROACH %	0%	50%	50%	0%	100%	0%	0%	0%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.500			0.750			0.000			0.250		0.667
	APP/DEPART	6	/	3	9	/	10	0	/	3	1	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	2
0	0	1	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
2	0	0	0
2	0	0	0

SR-395

NORTH SIDE

Luna WEST SIDE EAST SIDE **Luna**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	0	9	0	0	11	0	0	0	0	0	0	0	20
	7:15 AM	0	15	0	0	15	0	0	0	0	0	0	0	30
	7:30 AM	0	18	0	0	21	1	0	0	0	0	0	1	41
	7:45 AM	0	18	0	0	18	0	0	0	0	0	0	1	37
	8:00 AM	0	20	1	0	18	0	0	0	0	0	1	2	42
	8:15 AM	0	10	0	0	17	0	0	0	0	0	0	1	28
	8:30 AM	0	18	1	0	12	0	0	0	0	0	0	0	31
	8:45 AM	0	22	0	0	17	0	1	1	0	0	1	0	42
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	130	2	0	129	1	1	1	0	0	2	5	271
	APPROACH %	0%	98%	2%	0%	99%	1%	50%	50%	0%	0%	29%	71%	
	APP/DEPART	132	/	136	130	/	129	2	/	3	7	/	3	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	71	1	0	72	1	0	0	0	0	1	4	150
	APPROACH %	0%	99%	1%	0%	99%	1%	0%	0%	0%	0%	20%	80%	
	PEAK HR FACTOR		0.857			0.830			0.000			0.417		0.893
	APP/DEPART	72	/	75	73	/	72	0	/	1	5	/	2	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	13	0	0	23	0	0	0	1	0	0	0	37
	4:15 PM	0	9	0	0	17	0	0	0	0	0	0	0	26
	4:30 PM	0	9	1	0	12	0	0	0	0	0	0	1	23
	4:45 PM	0	16	0	0	14	0	0	0	0	0	0	0	30
	5:00 PM	0	10	0	0	18	0	0	0	0	0	0	0	28
	5:15 PM	0	16	1	1	15	0	0	0	0	0	0	0	33
	5:30 PM	0	9	0	1	20	0	0	0	1	0	0	0	31
	5:45 PM	0	9	0	0	28	0	0	0	0	0	0	0	37
	VOLUMES	0	91	2	2	147	0	0	0	2	0	0	1	245
	APPROACH %	0%	98%	2%	1%	99%	0%	0%	0%	100%	0%	0%	100%	
	APP/DEPART	93	/	92	149	/	149	2	/	4	1	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	44	1	2	81	0	0	0	1	0	0	0	129
	APPROACH %	0%	98%	2%	2%	98%	0%	0%	0%	100%	0%	0%	0%	
	PEAK HR FACTOR		0.662			0.741			0.250			0.000		0.872
	APP/DEPART	45	/	44	83	/	82	1	/	3	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

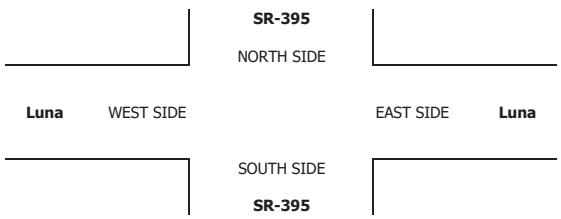
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
	VOLUMES	0	0	0	0	1	0	1	0	0	0	0	0	2
	APPROACH %	0%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	1	1	/	1	1	/	0	0	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	0	0	0	1	0	1	0	0	0	0	0	2
	APPROACH %	0%	0%	0%	0%	100%	0%	100%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.250			0.250			0.000		0.500
	APP/DEPART	0	/	1	1	/	1	1	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

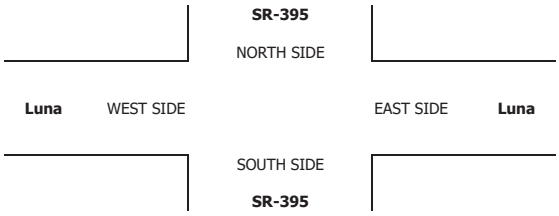
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	8
TUESDAY	EAST & WEST:	Luna	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Luna			WESTBOUND Luna				U-TURNS					RTOR			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 1	WL 1	WT 0.5	WR 0.5	TOTAL	NB	SB	EB	WB	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM	7:00 AM	0	0	1	4	0	0	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0
	7:15 AM	0	2	0	4	0	1	0	0	0	0	0	6	13	0	0	0	0	0	0	1	0	1
	7:30 AM	0	0	0	0	0	2	0	1	0	0	0	1	4	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
	8:00 AM	0	1	0	1	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	1	1	0	1	1	4	0	0	0	0	0	0	0	0	1
	8:30 AM	0	1	0	0	2	1	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	4	1	11	2	5	2	2	2	0	1	8	38	0	0	0	0	0	0	1	0	2
	APPROACH %	0%	80%	20%	61%	11%	28%	33%	33%	33%	0%	11%	89%										
	APP/DEPART	5	/	14	18	/	4	6	/	14	9	/	6	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	0	2	1	9	0	4	0	1	1	0	0	7	25						0	1	0	1
	APPROACH %	0%	67%	33%	69%	0%	31%	0%	50%	50%	0%	0%	100%										
	PEAK HR FACTOR		0.375			0.650			0.500			0.292		0.481									
	APP/DEPART	3	/	9	13	/	1	2	/	11	7	/	4	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	4:15 PM	0	1	0	0	1	0	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	1	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	1	1	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	1	4	2	1	0	0	0	1	2	12	0	0	0	0	0	0	1	0	0
	APPROACH %	0%	100%	0%	14%	57%	29%	100%	0%	0%	0%	33%	67%										
	APP/DEPART	1	/	4	7	/	4	1	/	1	3	/	3	0									
	BEGIN PEAK HR		4:00 PM																				
	VOLUMES	0	1	0	1	3	1	0	0	0	0	0	1	7						0	1	0	0
	APPROACH %	0%	100%	0%	20%	60%	20%	0%	0%	0%	0%	0%	100%										
	PEAK HR FACTOR		0.250			0.417			0.000			0.250		0.583									
	APP/DEPART	1	/	2	5	/	3	0	/	1	1	/	1	0									



INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	SR-395	LOCATION #:	9
	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND (SR-395)			SOUTHBOUND (SR-395)			EASTBOUND (Bear Valley)			WESTBOUND (Bear Valley)			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
AM	7:00 AM	19	118	21	32	159	5	8	57	41	41	32	13	546
	7:15 AM	35	143	32	36	151	3	6	59	36	36	55	24	616
	7:30 AM	27	133	22	32	131	6	11	68	38	43	81	21	613
	7:45 AM	26	133	19	47	142	8	10	92	38	28	53	21	617
	8:00 AM	12	110	17	38	155	5	11	66	50	40	39	14	557
	8:15 AM	8	89	14	28	129	8	8	59	29	33	53	21	479
	8:30 AM	15	110	12	42	105	5	9	53	29	27	39	21	467
	8:45 AM	16	110	13	48	138	2	6	65	22	33	35	18	506
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	158	946	150	303	1,110	42	69	519	283	281	387	153	4,401
	APPROACH %	13%	75%	12%	21%	76%	3%	8%	60%	32%	34%	47%	19%	
	APP/DEPART	1,254	/	1,169	1,455	/	1,675	871	/	971	821	/	586	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	100	519	90	153	579	22	38	285	162	147	228	80	2,403
	APPROACH %	14%	73%	13%	20%	77%	3%	8%	59%	33%	32%	50%	18%	
	PEAK HR FACTOR		0.844			0.952			0.866			0.784		0.974
	APP/DEPART	709	/	638	754	/	888	485	/	527	455	/	350	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	34	171	53	29	166	8	15	80	41	32	78	35	742
	4:15 PM	44	145	57	44	161	8	11	86	43	22	77	27	725
	4:30 PM	42	167	42	39	142	13	11	58	20	20	72	36	662
	4:45 PM	45	189	46	33	114	5	14	78	21	28	73	32	678
	5:00 PM	48	172	45	40	131	9	11	58	21	27	97	28	687
	5:15 PM	30	183	56	29	154	7	6	58	27	29	83	36	698
	5:30 PM	54	180	46	38	132	9	10	74	22	34	70	30	699
	5:45 PM	43	201	61	32	141	7	4	75	18	23	68	40	713
	VOLUMES	340	1,408	406	284	1,141	66	82	567	213	215	618	264	5,604
	APPROACH %	16%	65%	19%	19%	77%	4%	10%	66%	25%	20%	56%	24%	
	APP/DEPART	2,154	/	1,754	1,491	/	1,569	862	/	1,257	1,097	/	1,024	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	165	672	198	145	583	34	51	302	125	102	300	130	2,807
	APPROACH %	16%	65%	19%	19%	77%	4%	11%	63%	26%	19%	56%	24%	
	PEAK HR FACTOR		0.924			0.894			0.854			0.917		0.946
	APP/DEPART	1,035	/	853	762	/	810	478	/	645	532	/	499	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	1	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
9	1	20	7
10	1	20	12
8	3	22	7
7	1	15	11
1	1	22	3
6	2	14	13
6	0	21	6
1	0	10	12
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
48	9	144	71
26	6	79	33
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
13	4	22	18
12	3	25	16
17	3	16	17
16	2	15	15
12	4	12	18
13	3	22	16
13	3	14	19
10	2	10	19
106	24	136	138
58	12	78	66

SR-395

NORTH SIDE

Bear Valley WEST SIDE EAST SIDE **Bear Valley**

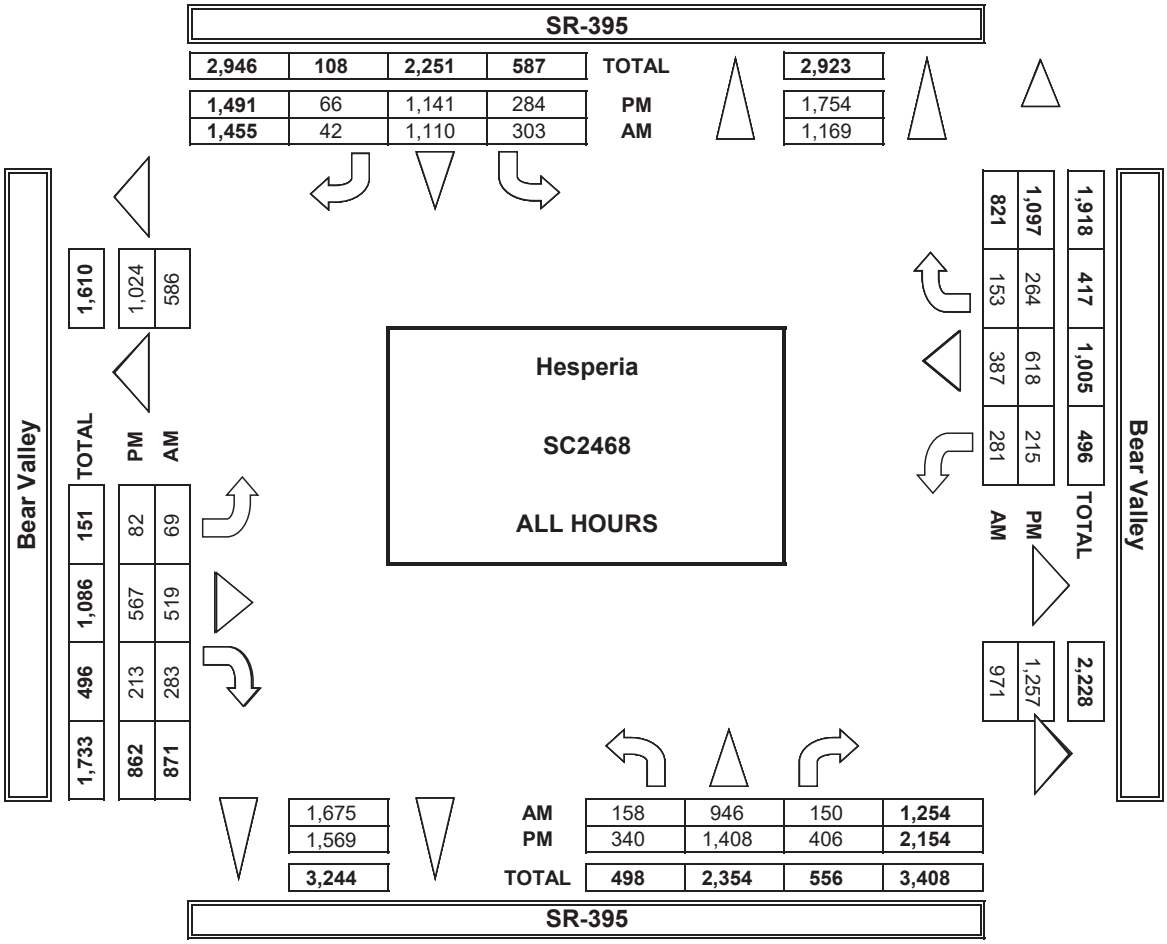
SOUTH SIDE

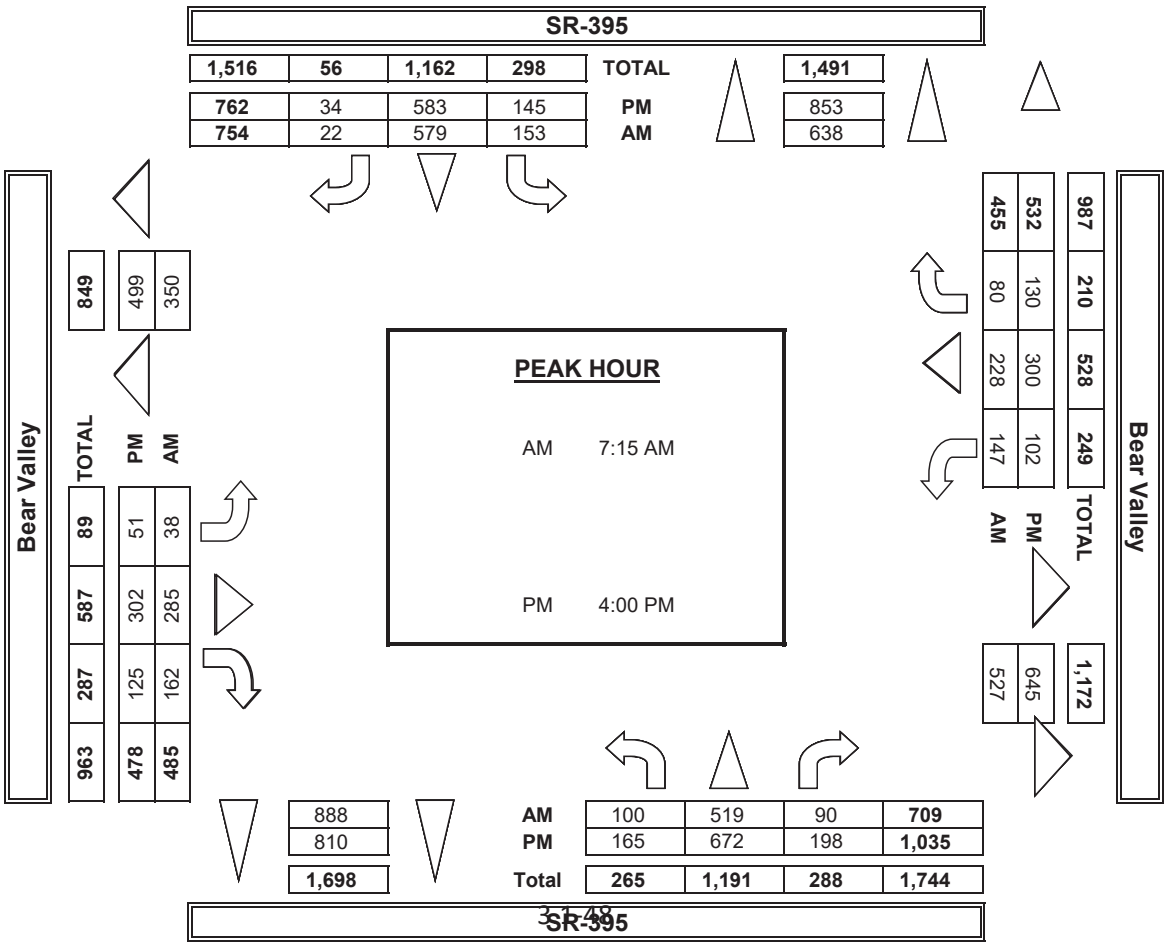
SR-395

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	1	0	2	3	0	1	0	2	3	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	1	0	2	3	0	1	0	2	3	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND (SR-395)			SOUTHBOUND (SR-395)			EASTBOUND (Bear Valley)			WESTBOUND (Bear Valley)			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
7:00 AM	16	102	19	32	141	5	7	55	39	40	28	11	495
7:15 AM	33	112	29	35	128	3	6	56	33	34	49	22	540
7:30 AM	27	116	21	30	109	6	10	61	35	41	77	17	550
7:45 AM	23	110	17	44	117	8	10	88	36	27	49	19	548
8:00 AM	10	81	17	37	130	5	10	63	50	38	36	13	490
8:15 AM	8	72	14	25	107	7	8	56	28	33	45	18	421
8:30 AM	14	89	12	40	87	4	9	51	29	26	37	18	416
8:45 AM	13	76	10	47	114	2	6	63	22	31	33	14	431
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	144	758	139	290	933	40	66	493	272	270	354	132	3,891
APPROACH %	14%	73%	13%	23%	74%	3%	8%	59%	33%	36%	47%	17%	
APP/DEPART	1,041	/	957	1,263	/	1,476	831	/	921	756	/	537	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	99	440	86	140	495	22	33	260	143	142	203	69	2,133
APPROACH %	16%	70%	14%	21%	75%	3%	8%	60%	33%	34%	49%	17%	
PEAK HR FACTOR		0.898			0.924			0.813			0.767		0.970
APP/DEPART	625	/	543	658	/	780	436	/	486	414	/	324	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	30	153	51	26	132	8	15	77	39	30	76	35	672
4:15 PM	40	132	56	44	134	7	11	81	38	20	73	27	663
4:30 PM	42	151	40	38	121	12	10	55	17	20	71	36	613
4:45 PM	45	163	46	33	102	5	11	73	21	28	71	32	630
5:00 PM	48	160	41	38	105	9	10	57	21	24	95	28	636
5:15 PM	30	160	53	29	130	7	6	55	26	29	80	35	640
5:30 PM	52	161	42	37	105	9	10	73	22	33	68	30	642
5:45 PM	39	189	61	32	111	7	4	70	17	23	63	39	655
VOLUMES	326	1,269	390	277	940	64	77	541	201	207	597	262	5,151
APPROACH %	16%	64%	20%	22%	73%	5%	9%	66%	25%	19%	56%	25%	
APP/DEPART	1,985	/	1,608	1,281	/	1,348	819	/	1,208	1,066	/	987	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	157	599	193	141	489	32	47	286	115	98	291	130	2,578
APPROACH %	17%	63%	20%	21%	74%	5%	10%	64%	26%	19%	56%	25%	
PEAK HR FACTOR		0.934			0.895			0.855			0.920		0.959
APP/DEPART	949	/	776	662	/	702	448	/	620	519	/	480	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	1	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
9	1	19	7
10	1	18	10
8	3	21	7
7	1	14	11
1	1	22	3
6	1	13	11
6	0	21	5
1	0	10	10
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
48	8	138	64
34	6	72	35
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
12	4	21	18
12	3	22	16
17	3	13	17
16	2	15	15
11	4	12	18
12	3	21	15
11	3	14	19
10	2	9	19
101	24	127	137
57	12	71	66

SR-395

NORTH SIDE

Bear Valley WEST SIDE EAST SIDE **Bear Valley**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

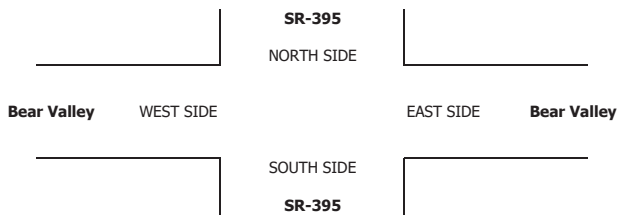
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Bear Valley			WESTBOUND Bear Valley			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
AM	7:00 AM	2	8	2	0	4	0	1	0	1	0	1	1	20
	7:15 AM	2	8	3	0	6	0	0	1	2	2	4	1	29
	7:30 AM	0	3	1	1	2	0	1	4	3	2	2	1	20
	7:45 AM	2	4	1	1	6	0	0	2	1	1	2	1	21
	8:00 AM	2	8	0	1	4	0	0	1	0	0	1	0	17
	8:15 AM	0	2	0	2	3	1	0	1	1	0	4	2	16
	8:30 AM	1	1	0	0	2	0	0	2	0	0	0	0	6
	8:45 AM	0	12	3	1	5	0	0	2	0	1	0	2	26
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	9	46	10	6	32	1	2	13	8	6	14	8	155
	APPROACH %	14%	71%	15%	15%	82%	3%	9%	57%	35%	21%	50%	29%	
	APP/DEPART	65	/	56	39	/	46	23	/	29	28	/	24	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	6	23	7	2	18	0	2	7	7	5	9	4	90
	APPROACH %	17%	64%	19%	10%	90%	0%	13%	44%	44%	28%	50%	22%	
	PEAK HR FACTOR		0.692			0.714			0.500			0.643		0.776
	APP/DEPART	36	/	29	20	/	30	16	/	16	18	/	15	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	4	2	2	7	0	0	0	1	1	1	0	20
	4:15 PM	1	3	0	0	5	0	0	3	3	2	2	0	19
	4:30 PM	0	5	2	0	4	1	1	3	2	0	1	0	19
	4:45 PM	0	5	0	0	1	0	2	4	0	0	2	0	14
	5:00 PM	0	3	4	1	5	0	0	1	0	1	2	0	17
	5:15 PM	0	6	3	0	4	0	0	2	0	0	1	1	17
	5:30 PM	1	8	4	0	3	0	0	1	0	0	2	0	19
	5:45 PM	4	4	0	0	6	0	0	5	1	0	4	0	24
	VOLUMES	8	38	15	3	35	1	3	19	7	4	15	1	149
	APPROACH %	13%	62%	25%	8%	90%	3%	10%	66%	24%	20%	75%	5%	
	APP/DEPART	61	/	42	39	/	46	29	/	37	20	/	24	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	5	21	11	1	18	0	0	9	1	1	9	1	77
	APPROACH %	14%	57%	30%	5%	95%	0%	0%	90%	10%	9%	82%	9%	
	PEAK HR FACTOR		0.712			0.792			0.417			0.688		0.802
	APP/DEPART	37	/	22	19	/	20	10	/	21	11	/	14	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	1	0
0	0	2	1
0	0	1	0
0	0	1	0
0	0	0	0
0	1	1	1
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	6	3
0	0	5	1
0	0	0	0
0	0	1	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
5	0	5	1
4	0	1	1



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Bear Valley			WESTBOUND Bear Valley			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
AM	7:00 AM	0	1	0	0	2	0	0	2	0	0	1	0	6
	7:15 AM	0	2	0	0	1	0	0	0	0	0	1	0	4
	7:30 AM	0	2	0	0	1	0	0	2	0	0	0	1	6
	7:45 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
	8:00 AM	0	1	0	0	3	0	0	1	0	0	0	0	5
	8:15 AM	0	1	0	0	3	0	0	1	0	0	0	0	5
	8:30 AM	0	4	0	0	4	0	0	0	0	1	0	2	11
	8:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	4
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	11	0	0	21	0	0	6	0	1	2	3	44
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	100%	0%	17%	33%	50%	
	APP/DEPART	11	/	14	21	/	22	6	/	6	6	/	2	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	6	0	0	14	0	0	2	0	1	0	2	25
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	100%	0%	33%	0%	67%	
	PEAK HR FACTOR		0.375			0.875			0.500			0.250		0.568
	APP/DEPART	6	/	8	14	/	15	2	/	2	3	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	1	0	0	1	0	0	2	0	1	0	0	5
	4:15 PM	1	0	0	0	2	0	0	2	1	0	1	0	7
	4:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
	4:45 PM	0	3	0	0	2	0	1	0	0	0	0	0	6
	5:00 PM	0	1	0	0	2	0	0	0	0	2	0	0	5
	5:15 PM	0	0	0	0	3	0	0	0	0	0	1	0	4
	5:30 PM	1	2	0	0	2	0	0	0	0	0	0	0	5
	5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	VOLUMES	2	7	0	0	17	0	1	4	1	3	2	0	37
	APPROACH %	22%	78%	0%	0%	100%	0%	17%	67%	17%	60%	40%	0%	
	APP/DEPART	9	/	8	17	/	21	6	/	4	5	/	4	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	4	0	0	10	0	1	2	1	2	1	0	22
	APPROACH %	20%	80%	0%	0%	100%	0%	25%	50%	25%	67%	33%	0%	
	PEAK HR FACTOR		0.417			0.625			0.333			0.375		0.786
	APP/DEPART	5	/	5	10	/	13	4	/	2	3	/	2	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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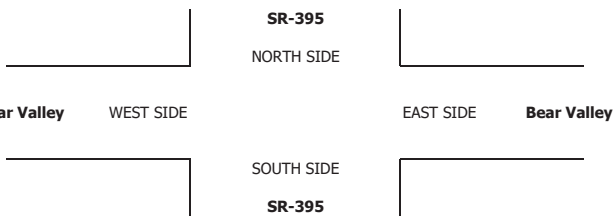
0	0	1	0
0	0	1	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Bear Valley			WESTBOUND Bear Valley			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
AM	7:00 AM	1	7	0	0	11	0	0	0	0	1	1	0	21
	7:15 AM	0	19	0	1	16	0	0	2	0	0	1	1	40
	7:30 AM	0	12	0	1	19	0	0	0	0	0	2	2	36
	7:45 AM	1	19	1	2	16	0	0	0	0	0	1	1	41
	8:00 AM	0	19	0	0	18	0	1	1	0	0	2	1	42
	8:15 AM	0	14	0	1	15	0	0	1	0	0	3	1	35
	8:30 AM	0	15	0	2	11	0	0	0	0	0	2	1	31
	8:45 AM	2	21	0	0	15	0	0	0	0	1	2	2	43
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	4	126	1	7	121	0	1	4	0	2	14	9	289
	APPROACH %	3%	96%	1%	5%	95%	0%	20%	80%	0%	8%	56%	36%	
	APP/DEPART	131	/	136	128	/	123	5	/	12	25	/	18	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	1	69	1	4	69	0	1	3	0	0	6	5	159
	APPROACH %	1%	97%	1%	5%	95%	0%	25%	75%	0%	0%	55%	45%	
	PEAK HR FACTOR		0.845			0.913			0.500			0.688		0.946
	APP/DEPART	71	/	75	73	/	69	4	/	8	11	/	7	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	13	0	1	26	0	0	0	0	0	0	0	42
	4:15 PM	2	9	1	0	19	0	0	0	1	0	1	0	33
	4:30 PM	0	11	0	1	12	0	0	0	1	0	0	0	25
	4:45 PM	0	18	0	0	9	0	0	1	0	0	0	0	28
	5:00 PM	0	8	0	1	18	0	1	0	0	0	0	0	28
	5:15 PM	0	17	0	0	16	0	0	1	1	0	0	0	35
	5:30 PM	0	9	0	1	22	0	0	0	0	1	0	0	33
	5:45 PM	0	8	0	0	23	0	0	0	0	0	1	1	33
	VOLUMES	4	93	1	4	145	0	1	2	3	1	2	1	257
	APPROACH %	4%	95%	1%	3%	97%	0%	17%	33%	50%	25%	50%	25%	
	APP/DEPART	98	/	95	149	/	149	6	/	7	4	/	6	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	42	0	2	79	0	1	1	1	1	1	1	129
	APPROACH %	0%	100%	0%	2%	98%	0%	33%	33%	33%	33%	33%	33%	
	PEAK HR FACTOR		0.618			0.880			0.375			0.375		0.921
	APP/DEPART	42	/	44	81	/	81	3	/	3	3	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	1
0	0	0	1
0	0	0	0
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0	0	1	0
0	0	0	0
0	0	0	0
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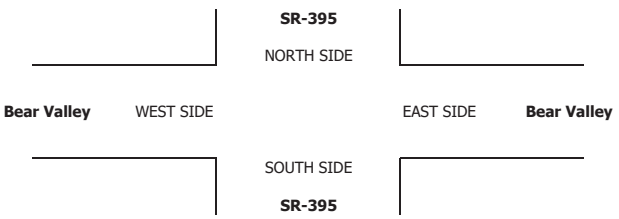
0	0	0	0
0	0	0	0
0	0	3	0
0	0	1	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Bear Valley			WESTBOUND Bear Valley			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.250			0.000			0.000		0.250
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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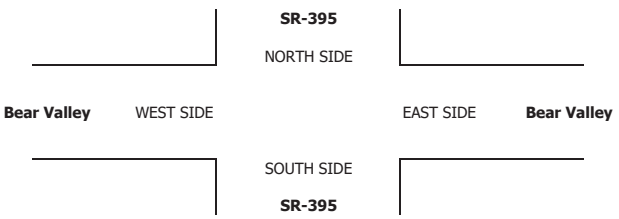
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	9
TUESDAY	EAST & WEST:	Bear Valley	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Bear Valley			WESTBOUND Bear Valley				U-TURNS					RTOR			
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL	NB	SB	EB	WB	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM	7:00 AM	0	0	0	0	1	0	0	0	1	0	1	1	4	0	0	0	0	0	0	0	0	0
	7:15 AM	0	2	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	2	1	0	1	0	4	0	0	0	0	0	0	0	0	0
	8:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0
	8:30 AM	0	1	0	0	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
	8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	4	0	0	3	1	0	3	3	2	3	1	21	0	0	0	0	0	0	0	0	0
	APPROACH %	20%	80%	0%	0%	75%	25%	0%	50%	50%	33%	50%	17%										
	APP/DEPART	5	/	5	4	/	8	6	/	3	6	/	5	0									
	BEGIN PEAK HR		7:00 AM																				
	VOLUMES	0	2	0	0	1	0	0	3	3	0	2	1	12						0	0	0	0
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	50%	50%	0%	67%	33%										
	PEAK HR FACTOR		0.250			0.250			0.500			0.375		0.750									
	APP/DEPART	2	/	3	1	/	4	6	/	3	3	/	2	0									
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	1	1	0	1	0	3	0	0	0	0	0	0	0	0	0
	4:15 PM	0	1	0	0	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	3	1	0	1	1	0	2	0	9	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	100%	0%	0%	75%	25%	0%	50%	50%	0%	100%	0%										
	APP/DEPART	1	/	1	4	/	4	2	/	1	2	/	3	0									
	BEGIN PEAK HR		4:00 PM																				
	VOLUMES	0	1	0	0	2	1	0	1	1	0	1	0	7						0	0	0	0
	APPROACH %	0%	100%	0%	0%	67%	33%	0%	50%	50%	0%	100%	0%										
	PEAK HR FACTOR		0.250			0.375			0.250			0.250		0.583									
	APP/DEPART	1	/	1	3	/	3	2	/	1	1	/	2	0									

SR-395

NORTH SIDE

Bear Valley WEST SIDE EAST SIDE **Bear Valley**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Jan 7, 20

LOCATION: Hesperia
NORTH & SOUTH: SR-395
EAST & WEST: Eucalyptus

PROJECT #: SC2468
LOCATION #: 10
CONTROL: SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ▲ ◄ W E ► S ▼

Add U-Turns to Left Turns

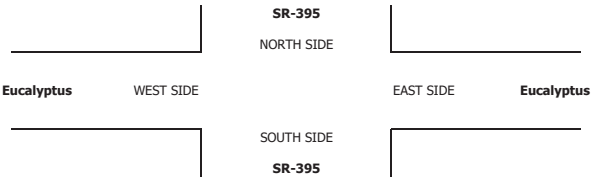
		NORTHBOUND (SR-395)			SOUTHBOUND (SR-395)			EASTBOUND (Eucalyptus)			WESTBOUND (Eucalyptus)			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	2	141	18	0	245	0	1	2	1	26	0	3	439
	7:15 AM	2	199	20	0	231	1	2	0	3	12	1	4	475
	7:30 AM	1	178	18	3	202	0	1	0	4	14	0	3	424
	7:45 AM	1	158	9	1	226	4	2	0	1	18	0	5	425
	8:00 AM	2	138	10	0	244	3	4	5	4	26	5	4	445
	8:15 AM	1	111	6	1	195	0	0	0	2	14	0	3	333
	8:30 AM	0	136	7	2	162	0	0	1	3	15	2	2	330
	8:45 AM	1	134	4	0	200	3	1	1	0	10	0	1	355
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	10	1,195	92	7	1,705	11	11	9	18	135	8	25	3,226
	APPROACH %	1%	92%	7%	0%	99%	1%	29%	24%	47%	80%	5%	15%	
	APP/DEPART	1,297	/	1,231	1,723	/	1,859	38	/	108	168	/	28	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	6	673	57	4	903	8	9	5	12	70	6	16	1,769
	APPROACH %	1%	91%	8%	0%	99%	1%	35%	19%	46%	76%	7%	17%	
	PEAK HR FACTOR		0.833			0.926			0.500			0.657		0.931
	APP/DEPART	736	/	698	915	/	985	26	/	66	92	/	20	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	243	28	3	217	6	4	2	1	7	2	4	518
	4:15 PM	1	233	22	2	193	3	1	1	1	16	0	3	476
	4:30 PM	5	276	13	1	194	1	1	1	4	17	1	4	518
	4:45 PM	2	283	18	4	155	2	1	0	1	9	0	2	477
	5:00 PM	4	252	23	2	178	2	1	0	0	7	0	3	472
	5:15 PM	1	269	21	3	189	2	0	0	1	15	1	2	504
	5:30 PM	1	296	18	5	185	2	2	0	1	12	0	3	525
	5:45 PM	2	272	22	1	174	4	2	0	1	9	1	1	489
	VOLUMES	17	2,124	165	21	1,485	22	12	4	10	92	5	22	3,979
	APPROACH %	1%	92%	7%	1%	97%	1%	46%	15%	38%	77%	4%	18%	
	APP/DEPART	2,306	/	2,158	1,528	/	1,588	26	/	190	119	/	43	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	8	1,089	84	11	726	10	5	0	3	43	2	9	1,990
	APPROACH %	1%	92%	7%	1%	97%	1%	63%	0%	38%	80%	4%	17%	
	PEAK HR FACTOR		0.937			0.963			0.667			0.750		0.948
	APP/DEPART	1,181	/	1,103	747	/	773	8	/	95	54	/	19	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1

RTOR

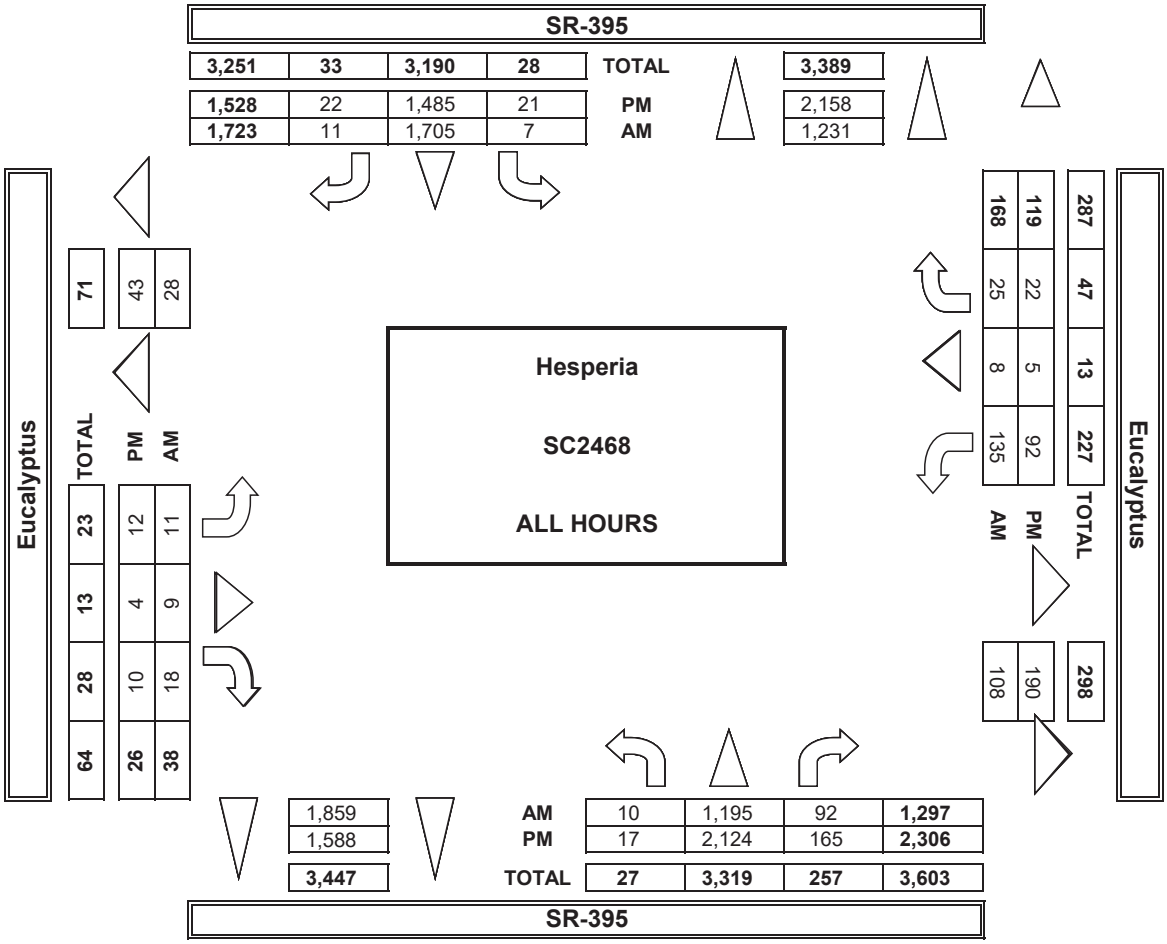
NRR	SRR	ERR	WRR
0	0	0	0
2	0	1	2
0	0	1	3
1	0	4	1
0	0	1	5
3	1	1	1
2	0	2	3
2	0	3	2
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
10	1	13	18
4	1	7	10
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
3	0	0	2
2	0	1	0
1	0	3	4
1	0	0	2
0	0	0	3
1	0	1	2
0	0	1	2
2	1	1	1
10	1	7	16
3	1	3	8

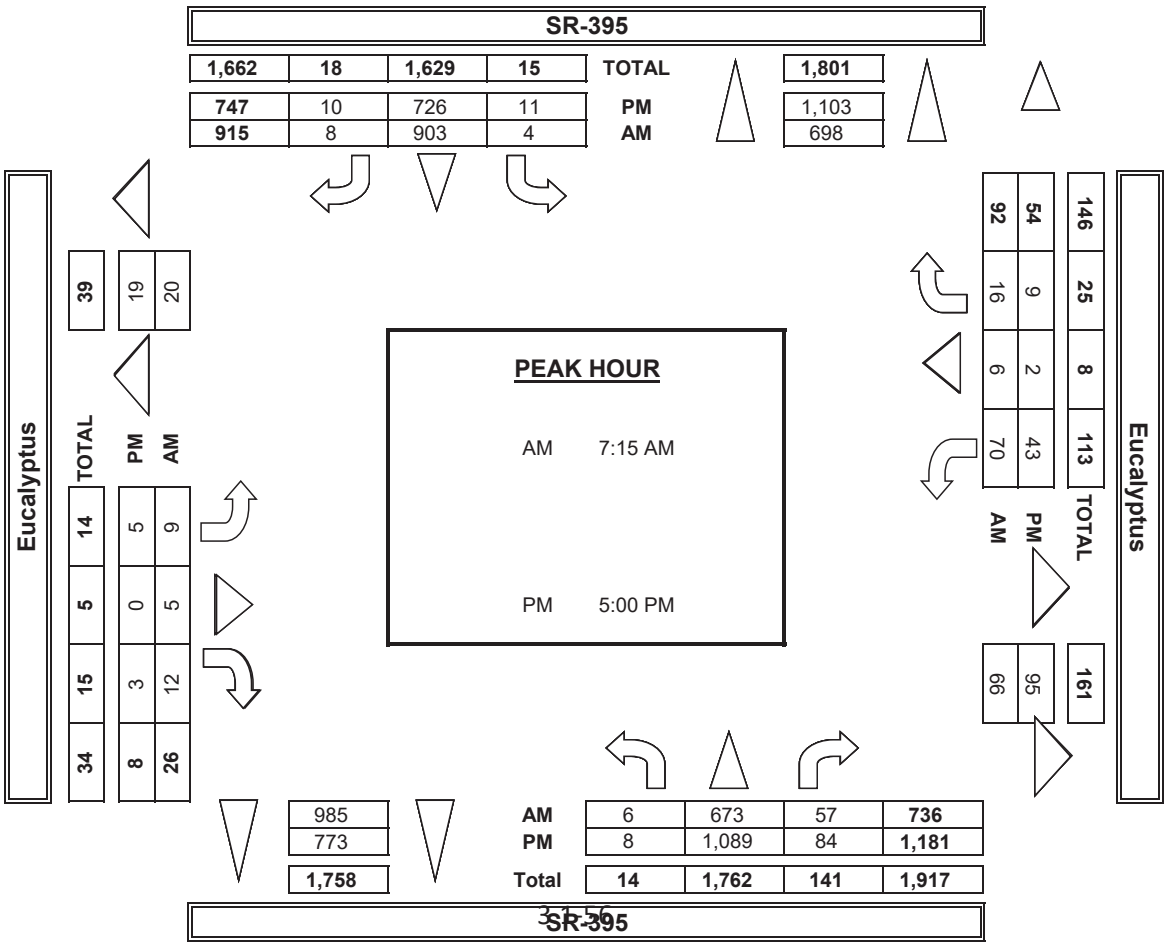


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	0	0	5	6	1	0	0	5	6	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	0	0	5	6	1	0	0	5	6	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 1:	NOTES:
PASSENGER VEHICLES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
7:00 AM	0	125	17	0	225	0	1	2	1	24	0	3	398
7:15 AM	1	166	20	0	203	1	2	0	2	11	1	2	409
7:30 AM	1	159	18	3	179	0	1	0	4	12	0	3	380
7:45 AM	1	134	9	1	190	4	2	0	1	18	0	5	365
8:00 AM	1	108	9	0	216	2	4	5	3	25	5	2	380
8:15 AM	1	93	5	0	177	0	0	0	2	13	0	3	294
8:30 AM	0	115	7	2	142	0	0	0	3	14	2	2	287
8:45 AM	1	99	3	0	173	3	1	1	0	10	0	1	292
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	6	999	88	6	1,505	10	11	8	16	127	8	21	2,805
APPROACH %	1%	91%	8%	0%	99%	1%	31%	23%	46%	81%	5%	13%	
APP/DEPART	1,093	/	1,031	1,521	/	1,648	35	/	102	156	/	24	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	3	584	64	4	797	5	6	2	8	65	1	13	1,552
APPROACH %	0%	90%	10%	0%	99%	1%	38%	13%	50%	82%	1%	16%	
PEAK HR FACTOR		0.870			0.896			0.800			0.731		0.949
APP/DEPART	651	/	603	806	/	870	16	/	70	79	/	9	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	221	27	3	182	5	4	2	0	7	2	4	458
4:15 PM	1	217	22	2	161	2	1	1	1	15	0	3	426
4:30 PM	5	255	10	1	172	1	1	0	3	17	1	4	470
4:45 PM	1	260	18	3	140	2	1	0	1	9	0	2	437
5:00 PM	3	235	23	2	148	2	1	0	0	5	0	3	422
5:15 PM	1	251	21	3	166	1	0	0	1	15	1	2	462
5:30 PM	1	272	17	5	153	2	1	0	1	12	0	3	467
5:45 PM	2	256	22	1	143	4	2	0	1	9	1	1	442
VOLUMES	15	1,967	160	20	1,265	19	11	3	8	89	5	22	3,584
APPROACH %	1%	92%	7%	2%	97%	1%	50%	14%	36%	77%	4%	19%	
APP/DEPART	2,142	/	2,000	1,304	/	1,363	22	/	183	116	/	38	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	6	1,014	83	11	610	9	4	0	3	41	2	9	1,793
APPROACH %	1%	92%	8%	2%	97%	1%	57%	0%	43%	79%	4%	17%	
PEAK HR FACTOR		0.952			0.926			0.583			0.722		0.960
APP/DEPART	1,104	/	1,027	630	/	655	7	/	94	52	/	17	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	2	6	1	0	7	0	0	0	0	1	0	0	17
	7:15 AM	0	12	0	0	10	0	0	0	0	1	0	1	24
	7:30 AM	0	3	0	0	6	0	0	0	0	0	0	0	9
	7:45 AM	0	5	0	0	11	0	0	0	0	0	0	0	16
	8:00 AM	1	9	1	0	6	0	0	0	0	0	0	2	19
	8:15 AM	0	2	0	0	4	0	0	0	0	1	0	0	7
	8:30 AM	0	1	0	0	3	0	0	1	0	0	0	0	5
	8:45 AM	0	12	1	0	6	0	0	0	0	0	0	0	19
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	3	50	3	0	53	0	0	1	0	3	0	3	116
	APPROACH %	5%	89%	5%	0%	100%	0%	0%	100%	0%	50%	0%	50%	
	APP/DEPART	56	/	53	53	/	57	1	/	4	6	/	2	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	1	29	1	0	33	0	0	0	0	1	0	3	68
	APPROACH %	3%	94%	3%	0%	100%	0%	0%	0%	0%	25%	0%	75%	
	PEAK HR FACTOR		0.646			0.750			0.000			0.500		0.708
	APP/DEPART	31	/	32	33	/	34	0	/	1	4	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	7	1	0	7	0	0	0	0	0	0	0	15
	4:15 PM	0	3	0	0	9	1	0	0	0	1	0	0	14
	4:30 PM	0	5	2	0	6	0	0	1	1	0	0	0	15
	4:45 PM	1	6	0	0	4	0	0	0	0	0	0	0	11
	5:00 PM	1	6	0	0	6	0	0	0	0	2	0	0	15
	5:15 PM	0	3	0	0	5	0	0	0	0	0	0	0	8
	5:30 PM	0	12	0	0	3	0	1	0	0	0	0	0	16
	5:45 PM	0	9	0	0	7	0	0	0	0	0	0	0	16
	VOLUMES	2	51	3	0	47	1	1	1	1	3	0	0	110
	APPROACH %	4%	91%	5%	0%	98%	2%	33%	33%	33%	100%	0%	0%	
	APP/DEPART	56	/	52	48	/	51	3	/	4	3	/	3	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	30	0	0	21	0	1	0	0	2	0	0	55
	APPROACH %	3%	97%	0%	0%	100%	0%	100%	0%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.646			0.525			0.125			0.250		0.859
	APP/DEPART	31	/	31	21	/	23	1	/	0	2	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	1	0	0	1	0	0	0	0	1	0	0	3
	7:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	4
	7:30 AM	0	2	0	0	1	0	0	0	0	1	0	0	4
	7:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	4
	8:00 AM	0	2	0	0	3	0	0	0	0	1	0	0	6
	8:15 AM	0	1	1	1	1	0	0	0	0	0	0	0	4
	8:30 AM	0	4	0	0	3	0	0	0	0	1	0	0	8
	8:45 AM	0	2	0	0	4	0	0	0	0	0	0	0	6
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	14	1	1	19	0	0	0	0	4	0	0	39
	APPROACH %	0%	93%	7%	5%	95%	0%	0%	0%	0%	100%	0%	0%	
	APP/DEPART	15	/	14	20	/	23	0	/	2	4	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	9	1	1	11	0	0	0	0	2	0	0	24
	APPROACH %	0%	90%	10%	8%	92%	0%	0%	0%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.625			0.750			0.000			0.500		0.750
	APP/DEPART	10	/	9	12	/	13	0	/	2	2	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
	4:15 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
	4:30 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	4:45 PM	0	3	0	0	4	0	0	0	0	0	0	0	7
	5:00 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
	5:15 PM	0	0	0	0	3	1	0	0	0	0	0	0	4
	5:30 PM	0	4	1	0	4	0	0	0	0	0	0	0	9
	5:45 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	VOLUMES	0	12	1	0	24	1	0	0	0	0	0	0	38
	APPROACH %	0%	92%	8%	0%	96%	4%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	13	/	12	25	/	24	0	/	1	0	/	1	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	7	1	0	15	1	0	0	0	0	0	0	24
	APPROACH %	0%	88%	13%	0%	94%	6%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.400			1.000			0.000			0.000		0.667
	APP/DEPART	8	/	7	16	/	15	0	/	1	0	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

SR-395

NORTH SIDE

Eucalyptus WEST SIDE EAST SIDE **Eucalyptus**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	8	0	0	12	0	0	0	0	0	0	0	20
	7:15 AM	0	18	0	0	14	0	0	0	0	0	0	1	33
	7:30 AM	0	14	0	0	16	0	0	0	0	1	0	0	31
	7:45 AM	0	19	0	0	21	0	0	0	0	0	0	0	40
	8:00 AM	0	19	0	0	17	0	0	0	0	0	0	0	36
	8:15 AM	0	15	0	0	12	0	0	0	0	0	0	0	27
	8:30 AM	0	15	0	0	14	0	0	0	0	0	0	0	29
	8:45 AM	0	20	0	0	16	0	0	0	0	0	0	0	36
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	128	0	0	122	0	0	0	0	1	0	1	252
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	50%	0%	50%	
	APP/DEPART	128	/	129	122	/	123	0	/	0	2	/	0	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	70	0	0	68	0	0	0	0	1	0	1	140
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	50%	0%	50%	
	PEAK HR FACTOR		0.921			0.810			0.000			0.500		0.875
	APP/DEPART	70	/	71	68	/	69	0	/	0	2	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	13	0	0	26	0	0	0	0	0	0	0	39
	4:15 PM	0	11	0	0	19	0	0	0	0	0	0	0	30
	4:30 PM	0	15	1	0	13	0	0	0	0	0	0	0	29
	4:45 PM	0	14	0	1	7	0	0	0	0	0	0	0	22
	5:00 PM	0	11	0	0	19	0	0	0	0	0	0	0	30
	5:15 PM	0	15	0	0	14	0	0	0	0	0	0	0	29
	5:30 PM	0	8	0	0	25	0	0	0	0	0	0	0	33
	5:45 PM	0	6	0	0	22	0	0	0	0	0	0	0	28
	VOLUMES	0	93	1	1	145	0	0	0	0	0	0	0	240
	APPROACH %	0%	99%	1%	1%	99%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	94	/	93	146	/	145	0	/	2	0	/	0	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	40	0	0	80	0	0	0	0	0	0	0	120
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.625			0.769			0.000			0.000		0.769
	APP/DEPART	40	/	40	80	/	80	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

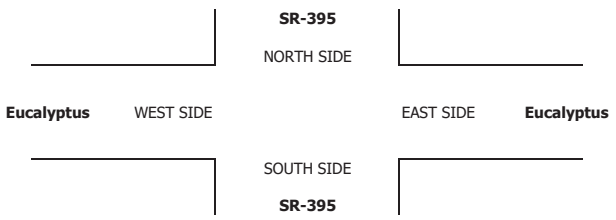
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	0	1	0	0	0	0	0	0	0	1
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.250			0.000			0.000		0.250
	APP/DEPART	0	/	0	1	/	1	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

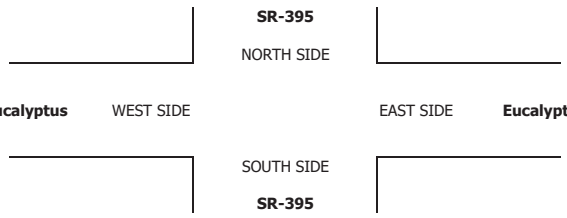
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	10
TUESDAY	EAST & WEST:	Eucalyptus	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Eucalyptus			WESTBOUND Eucalyptus				U-TURNS					RTOR			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM 7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:15 AM	1	1	0	0	2	0	0	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	2	1	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	4	0	0	6	1	0	0	2	0	0	0	14	0	0	0	0	0	0	0	0	0
APPROACH %	20%	80%	0%	0%	86%	14%	0%	0%	100%	0%	0%	0%										
APP/DEPART	5	/	4	7	/	8	2	/	0	0	/	2	0									
BEGIN PEAK HR		7:15 AM																				
VOLUMES	1	1	0	0	4	1	0	0	2	0	0	0	9						0	0	0	0
APPROACH %	50%	50%	0%	0%	80%	20%	0%	0%	100%	0%	0%	0%										
PEAK HR FACTOR		0.250			0.417			0.500			0.000		0.450									
APP/DEPART	2	/	1	5	/	6	2	/	0	0	/	2	0									
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1	0	0	3	1	0	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0
APPROACH %	0%	100%	0%	0%	75%	25%	0%	0%	100%	0%	0%	0%										
APP/DEPART	1	/	1	4	/	4	1	/	0	0	/	1	0									
BEGIN PEAK HR		4:00 PM																				
VOLUMES	0	1	0	0	2	1	0	0	1	0	0	0	5						0	0	0	0
APPROACH %	0%	100%	0%	0%	67%	33%	0%	0%	100%	0%	0%	0%										
PEAK HR FACTOR		0.250			0.750			0.250			0.000		0.625									
APP/DEPART	1	/	1	3	/	3	1	/	0	0	/	1	0									



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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	287	0	287	0	0	0	0	0	213	0	213	0	0	0	0	500
07:15 AM	0	251	0	251	0	0	0	0	0	203	0	203	0	0	0	0	454
07:30 AM	0	226	0	226	0	0	0	0	1	233	0	234	0	0	0	0	460
07:45 AM	0	239	0	239	0	0	0	0	1	153	0	154	0	0	1	1	394
Total	0	1003	0	1003	0	0	0	0	2	802	0	804	0	0	1	1	1808
08:00 AM	0	217	0	217	0	0	0	0	0	136	0	136	0	0	0	0	353
08:15 AM	0	217	0	217	0	0	0	0	1	167	0	168	0	0	0	0	385
08:30 AM	0	220	0	220	0	0	0	0	0	174	0	174	0	0	1	1	395
08:45 AM	0	195	1	196	0	0	0	0	1	151	0	152	1	0	0	1	349
Total	0	849	1	850	0	0	0	0	2	628	0	630	1	0	1	2	1482
Grand Total	0	1852	1	1853	0	0	0	0	4	1430	0	1434	1	0	2	3	3290
Apprch %	0	99.9	0.1		0	0	0		0.3	99.7	0		33.3	0	66.7		
Total %	0	56.3	0	56.3	0	0	0	0	0.1	43.5	0	43.6	0	0	0.1	0.1	
Passenger Vehicles	0	1691	1	1692	0	0	0	0	3	1273	0	1276	1	0	2	3	2971
% Passenger Vehicles	0	91.3	100	91.3	0	0	0	0	75	89	0	89	100	0	100	100	90.3
Large 2 Axle Vehicles	0	35	0	35	0	0	0	0	1	55	0	56	0	0	0	0	91
% Large 2 Axle Vehicles	0	1.9	0	1.9	0	0	0	0	25	3.8	0	3.9	0	0	0	0	2.8
3 Axle Vehicles	0	10	0	10	0	0	0	0	0	9	0	9	0	0	0	0	19
% 3 Axle Vehicles	0	0.5	0	0.5	0	0	0	0	0	0.6	0	0.6	0	0	0	0	0.6
4+ Axle Trucks	0	116	0	116	0	0	0	0	0	93	0	93	0	0	0	0	209
% 4+ Axle Trucks	0	6.3	0	6.3	0	0	0	0	0	6.5	0	6.5	0	0	0	0	6.4

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**287**	0	**287**	0	0	0	0	0	213	0	213	0	0	0	0	**500**
07:15 AM	0	251	0	251	0	0	0	0	0	203	0	203	0	0	0	0	454
07:30 AM	0	226	0	226	0	0	0	0	**1**	**233**	0	**234**	0	0	0	0	460
07:45 AM	0	239	0	239	0	0	0	0	1	153	0	154	0	0	**1**	**1**	394
Total Volume	0	1003	0	1003	0	0	0	0	2	802	0	804	0	0	1	1	1808
% App. Total	0	100	0		0	0	0		0.2	99.8	0		0	0	100		
PHF	.000	.874	.000	.874	.000	.000	.000	.000	.500	.861	.000	.859	.000	.000	.250	.250	.904

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
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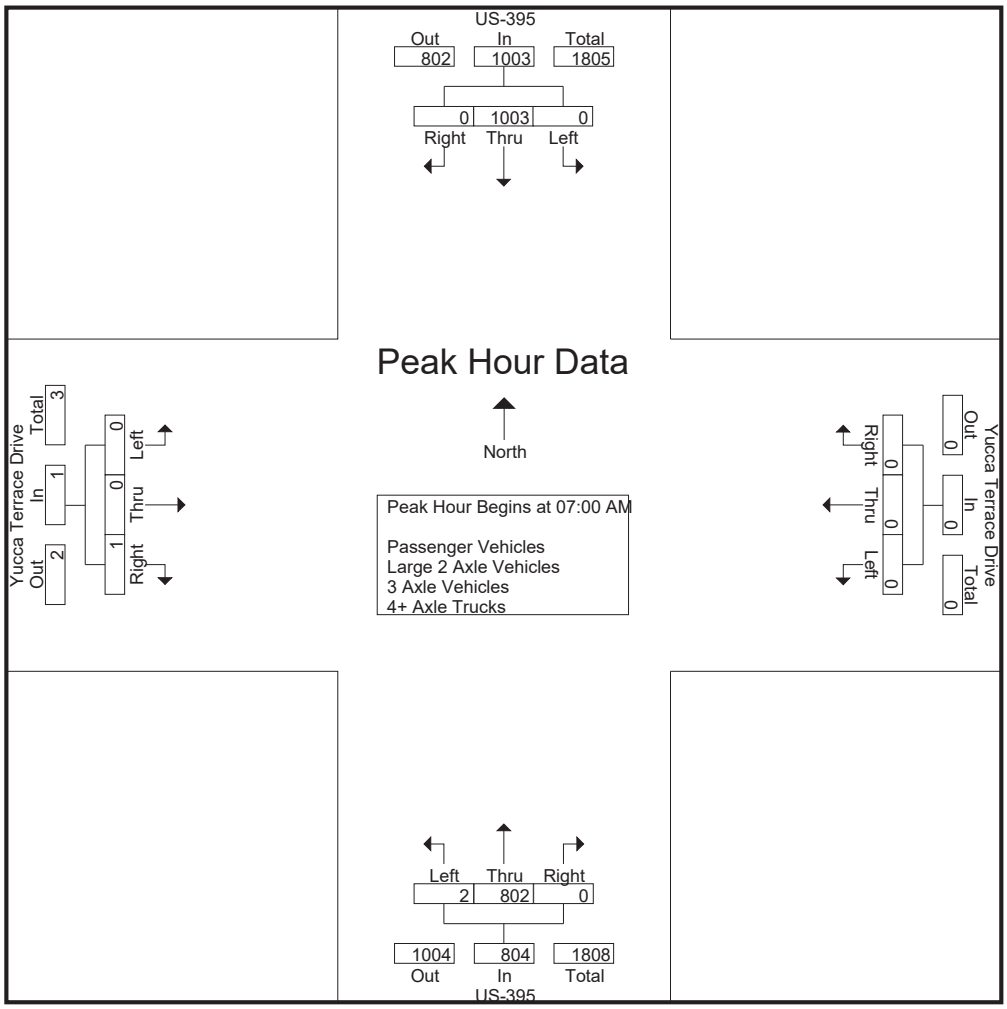

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:45 AM			
+0 mins.	0	**287**	0	**287**	0	0	0	0	0	213	0	213	0	0	**1**	**1**
+15 mins.	0	251	0	251	0	0	0	0	0	203	0	203	0	0	0	0
+30 mins.	0	226	0	226	0	0	0	0	**1**	**233**	0	**234**	0	0	0	0
+45 mins.	0	239	0	239	0	0	0	0	1	153	0	154	0	0	1	1
Total Volume	0	1003	0	1003	0	0	0	0	2	802	0	804	0	0	2	2
% App. Total	0	100	0		0	0	0		0.2	99.8	0		0	0	100	
PHF	.000	.874	.000	.874	.000	.000	.000	.000	.500	.861	.000	.859	.000	.000	.500	.500

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- Passenger Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	260	0	260	0	0	0	0	0	190	0	190	0	0	0	0	450
07:15 AM	0	233	0	233	0	0	0	0	0	180	0	180	0	0	0	0	413
07:30 AM	0	204	0	204	0	0	0	0	1	208	0	209	0	0	0	0	413
07:45 AM	0	216	0	216	0	0	0	0	0	136	0	136	0	0	1	1	353
Total	0	913	0	913	0	0	0	0	1	714	0	715	0	0	1	1	1629
08:00 AM	0	198	0	198	0	0	0	0	0	121	0	121	0	0	0	0	319
08:15 AM	0	217	0	217	0	0	0	0	1	167	0	168	0	0	0	0	385
08:30 AM	0	188	0	188	0	0	0	0	0	151	0	151	0	0	1	1	340
08:45 AM	0	175	1	176	0	0	0	0	1	120	0	121	1	0	0	1	298
Total	0	778	1	779	0	0	0	0	2	559	0	561	1	0	1	2	1342
Grand Total	0	1691	1	1692	0	0	0	0	3	1273	0	1276	1	0	2	3	2971
Apprch %	0	99.9	0.1		0	0	0		0.2	99.8	0		33.3	0	66.7		
Total %	0	56.9	0	57	0	0	0	0	0.1	42.8	0	42.9	0	0	0.1	0.1	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**260**	0	**260**	0	0	0	0	0	190	0	190	0	0	0	0	**450**
07:15 AM	0	233	0	233	0	0	0	0	0	180	0	180	0	0	0	0	413
07:30 AM	0	204	0	204	0	0	0	0	**1**	**208**	0	**209**	0	0	0	0	413
07:45 AM	0	216	0	216	0	0	0	0	0	136	0	136	0	0	**1**	**1**	353
Total Volume	0	913	0	913	0	0	0	0	1	714	0	715	0	0	1	1	1629
% App. Total	0	100	0		0	0	0		0.1	99.9	0		0	0	100		
PHF	.000	.878	.000	.878	.000	.000	.000	.000	.250	.858	.000	.855	.000	.000	.250	.250	.905

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
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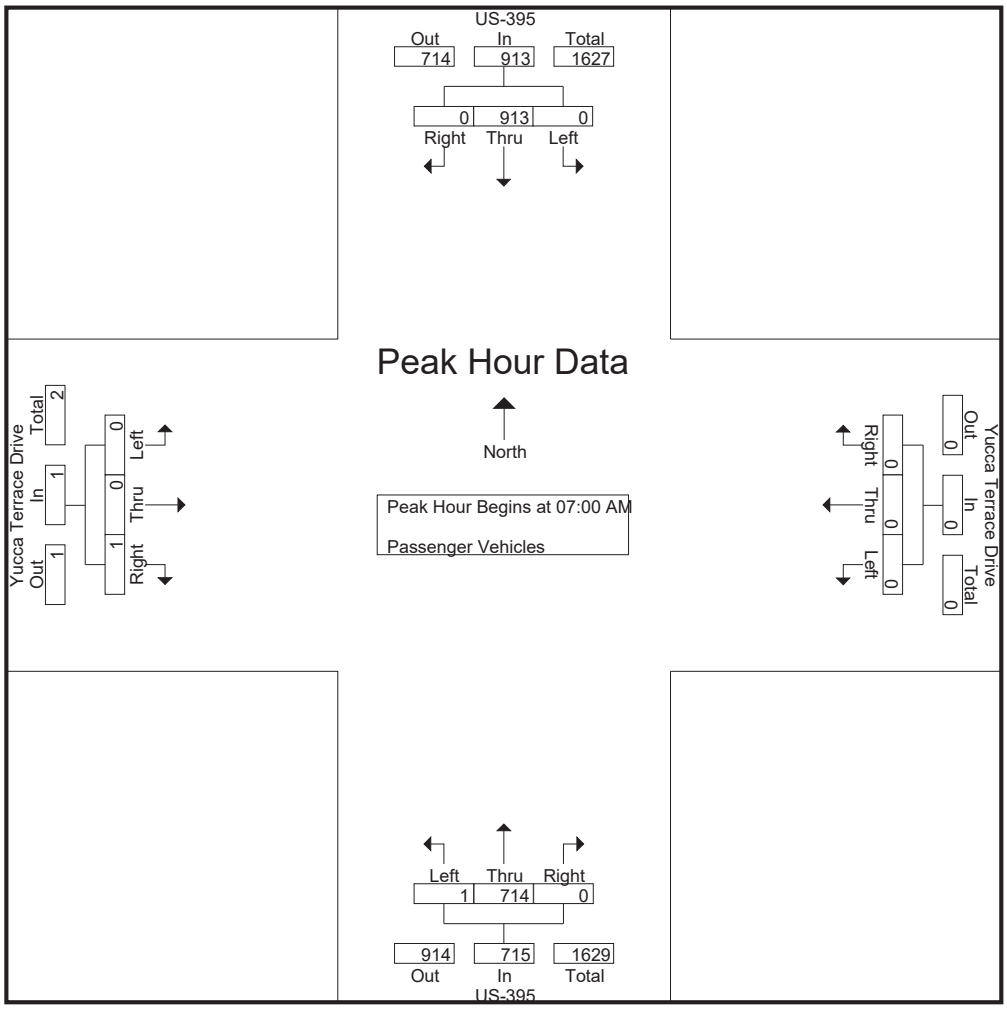

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	**260**	0	**260**	0	0	0	0	0	190	0	190	0	0	0	0
+15 mins.	0	233	0	233	0	0	0	0	0	180	0	180	0	0	0	0
+30 mins.	0	204	0	204	0	0	0	0	**1**	**208**	0	**209**	0	0	0	0
+45 mins.	0	216	0	216	0	0	0	0	0	136	0	136	0	0	**1**	**1**
Total Volume	0	913	0	913	0	0	0	0	1	714	0	715	0	0	1	1
% App. Total	0	100	0		0	0	0		0.1	99.9	0		0	0	100	
PHF	.000	.878	.000	.878	.000	.000	.000	.000	.250	.858	.000	.855	.000	.000	.250	.250

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	6	0	6	0	0	0	0	0	6	0	6	0	0	0	0	12
07:15 AM	0	4	0	4	0	0	0	0	0	10	0	10	0	0	0	0	14
07:30 AM	0	4	0	4	0	0	0	0	0	7	0	7	0	0	0	0	11
07:45 AM	0	4	0	4	0	0	0	0	1	4	0	5	0	0	0	0	9
Total	0	18	0	18	0	0	0	0	1	27	0	28	0	0	0	0	46
08:00 AM	0	3	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	7	0	7	0	0	0	0	0	9	0	9	0	0	0	0	16
08:45 AM	0	7	0	7	0	0	0	0	0	16	0	16	0	0	0	0	23
Total	0	17	0	17	0	0	0	0	0	28	0	28	0	0	0	0	45
Grand Total	0	35	0	35	0	0	0	0	1	55	0	56	0	0	0	0	91
Apprch %	0	100	0		0	0	0		1.8	98.2	0		0	0	0		
Total %	0	38.5	0	38.5	0	0	0	0	1.1	60.4	0	61.5	0	0	0	0	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**6**	0	**6**	0	0	0	0	0	6	0	6	0	0	0	0	12
07:15 AM	0	4	0	4	0	0	0	0	0	**10**	0	**10**	0	0	0	0	**14**
07:30 AM	0	4	0	4	0	0	0	0	0	7	0	7	0	0	0	0	11
07:45 AM	0	4	0	4	0	0	0	0	**1**	4	0	5	0	0	0	0	9
Total Volume	0	18	0	18	0	0	0	0	1	27	0	28	0	0	0	0	46
% App. Total	0	100	0		0	0	0		3.6	96.4	0		0	0	0		
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.250	.675	.000	.700	.000	.000	.000	.000	.821

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
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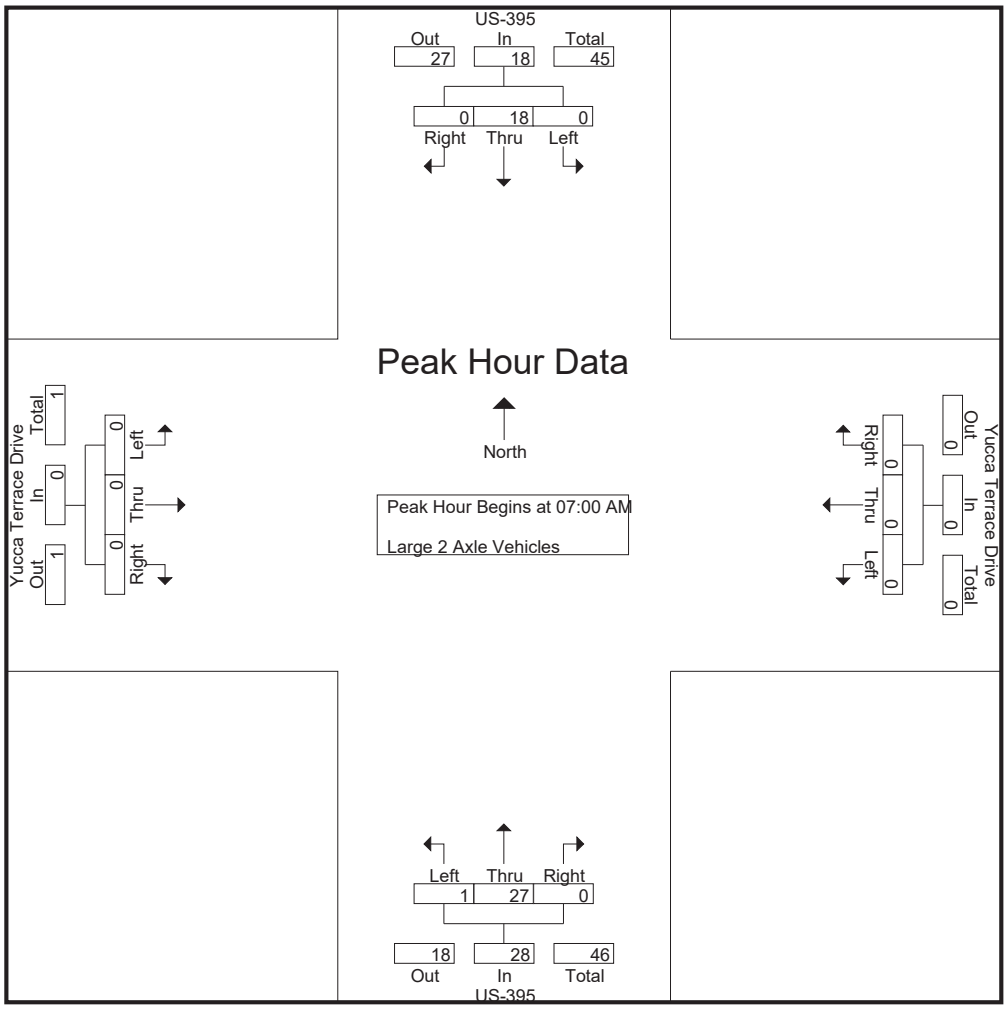

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	**6**	0	**6**	0	0	0	0	0	6	0	6	0	0	0	0
+15 mins.	0	4	0	4	0	0	0	0	0	**10**	0	**10**	0	0	0	0
+30 mins.	0	4	0	4	0	0	0	0	0	7	0	7	0	0	0	0
+45 mins.	0	4	0	4	0	0	0	0	**1**	4	0	5	0	0	0	0
Total Volume	0	18	0	18	0	0	0	0	1	27	0	28	0	0	0	0
% App. Total	0	100	0		0	0	0		3.6	96.4	0		0	0	0	
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.250	.675	.000	.700	.000	.000	.000	.000

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
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Groups Printed- 3 Axle Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:15 AM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	4	0	4	0	0	0	0	0	4	0	4	0	0	0	0	8
08:00 AM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	4	0	4	0	0	0	0	0	3	0	3	0	0	0	0	7
08:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	6	0	6	0	0	0	0	0	5	0	5	0	0	0	0	11
Grand Total	0	10	0	10	0	0	0	0	0	9	0	9	0	0	0	0	19
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	52.6	0	52.6	0	0	0	0	0	47.4	0	47.4	0	0	0	0	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**3**	0	**3**	0	0	0	0	0	1	0	1	0	0	0	0	**4**
07:15 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total Volume	0	4	0	4	0	0	0	0	0	4	0	4	0	0	0	0	8
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.333	.000	.333	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
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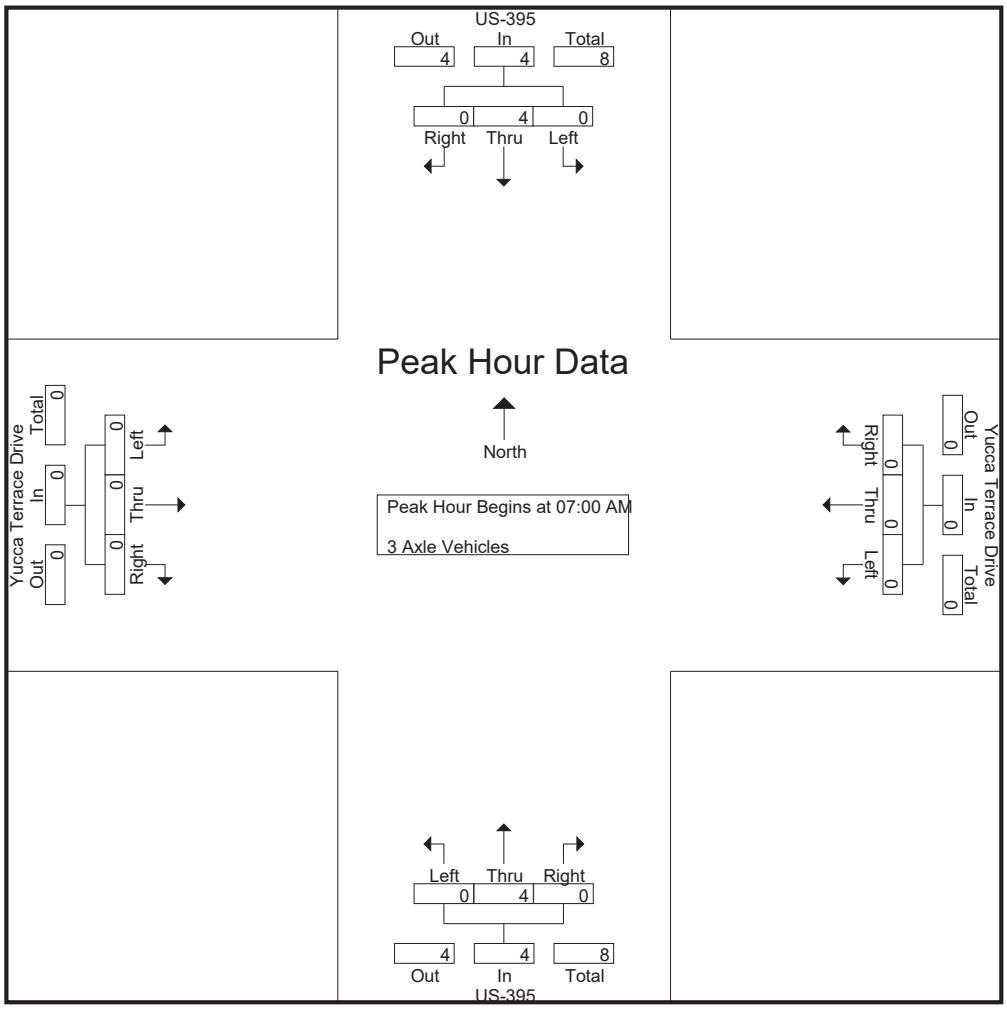

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	**3**	0	**3**	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	4	0	4	0	0	0	0	0	4	0	4	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.333	.000	.333	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	18	0	18	0	0	0	0	0	16	0	16	0	0	0	0	34
07:15 AM	0	14	0	14	0	0	0	0	0	11	0	11	0	0	0	0	25
07:30 AM	0	18	0	18	0	0	0	0	0	18	0	18	0	0	0	0	36
07:45 AM	0	18	0	18	0	0	0	0	0	12	0	12	0	0	0	0	30
Total	0	68	0	68	0	0	0	0	0	57	0	57	0	0	0	0	125
08:00 AM	0	14	0	14	0	0	0	0	0	11	0	11	0	0	0	0	25
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	21	0	21	0	0	0	0	0	11	0	11	0	0	0	0	32
08:45 AM	0	13	0	13	0	0	0	0	0	14	0	14	0	0	0	0	27
Total	0	48	0	48	0	0	0	0	0	36	0	36	0	0	0	0	84
Grand Total	0	116	0	116	0	0	0	0	0	93	0	93	0	0	0	0	209
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	55.5	0	55.5	0	0	0	0	0	44.5	0	44.5	0	0	0	0	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	**18**	0	**18**	0	0	0	0	0	16	0	16	0	0	0	0	34
07:15 AM	0	14	0	14	0	0	0	0	0	11	0	11	0	0	0	0	25
07:30 AM	0	18	0	18	0	0	0	0	0	**18**	0	**18**	0	0	0	0	**36**
07:45 AM	0	18	0	18	0	0	0	0	0	12	0	12	0	0	0	0	30
Total Volume	0	68	0	68	0	0	0	0	0	57	0	57	0	0	0	0	125
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.944	.000	.944	.000	.000	.000	.000	.000	.792	.000	.792	.000	.000	.000	.000	.868

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace AM
Site Code : 05119658
Start Date : 9/28/2019
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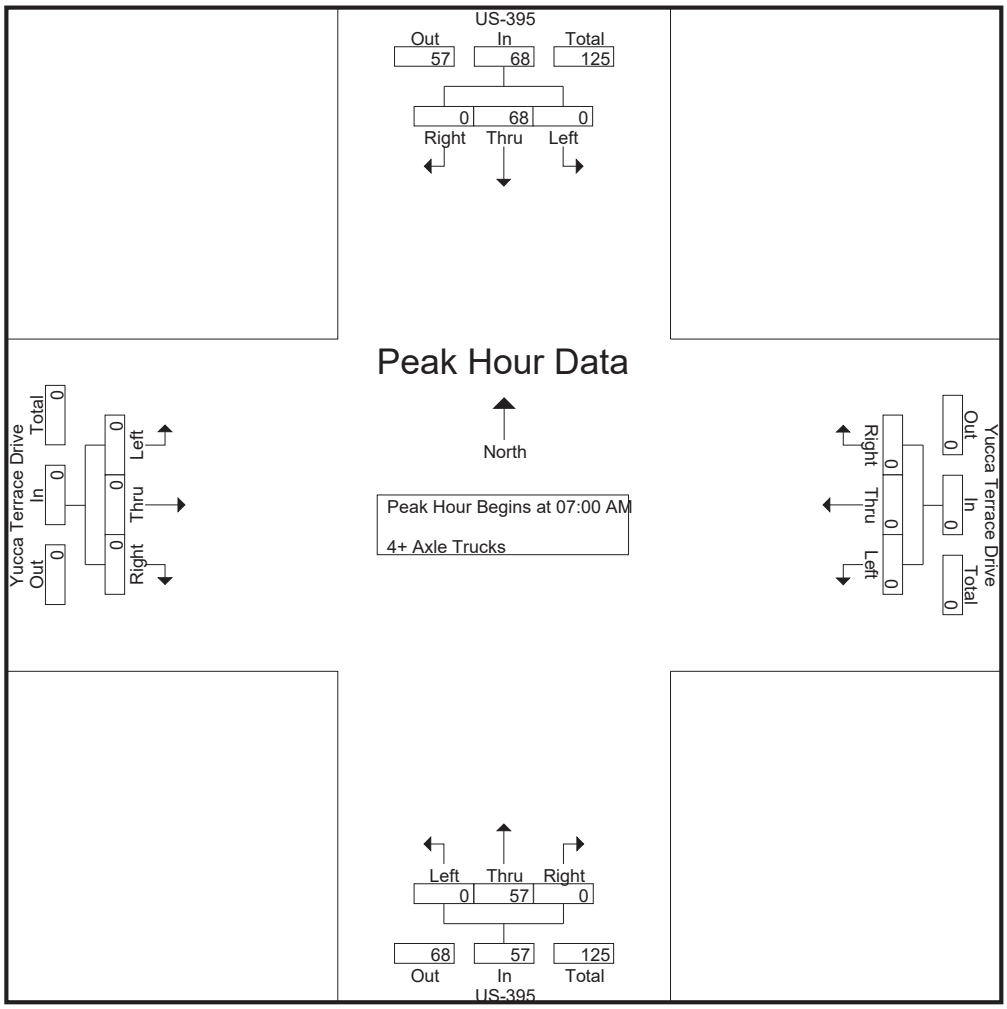

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	**18**	0	**18**	0	0	0	0	0	16	0	16	0	0	0	0
+15 mins.	0	14	0	14	0	0	0	0	0	11	0	11	0	0	0	0
+30 mins.	0	18	0	18	0	0	0	0	0	**18**	0	**18**	0	0	0	0
+45 mins.	0	18	0	18	0	0	0	0	0	12	0	12	0	0	0	0
Total Volume	0	68	0	68	0	0	0	0	0	57	0	57	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.944	.000	.944	.000	.000	.000	.000	.000	.792	.000	.792	.000	.000	.000	.000

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	205	0	205	0	0	0	0	0	274	0	274	0	0	0	0	479
04:15 PM	0	180	0	180	0	0	0	0	0	315	0	315	0	0	0	0	495
04:30 PM	0	197	2	199	0	0	0	0	1	298	0	299	0	0	0	0	498
04:45 PM	0	175	0	175	0	0	0	0	2	318	0	320	0	0	1	1	496
Total	0	757	2	759	0	0	0	0	3	1205	0	1208	0	0	1	1	1968
05:00 PM	0	192	0	192	0	0	0	0	1	273	0	274	0	0	1	1	467
05:15 PM	0	181	1	182	0	0	0	0	0	310	0	310	0	0	1	1	493
05:30 PM	0	178	0	178	0	0	0	0	1	336	0	337	0	0	0	0	515
05:45 PM	0	175	1	176	0	0	0	0	0	318	0	318	1	0	2	3	497
Total	0	726	2	728	0	0	0	0	2	1237	0	1239	1	0	4	5	1972
Grand Total	0	1483	4	1487	0	0	0	0	5	2442	0	2447	1	0	5	6	3940
Apprch %	0	99.7	0.3		0	0	0		0.2	99.8	0		16.7	0	83.3		
Total %	0	37.6	0.1	37.7	0	0	0	0	0.1	62	0	62.1	0	0	0.1	0.2	
Passenger Vehicles	0	1309	2	1311	0	0	0	0	2	2312	0	2314	0	0	5	5	3630
% Passenger Vehicles	0	88.3	50	88.2	0	0	0	0	40	94.7	0	94.6	0	0	100	83.3	92.1
Large 2 Axle Vehicles	0	35	0	35	0	0	0	0	1	40	0	41	0	0	0	0	76
% Large 2 Axle Vehicles	0	2.4	0	2.4	0	0	0	0	20	1.6	0	1.7	0	0	0	0	1.9
3 Axle Vehicles	0	6	0	6	0	0	0	0	0	13	0	13	0	0	0	0	19
% 3 Axle Vehicles	0	0.4	0	0.4	0	0	0	0	0	0.5	0	0.5	0	0	0	0	0.5
4+ Axle Trucks	0	133	2	135	0	0	0	0	2	77	0	79	1	0	0	1	215
% 4+ Axle Trucks	0	9	50	9.1	0	0	0	0	40	3.2	0	3.2	100	0	0	16.7	5.5

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	**192**	0	**192**	0	0	0	0	**1**	273	0	274	0	0	1	1	467
05:15 PM	0	181	**1**	182	0	0	0	0	0	310	0	310	0	0	1	1	493
05:30 PM	0	178	0	178	0	0	0	0	1	**336**	0	**337**	0	0	0	0	**515**
05:45 PM	0	175	1	176	0	0	0	0	0	318	0	318	**1**	0	**2**	**3**	497
Total Volume	0	726	2	728	0	0	0	0	2	1237	0	1239	1	0	4	5	1972
% App. Total	0	99.7	0.3		0	0	0		0.2	99.8	0		20	0	80		
PHF	.000	.945	.500	.948	.000	.000	.000	.000	.500	.920	.000	.919	.250	.000	.500	.417	.957

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
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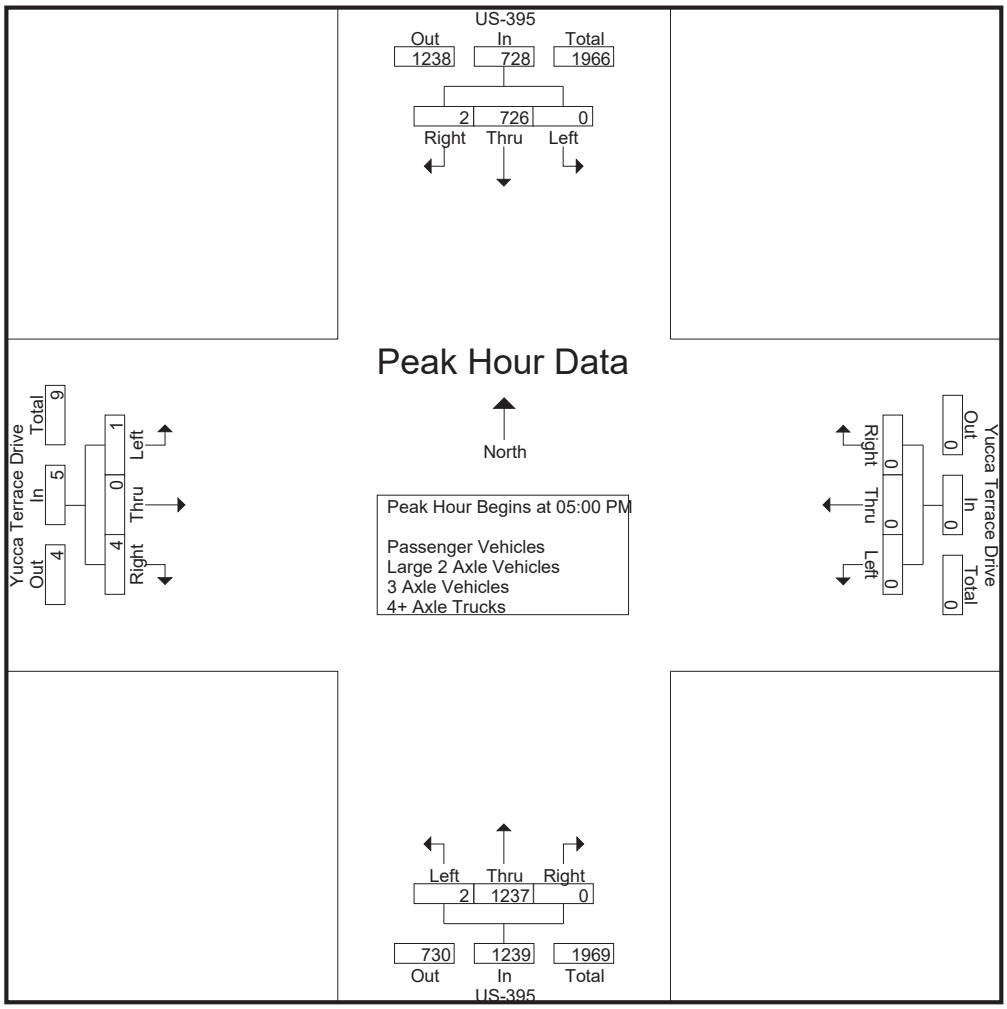

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:45 PM				05:00 PM			
+0 mins.	0	**205**	0	**205**	0	0	0	0	**2**	318	0	320	0	0	1	1
+15 mins.	0	180	0	180	0	0	0	0	1	273	0	274	0	0	1	1
+30 mins.	0	197	**2**	199	0	0	0	0	0	310	0	310	0	0	0	0
+45 mins.	0	175	0	175	0	0	0	0	1	**336**	0	**337**	**1**	0	**2**	**3**
Total Volume	0	757	2	759	0	0	0	0	4	1237	0	1241	1	0	4	5
% App. Total	0	99.7	0.3		0	0	0		0.3	99.7	0		20	0	80	
PHF	.000	.923	.250	.926	.000	.000	.000	.000	.500	.920	.000	.921	.250	.000	.500	.417

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
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Groups Printed- Passenger Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	180	0	180	0	0	0	0	0	256	0	256	0	0	0	0	436
04:15 PM	0	159	0	159	0	0	0	0	0	290	0	290	0	0	0	0	449
04:30 PM	0	173	1	174	0	0	0	0	1	277	0	278	0	0	0	0	452
04:45 PM	0	156	0	156	0	0	0	0	1	310	0	311	0	0	1	1	468
Total	0	668	1	669	0	0	0	0	2	1133	0	1135	0	0	1	1	1805
05:00 PM	0	167	0	167	0	0	0	0	0	258	0	258	0	0	1	1	426
05:15 PM	0	162	0	162	0	0	0	0	0	302	0	302	0	0	1	1	465
05:30 PM	0	156	0	156	0	0	0	0	0	312	0	312	0	0	0	0	468
05:45 PM	0	156	1	157	0	0	0	0	0	307	0	307	0	0	2	2	466
Total	0	641	1	642	0	0	0	0	0	1179	0	1179	0	0	4	4	1825
Grand Total	0	1309	2	1311	0	0	0	0	2	2312	0	2314	0	0	5	5	3630
Apprch %	0	99.8	0.2		0	0	0		0.1	99.9	0		0	0	100		
Total %	0	36.1	0.1	36.1	0	0	0	0	0.1	63.7	0	63.7	0	0	0.1	0.1	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	**167**	0	**167**	0	0	0	0	0	258	0	258	0	0	1	1	426
05:15 PM	0	162	0	162	0	0	0	0	0	302	0	302	0	0	1	1	465
05:30 PM	0	156	0	156	0	0	0	0	0	**312**	0	**312**	0	0	0	0	**468**
05:45 PM	0	156	**1**	157	0	0	0	0	0	307	0	307	0	0	**2**	**2**	466
Total Volume	0	641	1	642	0	0	0	0	0	1179	0	1179	0	0	4	4	1825
% App. Total	0	99.8	0.2		0	0	0		0	100	0		0	0	100		
PHF	.000	.960	.250	.961	.000	.000	.000	.000	.000	.945	.000	.945	.000	.000	.500	.500	.975

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City of Hesperia
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E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
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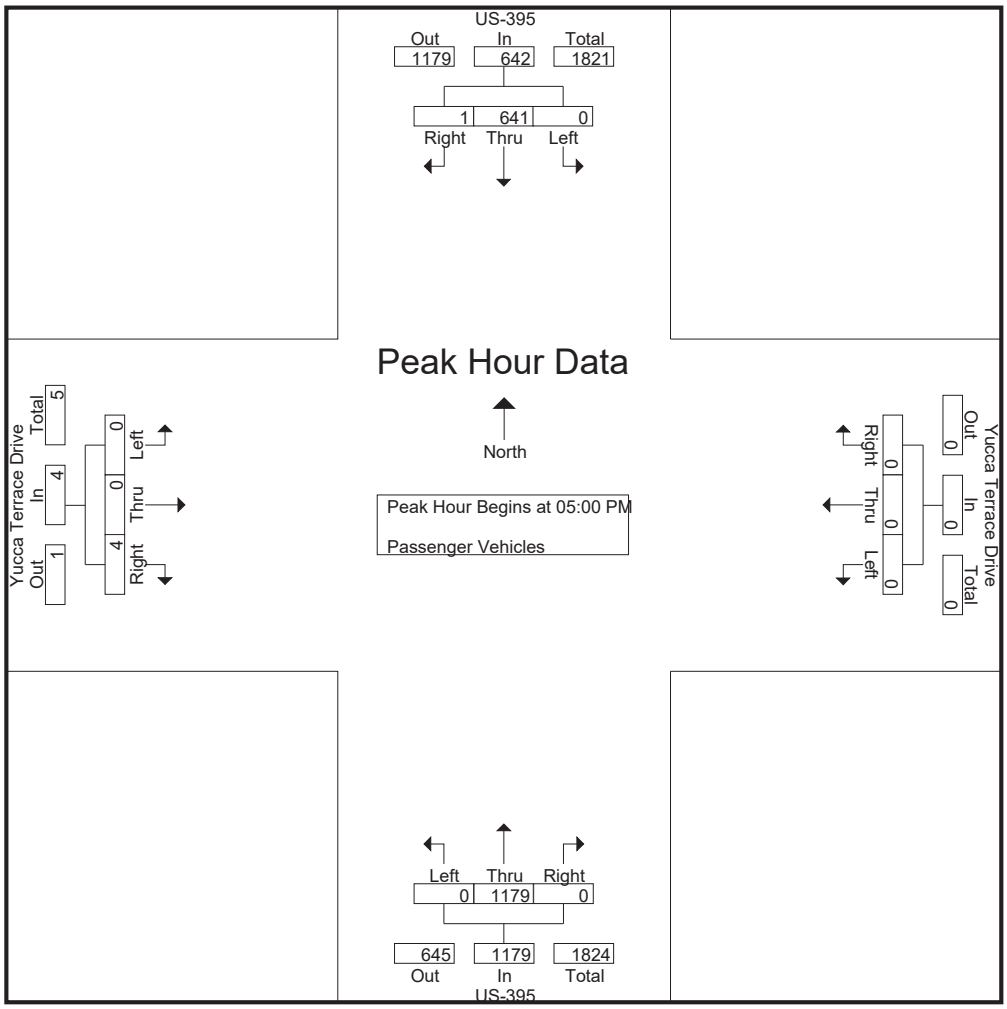

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	**167**	0	**167**	0	0	0	0	0	258	0	258	0	0	1	1
+15 mins.	0	162	0	162	0	0	0	0	0	302	0	302	0	0	1	1
+30 mins.	0	156	0	156	0	0	0	0	0	**312**	0	**312**	0	0	0	0
+45 mins.	0	156	**1**	157	0	0	0	0	0	307	0	307	0	0	**2**	**2**
Total Volume	0	641	1	642	0	0	0	0	0	1179	0	1179	0	0	4	4
% App. Total	0	99.8	0.2		0	0	0		0	100	0		0	0	100	
PHF	.000	.960	.250	.961	.000	.000	.000	.000	.000	.945	.000	.945	.000	.000	.500	.500

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- Large 2 Axle Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	3	0	3	0	0	0	0	0	6	0	6	0	0	0	0	9
04:15 PM	0	5	0	5	0	0	0	0	0	7	0	7	0	0	0	0	12
04:30 PM	0	8	0	8	0	0	0	0	0	5	0	5	0	0	0	0	13
04:45 PM	0	4	0	4	0	0	0	0	1	2	0	3	0	0	0	0	7
Total	0	20	0	20	0	0	0	0	1	20	0	21	0	0	0	0	41
05:00 PM	0	7	0	7	0	0	0	0	0	5	0	5	0	0	0	0	12
05:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
05:30 PM	0	3	0	3	0	0	0	0	0	10	0	10	0	0	0	0	13
05:45 PM	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
Total	0	15	0	15	0	0	0	0	0	20	0	20	0	0	0	0	35
Grand Total	0	35	0	35	0	0	0	0	1	40	0	41	0	0	0	0	76
Apprch %	0	100	0		0	0	0		2.4	97.6	0		0	0	0		
Total %	0	46.1	0	46.1	0	0	0	0	1.3	52.6	0	53.9	0	0	0	0	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	**7**	0	**7**	0	0	0	0	0	5	0	5	0	0	0	0	12
05:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
05:30 PM	0	3	0	3	0	0	0	0	0	**10**	0	**10**	0	0	0	0	**13**
05:45 PM	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
Total Volume	0	15	0	15	0	0	0	0	0	20	0	20	0	0	0	0	35
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.536	.000	.536	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.673

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
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File Name : 06_HES_US-395_Yucca Terrace PM
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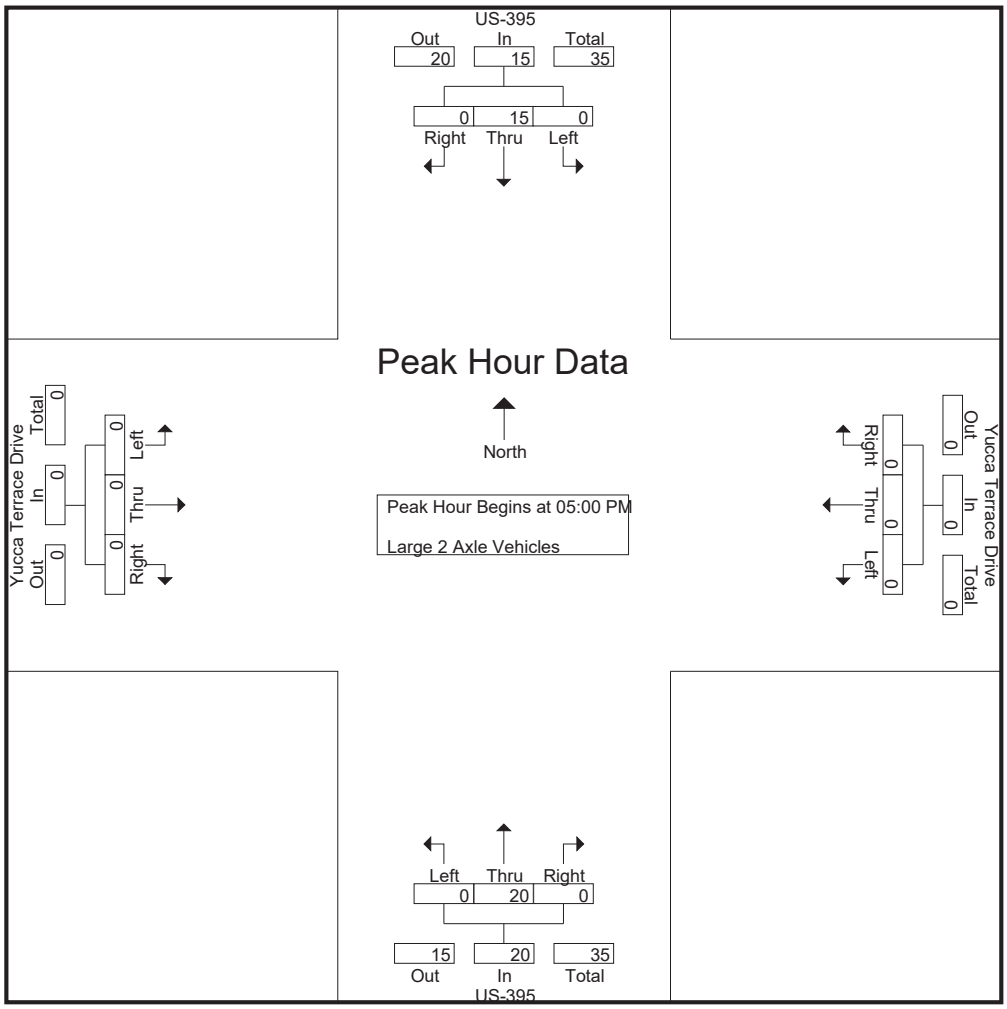

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	**7**	0	**7**	0	0	0	0	0	5	0	5	0	0	0	0
+15 mins.	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	3	0	3	0	0	0	0	0	**10**	0	**10**	0	0	0	0
+45 mins.	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0
Total Volume	0	15	0	15	0	0	0	0	0	20	0	20	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.536	.000	.536	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
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Groups Printed- 3 Axle Vehicles

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
04:15 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
04:30 PM	0	1	0	1	0	0	0	0	0	3	0	3	0	0	0	0	4
04:45 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Total	0	3	0	3	0	0	0	0	0	9	0	9	0	0	0	0	12
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
05:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
Grand Total	0	6	0	6	0	0	0	0	0	13	0	13	0	0	0	0	19
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	31.6	0	31.6	0	0	0	0	0	68.4	0	68.4	0	0	0	0	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
05:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total Volume	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0	7
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.875

Counts Unlimited
PO Box 1178
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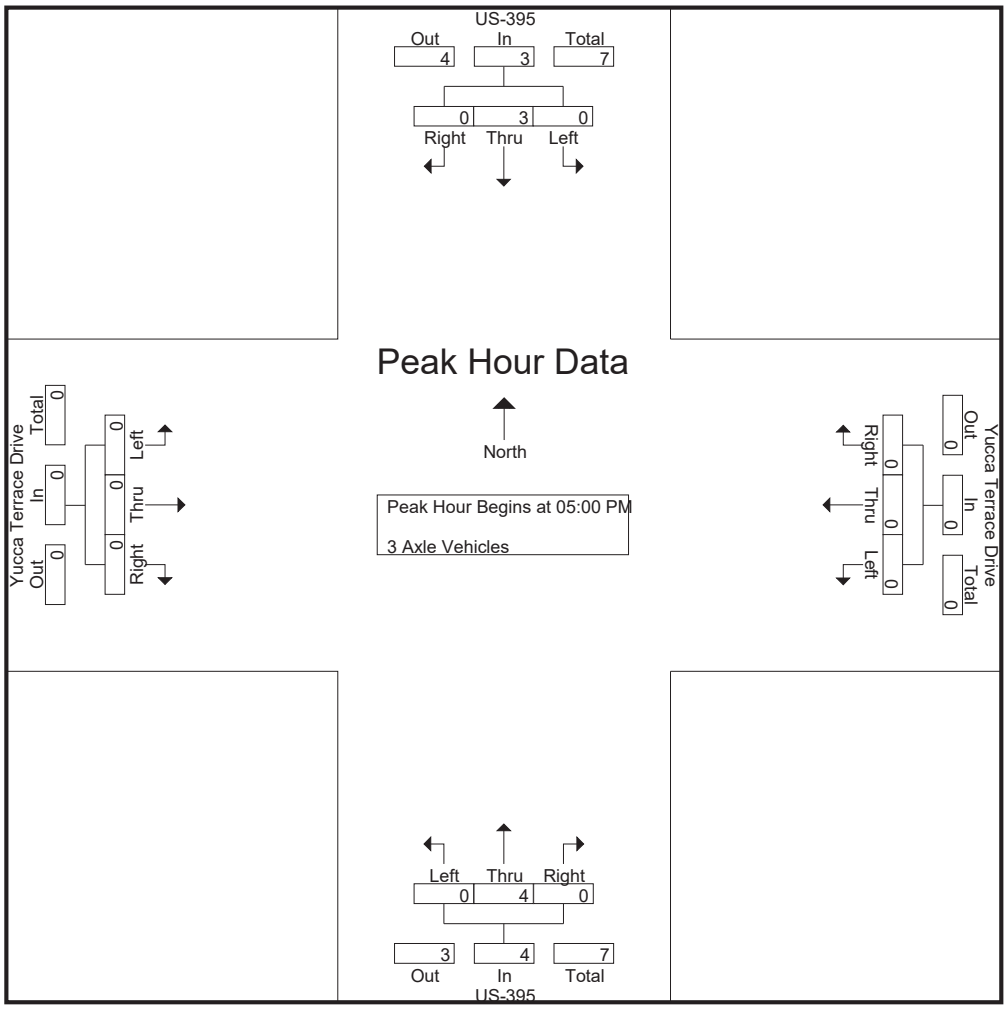
City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	3	0	3	0	0	0	0	0	4	0	4	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.750	.000	.750	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000

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City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	20	0	20	0	0	0	0	0	11	0	11	0	0	0	0	31
04:15 PM	0	16	0	16	0	0	0	0	0	15	0	15	0	0	0	0	31
04:30 PM	0	15	1	16	0	0	0	0	0	13	0	13	0	0	0	0	29
04:45 PM	0	15	0	15	0	0	0	0	0	4	0	4	0	0	0	0	19
Total	0	66	1	67	0	0	0	0	0	43	0	43	0	0	0	0	110
05:00 PM	0	17	0	17	0	0	0	0	1	10	0	11	0	0	0	0	28
05:15 PM	0	17	1	18	0	0	0	0	0	5	0	5	0	0	0	0	23
05:30 PM	0	18	0	18	0	0	0	0	1	13	0	14	0	0	0	0	32
05:45 PM	0	15	0	15	0	0	0	0	0	6	0	6	1	0	0	1	22
Total	0	67	1	68	0	0	0	0	2	34	0	36	1	0	0	1	105
Grand Total	0	133	2	135	0	0	0	0	2	77	0	79	1	0	0	1	215
Apprch %	0	98.5	1.5		0	0	0		2.5	97.5	0		100	0	0		
Total %	0	61.9	0.9	62.8	0	0	0	0	0.9	35.8	0	36.7	0.5	0	0	0.5	

	US-395 Southbound				Yucca Terrace Drive Westbound				US-395 Northbound				Yucca Terrace Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	17	0	17	0	0	0	0	**1**	10	0	11	0	0	0	0	28
05:15 PM	0	17	**1**	**18**	0	0	0	0	0	5	0	5	0	0	0	0	23
05:30 PM	0	**18**	0	18	0	0	0	0	1	**13**	0	**14**	0	0	0	0	**32**
05:45 PM	0	15	0	15	0	0	0	0	0	6	0	6	**1**	0	0	**1**	22
Total Volume	0	67	1	68	0	0	0	0	2	34	0	36	1	0	0	1	105
% App. Total	0	98.5	1.5		0	0	0		5.6	94.4	0		100	0	0		
PHF	.000	.931	.250	.944	.000	.000	.000	.000	.500	.654	.000	.643	.250	.000	.000	.250	.820

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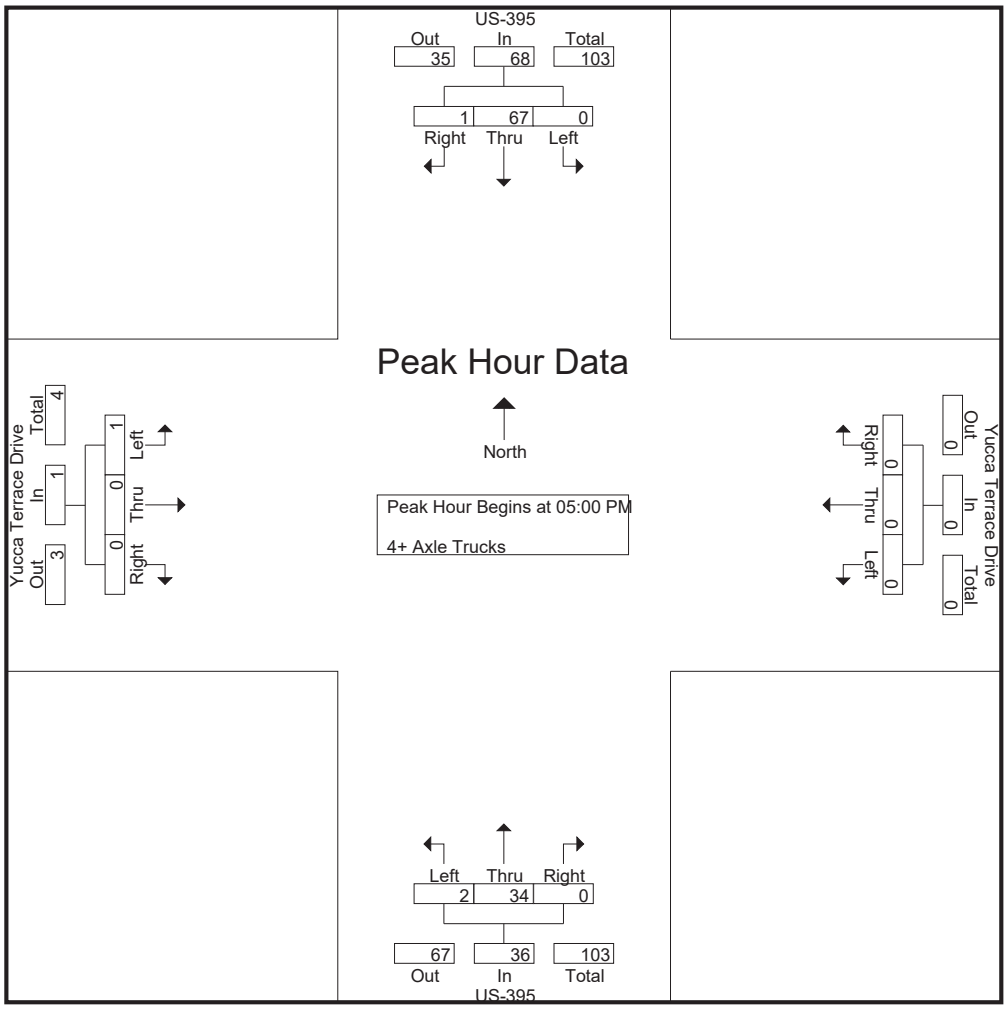
City of Hesperia
N/S: US-395
E/W: Yucca Terrace Drive
Weather: Clear

File Name : 06_HES_US-395_Yucca Terrace PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	0	17	0	17	0	0	0	0	**1**	10	0	11	0	0	0	0
+15 mins.	0	17	**1**	**18**	0	0	0	0	0	5	0	5	0	0	0	0
+30 mins.	0	**18**	0	18	0	0	0	0	1	**13**	0	**14**	0	0	0	0
+45 mins.	0	15	0	15	0	0	0	0	0	6	0	6	**1**	0	0	**1**
Total Volume	0	67	1	68	0	0	0	0	2	34	0	36	1	0	0	1
% App. Total	0	98.5	1.5		0	0	0		5.6	94.4	0		100	0	0	
PHF	.000	.931	.250	.944	.000	.000	.000	.000	.500	.654	.000	.643	.250	.000	.000	.250

Location: Hesperia
N/S: US-395
E/W: Yucca Terrace Drive

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg US-395	East Leg Yucca Terrace Drive	South Leg US-395	West Leg Yucca Terrace Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg US-395	East Leg Yucca Terrace Drive	South Leg US-395	West Leg Yucca Terrace Drive	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

Counts Unlimited, Inc.
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Location: Hesperia
N/S: US-395
E/W: Yucca Terrace Drive

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound US-395			Westbound Yucca Terrace Drive			Northbound US-395			Eastbound Yucca Terrace Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound US-395			Westbound Yucca Terrace Drive			Northbound US-395			Eastbound Yucca Terrace Drive			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	68	219	5	0	292	2	76	53	19	131	15	137	1	0	153	12	134	25	15	171	34	747	781
07:15 AM	45	190	11	2	246	1	67	54	24	122	22	133	3	0	158	11	149	34	12	194	38	720	758
07:30 AM	39	172	8	2	219	1	88	66	21	155	27	153	1	0	181	12	174	15	6	201	29	756	785
07:45 AM	47	188	6	0	241	0	72	33	13	105	21	119	2	0	142	12	169	27	10	208	23	696	719
Total	199	769	30	4	998	4	303	206	77	513	85	542	7	0	634	47	626	101	43	774	124	2919	3043
08:00 AM	31	176	5	1	212	1	71	35	14	107	13	85	1	0	99	7	153	34	6	194	21	612	633
08:15 AM	44	182	9	2	235	1	57	31	16	89	13	136	1	0	150	14	141	27	14	182	32	656	688
08:30 AM	35	170	9	2	214	2	87	37	16	126	20	129	3	0	152	12	158	22	8	192	26	684	710
08:45 AM	33	158	10	1	201	1	53	29	22	83	15	105	4	1	124	11	130	17	4	158	28	566	594
Total	143	686	33	6	862	5	268	132	68	405	61	455	9	1	525	44	582	100	32	726	107	2518	2625
Grand Total	342	1455	63	10	1860	9	571	338	145	918	146	997	16	1	1159	91	1208	201	75	1500	231	5437	5668
Apprch %	18.4	78.2	3.4			1	62.2	36.8			12.6	86	1.4			6.1	80.5	13.4					
Total %	6.3	26.8	1.2		34.2	0.2	10.5	6.2		16.9	2.7	18.3	0.3		21.3	1.7	22.2	3.7		27.6	4.1	95.9	
Passenger Vehicles	330	1295	58		1693	9	537	325		1010	130	846	12		989	90	1178	191		1534	0	0	5226
% Passenger Vehicles	96.5	89	92.1	100	90.5	100	94	96.2	95.9	95	89	84.9	75	100	85.3	98.9	97.5	95	100	97.4	0	0	92.2
Large 2 Axle Vehicles	6	23	5		34	0	25	5		34	11	40	2		53	0	16	7		23	0	0	144
% Large 2 Axle Vehicles	1.8	1.6	7.9	0	1.8	0	4.4	1.5	2.8	3.2	7.5	4	12.5	0	4.6	0	1.3	3.5	0	1.5	0	0	2.5
3 Axle Vehicles	3	8	0		11	0	6	3		10	2	10	0		12	0	7	0		7	0	0	40
% 3 Axle Vehicles	0.9	0.5	0	0	0.6	0	1.1	0.9	0.7	0.9	1.4	1	0	0	1	0	0.6	0	0	0.4	0	0	0.7
4+ Axle Trucks	3	129	0		132	0	3	5		9	3	101	2		106	1	7	3		11	0	0	258
% 4+ Axle Trucks	0.9	8.9	0	0	7.1	0	0.5	1.5	0.7	0.8	2.1	10.1	12.5	0	9.1	1.1	0.6	1.5	0	0.7	0	0	4.6

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**68**	**219**	5	**292**	**2**	76	53	131	15	137	1	153	**12**	134	25	171	747
07:15 AM	45	190	**11**	246	1	67	54	122	22	133	**3**	158	11	149	**34**	194	720
07:30 AM	39	172	8	219	1	**88**	**66**	**155**	**27**	**153**	1	**181**	12	**174**	15	201	**756**
07:45 AM	47	188	6	241	0	72	33	105	21	119	2	142	12	169	27	**208**	696
Total Volume	199	769	30	998	4	303	206	513	85	542	7	634	47	626	101	774	2919
% App. Total	19.9	77.1	3		0.8	59.1	40.2		13.4	85.5	1.1		6.1	80.9	13		
PHF	.732	.878	.682	.854	.500	.861	.780	.827	.787	.886	.583	.876	.979	.899	.743	.930	.965

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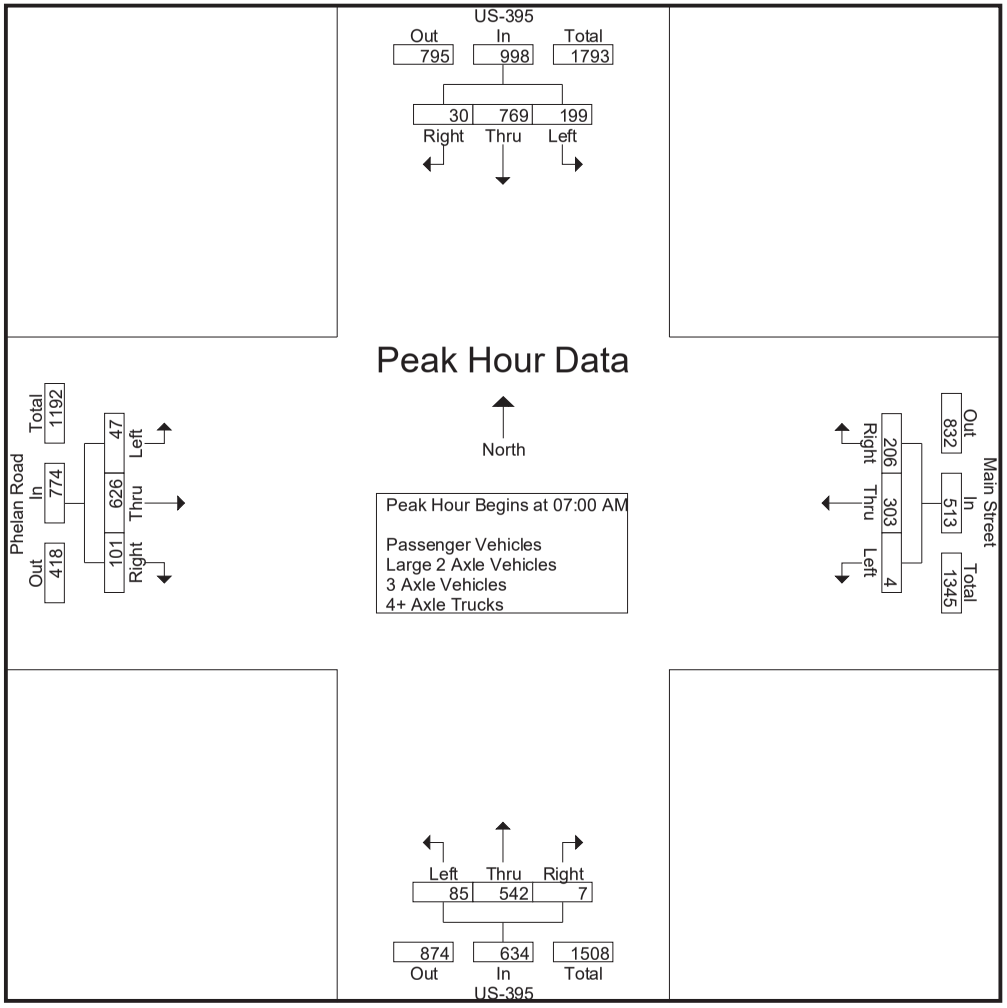
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:15 AM				
+0 mins.	**68**	**219**	5	**292**	**2**	76	53	131	15	137	1	153	11	149	**34**	194	
+15 mins.	45	190	**11**	246	1	67	54	122	22	133	**3**	158	**12**	**174**	15	201	
+30 mins.	39	172	8	219	1	**88**	**66**	**155**	**27**	**153**	1	**181**	12	169	27	**208**	
+45 mins.	47	188	6	241	0	72	33	105	21	119	2	142	7	153	34	194	
Total Volume	199	769	30	998	4	303	206	513	85	542	7	634	42	645	110	797	
% App. Total	19.9	77.1	3		0.8	59.1	40.2		13.4	85.5	1.1		5.3	80.9	13.8		
PHF	.732	.878	.682	.854	.500	.861	.780	.827	.787	.886	.583	.876	.875	.927	.809	.958	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	64	199	4	0	267	2	69	50	19	121	15	120	1	0	136	12	130	24	15	166	34	690	724
07:15 AM	44	173	10	2	227	1	63	52	24	116	20	112	3	0	135	11	146	34	12	191	38	669	707
07:30 AM	39	150	8	2	197	1	84	64	20	149	23	134	1	0	158	12	170	14	6	196	28	700	728
07:45 AM	46	169	6	0	221	0	68	32	13	100	18	100	1	0	119	12	161	26	10	199	23	639	662
Total	193	691	28	4	912	4	284	198	76	486	76	466	6	0	548	47	607	98	43	752	123	2698	2821
08:00 AM	27	162	5	1	194	1	66	33	12	100	11	72	0	0	83	7	150	28	6	185	19	562	581
08:15 AM	44	161	9	2	214	1	54	31	16	86	12	117	1	0	130	14	138	27	14	179	32	609	641
08:30 AM	33	143	8	2	184	2	82	35	14	119	17	109	2	0	128	11	155	21	8	187	24	618	642
08:45 AM	33	138	8	1	179	1	51	28	21	80	14	82	3	1	99	11	128	17	4	156	27	514	541
Total	137	604	30	6	771	5	253	127	63	385	54	380	6	1	440	43	571	93	32	707	102	2303	2405
Grand Total	330	1295	58	10	1683	9	537	325	139	871	130	846	12	1	988	90	1178	191	75	1459	225	5001	5226
Apprch %	19.6	76.9	3.4			1	61.7	37.3			13.2	85.6	1.2			6.2	80.7	13.1					
Total %	6.6	25.9	1.2		33.7	0.2	10.7	6.5		17.4	2.6	16.9	0.2		19.8	1.8	23.6	3.8		29.2	4.3	95.7	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**64**	**199**	4	**267**	**2**	69	50	121	15	120	1	136	**12**	130	24	166	690
07:15 AM	44	173	**10**	227	1	63	52	116	20	112	**3**	135	11	146	**34**	191	669
07:30 AM	39	150	8	197	1	**84**	**64**	**149**	**23**	**134**	1	**158**	12	**170**	14	196	**700**
07:45 AM	46	169	6	221	0	68	32	100	18	100	1	119	12	161	26	**199**	639
Total Volume	193	691	28	912	4	284	198	486	76	466	6	548	47	607	98	752	2698
% App. Total	21.2	75.8	3.1		0.8	58.4	40.7		13.9	85	1.1		6.2	80.7	13		
PHF	.754	.868	.700	.854	.500	.845	.773	.815	.826	.869	.500	.867	.979	.893	.721	.945	.964

Counts Unlimited
PO Box 1178
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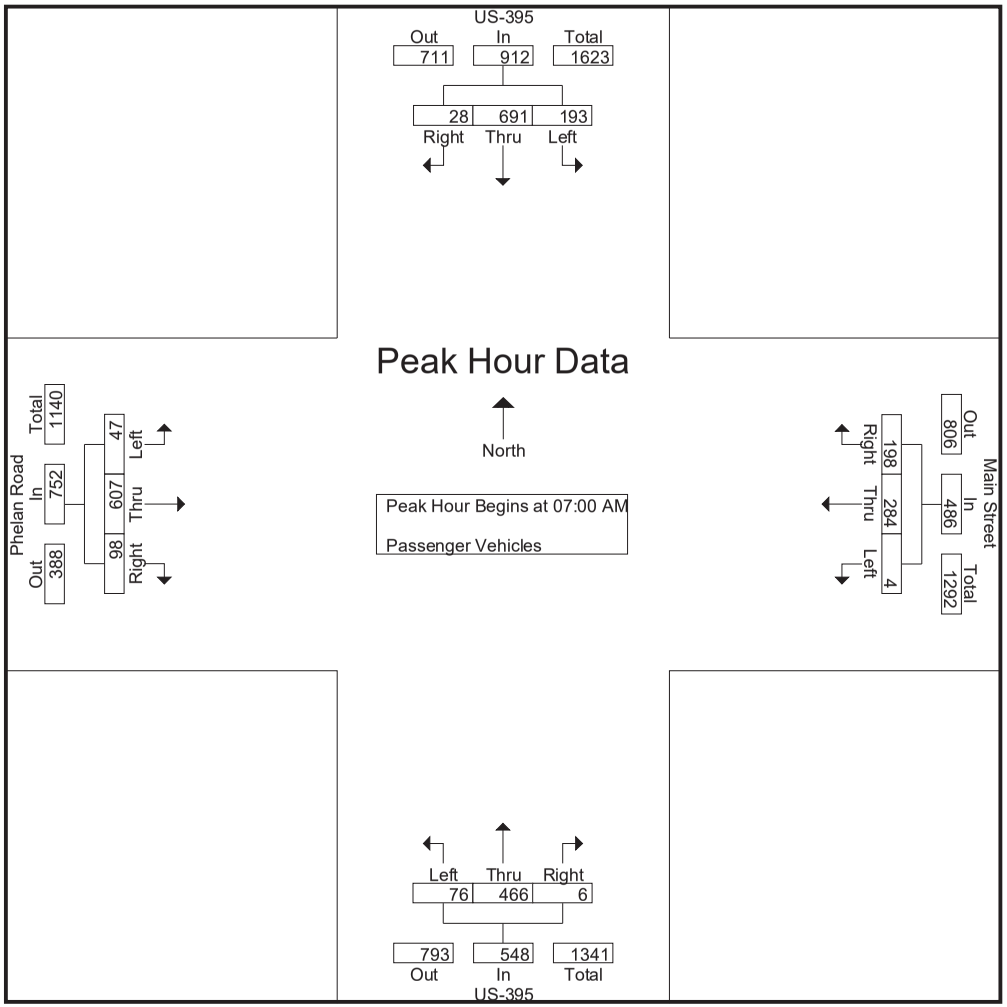
(951) 268-6268

City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**64**	**199**	4	**267**	**2**	69	50	121	15	120	1	136	**12**	130	24	166	
+15 mins.	44	173	**10**	227	1	63	52	116	20	112	**3**	135	11	146	**34**	191	
+30 mins.	39	150	8	197	1	**84**	**64**	**149**	**23**	**134**	1	**158**	12	**170**	14	196	
+45 mins.	46	169	6	221	0	68	32	100	18	100	1	119	12	161	26	**199**	
Total Volume	193	691	28	912	4	284	198	486	76	466	6	548	47	607	98	752	
% App. Total	21.2	75.8	3.1		0.8	58.4	40.7		13.9	85	1.1		6.2	80.7	13		
PHF	.754	.868	.700	.854	.500	.845	.773	.815	.826	.869	.500	.867	.979	.893	.721	.945	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	3	1	0	5	0	7	1	0	8	0	3	0	0	3	0	2	0	0	2	0	18	18
07:15 AM	1	2	1	0	4	0	3	0	0	3	1	8	0	0	9	0	2	0	0	2	0	18	18
07:30 AM	0	4	0	0	4	0	2	1	1	3	4	5	0	0	9	0	1	1	0	2	1	18	19
07:45 AM	1	0	0	0	1	0	3	0	0	3	2	4	0	0	6	0	4	0	0	4	0	14	14
Total	3	9	2	0	14	0	15	2	1	17	7	20	0	0	27	0	9	1	0	10	1	68	69
08:00 AM	1	2	0	0	3	0	4	1	1	5	1	1	1	0	3	0	2	5	0	7	1	18	19
08:15 AM	0	5	0	0	5	0	2	0	0	2	0	4	0	0	4	0	1	0	0	1	0	12	12
08:30 AM	2	4	1	0	7	0	3	1	1	4	3	4	0	0	7	0	3	1	0	4	1	22	23
08:45 AM	0	3	2	0	5	0	1	1	1	2	0	11	1	0	12	0	1	0	0	1	1	20	21
Total	3	14	3	0	20	0	10	3	3	13	4	20	2	0	26	0	7	6	0	13	3	72	75
Grand Total	6	23	5	0	34	0	25	5	4	30	11	40	2	0	53	0	16	7	0	23	4	140	144
Apprch %	17.6	67.6	14.7			0	83.3	16.7			20.8	75.5	3.8			0	69.6	30.4					
Total %	4.3	16.4	3.6		24.3	0	17.9	3.6		21.4	7.9	28.6	1.4		37.9	0	11.4	5		16.4	2.8	97.2	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	3	**1**	**5**	0	**7**	**1**	**8**	0	3	0	3	0	2	0	2	**18**
07:15 AM	1	2	1	4	0	3	0	3	1	**8**	0	**9**	0	2	0	2	18
07:30 AM	0	**4**	0	4	0	2	1	3	**4**	5	0	9	0	1	**1**	2	18
07:45 AM	1	0	0	1	0	3	0	3	2	4	0	6	0	**4**	0	**4**	14
Total Volume	3	9	2	14	0	15	2	17	7	20	0	27	0	9	1	10	68
% App. Total	21.4	64.3	14.3		0	88.2	11.8		25.9	74.1	0		0	90	10		
PHF	.750	.563	.500	.700	.000	.536	.500	.531	.438	.625	.000	.750	.000	.563	.250	.625	.944

Counts Unlimited
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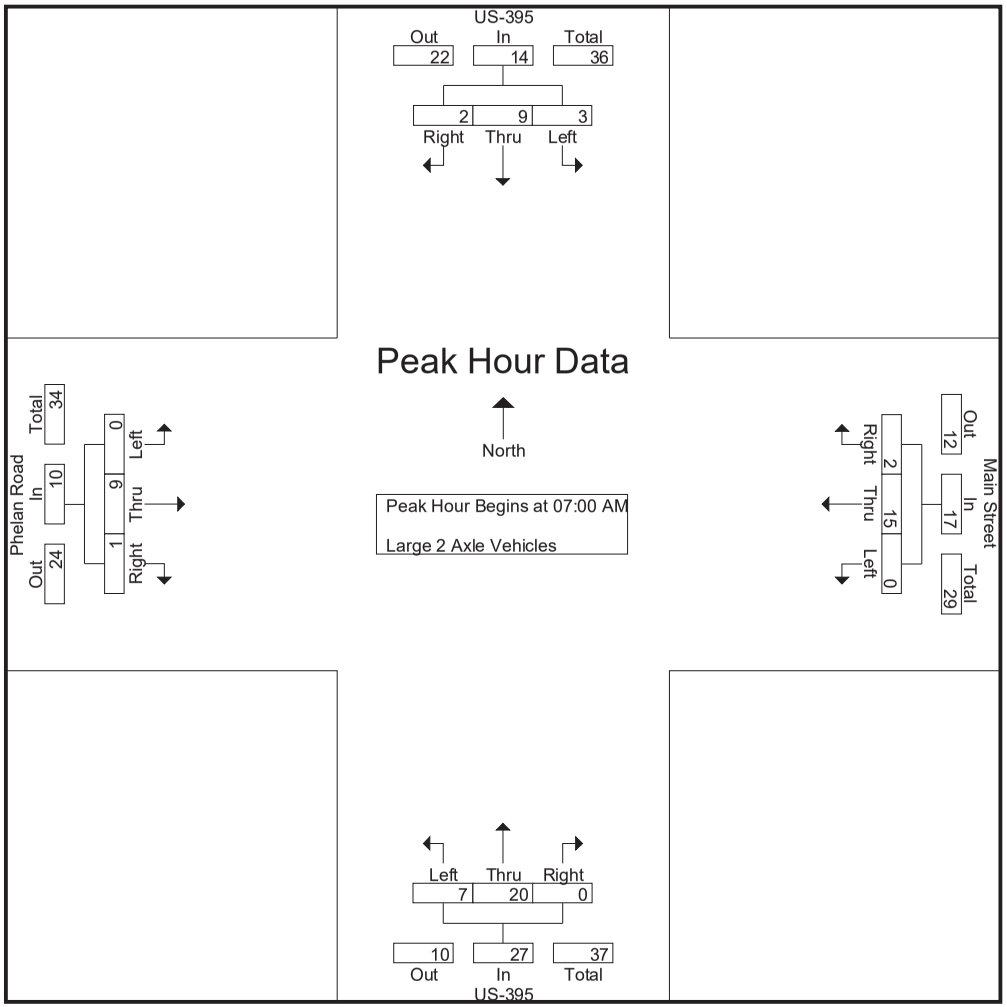
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**1**	3	**1**	**5**	0	**7**	**1**	**8**	0	3	0	3	0	2	0	2	
+15 mins.	1	2	1	4	0	3	0	3	1	**8**	0	**9**	0	2	0	2	
+30 mins.	0	**4**	0	4	0	2	1	3	**4**	5	0	9	0	1	**1**	2	
+45 mins.	1	0	0	1	0	3	0	3	2	4	0	6	0	**4**	0	**4**	
Total Volume	3	9	2	14	0	15	2	17	7	20	0	27	0	9	1	10	
% App. Total	21.4	64.3	14.3		0	88.2	11.8		25.9	74.1	0		0	90	10		
PHF	.750	.563	.500	.700	.000	.536	.500	.531	.438	.625	.000	.750	.000	.563	.250	.625	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	2	0	0	3	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	0	6	6
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	2	2
07:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
07:45 AM	0	1	0	0	1	0	1	1	0	2	1	1	0	0	2	0	2	0	0	2	0	7	7
Total	1	3	0	0	4	0	3	2	0	5	1	3	0	0	4	0	5	0	0	5	0	18	18
08:00 AM	2	1	0	0	3	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	0	6	6
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	0	1	0	0	1	0	6	6
08:30 AM	0	3	0	0	3	0	1	1	1	2	0	2	0	0	2	0	0	0	0	0	1	7	8
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	2	5	0	0	7	0	3	1	1	4	1	7	0	0	8	0	2	0	0	2	1	21	22
Grand Total	3	8	0	0	11	0	6	3	1	9	2	10	0	0	12	0	7	0	0	7	1	39	40
Apprch %	27.3	72.7	0			0	66.7	33.3			16.7	83.3	0			0	100	0					
Total %	7.7	20.5	0		28.2	0	15.4	7.7		23.1	5.1	25.6	0		30.8	0	17.9	0		17.9	2.5	97.5	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**1**	**2**	0	**3**	0	0	**1**	1	0	**1**	0	1	0	1	0	1	6
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
07:30 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	3
07:45 AM	0	1	0	1	0	1	1	2	**1**	1	0	**2**	0	**2**	0	**2**	**7**
Total Volume	1	3	0	4	0	3	2	5	1	3	0	4	0	5	0	5	18
% App. Total	25	75	0		0	60	40		25	75	0		0	100	0		
PHF	.250	.375	.000	.333	.000	.375	.500	.625	.250	.750	.000	.500	.000	.625	.000	.625	.643

Counts Unlimited
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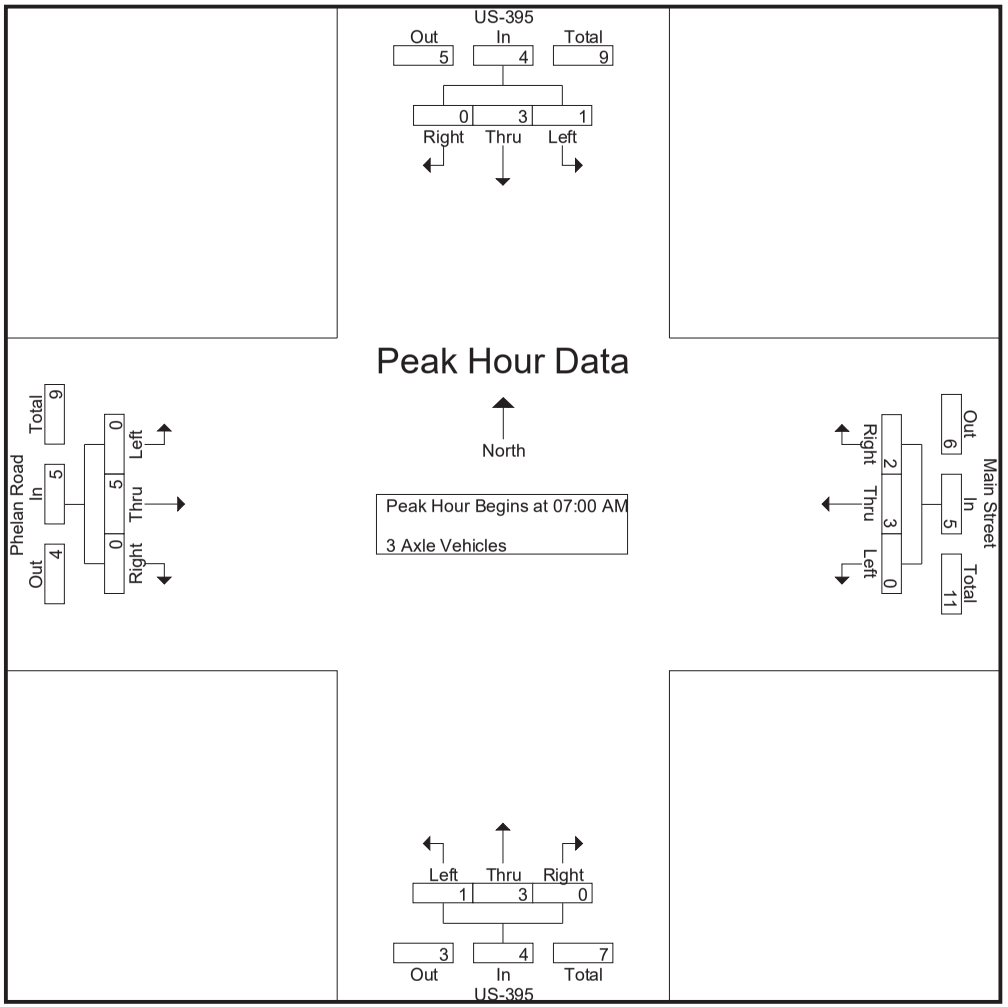
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**1**	**2**	0	**3**	0	0	**1**	1	0	**1**	0	1	0	1	0	1	
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	
+30 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	
+45 mins.	0	1	0	1	0	1	1	2	**1**	1	0	**2**	0	**2**	0	**2**	
Total Volume	1	3	0	4	0	3	2	5	1	3	0	4	0	5	0	5	
% App. Total	25	75	0		0	60	40		25	75	0		0	100	0		
PHF	.250	.375	.000	.333	.000	.375	.500	.625	.250	.750	.000	.500	.000	.625	.000	.625	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	15	0	0	17	0	0	1	0	1	0	13	0	0	13	0	1	1	0	2	0	33	33
07:15 AM	0	15	0	0	15	0	1	2	0	3	1	12	0	0	13	0	0	0	0	0	0	31	31
07:30 AM	0	18	0	0	18	0	0	1	0	1	0	14	0	0	14	0	2	0	0	2	0	35	35
07:45 AM	0	18	0	0	18	0	0	0	0	0	0	14	1	0	15	0	2	1	0	3	0	36	36
Total	2	66	0	0	68	0	1	4	0	5	1	53	1	0	55	0	5	2	0	7	0	135	135
08:00 AM	1	11	0	0	12	0	0	1	1	1	0	11	0	0	11	0	1	1	0	2	1	26	27
08:15 AM	0	16	0	0	16	0	0	0	0	0	1	11	0	0	12	0	1	0	0	1	0	29	29
08:30 AM	0	20	0	0	20	0	1	0	0	1	0	14	1	0	15	1	0	0	0	1	0	37	37
08:45 AM	0	16	0	0	16	0	1	0	0	1	1	12	0	0	13	0	0	0	0	0	0	30	30
Total	1	63	0	0	64	0	2	1	1	3	2	48	1	0	51	1	2	1	0	4	1	122	123
Grand Total	3	129	0	0	132	0	3	5	1	8	3	101	2	0	106	1	7	3	0	11	1	257	258
Apprch %	2.3	97.7	0			0	37.5	62.5			2.8	95.3	1.9			9.1	63.6	27.3					
Total %	1.2	50.2	0		51.4	0	1.2	1.9		3.1	1.2	39.3	0.8		41.2	0.4	2.7	1.2		4.3	0.4	99.6	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**2**	15	0	17	0	0	1	1	0	13	0	13	0	1	**1**	2	33
07:15 AM	0	15	0	15	0	**1**	**2**	**3**	**1**	12	0	13	0	0	0	0	31
07:30 AM	0	**18**	0	**18**	0	0	1	1	0	**14**	0	14	0	**2**	0	2	35
07:45 AM	0	18	0	18	0	0	0	0	0	14	**1**	**15**	0	2	1	**3**	**36**
Total Volume	2	66	0	68	0	1	4	5	1	53	1	55	0	5	2	7	135
% App. Total	2.9	97.1	0		0	20	80		1.8	96.4	1.8		0	71.4	28.6		
PHF	.250	.917	.000	.944	.000	.250	.500	.417	.250	.946	.250	.917	.000	.625	.500	.583	.938

Counts Unlimited
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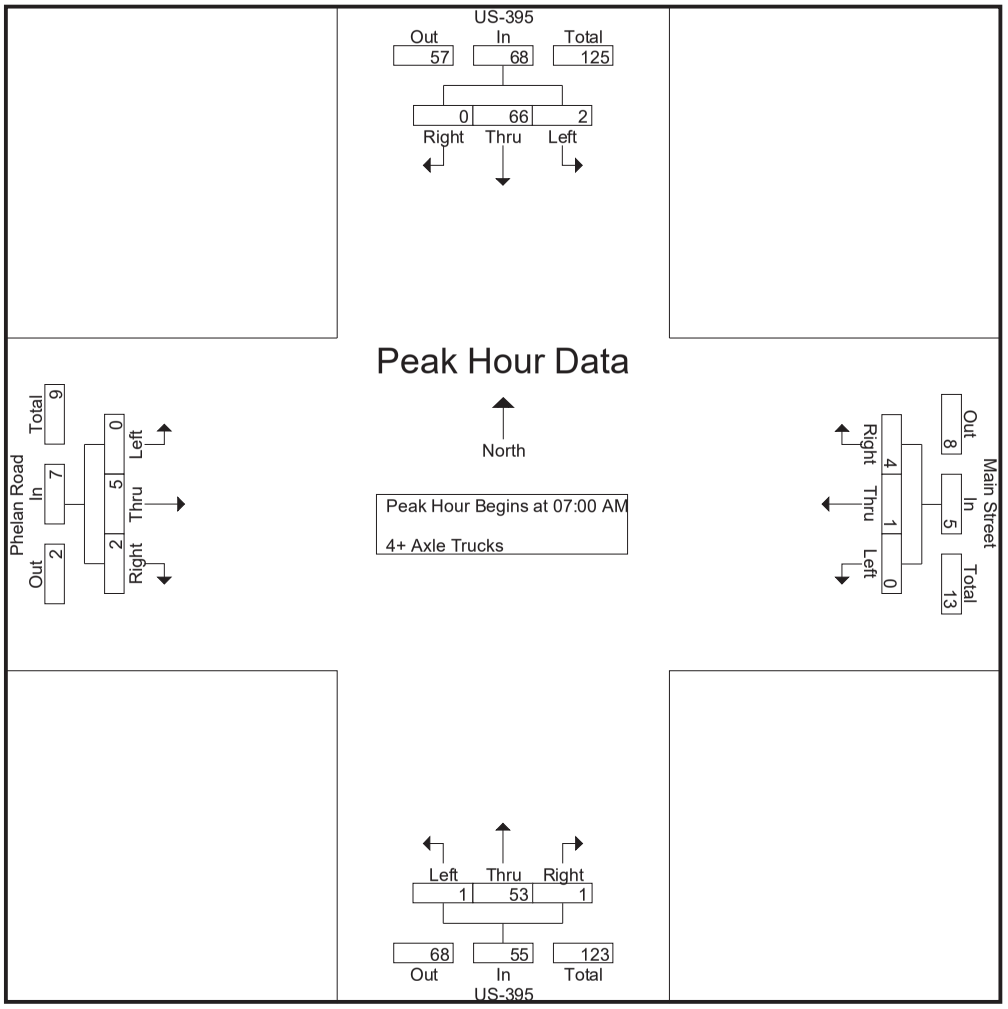
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**2**	15	0	17	0	0	1	1	0	13	0	13	0	1	**1**	2	
+15 mins.	0	15	0	15	0	**1**	**2**	**3**	**1**	12	0	13	0	0	0	0	
+30 mins.	0	**18**	0	**18**	0	0	1	1	0	**14**	0	14	0	**2**	0	2	
+45 mins.	0	18	0	18	0	0	0	0	0	14	**1**	**15**	0	2	1	**3**	
Total Volume	2	66	0	68	0	1	4	5	1	53	1	55	0	5	2	7	
% App. Total	2.9	97.1	0		0	20	80		1.8	96.4	1.8		0	71.4	28.6		
PHF	.250	.917	.000	.944	.000	.250	.500	.417	.250	.946	.250	.917	.000	.625	.500	.583	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	47	144	11	5	202	1	164	52	19	217	31	209	10	2	250	8	137	22	11	167	37	836	873
04:15 PM	46	132	9	4	187	3	180	68	25	251	47	230	6	0	283	9	140	12	5	161	34	882	916
04:30 PM	42	142	6	1	190	1	144	57	16	202	38	225	2	2	265	15	138	19	8	172	27	829	856
04:45 PM	45	117	11	4	173	4	158	50	20	212	37	252	5	3	294	11	114	11	3	136	30	815	845
Total	180	535	37	14	752	9	646	227	80	882	153	916	23	7	1092	43	529	64	27	636	128	3362	3490
05:00 PM	43	145	9	0	197	3	176	54	20	233	24	204	6	2	234	7	139	12	3	158	25	822	847
05:15 PM	49	126	9	2	184	0	128	60	25	188	39	229	7	0	275	16	152	21	9	189	36	836	872
05:30 PM	36	135	6	5	177	3	170	66	15	239	45	245	7	0	297	14	134	21	7	169	27	882	909
05:45 PM	39	134	4	2	177	3	137	54	16	194	28	259	8	3	295	6	104	26	13	136	34	802	836
Total	167	540	28	9	735	9	611	234	76	854	136	937	28	5	1101	43	529	80	32	652	122	3342	3464
Grand Total	347	1075	65	23	1487	18	1257	461	156	1736	289	1853	51	12	2193	86	1058	144	59	1288	250	6704	6954
Apprch %	23.3	72.3	4.4			1	72.4	26.6			13.2	84.5	2.3			6.7	82.1	11.2					
Total %	5.2	16	1		22.2	0.3	18.8	6.9		25.9	4.3	27.6	0.8		32.7	1.3	15.8	2.1		19.2	3.6	96.4	
Passenger Vehicles	338	922	59		1342	18	1241	449		1861	275	1744	47		2077	84	1026	139		1306	0	0	6586
% Passenger Vehicles	97.4	85.8	90.8	100	88.9	100	98.7	97.4	98.1	98.4	95.2	94.1	92.2	91.7	94.2	97.7	97	96.5	96.6	97	0	0	94.7
Large 2 Axle Vehicles	4	19	2		25	0	9	7		16	9	18	1		28	2	25	1		28	0	0	97
% Large 2 Axle Vehicles	1.2	1.8	3.1	0	1.7	0	0.7	1.5	0	0.8	3.1	1	2	0	1.3	2.3	2.4	0.7	0	2.1	0	0	1.4
3 Axle Vehicles	0	6	0		6	0	2	0		2	0	11	0		11	0	0	3		5	0	0	24
% 3 Axle Vehicles	0	0.6	0	0	0.4	0	0.2	0	0	0.1	0	0.6	0	0	0.5	0	0	2.1	3.4	0.4	0	0	0.3
4+ Axle Trucks	5	128	4		137	0	5	5		13	5	80	3		89	0	7	1		8	0	0	247
% 4+ Axle Trucks	1.4	11.9	6.2	0	9.1	0	0.4	1.1	1.9	0.7	1.7	4.3	5.9	8.3	4	0	0.7	0.7	0	0.6	0	0	3.6

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**47**	**144**	**11**	**202**	1	164	52	217	31	209	**10**	250	8	137	**22**	167	836
04:15 PM	46	132	9	187	3	**180**	**68**	**251**	**47**	230	6	283	9	**140**	12	161	**882**
04:30 PM	42	142	6	190	1	144	57	202	38	225	2	265	**15**	138	19	**172**	829
04:45 PM	45	117	11	173	**4**	158	50	212	37	**252**	5	**294**	11	114	11	136	815
Total Volume	180	535	37	752	9	646	227	882	153	916	23	1092	43	529	64	636	3362
% App. Total	23.9	71.1	4.9		1	73.2	25.7		14	83.9	2.1		6.8	83.2	10.1		
PHF	.957	.929	.841	.931	.563	.897	.835	.878	.814	.909	.575	.929	.717	.945	.727	.924	.953

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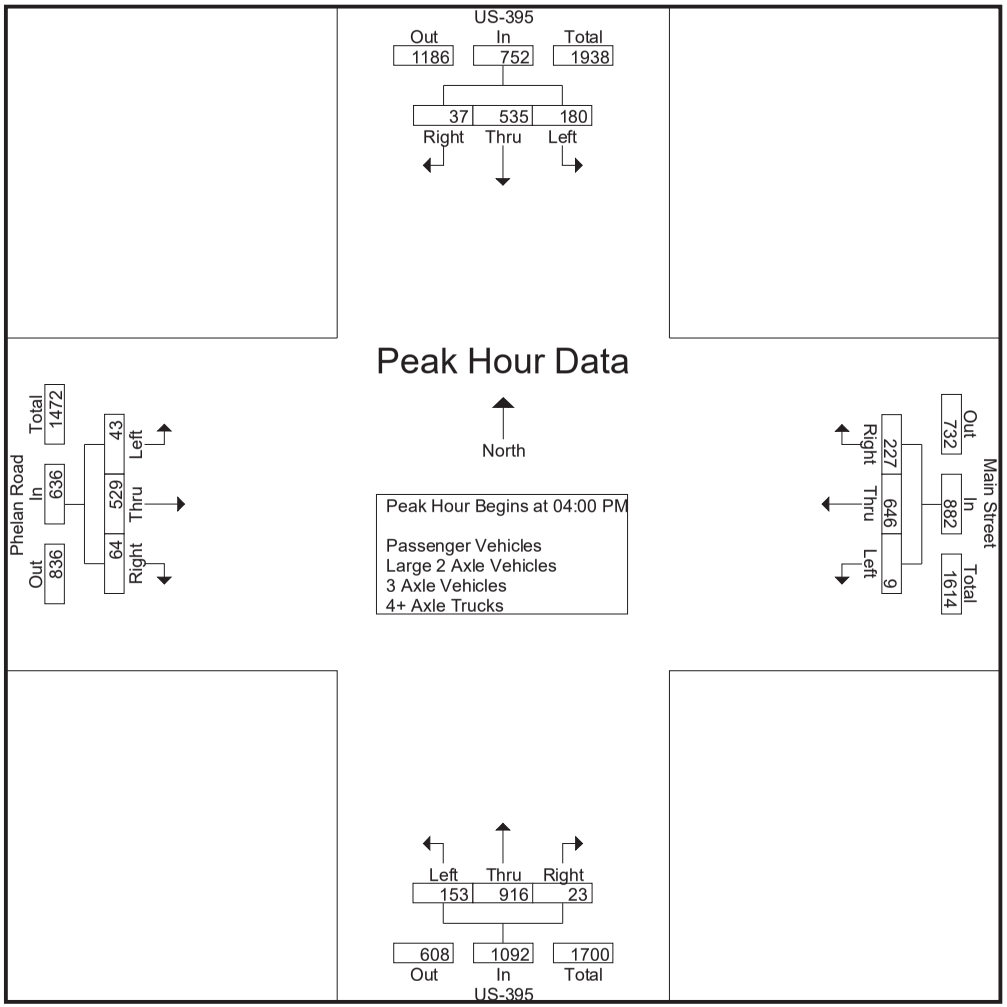
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:15 PM				05:00 PM				04:30 PM				
+0 mins.	**47**	**144**	**11**	**202**	3	**180**	**68**	**251**	24	204	6	234	15	138	19	172	
+15 mins.	46	132	9	187	1	144	57	202	39	229	7	275	11	114	11	136	
+30 mins.	42	142	6	190	**4**	158	50	212	**45**	245	7	**297**	7	139	12	158	
+45 mins.	45	117	11	173	3	176	54	233	28	**259**	**8**	295	**16**	**152**	**21**	**189**	
Total Volume	180	535	37	752	11	658	229	898	136	937	28	1101	49	543	63	655	
% App. Total	23.9	71.1	4.9		1.2	73.3	25.5		12.4	85.1	2.5		7.5	82.9	9.6		
PHF	.957	.929	.841	.931	.688	.914	.842	.894	.756	.904	.875	.927	.766	.893	.750	.866	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	44	124	9	5	177	1	161	50	18	212	29	194	9	2	232	8	136	22	11	166	36	787	823
04:15 PM	45	116	7	4	168	3	177	65	25	245	46	209	5	0	260	9	139	12	5	160	34	833	867
04:30 PM	41	124	4	1	169	1	142	55	16	198	36	208	2	2	246	14	130	17	8	161	27	774	801
04:45 PM	45	98	11	4	154	4	156	49	19	209	34	244	5	3	283	11	109	11	3	131	29	777	806
Total	175	462	31	14	668	9	636	219	78	864	145	855	21	7	1021	42	514	62	27	618	126	3171	3297
05:00 PM	42	122	9	0	173	3	172	53	20	228	24	193	6	2	223	7	134	12	3	153	25	777	802
05:15 PM	48	107	9	2	164	0	126	59	24	185	39	220	7	0	266	16	148	20	9	184	35	799	834
05:30 PM	35	115	6	5	156	3	170	66	15	239	44	225	7	0	276	13	130	20	6	163	26	834	860
05:45 PM	38	116	4	2	158	3	137	52	16	192	23	251	6	2	280	6	100	25	12	131	32	761	793
Total	163	460	28	9	651	9	605	230	75	844	130	889	26	4	1045	42	512	77	30	631	118	3171	3289
Grand Total	338	922	59	23	1319	18	1241	449	153	1708	275	1744	47	11	2066	84	1026	139	57	1249	244	6342	6586
Apprch %	25.6	69.9	4.5			1.1	72.7	26.3			13.3	84.4	2.3			6.7	82.1	11.1					
Total %	5.3	14.5	0.9		20.8	0.3	19.6	7.1		26.9	4.3	27.5	0.7		32.6	1.3	16.2	2.2		19.7	3.7	96.3	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	44	**124**	9	**177**	1	161	50	212	29	194	**9**	232	8	136	**22**	**166**	787
04:15 PM	**45**	116	7	168	3	**177**	**65**	**245**	**46**	209	5	260	9	**139**	12	160	**833**
04:30 PM	41	124	4	169	1	142	55	198	36	208	2	246	**14**	130	17	161	774
04:45 PM	45	98	**11**	154	**4**	156	49	209	34	**244**	5	**283**	11	109	11	131	777
Total Volume	175	462	31	668	9	636	219	864	145	855	21	1021	42	514	62	618	3171
% App. Total	26.2	69.2	4.6		1	73.6	25.3		14.2	83.7	2.1		6.8	83.2	10		
PHF	.972	.931	.705	.944	.563	.898	.842	.882	.788	.876	.583	.902	.750	.924	.705	.931	.952

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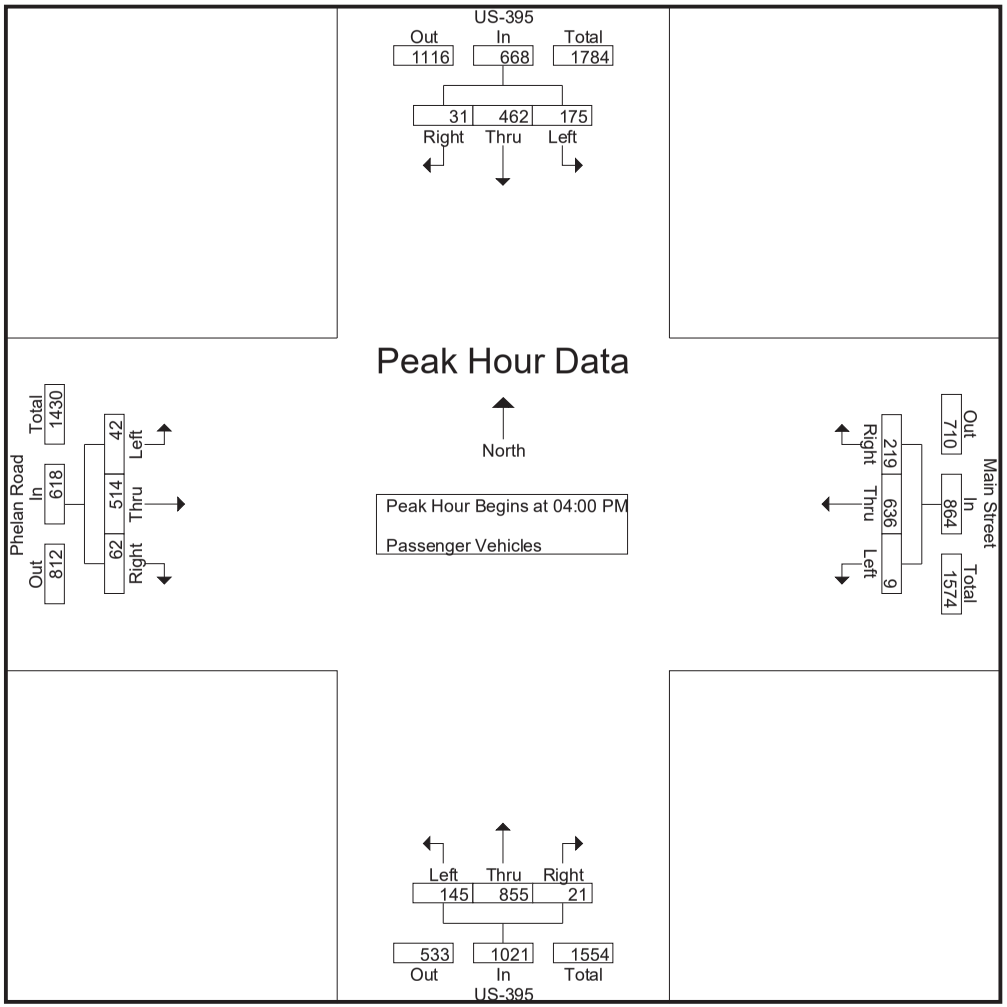
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	44	**124**	9	**177**	1	161	50	212	29	194	**9**	232	8	136	**22**	**166**	
+15 mins.	**45**	116	7	168	3	**177**	**65**	**245**	**46**	209	5	260	9	**139**	12	160	
+30 mins.	41	124	4	169	1	142	55	198	36	208	2	246	**14**	130	17	161	
+45 mins.	45	98	**11**	154	**4**	156	49	209	34	**244**	5	**283**	11	109	11	131	
Total Volume	175	462	31	668	9	636	219	864	145	855	21	1021	42	514	62	618	
% App. Total	26.2	69.2	4.6		1	73.6	25.3		14.2	83.7	2.1		6.8	83.2	10		
PHF	.972	.931	.705	.944	.563	.898	.842	.882	.788	.876	.583	.902	.750	.924	.705	.931	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	3	1	0	4	0	2	1	0	3	1	3	1	0	5	0	1	0	0	1	0	13	13
04:15 PM	1	2	0	0	3	0	2	2	0	4	1	4	0	0	5	0	1	0	0	1	0	13	13
04:30 PM	1	0	1	0	2	0	2	1	0	3	2	2	0	0	4	1	6	1	0	8	0	17	17
04:45 PM	0	5	0	0	5	0	1	0	0	1	1	1	0	0	2	0	5	0	0	5	0	13	13
Total	2	10	2	0	14	0	7	4	0	11	5	10	1	0	16	1	13	1	0	15	0	56	56
05:00 PM	0	4	0	0	4	0	2	1	0	3	0	2	0	0	2	0	5	0	0	5	0	14	14
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	0	5	5
05:30 PM	1	3	0	0	4	0	0	0	0	0	1	4	0	0	5	1	4	0	0	5	0	14	14
05:45 PM	0	2	0	0	2	0	0	2	0	2	3	0	0	0	3	0	1	0	0	1	0	8	8
Total	2	9	0	0	11	0	2	3	0	5	4	8	0	0	12	1	12	0	0	13	0	41	41
Grand Total	4	19	2	0	25	0	9	7	0	16	9	18	1	0	28	2	25	1	0	28	0	97	97
Apprch %	16	76	8			0	56.2	43.8			32.1	64.3	3.6			7.1	89.3	3.6					
Total %	4.1	19.6	2.1		25.8	0	9.3	7.2		16.5	9.3	18.6	1		28.9	2.1	25.8	1		28.9	0	100	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	3	**1**	4	0	**2**	1	3	1	3	**1**	**5**	0	1	0	1	13
04:15 PM	**1**	2	0	3	0	2	**2**	**4**	1	**4**	0	5	0	1	0	1	13
04:30 PM	1	0	1	2	0	2	1	3	**2**	2	0	4	**1**	**6**	**1**	**8**	**17**
04:45 PM	0	**5**	0	**5**	0	1	0	1	1	1	0	2	0	5	0	5	13
Total Volume	2	10	2	14	0	7	4	11	5	10	1	16	1	13	1	15	56
% App. Total	14.3	71.4	14.3		0	63.6	36.4		31.2	62.5	6.2		6.7	86.7	6.7		
PHF	.500	.500	.500	.700	.000	.875	.500	.688	.625	.625	.250	.800	.250	.542	.250	.469	.824

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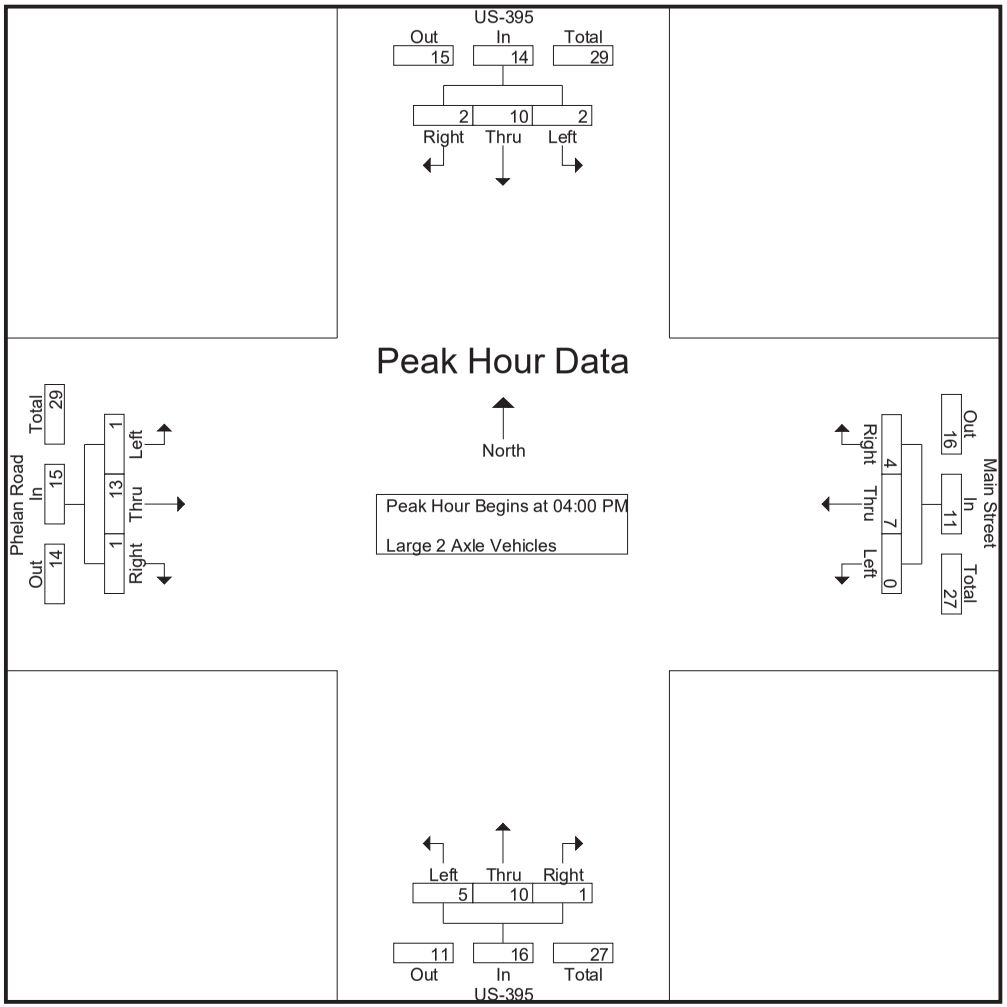
City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
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File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	3	**1**	4	0	**2**	1	3	1	3	**1**	**5**	0	1	0	1	
+15 mins.	**1**	2	0	3	0	2	**2**	**4**	1	**4**	0	5	0	1	0	1	
+30 mins.	1	0	1	2	0	2	1	3	**2**	2	0	4	**1**	**6**	**1**	**8**	
+45 mins.	0	**5**	0	**5**	0	1	0	1	1	1	0	2	0	5	0	5	
Total Volume	2	10	2	14	0	7	4	11	5	10	1	16	1	13	1	15	
% App. Total	14.3	71.4	14.3		0	63.6	36.4		31.2	62.5	6.2		6.7	86.7	6.7		
PHF	.500	.500	.500	.700	.000	.875	.500	.688	.625	.625	.250	.800	.250	.542	.250	.469	

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City of Hesperia
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File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

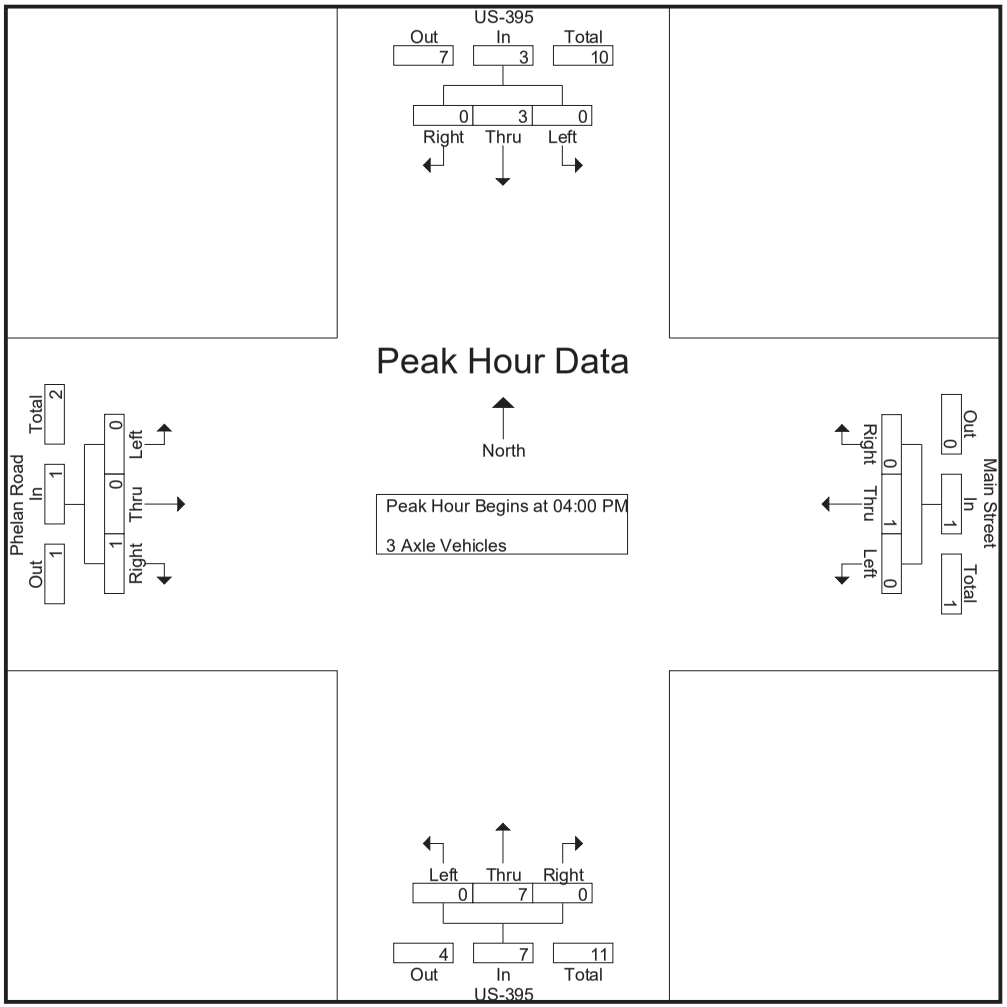
	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	3
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0	0	5	5
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	3	3
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	3	0	0	3	0	1	0	0	1	0	7	0	0	7	0	0	1	0	1	0	12	12
05:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	2
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	1	1	1	1	4	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	2	3
Total	0	3	0	0	3	0	1	0	0	1	0	4	0	0	4	0	0	2	2	2	2	10	12
Grand Total	0	6	0	0	6	0	2	0	0	2	0	11	0	0	11	0	0	3	2	3	2	22	24
Apprch %	0	100	0			0	100	0			0	100	0			0	0	100					
Total %	0	27.3	0		27.3	0	9.1	0		9.1	0	50	0		50	0	0	13.6		13.6	8.3	91.7	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	2	0	2	0	0	0	0	3
04:15 PM	0	0	0	0	0	**1**	0	**1**	0	**4**	0	**4**	0	0	0	0	**5**
04:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	**1**	**1**	3
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	3	0	1	0	1	0	7	0	7	0	0	1	1	12
% App. Total	0	100	0		0	100	0		0	100	0		0	0	100		
PHF	.000	.750	.000	.750	.000	.250	.000	.250	.000	.438	.000	.438	.000	.000	.250	.250	.600

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	2	0	2	0	0	0	0	
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	**4**	0	**4**	0	0	0	0	
+30 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	**1**	**1**	
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	3	0	3	0	1	0	1	0	7	0	7	0	0	1	1	
% App. Total	0	100	0		0	100	0		0	100	0		0	0	100		
PHF	.000	.750	.000	.750	.000	.250	.000	.250	.000	.438	.000	.438	.000	.000	.250	.250	

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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	US-395 Southbound					Main Street Westbound					US-395 Northbound					Phelan Road Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	3	16	1	0	20	0	1	1	1	2	1	10	0	0	11	0	0	0	0	0	1	33	34
04:15 PM	0	14	2	0	16	0	0	1	0	1	0	13	1	0	14	0	0	0	0	0	0	31	31
04:30 PM	0	17	1	0	18	0	0	1	0	1	0	14	0	0	14	0	2	0	0	2	0	35	35
04:45 PM	0	13	0	0	13	0	1	1	1	2	2	7	0	0	9	0	0	0	0	0	1	24	25
Total	3	60	4	0	67	0	2	4	2	6	3	44	1	0	48	0	2	0	0	2	2	123	125
05:00 PM	1	17	0	0	18	0	2	0	0	2	0	9	0	0	9	0	0	0	0	0	0	29	29
05:15 PM	0	19	0	0	19	0	1	1	1	2	0	6	0	0	6	0	2	1	0	3	1	30	31
05:30 PM	0	16	0	0	16	0	0	0	0	0	0	14	0	0	14	0	0	0	0	0	0	30	30
05:45 PM	1	16	0	0	17	0	0	0	0	0	2	7	2	1	11	0	3	0	0	3	1	31	32
Total	2	68	0	0	70	0	3	1	1	4	2	36	2	1	40	0	5	1	0	6	2	120	122
Grand Total	5	128	4	0	137	0	5	5	3	10	5	80	3	1	88	0	7	1	0	8	4	243	247
Apprch %	3.6	93.4	2.9			0	50	50			5.7	90.9	3.4			0	87.5	12.5					
Total %	2.1	52.7	1.6		56.4	0	2.1	2.1		4.1	2.1	32.9	1.2		36.2	0	2.9	0.4		3.3	1.6	98.4	

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**3**	16	1	**20**	0	**1**	**1**	**2**	1	10	0	11	0	0	0	0	33
04:15 PM	0	14	**2**	16	0	0	1	1	0	13	**1**	**14**	0	0	0	0	31
04:30 PM	0	**17**	1	18	0	0	1	1	0	**14**	0	14	0	**2**	0	**2**	**35**
04:45 PM	0	13	0	13	0	1	1	2	**2**	7	0	9	0	0	0	0	24
Total Volume	3	60	4	67	0	2	4	6	3	44	1	48	0	2	0	2	123
% App. Total	4.5	89.6	6		0	33.3	66.7		6.2	91.7	2.1		0	100	0		
PHF	.250	.882	.500	.838	.000	.500	1.00	.750	.375	.786	.250	.857	.000	.250	.000	.250	.879

Counts Unlimited
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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
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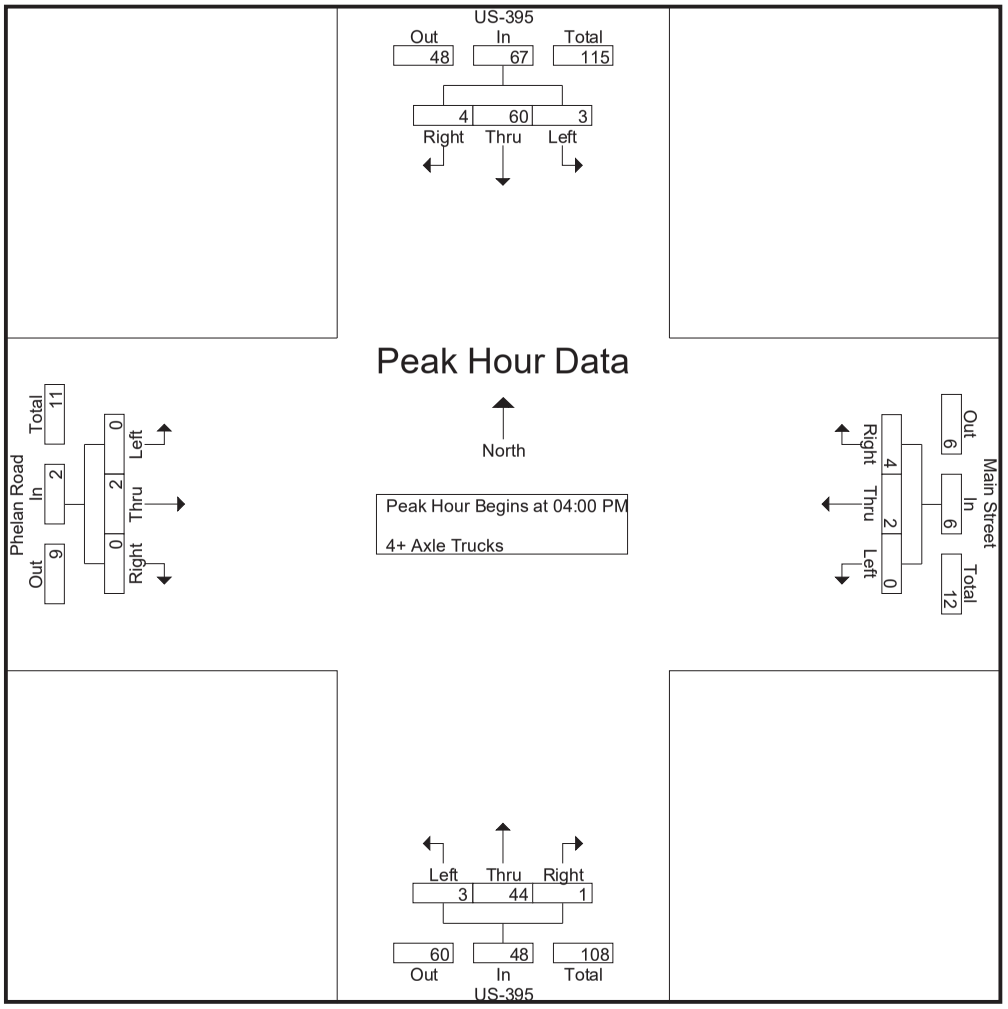
File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: US-395
E/W: Phelan Road/Main Street
Weather: Clear

File Name : 08_HES_US-395_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	US-395 Southbound				Main Street Westbound				US-395 Northbound				Phelan Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	**3**	16	1	**20**	0	**1**	**1**	**2**	1	10	0	11	0	0	0	0	
+15 mins.	0	14	**2**	16	0	0	1	1	0	13	**1**	**14**	0	0	0	0	
+30 mins.	0	**17**	1	18	0	0	1	1	0	**14**	0	14	0	**2**	0	**2**	
+45 mins.	0	13	0	13	0	1	1	2	**2**	7	0	9	0	0	0	0	
Total Volume	3	60	4	67	0	2	4	6	3	44	1	48	0	2	0	2	
% App. Total	4.5	89.6	6		0	33.3	66.7		6.2	91.7	2.1		0	100	0		
PHF	.250	.882	.500	.838	.000	.500	1.000	.750	.375	.786	.250	.857	.000	.250	.000	.250	

Location: Hesperia
N/S: US-395
E/W: Phelan Road/Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg US-395	East Leg Phelan Road/Main Street	South Leg US-395	West Leg Phelan Road/Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg US-395	East Leg Phelan Road/Main Street	South Leg US-395	West Leg Phelan Road/Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	1	0	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

Location: Hesperia
N/S: US-395
E/W: Phelan Road/Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound US-395			Westbound Phelan Road/Main Street			Northbound US-395			Eastbound Phelan Road/Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound US-395			Westbound Phelan Road/Main Street			Northbound US-395			Eastbound Phelan Road/Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	1	2

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	SR-395	LOCATION #:	14
	EAST & WEST:	Poplar	CONTROL:	STOP W

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM	0	142	3	7	245	0	0	0	0	0	0	1	398
	7:15 AM	0	166	4	3	231	0	0	0	0	1	0	1	406
	7:30 AM	0	174	3	2	195	0	0	0	0	0	0	3	377
	7:45 AM	0	136	0	10	180	0	0	0	0	1	0	3	330
	8:00 AM	0	94	3	5	207	0	0	0	0	1	0	2	312
	8:15 AM	0	104	6	14	228	0	0	0	0	1	0	7	360
	8:30 AM	0	126	2	6	172	0	0	0	0	0	0	2	308
	8:45 AM	0	110	6	6	165	0	0	0	0	2	0	4	293
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1,052	27	53	1,623	0	0	0	0	6	0	23	2,784
	APPROACH %	0%	97%	3%	3%	97%	0%	0%	0%	0%	21%	0%	79%	
	APP/DEPART	1,079	/	1,075	1,676	/	1,629	0	/	80	29	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	618	10	22	851	0	0	0	0	2	0	8	1,511
	APPROACH %	0%	98%	2%	3%	97%	0%	0%	0%	0%	20%	0%	80%	
	PEAK HR FACTOR		0.887			0.866			0.000			0.625		0.930
	APP/DEPART	628	/	626	873	/	853	0	/	32	10	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	261	7	1	163	0	0	0	0	2	0	6	440
	4:15 PM	0	243	7	3	191	0	0	0	0	1	0	3	448
	4:30 PM	0	250	4	1	172	0	0	0	0	1	0	4	432
	4:45 PM	0	273	7	1	144	0	0	0	0	1	0	6	432
	5:00 PM	0	250	8	3	143	0	0	0	0	3	0	11	418
	5:15 PM	0	255	7	3	163	0	0	0	0	1	0	1	430
	5:30 PM	0	256	6	1	132	0	0	0	0	0	0	6	401
	5:45 PM	0	284	7	2	161	0	0	0	0	0	0	3	457
	VOLUMES	0	2,072	53	15	1,269	0	0	0	0	9	0	40	3,458
	APPROACH %	0%	98%	2%	1%	99%	0%	0%	0%	0%	18%	0%	82%	
	APP/DEPART	2,125	/	2,112	1,284	/	1,278	0	/	68	49	/	0	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	1,027	25	6	670	0	0	0	0	5	0	19	1,752
	APPROACH %	0%	98%	2%	1%	99%	0%	0%	0%	0%	21%	0%	79%	
	PEAK HR FACTOR		0.939			0.871			0.000			0.750		0.978
	APP/DEPART	1,052	/	1,046	676	/	675	0	/	31	24	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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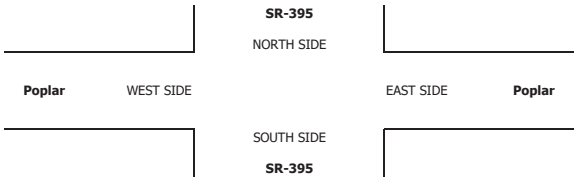
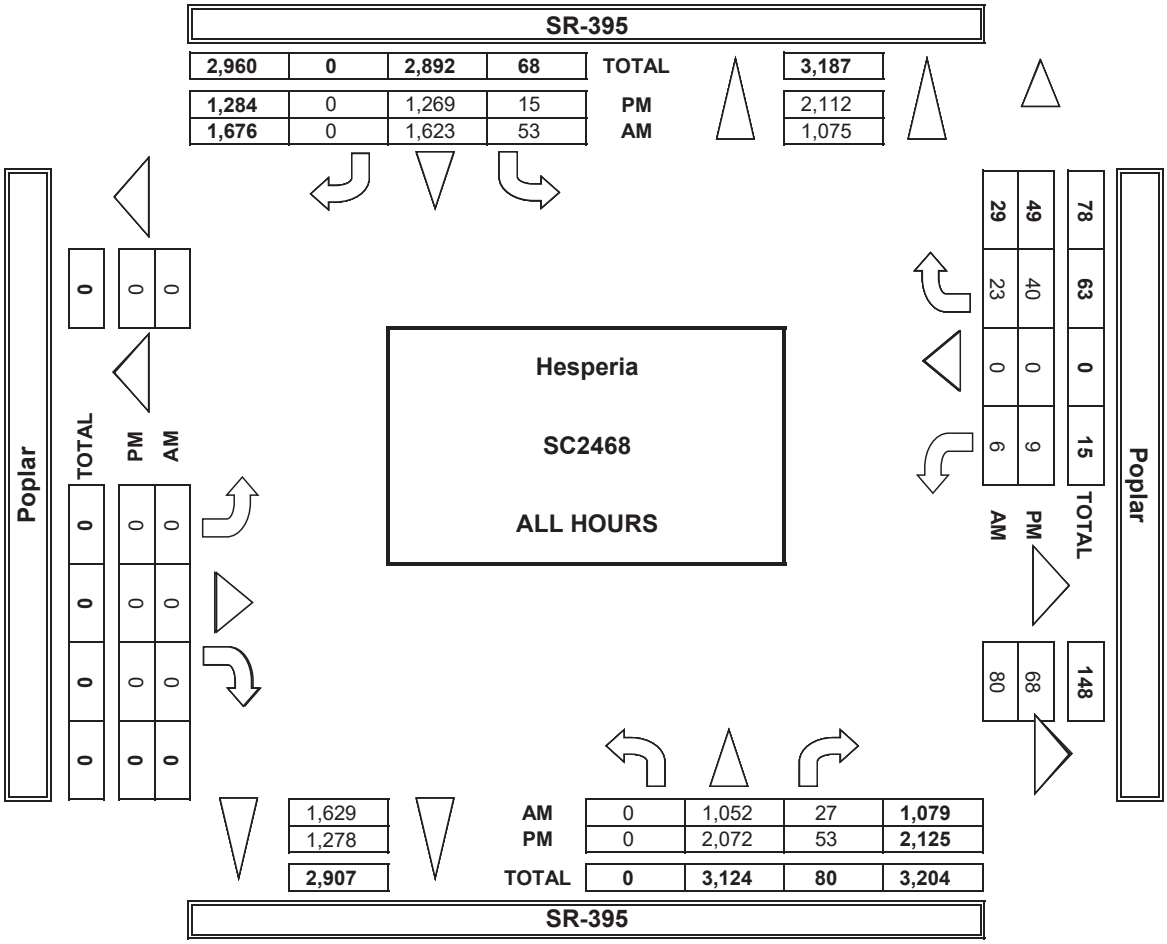
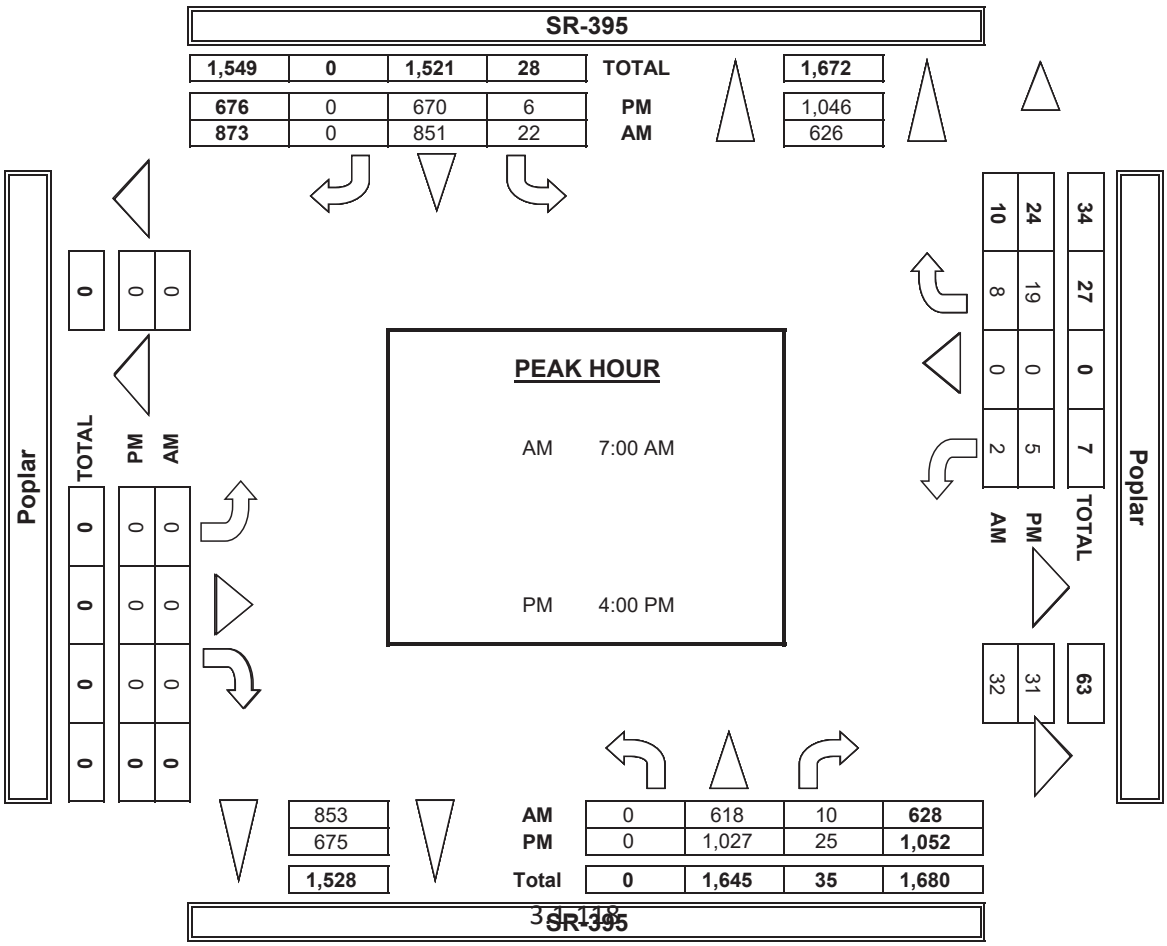


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	SR-395	LOCATION #:	14
	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
7:00 AM	0	113	2	7	223	0	0	0	0	0	0	1	346
7:15 AM	0	129	3	3	205	0	0	0	0	0	0	1	341
7:30 AM	0	143	3	2	166	0	0	0	0	0	0	2	316
7:45 AM	0	101	0	7	149	0	0	0	0	0	0	3	260
8:00 AM	0	66	3	5	175	0	0	0	0	1	0	2	252
8:15 AM	0	82	4	12	204	0	0	0	0	1	0	3	306
8:30 AM	0	93	2	6	147	0	0	0	0	0	0	2	250
8:45 AM	0	74	5	4	142	0	0	0	0	2	0	0	227
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	801	22	46	1,411	0	0	0	0	4	0	14	2,298
APPROACH %	0%	97%	3%	3%	97%	0%	0%	0%	0%	22%	0%	78%	
APP/DEPART	823	/	815	1,457	/	1,415	0	/	68	18	/	0	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	486	8	19	743	0	0	0	0	0	0	7	1,263
APPROACH %	0%	98%	2%	2%	98%	0%	0%	0%	0%	0%	0%	100%	
PEAK HR FACTOR		0.846			0.828			0.000			0.583		0.913
APP/DEPART	494	/	493	762	/	743	0	/	27	7	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	226	7	1	130	0	0	0	0	1	0	5	370
4:15 PM	0	219	6	1	155	0	0	0	0	1	0	3	385
4:30 PM	0	227	4	1	147	0	0	0	0	1	0	3	383
4:45 PM	0	241	6	0	122	0	0	0	0	1	0	2	372
5:00 PM	0	227	8	3	118	0	0	0	0	3	0	9	368
5:15 PM	0	234	7	3	141	0	0	0	0	1	0	0	386
5:30 PM	0	240	5	0	108	0	0	0	0	0	0	6	359
5:45 PM	0	271	6	2	130	0	0	0	0	0	0	2	411
VOLUMES	0	1,885	49	11	1,051	0	0	0	0	8	0	30	3,034
APPROACH %	0%	97%	3%	1%	99%	0%	0%	0%	0%	21%	0%	79%	
APP/DEPART	1,934	/	1,915	1,062	/	1,059	0	/	60	38	/	0	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	0	972	26	8	497	0	0	0	0	4	0	17	1,524
APPROACH %	0%	97%	3%	2%	98%	0%	0%	0%	0%	19%	0%	81%	
PEAK HR FACTOR		0.901			0.877			0.000			0.438		0.927
APP/DEPART	998	/	989	505	/	501	0	/	34	21	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
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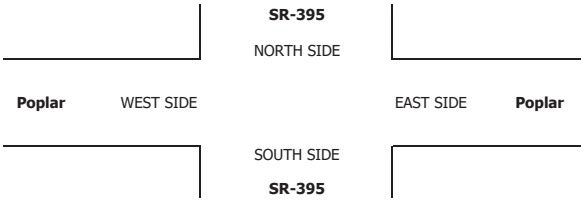
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	14
TUESDAY	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM	0	18	0	0	11	0	0	0	0	0	0	0	29
	7:15 AM	0	17	1	0	12	0	0	0	0	1	0	0	31
	7:30 AM	0	13	0	0	11	0	0	0	0	0	0	1	25
	7:45 AM	0	17	0	2	10	0	0	0	0	0	0	0	29
	8:00 AM	0	13	0	0	12	0	0	0	0	0	0	0	25
	8:15 AM	0	8	2	1	7	0	0	0	0	0	0	1	19
	8:30 AM	0	9	0	0	5	0	0	0	0	0	0	0	14
	8:45 AM	0	15	1	0	10	0	0	0	0	0	0	1	27
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	110	4	3	78	0	0	0	0	1	0	3	199
	APPROACH %	0%	96%	4%	4%	96%	0%	0%	0%	0%	25%	0%	75%	
	APP/DEPART	114	/	113	81	/	79	0	/	7	4	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	65	1	2	44	0	0	0	0	1	0	1	114
	APPROACH %	0%	98%	2%	4%	96%	0%	0%	0%	0%	50%	0%	50%	
	PEAK HR FACTOR		0.917			0.958			0.000			0.500		0.919
	APP/DEPART	66	/	66	46	/	45	0	/	3	2	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	18	0	0	9	0	0	0	0	0	0	1	28
	4:15 PM	0	12	1	0	11	0	0	0	0	0	0	0	24
	4:30 PM	0	11	0	0	6	0	0	0	0	0	0	0	17
	4:45 PM	0	14	1	1	8	0	0	0	0	0	0	4	28
	5:00 PM	0	7	0	0	7	0	0	0	0	0	0	2	16
	5:15 PM	0	7	0	0	4	0	0	0	0	0	0	0	11
	5:30 PM	0	7	1	0	3	0	0	0	0	0	0	0	11
	5:45 PM	0	6	0	0	4	0	0	0	0	0	0	0	10
	VOLUMES	0	82	3	1	52	0	0	0	0	0	0	7	145
	APPROACH %	0%	96%	4%	2%	98%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	85	/	89	53	/	52	0	/	4	7	/	0	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	55	2	1	34	0	0	0	0	0	0	5	97
	APPROACH %	0%	96%	4%	3%	97%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.792			0.795			0.000			0.313		0.866
	APP/DEPART	57	/	60	35	/	34	0	/	3	5	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	14
TUESDAY	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

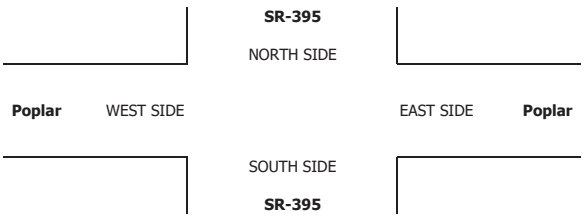
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	1	3	0	0	0	0	0	0	0	4
	8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	8:15 AM	0	1	0	0	3	0	0	0	0	0	0	0	4
	8:30 AM	0	3	0	0	5	0	0	0	0	0	0	0	8
	8:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	2
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	5	0	2	16	0	0	0	0	0	0	0	23
	APPROACH %	0%	100%	0%	11%	89%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	5	/	5	18	/	16	0	/	2	0	/	0	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	0	4	0	1	12	0	0	0	0	0	0	0	17
	APPROACH %	0%	100%	0%	8%	92%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.333			0.650			0.000			0.000		0.531
	APP/DEPART	4	/	4	13	/	12	0	/	1	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
	4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	4:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
	5:00 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
	5:15 PM	0	3	0	0	2	0	0	0	0	0	0	0	5
	5:30 PM	0	2	0	0	4	0	0	0	0	0	0	0	6
	5:45 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	VOLUMES	0	10	0	0	18	0	0	0	0	0	0	0	28
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	10	/	10	18	/	18	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	7	0	0	10	0	0	0	0	0	0	0	17
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.583			0.625			0.000			0.000		0.708
	APP/DEPART	7	/	7	10	/	10	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	14
TUESDAY	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 4:	NOTES:
4 OR MORE AXLE TRUCKS	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
7:00 AM	0	11	1	0	10	0	0	0	0	0	0	0	22
7:15 AM	0	18	0	0	12	0	0	0	0	0	0	0	30
7:30 AM	0	17	0	0	17	0	0	0	0	0	0	0	34
7:45 AM	0	18	0	0	18	0	0	0	0	1	0	0	37
8:00 AM	0	15	0	0	19	0	0	0	0	0	0	0	34
8:15 AM	0	12	0	0	13	0	0	0	0	0	0	3	28
8:30 AM	0	20	0	0	15	0	0	0	0	0	0	0	35
8:45 AM	0	20	0	0	12	0	0	0	0	0	0	2	34
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	131	1	0	116	0	0	0	0	1	0	5	254
APPROACH %	0%	99%	1%	0%	100%	0%	0%	0%	0%	17%	0%	83%	
APP/DEPART	132	/	136	116	/	117	0	/	1	6	/	0	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	0	68	0	0	66	0	0	0	0	1	0	0	135
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	100%	0%	0%	
PEAK HR FACTOR		0.944			0.868			0.000			0.250		0.912
APP/DEPART	68	/	68	66	/	67	0	/	0	1	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	15	0	0	21	0	0	0	0	1	0	0	37
4:15 PM	0	12	0	2	23	0	0	0	0	0	0	0	37
4:30 PM	0	11	0	0	16	0	0	0	0	0	0	1	28
4:45 PM	0	15	0	0	13	0	0	0	0	0	0	0	28
5:00 PM	0	16	0	0	15	0	0	0	0	0	0	0	31
5:15 PM	0	11	0	0	15	0	0	0	0	0	0	1	27
5:30 PM	0	7	0	1	17	0	0	0	0	0	0	0	25
5:45 PM	0	6	1	0	23	0	0	0	0	0	0	1	31
VOLUMES	0	93	1	3	143	0	0	0	0	1	0	3	244
APPROACH %	0%	99%	1%	2%	98%	0%	0%	0%	0%	25%	0%	75%	
APP/DEPART	94	/	96	146	/	144	0	/	4	4	/	0	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	53	0	2	73	0	0	0	0	1	0	1	130
APPROACH %	0%	100%	0%	3%	97%	0%	0%	0%	0%	50%	0%	50%	
PEAK HR FACTOR		0.883			0.750			0.000			0.500		0.878
APP/DEPART	53	/	54	75	/	74	0	/	2	2	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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0	0	0	0
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0	0	0	0
0	0	0	0
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0	0	0	0
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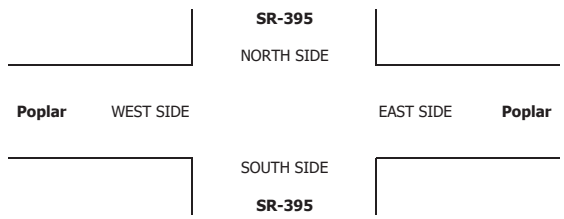
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	14
TUESDAY	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
	LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	VOLUMES	0	1	0	0	3	0	0	0	0	0	0	0	4
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	3	/	3	0	/	0	0	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	0	0	0	3	0	0	0	0	0	0	0	3
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.375			0.000			0.000		0.375
	APP/DEPART	0	/	0	3	/	3	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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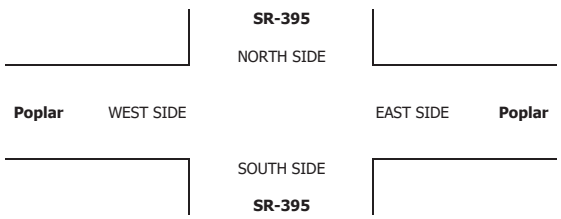

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	14
TUESDAY	EAST & WEST:	Poplar	CONTROL:	STOP W

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Poplar			WESTBOUND Poplar			
LANES:	NL X	NT 2	NR 0	SL 1	ST 1	SR X	EL X	ET X	ER X	WL 1	WT X	WR 1	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	1	1	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	4	0	2	2	0	0	0	0	0	0	1	9
APPROACH %	0%	100%	0%	50%	50%	0%	0%	0%	0%	0%	0%	100%	
APP/DEPART	4	/	5	4	/	2	0	/	2	1	/	0	0
BEGIN PEAK HR		8:00 AM											
VOLUMES	0	2	0	2	1	0	0	0	0	0	0	1	6
APPROACH %	0%	100%	0%	67%	33%	0%	0%	0%	0%	0%	0%	100%	
PEAK HR FACTOR		0.500			0.375			0.000			0.250		0.500
APP/DEPART	2	/	3	3	/	1	0	/	2	1	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1	0	0	2	0	0	0	0	0	0	0	3
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	1	/	1	2	/	2	0	/	0	0	/	0	0
BEGIN PEAK HR		3:45 PM											
VOLUMES	0	1	0	0	2	0	0	0	0	0	0	0	3
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.250			0.500			0.000			0.000		0.375
APP/DEPART	1	/	1	2	/	2	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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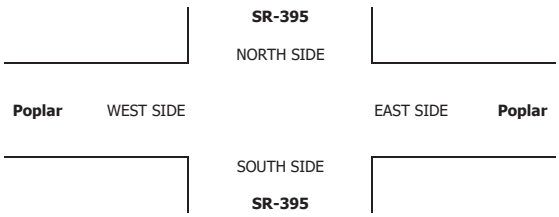
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	SR-395	LOCATION #:	15
	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	5	145	9	0	225	16	5	0	23	17	0	6	451
	7:15 AM	3	158	10	0	208	17	1	0	16	12	1	5	431
	7:30 AM	2	168	9	5	169	22	4	1	21	18	0	4	423
	7:45 AM	6	129	15	4	153	17	5	0	16	10	0	2	357
	8:00 AM	3	85	15	5	182	28	8	1	23	17	1	4	372
	8:15 AM	3	108	13	6	196	20	5	1	27	17	1	4	401
	8:30 AM	5	113	10	0	153	20	5	0	16	13	1	4	340
	8:45 AM	1	104	16	0	148	17	2	1	20	13	1	5	328
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	28	1,010	97	20	1,434	157	35	4	162	117	5	34	3,103
	APPROACH %	2%	89%	9%	1%	89%	10%	17%	2%	81%	75%	3%	22%	
	APP/DEPART	1,135	/	1,078	1,611	/	1,713	201	/	121	156	/	191	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	16	600	43	9	755	72	15	1	76	57	1	17	1,662
	APPROACH %	2%	91%	7%	1%	90%	9%	16%	1%	83%	76%	1%	23%	
	PEAK HR FACTOR		0.920			0.867			0.821			0.815		0.921
	APP/DEPART	659	/	632	836	/	888	92	/	53	75	/	89	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	7	271	16	4	148	11	5	0	13	14	0	2	491
	4:15 PM	6	230	14	3	167	9	11	0	11	11	2	0	464
	4:30 PM	11	244	16	3	164	15	6	1	11	13	0	3	487
	4:45 PM	8	263	15	2	122	19	11	0	20	18	2	7	487
	5:00 PM	8	251	11	2	136	9	6	1	11	8	2	2	447
	5:15 PM	5	248	10	5	146	12	5	1	10	13	0	5	460
	5:30 PM	8	282	7	3	118	10	9	0	11	5	1	3	457
	5:45 PM	6	254	6	2	144	9	8	1	11	9	0	3	453
	VOLUMES	59	2,043	95	24	1,145	94	61	4	98	91	7	25	3,746
	APPROACH %	3%	93%	4%	2%	91%	7%	37%	2%	60%	74%	6%	20%	
	APP/DEPART	2,197	/	2,129	1,263	/	1,334	163	/	123	123	/	160	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	32	1,008	61	12	601	54	33	1	55	56	4	12	1,929
	APPROACH %	3%	92%	6%	2%	90%	8%	37%	1%	62%	78%	6%	17%	
	PEAK HR FACTOR		0.936			0.916			0.718			0.667		0.982
	APP/DEPART	1,101	/	1,053	667	/	712	89	/	74	72	/	90	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
1	5	8	3
2	4	10	2
2	8	9	2
6	2	7	1
3	11	10	2
3	4	11	0
1	3	11	4
4	2	10	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
22	39	76	17
11	19	34	8
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	9	2
0	2	7	0
1	9	9	2
4	6	15	2
1	1	5	0
2	0	8	4
0	0	8	1
1	2	7	1
10	20	68	12
6	17	40	6

SR-395

NORTH SIDE

Three Flags WEST SIDE EAST SIDE **Three Flags**

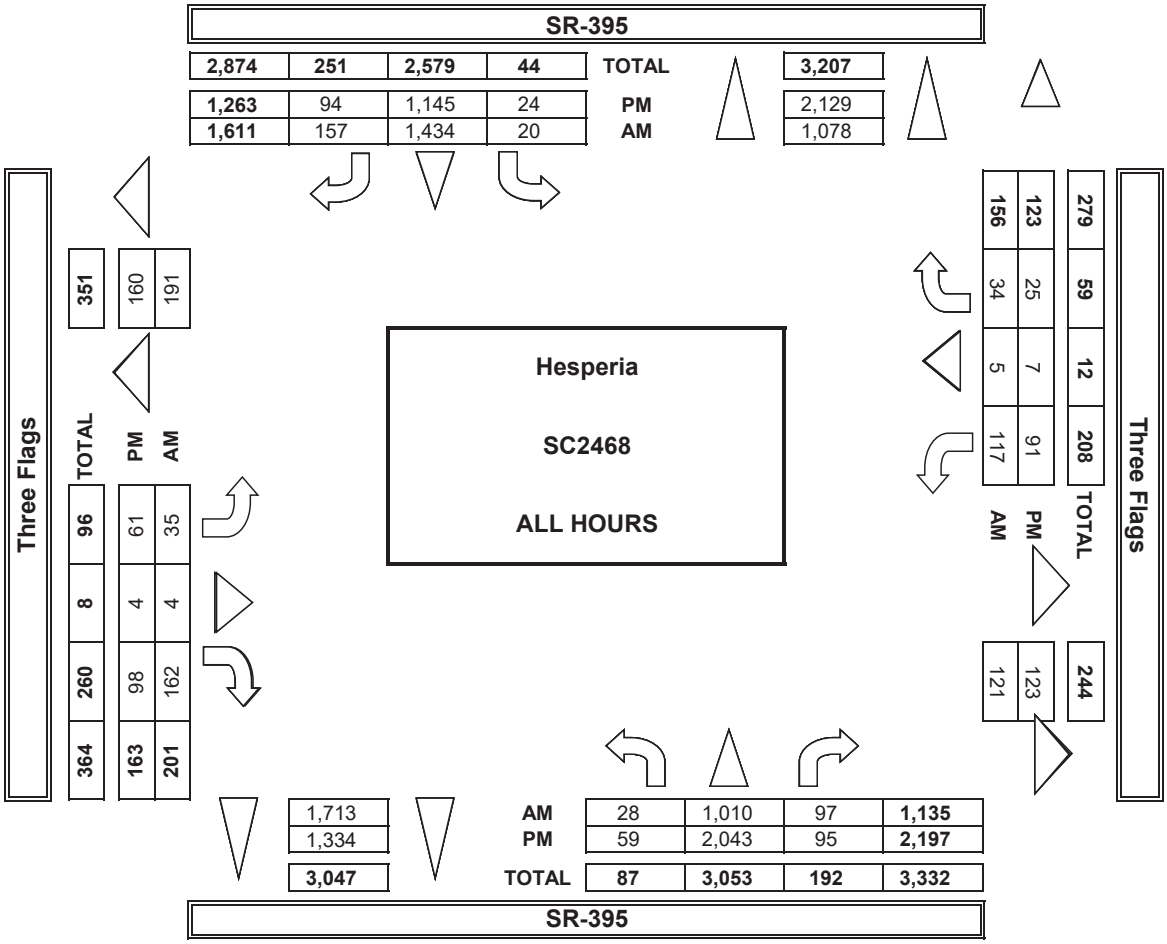
SOUTH SIDE

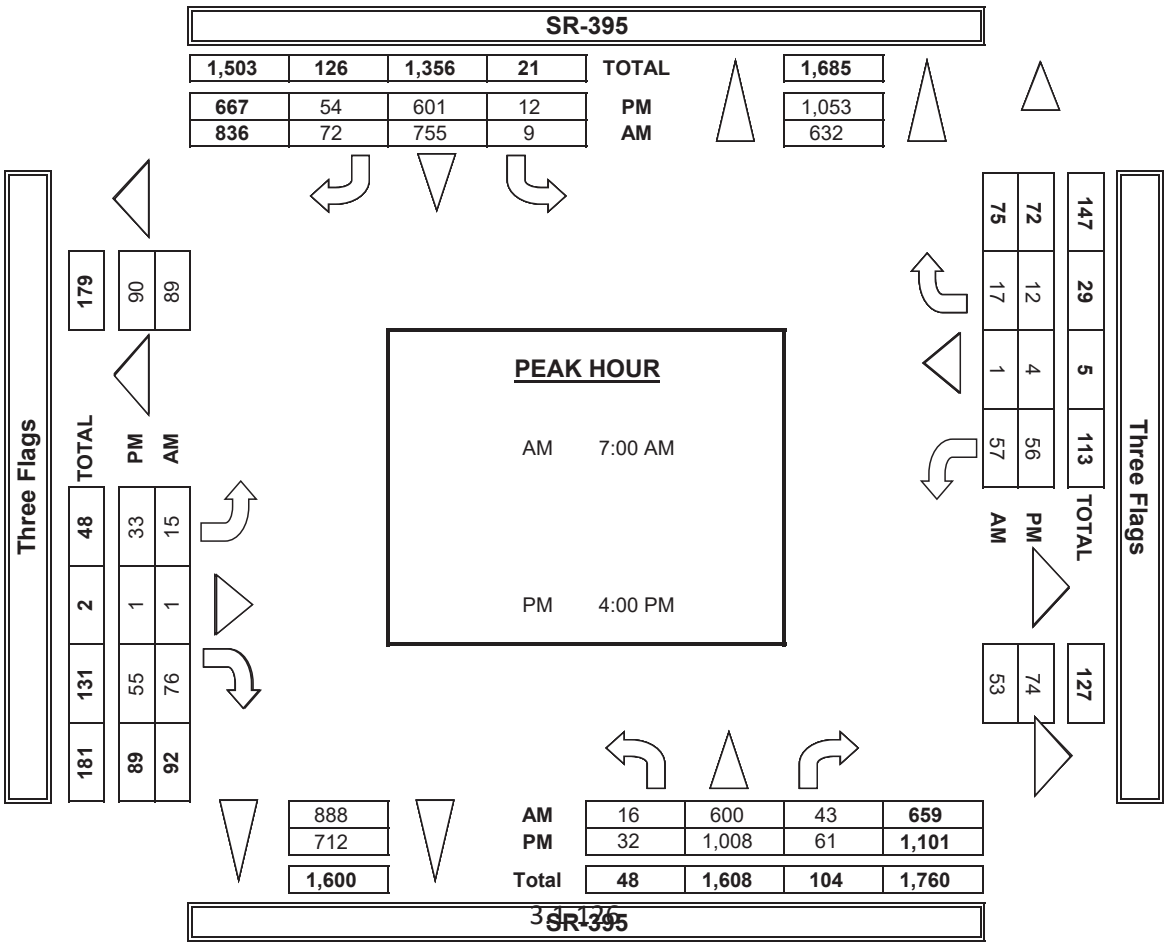
SR-395

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	1	0	0	1	2	1	0	0	1	2	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	8:30 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	2	1	0	2	5	2	1	0	2	5	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	3	121	3	0	202	16	3	0	22	1	0	0	371
	7:15 AM	1	124	2	0	178	17	1	0	14	1	0	1	339
	7:30 AM	0	149	1	3	143	20	0	1	19	0	0	2	338
	7:45 AM	4	101	6	0	125	17	2	0	15	0	0	1	271
	8:00 AM	3	66	4	2	158	24	5	0	19	0	1	0	282
	8:15 AM	3	88	5	2	175	20	4	1	25	2	1	1	327
	8:30 AM	5	86	3	0	129	18	4	0	15	2	1	1	264
	8:45 AM	1	73	2	0	128	13	2	1	17	3	1	0	241
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	20	808	26	7	1,238	145	21	3	146	9	4	6	2,433
	APPROACH %	2%	95%	3%	1%	89%	10%	12%	2%	86%	47%	21%	32%	
	APP/DEPART	854	/	834	1,390	/	1,393	170	/	36	19	/	170	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	8	495	12	3	648	70	6	1	70	2	0	4	1,319
	APPROACH %	2%	96%	2%	0%	90%	10%	8%	1%	91%	33%	0%	67%	
	PEAK HR FACTOR		0.858			0.827			0.770			0.750		0.889
	APP/DEPART	515	/	505	721	/	720	77	/	16	6	/	78	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	6	241	5	1	120	11	4	0	11	6	0	0	405
	4:15 PM	5	204	5	0	130	9	10	0	11	1	2	0	377
	4:30 PM	11	219	3	0	141	15	6	1	11	7	0	0	414
	4:45 PM	8	242	3	0	105	16	10	0	18	3	2	0	407
	5:00 PM	7	228	2	0	111	9	6	1	11	5	1	0	381
	5:15 PM	5	225	2	0	122	12	4	0	10	4	0	2	386
	5:30 PM	8	260	1	0	96	10	8	0	11	3	0	0	397
	5:45 PM	6	237	2	0	114	9	8	1	10	1	0	1	389
	VOLUMES	56	1,856	23	1	939	91	56	3	93	30	5	3	3,156
	APPROACH %	3%	96%	1%	0%	91%	9%	37%	2%	61%	79%	13%	8%	
	APP/DEPART	1,935	/	1,915	1,031	/	1,062	152	/	27	38	/	152	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	30	906	16	1	496	51	30	1	51	17	4	0	1,603
	APPROACH %	3%	95%	2%	0%	91%	9%	37%	1%	62%	81%	19%	0%	
	PEAK HR FACTOR		0.941			0.878			0.732			0.750		0.968
	APP/DEPART	952	/	936	548	/	564	82	/	18	21	/	85	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
1	5	8	0
1	4	9	0
1	7	8	1
2	2	7	1
0	11	9	0
1	4	11	0
1	3	11	1
0	2	10	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
7	38	73	3
5	18	32	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	8	0
0	2	7	0
1	9	9	0
1	5	14	0
0	1	5	0
0	0	8	1
0	0	8	0
0	2	6	1
3	19	65	2
3	16	38	0

SR-395

NORTH SIDE

Three Flags WEST SIDE EAST SIDE **Three Flags**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	1	16	0	0	12	0	2	0	0	0	0	0	31
	7:15 AM	1	21	0	0	17	0	0	0	2	0	1	0	42
	7:30 AM	2	5	1	0	9	2	3	0	1	1	0	0	24
	7:45 AM	2	13	0	0	11	0	1	0	1	0	0	0	28
	8:00 AM	0	7	0	0	7	3	3	0	3	1	0	0	24
	8:15 AM	0	6	1	0	7	0	1	0	1	0	0	0	16
	8:30 AM	0	10	1	0	5	1	0	0	0	0	0	0	17
	8:45 AM	0	13	0	0	9	2	0	0	2	1	0	1	28
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	6	91	3	0	77	8	10	0	10	3	1	1	210
	APPROACH %	6%	91%	3%	0%	91%	9%	50%	0%	50%	60%	20%	20%	
	APP/DEPART	100	/	102	85	/	90	20	/	3	5	/	15	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	6	55	1	0	49	2	6	0	4	1	1	0	125
	APPROACH %	10%	89%	2%	0%	96%	4%	60%	0%	40%	50%	50%	0%	
	PEAK HR FACTOR		0.705			0.750			0.625			0.500		0.744
	APP/DEPART	62	/	61	51	/	54	10	/	1	2	/	9	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	16	0	0	8	0	1	0	2	0	0	0	28
	4:15 PM	1	14	0	0	17	0	1	0	0	0	0	0	33
	4:30 PM	0	13	0	0	3	0	0	0	0	1	0	0	17
	4:45 PM	0	10	2	0	6	2	1	0	1	1	0	2	25
	5:00 PM	0	8	1	0	10	0	0	0	0	0	0	1	20
	5:15 PM	0	13	1	0	10	0	0	0	0	0	0	0	24
	5:30 PM	0	15	0	0	3	0	1	0	0	0	0	0	19
	5:45 PM	0	12	0	0	5	0	0	0	1	1	0	0	19
	VOLUMES	2	101	4	0	62	2	4	0	4	3	0	3	185
	APPROACH %	2%	94%	4%	0%	97%	3%	50%	0%	50%	50%	0%	50%	
	APP/DEPART	107	/	108	64	/	69	8	/	4	6	/	4	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	2	53	2	0	34	2	3	0	3	2	0	2	103
	APPROACH %	4%	93%	4%	0%	94%	6%	50%	0%	50%	50%	0%	50%	
	PEAK HR FACTOR		0.838			0.529			0.500			0.333		0.780
	APP/DEPART	57	/	58	36	/	39	6	/	2	4	/	4	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
	7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:30 AM	0	0	0	1	1	0	0	0	1	0	0	0	3
	7:45 AM	0	0	1	0	3	0	0	0	0	1	0	0	5
	8:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	2
	8:15 AM	0	3	0	1	2	0	0	0	0	2	0	0	8
	8:30 AM	0	1	0	0	4	1	0	0	1	1	0	0	8
	8:45 AM	0	1	2	0	1	0	0	0	0	2	0	0	6
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	7	4	3	12	1	0	0	2	6	0	0	35
	APPROACH %	0%	64%	36%	19%	75%	6%	0%	0%	100%	100%	0%	0%	
	APP/DEPART	11	/	7	16	/	20	2	/	7	6	/	1	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	5	3	2	7	1	0	0	1	5	0	0	24
	APPROACH %	0%	63%	38%	20%	70%	10%	0%	0%	100%	100%	0%	0%	
	PEAK HR FACTOR		0.667			0.500			0.250			0.625		0.750
	APP/DEPART	8	/	5	10	/	13	1	/	5	5	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
	4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
	4:30 PM	0	0	1	1	2	0	0	0	0	0	0	0	4
	4:45 PM	0	2	0	0	1	0	0	0	0	1	0	1	5
	5:00 PM	1	0	0	0	4	0	0	0	0	0	1	0	6
	5:15 PM	0	3	0	0	2	0	1	1	0	0	0	0	7
	5:30 PM	0	2	0	0	5	0	0	0	0	0	1	0	8
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	VOLUMES	1	10	1	1	17	0	1	1	0	2	2	1	37
	APPROACH %	8%	83%	8%	6%	94%	0%	50%	50%	0%	40%	40%	20%	
	APP/DEPART	12	/	12	18	/	19	2	/	3	5	/	3	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	1	7	0	0	12	0	1	1	0	1	2	1	26
	APPROACH %	13%	88%	0%	0%	100%	0%	50%	50%	0%	25%	50%	25%	
	PEAK HR FACTOR		0.667			0.600			0.250			0.500		0.813
	APP/DEPART	8	/	9	12	/	13	2	/	1	4	/	3	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	1	0

1	0	0	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

0	0	0	0

SR-395

NORTH SIDE

Three Flags WEST SIDE EAST SIDE **Three Flags**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

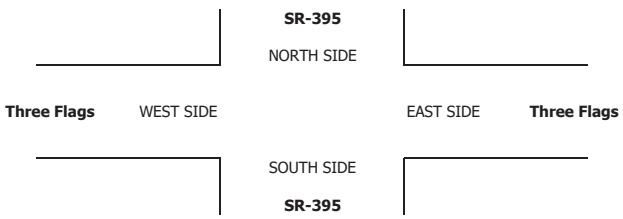
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	1	7	5	0	10	0	0	0	1	16	0	6	46
	7:15 AM	1	12	8	0	12	0	0	0	0	11	0	3	47
	7:30 AM	0	13	7	1	16	0	1	0	0	17	0	2	57
	7:45 AM	0	15	8	4	14	0	2	0	0	9	0	1	53
	8:00 AM	0	12	10	2	17	1	0	1	1	16	0	4	64
	8:15 AM	0	9	7	3	11	0	0	0	1	13	0	3	47
	8:30 AM	0	16	6	0	15	0	1	0	0	10	0	3	51
	8:45 AM	0	16	12	0	10	2	0	0	1	7	0	4	52
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	2	100	63	10	105	3	4	1	4	99	0	26	417
	APPROACH %	1%	61%	38%	8%	89%	3%	44%	11%	44%	79%	0%	21%	
	APP/DEPART	165	/	130	118	/	208	9	/	74	125	/	5	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	1	52	33	7	59	1	3	1	1	53	0	10	221
	APPROACH %	1%	60%	38%	10%	88%	1%	60%	20%	20%	84%	0%	16%	
	PEAK HR FACTOR		0.935			0.838			0.625			0.788		0.863
	APP/DEPART	86	/	65	67	/	113	5	/	41	63	/	2	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	12	11	3	18	0	0	0	0	8	0	2	54
	4:15 PM	0	12	9	3	19	0	0	0	0	9	0	0	52
	4:30 PM	0	11	12	2	17	0	0	0	0	4	0	3	49
	4:45 PM	0	8	10	2	10	1	0	0	1	13	0	4	49
	5:00 PM	0	15	8	2	11	0	0	0	0	3	0	1	40
	5:15 PM	0	7	7	5	11	0	0	0	0	9	0	3	42
	5:30 PM	0	5	6	3	14	0	0	0	0	2	0	3	33
	5:45 PM	0	4	4	2	22	0	0	0	0	7	0	2	41
	VOLUMES	0	74	67	22	122	1	0	0	1	55	0	18	360
	APPROACH %	0%	52%	48%	15%	84%	1%	0%	0%	100%	75%	0%	25%	
	APP/DEPART	141	/	92	145	/	178	1	/	89	73	/	1	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	43	42	10	64	1	0	0	1	34	0	9	204
	APPROACH %	0%	51%	49%	13%	85%	1%	0%	0%	100%	79%	0%	21%	
	PEAK HR FACTOR		0.924			0.852			0.250			0.632		0.944
	APP/DEPART	85	/	52	75	/	99	1	/	52	43	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	3
1	0	0	1
1	0	0	1
4	0	0	0
2	0	1	2
2	0	0	0
0	0	0	3
4	0	0	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
14	0	1	13
8	0	1	4
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	2
0	0	0	0
0	0	0	2
2	0	0	0
1	0	0	0
2	0	0	3
0	0	0	1
1	0	0	0
6	0	0	8
2	0	0	4



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
	4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	VOLUMES	0	1	0	0	3	0	0	0	0	1	0	0	5
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	100%	0%	0%	
	APP/DEPART	1	/	1	3	/	4	0	/	0	1	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	0	0	0	3	0	0	0	0	0	0	0	3
	APPROACH %	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.375			0.000			0.000		0.375
	APP/DEPART	0	/	0	3	/	3	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

SR-395

NORTH SIDE

Three Flags WEST SIDE EAST SIDE **Three Flags**

SOUTH SIDE

SR-395

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	15
TUESDAY	EAST & WEST:	Three Flags	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Three Flags			WESTBOUND Three Flags			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
	7:15 AM	0	0	0	0	1	0	0	0	0	0	0	1	2
	7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	3	1	0	2	0	0	0	0	0	0	1	7
	APPROACH %	0%	75%	25%	0%	100%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	4	/	4	2	/	2	0	/	1	1	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	3	0	0	1	0	0	0	0	0	0	0	4
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.375			0.250			0.000			0.000		0.333
	APP/DEPART	3	/	3	1	/	1	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	2	0	0	0	0	0	0	0	3
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	2	/	2	0	/	0	0	/	0	0
	BEGIN PEAK HR		3:45 PM											
	VOLUMES	0	1	0	0	2	0	0	0	0	0	0	0	3
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.500			0.000			0.000		0.375
	APP/DEPART	1	/	1	2	/	2	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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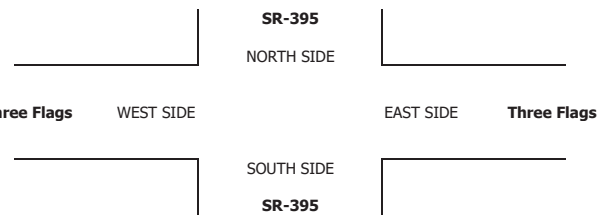
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	SR-395	LOCATION #:	16
	EAST & WEST:	Joshua	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

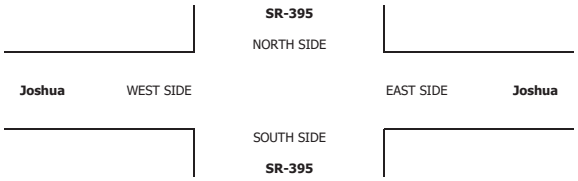
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	2	141	9	15	241	9	3	6	0	15	3	15	459
AM	7:15 AM	1	145	9	17	214	5	10	3	1	14	3	16	438
AM	7:30 AM	2	154	15	18	180	10	6	8	1	17	3	19	433
AM	7:45 AM	0	126	4	12	170	2	3	8	1	17	2	20	365
AM	8:00 AM	0	89	7	17	203	2	1	4	0	12	7	13	355
AM	8:15 AM	1	102	9	14	219	7	5	7	1	25	6	17	413
AM	8:30 AM	0	105	11	14	165	3	6	4	2	25	4	17	356
AM	8:45 AM	0	100	3	11	167	3	1	3	3	17	5	18	331
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	VOLUMES	6	962	67	118	1,559	41	35	43	9	142	33	135	3,150
AM	APPROACH %	1%	93%	6%	7%	91%	2%	40%	49%	10%	46%	11%	44%	
AM	APP/DEPART	1,035	/	1,133	1,718	/	1,710	87	/	227	310	/	80	0
AM	BEGIN PEAK HR		7:00 AM											
AM	VOLUMES	5	566	37	62	805	26	22	25	3	63	11	70	1,695
AM	APPROACH %	1%	93%	6%	7%	90%	3%	44%	50%	6%	44%	8%	49%	
AM	PEAK HR FACTOR		0.889			0.842			0.833			0.923		0.923
AM	APP/DEPART	608	/	659	893	/	871	50	/	123	144	/	42	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	7	253	14	16	153	6	13	16	1	15	4	28	526
PM	4:15 PM	3	217	21	10	177	2	11	5	4	17	2	24	493
PM	4:30 PM	7	245	15	8	174	6	8	16	1	10	2	18	510
PM	4:45 PM	5	251	16	13	140	7	18	8	2	17	11	17	505
PM	5:00 PM	7	234	16	16	136	3	14	9	1	15	4	22	477
PM	5:15 PM	9	232	15	15	151	3	13	21	0	10	2	18	489
PM	5:30 PM	10	261	10	13	119	2	19	21	3	11	3	17	489
PM	5:45 PM	6	220	22	13	148	3	23	18	2	7	5	23	490
PM	VOLUMES	54	1,913	129	104	1,198	32	119	114	14	102	33	167	3,979
PM	APPROACH %	3%	91%	6%	8%	90%	2%	48%	46%	6%	34%	11%	55%	
PM	APP/DEPART	2,096	/	2,199	1,334	/	1,314	247	/	347	302	/	119	0
PM	BEGIN PEAK HR		4:00 PM											
PM	VOLUMES	22	966	66	47	644	21	50	45	8	59	19	87	2,034
PM	APPROACH %	2%	92%	6%	7%	90%	3%	49%	44%	8%	36%	12%	53%	
PM	PEAK HR FACTOR		0.962			0.942			0.858			0.878		0.967
PM	APP/DEPART	1,054	/	1,103	712	/	711	103	/	158	165	/	62	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

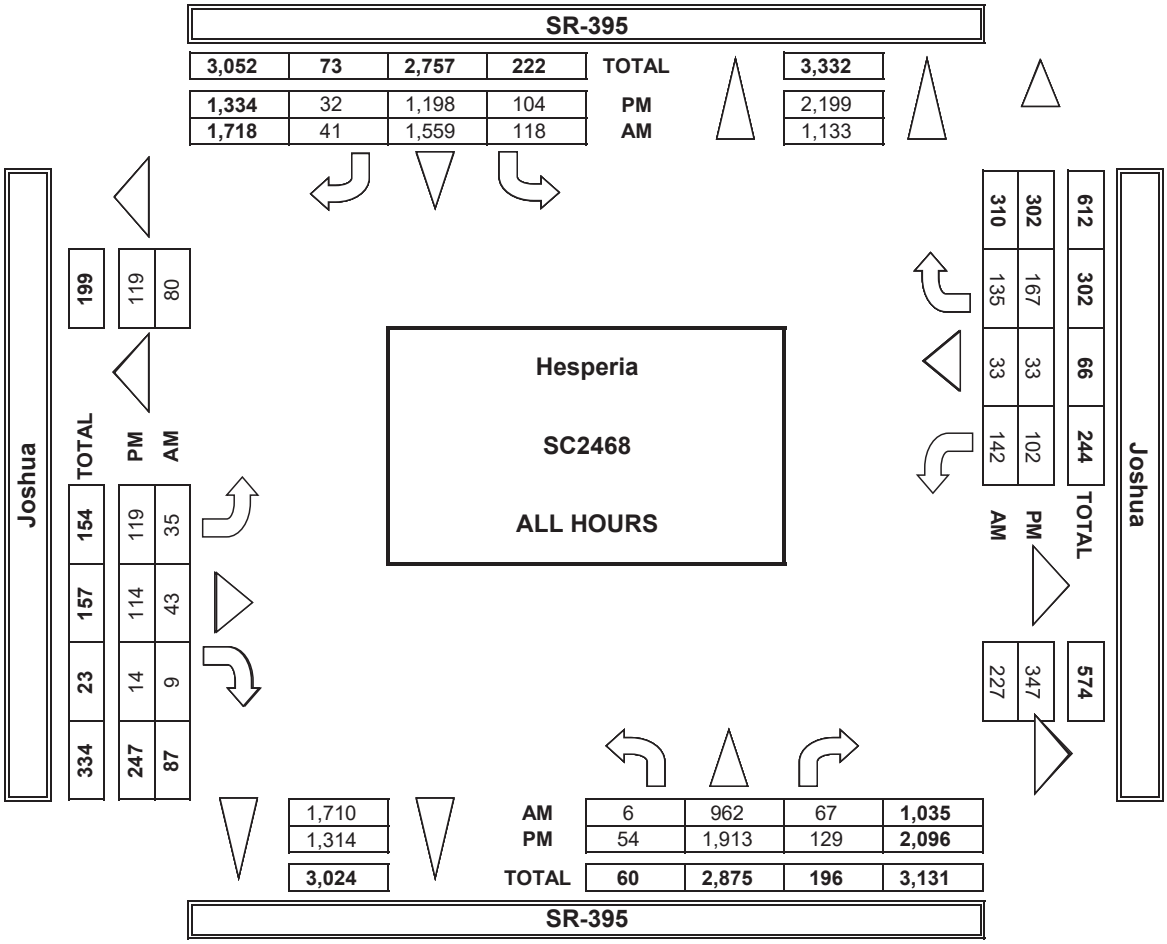
NRR	SRR	ERR	WRR
0	0	0	0
1	3	0	12
6	1	1	8
4	1	1	13
2	0	1	17
1	1	0	10
1	0	0	9
3	1	1	12
0	0	0	11
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
18	7	4	92
13	5	3	50
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
2	2	0	14
3	1	1	19
2	2	1	10
5	2	1	13
7	1	1	12
0	2	0	6
2	1	1	8
6	2	0	6
27	13	5	88
12	7	3	56

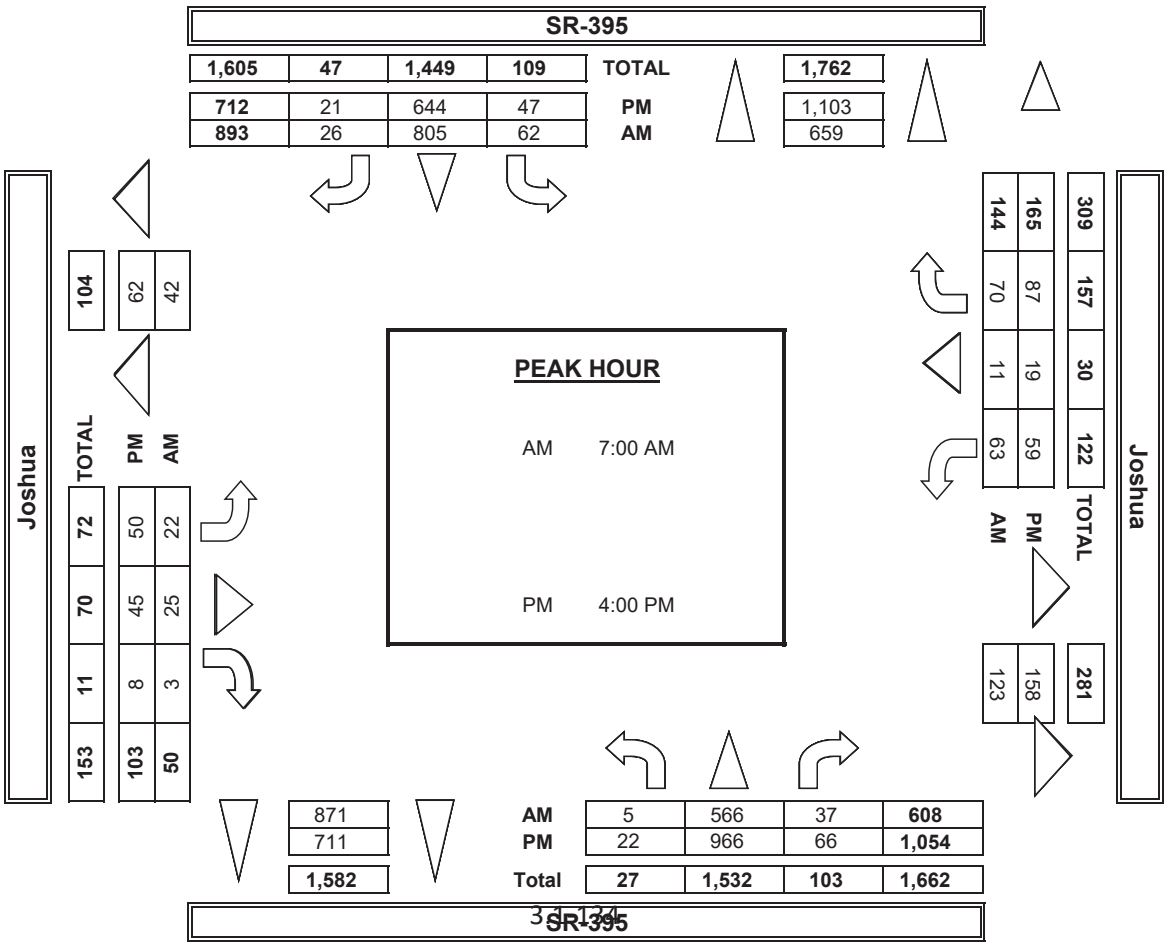


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AM	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:15 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
PM	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	TOTAL	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

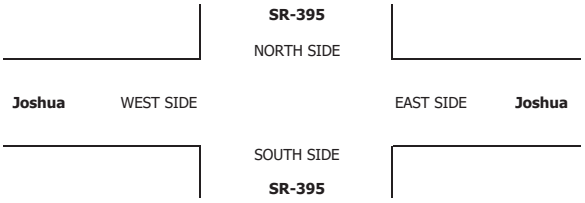
	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
7:00 AM	1	113	5	9	209	7	3	4	0	11	3	11	376
7:15 AM	0	109	5	13	177	3	8	2	1	11	2	10	341
7:30 AM	2	130	9	10	144	8	4	8	1	12	3	16	347
7:45 AM	0	98	2	9	134	2	2	7	1	12	2	10	279
8:00 AM	0	66	4	12	163	2	1	3	0	11	7	6	275
8:15 AM	1	81	5	10	186	6	3	5	1	16	6	12	332
8:30 AM	0	78	7	12	131	3	4	2	1	16	3	12	269
8:45 AM	0	63	3	9	136	3	0	3	2	12	4	11	246
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	4	738	40	84	1,280	34	25	34	7	101	30	88	2,465
APPROACH %	1%	94%	5%	6%	92%	2%	38%	52%	11%	46%	14%	40%	
APP/DEPART	782	/	852	1,398	/	1,388	66	/	157	219	/	68	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	3	450	21	40	664	20	17	21	3	46	10	47	1,343
APPROACH %	1%	95%	4%	6%	92%	3%	41%	51%	7%	45%	10%	46%	
PEAK HR FACTOR		0.840			0.806			0.788			0.831		0.893
APP/DEPART	474	/	515	725	/	713	41	/	82	103	/	33	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	7	218	11	13	118	6	12	15	1	10	4	22	437
4:15 PM	3	184	15	5	136	1	11	4	3	12	2	21	397
4:30 PM	5	209	12	6	147	6	8	15	1	5	2	16	432
4:45 PM	5	223	15	10	109	7	17	8	2	14	11	13	434
5:00 PM	7	208	11	13	111	3	11	9	1	12	4	18	408
5:15 PM	9	206	9	9	124	3	13	21	0	8	2	13	417
5:30 PM	10	237	7	10	98	2	19	21	3	8	3	13	431
5:45 PM	6	203	15	10	113	2	23	18	1	6	5	19	421
VOLUMES	52	1,688	95	76	956	30	114	111	12	75	33	135	3,377
APPROACH %	3%	92%	5%	7%	90%	3%	48%	47%	5%	31%	14%	56%	
APP/DEPART	1,835	/	1,937	1,062	/	1,043	237	/	282	243	/	115	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	20	834	53	34	510	20	48	42	7	41	19	72	1,700
APPROACH %	2%	92%	6%	6%	90%	4%	49%	43%	7%	31%	14%	55%	
PEAK HR FACTOR		0.933			0.887			0.866			0.868		0.973
APP/DEPART	907	/	954	564	/	558	97	/	129	132	/	59	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
1	3	0	8
3	1	1	5
3	1	1	11
1	0	1	9
1	1	0	4
1	0	0	7
2	1	1	8
0	0	0	7
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
12	7	4	59
8	5	3	33
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
2	2	0	11
2	1	1	18
2	2	1	10
5	2	1	10
5	1	1	10
0	2	0	5
2	1	1	6
6	1	0	6
24	12	5	76
11	7	3	49



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	15	2	1	10	1	0	2	0	1	0	2	34
	7:15 AM	1	19	1	0	19	0	2	0	0	0	1	1	44
	7:30 AM	0	6	2	0	10	1	1	0	0	1	0	1	22
	7:45 AM	0	11	2	0	12	0	0	0	0	1	0	4	30
	8:00 AM	0	6	1	2	9	0	0	0	0	1	0	1	20
	8:15 AM	0	4	0	1	7	0	1	1	0	5	0	2	21
	8:30 AM	0	8	0	0	5	0	0	2	0	2	1	3	21
	8:45 AM	0	12	0	0	12	0	1	0	0	2	0	0	27
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	81	8	4	84	2	5	5	0	13	2	14	219
	APPROACH %	1%	90%	9%	4%	93%	2%	50%	50%	0%	45%	7%	48%	
	APP/DEPART	90	/	100	90	/	97	10	/	17	29	/	5	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	1	51	7	1	51	2	3	2	0	3	1	8	130
	APPROACH %	2%	86%	12%	2%	94%	4%	60%	40%	0%	25%	8%	67%	
	PEAK HR FACTOR		0.702			0.711			0.625			0.600		0.739
	APP/DEPART	59	/	62	54	/	54	5	/	10	12	/	4	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	17	1	0	10	0	0	1	0	4	0	0	33
	4:15 PM	0	15	1	1	16	0	0	1	0	1	0	0	35
	4:30 PM	1	13	0	0	4	0	0	1	0	3	0	0	22
	4:45 PM	0	11	1	0	8	0	1	0	0	0	0	0	21
	5:00 PM	0	6	1	1	9	0	2	0	0	1	0	1	21
	5:15 PM	0	13	0	0	10	0	0	0	0	1	0	1	25
	5:30 PM	0	14	0	1	2	0	0	0	0	1	0	1	19
	5:45 PM	0	12	3	0	7	0	0	0	0	0	0	0	22
	VOLUMES	1	101	7	3	66	0	3	3	0	11	0	3	198
	APPROACH %	1%	93%	6%	4%	96%	0%	50%	50%	0%	79%	0%	21%	
	APP/DEPART	109	/	107	69	/	77	6	/	13	14	/	1	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	56	3	1	38	0	1	3	0	8	0	0	111
	APPROACH %	2%	93%	5%	3%	97%	0%	25%	75%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.833			0.574			1.000			0.500		0.793
	APP/DEPART	60	/	57	39	/	46	4	/	7	8	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

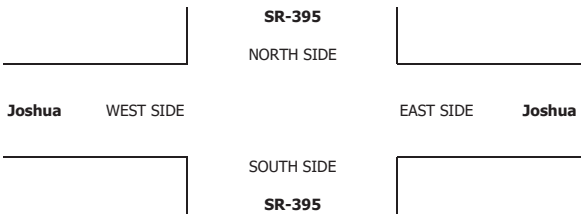
		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	1	0	1	0	0	0	0	0	1	0	0	3
	7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	7:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	2
	7:45 AM	0	0	0	0	4	0	0	0	0	0	0	1	5
	8:00 AM	0	0	1	0	0	0	0	0	0	0	0	1	2
	8:15 AM	0	1	0	0	4	0	1	0	0	2	0	1	9
	8:30 AM	0	1	0	0	6	0	0	0	0	0	0	0	7
	8:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	6
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	7	1	2	18	0	1	0	0	3	0	3	35
	APPROACH %	0%	88%	13%	10%	90%	0%	100%	0%	0%	50%	0%	50%	
	APP/DEPART	8	/	11	20	/	21	1	/	3	6	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	5	1	0	13	0	1	0	0	2	0	2	24
	APPROACH %	0%	83%	17%	0%	100%	0%	100%	0%	0%	50%	0%	50%	
	PEAK HR FACTOR		0.500			0.542			0.250			0.333		0.667
	APP/DEPART	6	/	8	13	/	15	1	/	1	4	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	1	0	0	2	0	0	0	0	0	0	1	4
	4:15 PM	0	0	1	1	0	0	0	0	0	1	0	0	3
	4:30 PM	0	1	0	0	2	0	0	0	0	1	0	0	4
	4:45 PM	0	2	0	1	1	0	0	0	0	0	0	0	4
	5:00 PM	0	0	1	0	4	0	1	0	0	0	0	0	6
	5:15 PM	0	3	0	0	2	0	0	0	0	0	0	0	5
	5:30 PM	0	2	0	0	5	0	0	0	0	1	0	0	8
	5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
	VOLUMES	0	10	2	2	17	0	1	0	0	3	0	1	36
	APPROACH %	0%	83%	17%	11%	89%	0%	100%	0%	0%	75%	0%	25%	
	APP/DEPART	12	/	12	19	/	20	1	/	4	4	/	0	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	7	1	1	12	0	1	0	0	1	0	0	23
	APPROACH %	0%	88%	13%	8%	92%	0%	100%	0%	0%	100%	0%	0%	
	PEAK HR FACTOR		0.667			0.650			0.250			0.250		0.719
	APP/DEPART	8	/	8	13	/	13	1	/	2	1	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	1
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	3
0	0	0	2
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	1
1	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	1	11	2	4	22	1	0	0	0	2	0	2	45
	7:15 AM	0	16	3	4	18	1	0	1	0	3	0	5	51
	7:30 AM	0	18	4	7	25	1	0	0	0	4	0	2	61
	7:45 AM	0	17	0	3	20	0	1	1	0	4	0	5	51
	8:00 AM	0	17	1	3	31	0	0	1	0	0	0	5	58
	8:15 AM	0	14	4	3	22	0	0	1	0	2	0	2	48
	8:30 AM	0	18	4	2	23	0	2	0	0	7	0	2	58
	8:45 AM	0	21	0	2	16	0	0	0	1	3	1	7	51
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	132	18	28	177	3	3	4	1	25	1	30	423
	APPROACH %	1%	87%	12%	13%	85%	1%	38%	50%	13%	45%	2%	54%	
	APP/DEPART	151	/	165	208	/	203	8	/	50	56	/	5	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	68	8	17	94	2	1	3	0	11	0	17	221
	APPROACH %	0%	89%	11%	15%	83%	2%	25%	75%	0%	39%	0%	61%	
	PEAK HR FACTOR		0.864			0.831			0.500			0.778		0.906
	APP/DEPART	76	/	86	113	/	105	4	/	28	28	/	2	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	17	2	3	23	0	1	0	0	1	0	5	52
	4:15 PM	0	18	4	3	25	0	0	0	1	3	0	3	57
	4:30 PM	1	21	3	1	20	0	0	0	0	1	0	2	49
	4:45 PM	0	15	0	2	22	0	0	0	0	3	0	3	45
	5:00 PM	0	20	3	2	12	0	0	0	0	2	0	3	42
	5:15 PM	0	10	6	6	14	0	0	0	0	1	0	4	41
	5:30 PM	0	8	3	2	14	0	0	0	0	1	0	3	31
	5:45 PM	0	4	4	2	27	0	0	0	0	1	0	4	42
	VOLUMES	1	113	25	21	157	0	1	0	1	13	0	27	359
	APPROACH %	1%	81%	18%	12%	88%	0%	50%	0%	50%	33%	0%	68%	
	APP/DEPART	139	/	141	178	/	171	2	/	46	40	/	1	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	71	9	9	90	0	1	0	1	8	0	13	203
	APPROACH %	1%	88%	11%	9%	91%	0%	50%	0%	50%	38%	0%	62%	
	PEAK HR FACTOR		0.810			0.884			0.500			0.875		0.890
	APP/DEPART	81	/	85	99	/	99	2	/	18	21	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua			
	LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	1	0	0	0	0	0	0	0	0	0	0	1
	APPROACH %	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.250			0.000			0.000			0.000		0.250
	APP/DEPART	1	/	1	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	1	0	1	0	0	1	0	0	0	3
	VOLUMES	0	0	0	2	1	1	0	0	1	0	0	1	6
	APPROACH %	0%	0%	0%	50%	25%	25%	0%	0%	100%	0%	0%	100%	
	APP/DEPART	0	/	1	4	/	2	1	/	2	1	/	1	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	0	0	1	1	1	0	0	1	0	0	0	4
	APPROACH %	0%	0%	0%	33%	33%	33%	0%	0%	100%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.375			0.250			0.000		0.333
	APP/DEPART	0	/	0	3	/	2	1	/	1	0	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

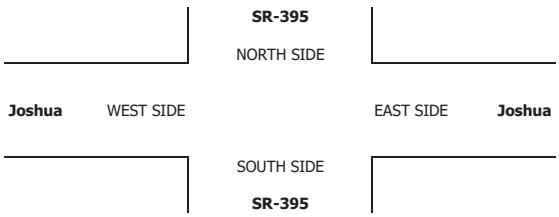
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	SR-395	LOCATION #:	16
TUESDAY	EAST & WEST:	Joshua	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND SR-395			SOUTHBOUND SR-395			EASTBOUND Joshua			WESTBOUND Joshua				U-TURNS					RTOR			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 1	WR 1	TOTAL	NB	SB	EB	WB	TTL	NRR 0	SRR 0	ERR 0	WRR 0
AM 7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	3	0	0	0	2	1	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0
APPROACH %	0%	100%	0%	0%	0%	100%	50%	0%	50%	0%	0%	0%										
APP/DEPART	3	/	4	2	/	1	2	/	0	0	/	2	0									
BEGIN PEAK HR		7:30 AM																				
VOLUMES	0	2	0	0	0	1	0	0	1	0	0	0	4						0	0	0	0
APPROACH %	0%	100%	0%	0%	0%	100%	0%	0%	100%	0%	0%	0%										
PEAK HR FACTOR		0.250			0.250			0.250			0.000		0.333									
APP/DEPART	2	/	2	1	/	1	1	/	0	0	/	1	0									
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	1	0	0	1	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
APPROACH %	0%	100%	0%	0%	50%	50%	0%	0%	0%	0%	0%	0%										
APP/DEPART	1	/	1	2	/	1	0	/	0	0	/	1	0									
BEGIN PEAK HR		3:45 PM																				
VOLUMES	0	1	0	0	1	1	0	0	0	0	0	0	3						0	0	0	0
APPROACH %	0%	100%	0%	0%	50%	50%	0%	0%	0%	0%	0%	0%										
PEAK HR FACTOR		0.250			0.500			0.000			0.000		0.375									
APP/DEPART	1	/	1	2	/	1	0	/	0	0	/	1	0									



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	16	0	3	3	19	5	113	3	2	121	0	0	4	3	4	2	205	0	0	207	8	351	359
07:15 AM	12	0	4	2	16	7	116	4	3	127	0	1	5	4	6	1	182	1	0	184	9	333	342
07:30 AM	9	1	3	3	13	10	172	6	2	188	0	1	7	6	8	1	226	0	0	227	11	436	447
07:45 AM	10	1	4	4	15	23	94	4	0	121	0	0	5	5	5	1	217	1	0	219	9	360	369
Total	47	2	14	12	63	45	495	17	7	557	0	2	21	18	23	5	830	2	0	837	37	1480	1517
08:00 AM	8	0	0	0	8	11	97	7	0	115	1	0	8	6	9	0	170	1	0	171	6	303	309
08:15 AM	8	0	0	0	8	18	102	8	5	128	0	0	12	9	12	2	174	2	0	178	14	326	340
08:30 AM	14	0	2	1	16	12	111	3	1	126	1	0	9	8	10	0	203	2	0	205	10	357	367
08:45 AM	3	0	1	1	4	7	88	3	2	98	2	0	8	8	10	1	165	1	0	167	11	279	290
Total	33	0	3	2	36	48	398	21	8	467	4	0	37	31	41	3	712	6	0	721	41	1265	1306
Grand Total	80	2	17	14	99	93	893	38	15	1024	4	2	58	49	64	8	1542	8	0	1558	78	2745	2823
Apprch %	80.8	2	17.2			9.1	87.2	3.7			6.2	3.1	90.6			0.5	99	0.5					
Total %	2.9	0.1	0.6		3.6	3.4	32.5	1.4		37.3	0.1	0.1	2.1		2.3	0.3	56.2	0.3		56.8	2.8	97.2	
Passenger Vehicles	79	2	17		112	85	851	36		986	4	2	50		99	8	1502	7		1517	0	0	2714
% Passenger Vehicles	98.8	100	100	100	99.1	91.4	95.3	94.7	93.3	94.9	100	100	86.2	87.8	87.6	100	97.4	87.5	0	97.4	0	0	96.1
Large 2 Axle Vehicles	0	0	0		0	4	27	1		33	0	0	4		8	0	19	1		20	0	0	61
% Large 2 Axle Vehicles	0	0	0	0	0	4.3	3	2.6	6.7	3.2	0	0	6.9	8.2	7.1	0	1.2	12.5	0	1.3	0	0	2.2
3 Axle Vehicles	1	0	0		1	1	7	1		9	0	0	1		2	0	9	0		9	0	0	21
% 3 Axle Vehicles	1.2	0	0	0	0.9	1.1	0.8	2.6	0	0.9	0	0	1.7	2	1.8	0	0.6	0	0	0.6	0	0	0.7
4+ Axle Trucks	0	0	0		0	3	8	0		11	0	0	3		4	0	12	0		12	0	0	27
% 4+ Axle Trucks	0	0	0	0	0	3.2	0.9	0	0	1.1	0	0	5.2	2	3.5	0	0.8	0	0	0.8	0	0	1

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**16**	0	3	**19**	5	113	3	121	0	0	4	4	**2**	205	0	207	351
07:15 AM	12	0	**4**	16	7	116	4	127	0	**1**	5	6	1	182	**1**	184	333
07:30 AM	9	**1**	3	13	10	**172**	**6**	**188**	0	1	**7**	**8**	1	**226**	0	**227**	**436**
07:45 AM	10	1	4	15	**23**	94	4	121	0	0	5	5	1	217	1	219	360
Total Volume	47	2	14	63	45	495	17	557	0	2	21	23	5	830	2	837	1480
% App. Total	74.6	3.2	22.2		8.1	88.9	3.1		0	8.7	91.3		0.6	99.2	0.2		
PHF	.734	.500	.875	.829	.489	.719	.708	.741	.000	.500	.750	.719	.625	.918	.500	.922	.849

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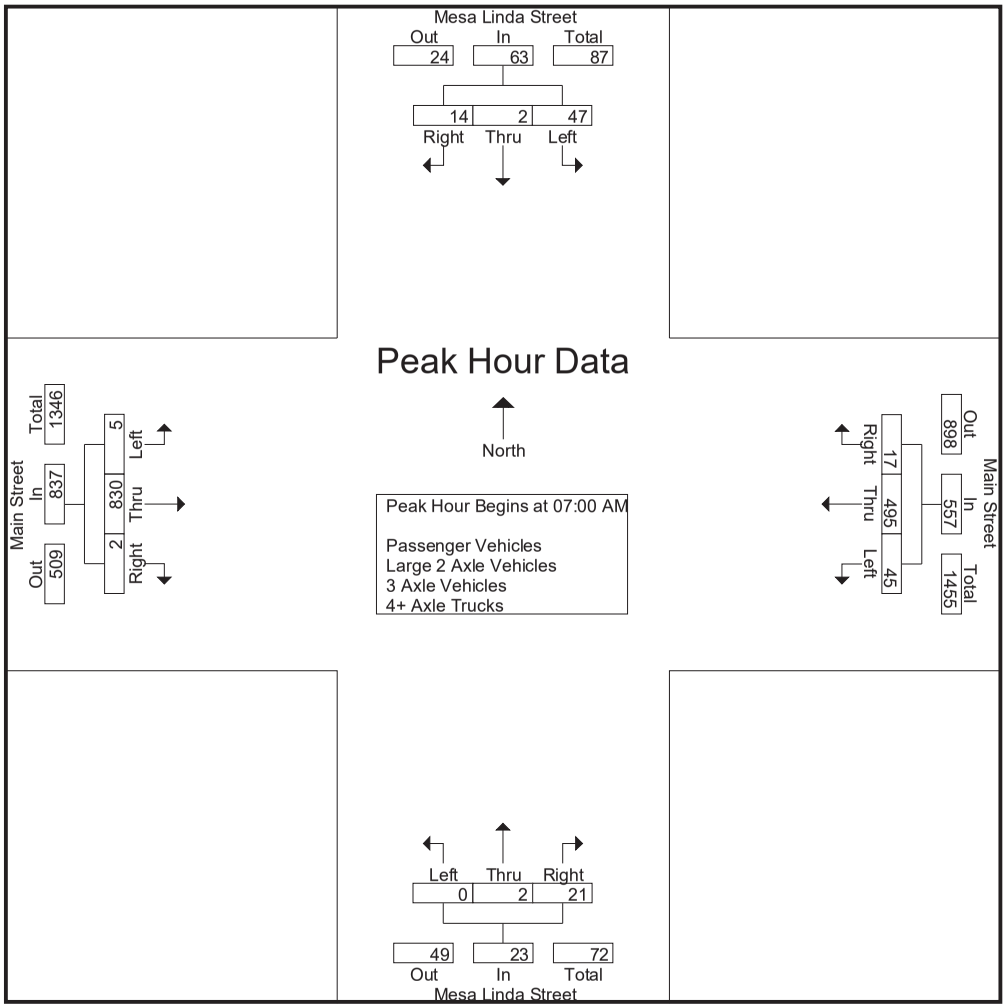
City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Counts Unlimited
PO Box 1178
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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				08:00 AM				07:00 AM				
+0 mins.	**16**	0	3	**19**	5	113	3	121	1	0	8	9	**2**	205	0	207	
+15 mins.	12	0	**4**	16	7	116	4	127	0	0	**12**	**12**	1	182	**1**	184	
+30 mins.	9	**1**	3	13	10	**172**	**6**	**188**	1	0	9	10	1	**226**	0	**227**	
+45 mins.	10	1	4	15	**23**	94	4	121	**2**	0	8	10	1	217	1	219	
Total Volume	47	2	14	63	45	495	17	557	4	0	37	41	5	830	2	837	
% App. Total	74.6	3.2	22.2		8.1	88.9	3.1		9.8	0	90.2		0.6	99.2	0.2		
PHF	.734	.500	.875	.829	.489	.719	.708	.741	.500	.000	.771	.854	.625	.918	.500	.922	

Counts Unlimited
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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	16	0	3	3	19	5	109	3	2	117	0	0	3	3	3	2	199	0	0	201	8	340	348
07:15 AM	12	0	4	2	16	7	111	4	3	122	0	1	3	3	4	1	178	1	0	180	8	322	330
07:30 AM	9	1	3	3	13	8	164	6	2	178	0	1	6	5	7	1	222	0	0	223	10	421	431
07:45 AM	10	1	4	4	15	22	89	4	0	115	0	0	5	5	5	1	209	0	0	210	9	345	354
Total	47	2	14	12	63	42	473	17	7	532	0	2	17	16	19	5	808	1	0	814	35	1428	1463
08:00 AM	7	0	0	0	7	11	93	6	0	110	1	0	7	5	8	0	163	1	0	164	5	289	294
08:15 AM	8	0	0	0	8	17	96	7	4	120	0	0	12	9	12	2	173	2	0	177	13	317	330
08:30 AM	14	0	2	1	16	10	105	3	1	118	1	0	8	7	9	0	196	2	0	198	9	341	350
08:45 AM	3	0	1	1	4	5	84	3	2	92	2	0	6	6	8	1	162	1	0	164	9	268	277
Total	32	0	3	2	35	43	378	19	7	440	4	0	33	27	37	3	694	6	0	703	36	1215	1251
Grand Total	79	2	17	14	98	85	851	36	14	972	4	2	50	43	56	8	1502	7	0	1517	71	2643	2714
Apprch %	80.6	2	17.3			8.7	87.6	3.7			7.1	3.6	89.3			0.5	99	0.5					
Total %	3	0.1	0.6		3.7	3.2	32.2	1.4		36.8	0.2	0.1	1.9		2.1	0.3	56.8	0.3		57.4	2.6	97.4	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**16**	0	3	**19**	5	109	3	117	0	0	3	3	**2**	199	0	201	340
07:15 AM	12	0	**4**	16	7	111	4	122	0	**1**	3	4	1	178	**1**	180	322
07:30 AM	9	**1**	3	13	8	**164**	**6**	**178**	0	1	**6**	**7**	1	**222**	0	**223**	**421**
07:45 AM	10	1	4	15	**22**	89	4	115	0	0	5	5	1	209	0	210	345
Total Volume	47	2	14	63	42	473	17	532	0	2	17	19	5	808	1	814	1428
% App. Total	74.6	3.2	22.2		7.9	88.9	3.2		0	10.5	89.5		0.6	99.3	0.1		
PHF	.734	.500	.875	.829	.477	.721	.708	.747	.000	.500	.708	.679	.625	.910	.250	.913	.848

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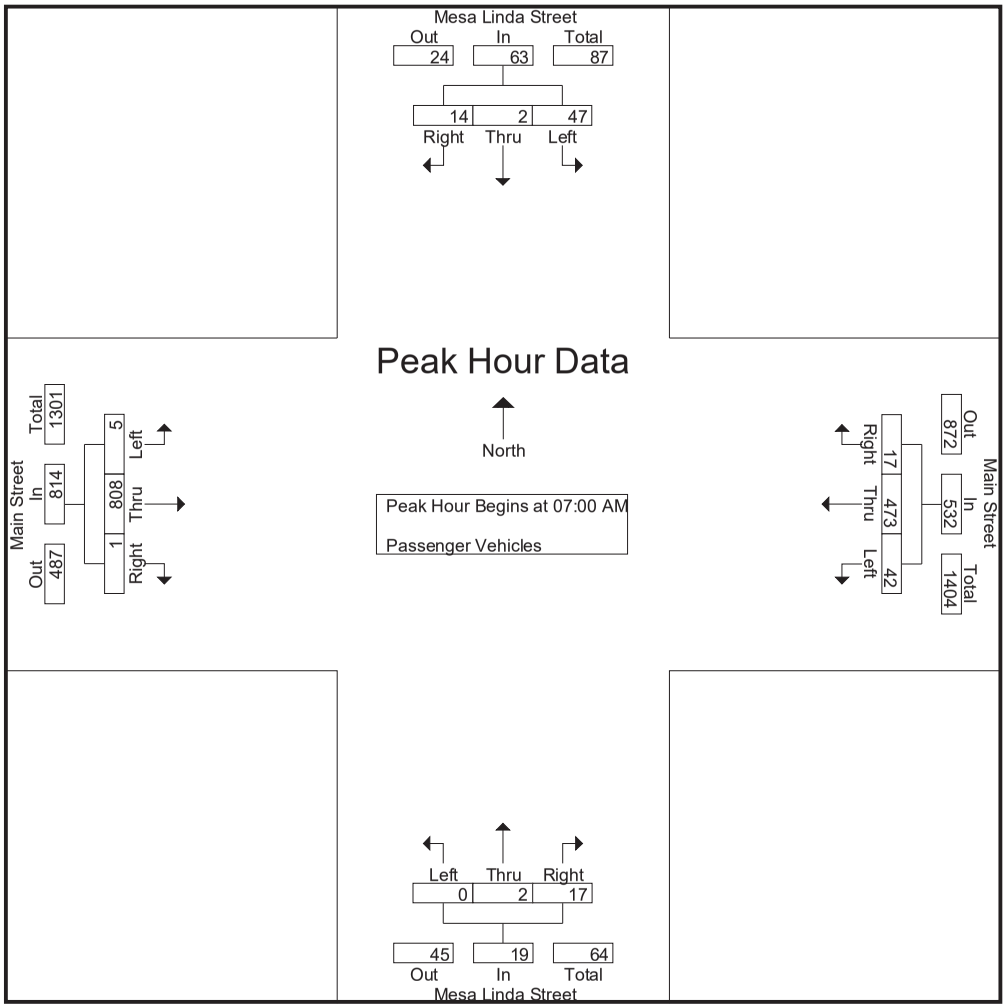
City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**16**	0	3	**19**	5	109	3	117	0	0	3	3	**2**	199	0	201	
+15 mins.	12	0	**4**	16	7	111	4	122	0	**1**	3	4	1	178	**1**	180	
+30 mins.	9	**1**	3	13	8	**164**	**6**	**178**	0	1	**6**	**7**	1	**222**	0	**223**	
+45 mins.	10	1	4	15	**22**	89	4	115	0	0	5	5	1	209	0	210	
Total Volume	47	2	14	63	42	473	17	532	0	2	17	19	5	808	1	814	
% App. Total	74.6	3.2	22.2		7.9	88.9	3.2		0	10.5	89.5		0.6	99.3	0.1		
PHF	.734	.500	.875	.829	.477	.721	.708	.747	.000	.500	.708	.679	.625	.910	.250	.913	

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
07:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
07:30 AM	0	0	0	0	0	0	5	0	0	5	0	0	1	1	1	0	1	0	0	1	1	7	8
07:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	1	0	4	0	8	8
Total	0	0	0	0	0	0	15	0	0	15	0	0	1	1	1	0	8	1	0	9	1	25	26
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	1	1	0	4	0	0	4	1	7	8
08:15 AM	0	0	0	0	0	1	4	1	1	6	0	0	0	0	0	0	0	0	0	0	1	6	7
08:30 AM	0	0	0	0	0	1	4	0	0	5	0	0	1	1	1	0	5	0	0	5	1	11	12
08:45 AM	0	0	0	0	0	2	2	0	0	4	0	0	1	1	1	0	2	0	0	2	1	7	8
Total	0	0	0	0	0	4	12	1	1	17	0	0	3	3	3	0	11	0	0	11	4	31	35
Grand Total	0	0	0	0	0	4	27	1	1	32	0	0	4	4	4	0	19	1	0	20	5	56	61
Apprch %	0	0	0			12.5	84.4	3.1			0	0	100			0	95	5					
Total %	0	0	0		0	7.1	48.2	1.8		57.1	0	0	7.1		7.1	0	33.9	1.8		35.7	8.2	91.8	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	5
07:15 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	3	5
07:30 AM	0	0	0	0	0	**5**	0	**5**	0	0	**1**	**1**	0	1	0	1	7
07:45 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	3	**1**	**4**	**8**
Total Volume	0	0	0	0	0	15	0	15	0	0	1	1	0	8	1	9	25
% App. Total	0	0	0		0	100	0		0	0	100		0	88.9	11.1		
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.250	.250	.000	.667	.250	.563	.781

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City of Hesperia
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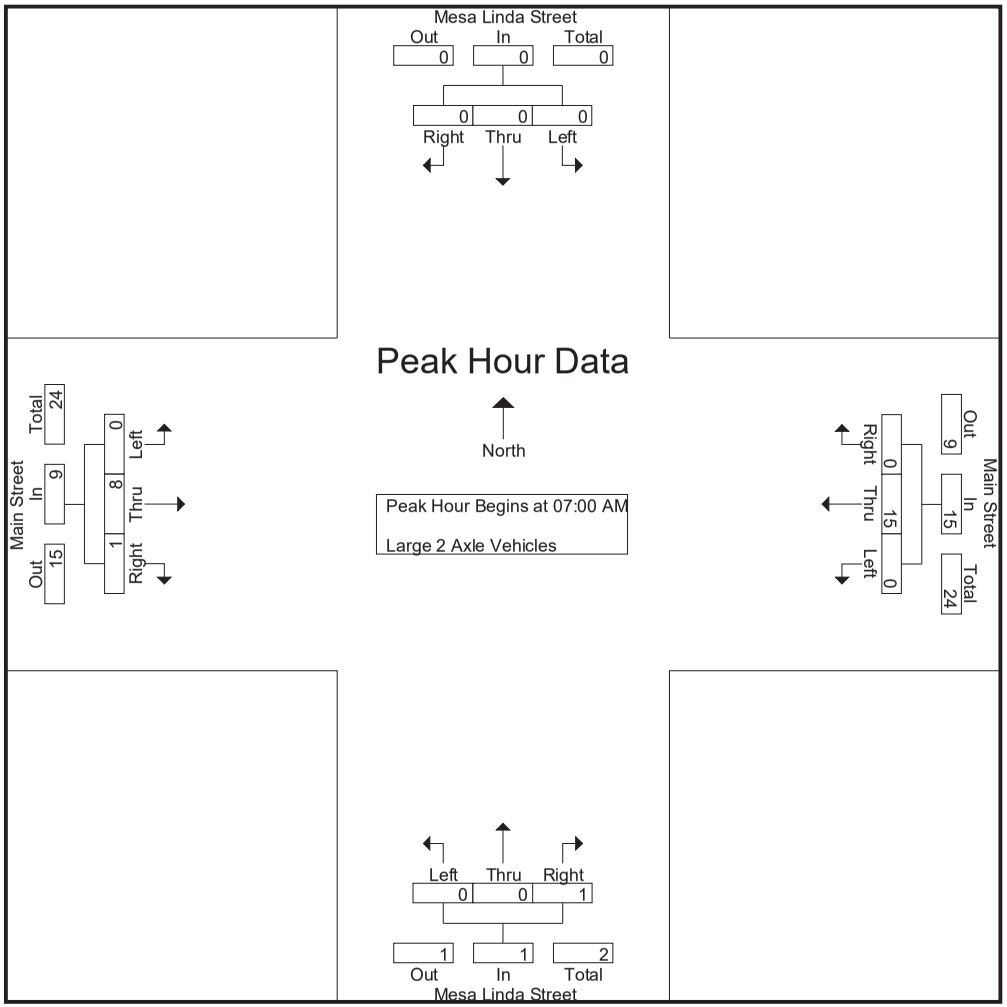
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	3	
+30 mins.	0	0	0	0	0	**5**	0	**5**	0	0	**1**	**1**	0	1	0	1	
+45 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	3	**1**	**4**	
Total Volume	0	0	0	0	0	15	0	15	0	0	1	1	0	8	1	9	
% App. Total	0	0	0		0	100	0		0	0	100		0	88.9	11.1		
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.250	.250	.000	.667	.250	.563	

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	0	0	1	1	2	3
07:30 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
Total	0	0	0	0	0	1	3	0	0	4	0	0	1	1	1	0	6	0	0	6	1	11	12
08:00 AM	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	1	0	0	0	1	0	4	1	0	5	0	0	0	0	0	0	3	0	0	3	0	9	9
Grand Total	1	0	0	0	1	1	7	1	0	9	0	0	1	1	1	0	9	0	0	9	1	20	21
Apprch %	100	0	0			11.1	77.8	11.1			0	0	100			0	100	0					
Total %	5	0	0		5	5	35	5		45	0	0	5		5	0	45	0		45	4.8	95.2	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	1	0	1	2
07:30 AM	0	0	0	0	**1**	**2**	0	**3**	0	0	0	0	0	1	0	1	**4**
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
Total Volume	0	0	0	0	1	3	0	4	0	0	1	1	0	6	0	6	11
% App. Total	0	0	0		25	75	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.250	.375	.000	.333	.000	.000	.250	.250	.000	.750	.000	.750	.688

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City of Hesperia
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Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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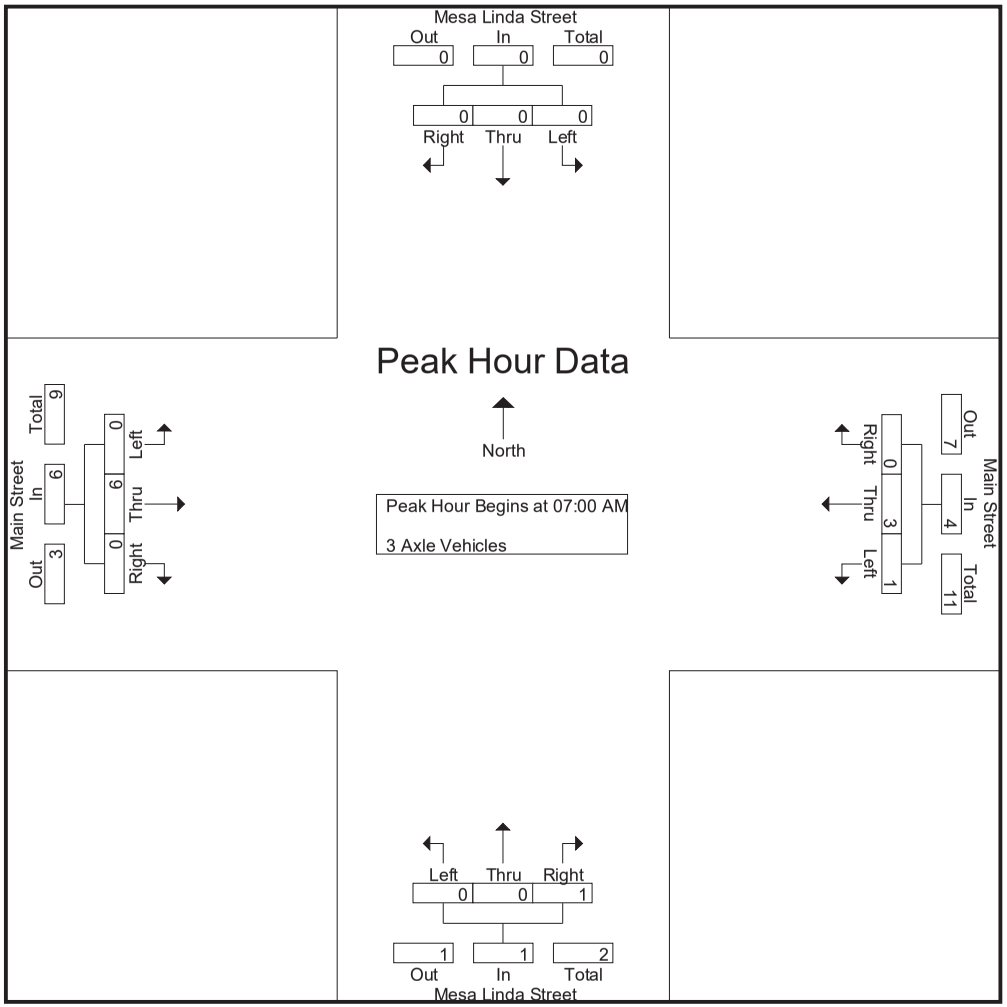

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	1	0	1	
+30 mins.	0	0	0	0	**1**	**2**	0	**3**	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	
Total Volume	0	0	0	0	1	3	0	4	0	0	1	1	0	6	0	6	
% App. Total	0	0	0		25	75	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.250	.375	.000	.333	.000	.000	.250	.250	.000	.750	.000	.750	

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Groups Printed- 4+ Axle Trucks

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	0	4	4
07:15 AM	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	0	4	4
07:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
07:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
Total	0	0	0	0	0	2	4	0	0	6	0	0	2	0	2	0	8	0	0	8	0	16	16
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
08:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	1	1	0	0	0	0	0	1	3	4
Total	0	0	0	0	0	1	4	0	0	5	0	0	1	1	1	0	4	0	0	4	1	10	11
Grand Total	0	0	0	0	0	3	8	0	0	11	0	0	3	1	3	0	12	0	0	12	1	26	27
Apprch %	0	0	0			27.3	72.7	0			0	0	100			0	100	0					
Total %	0	0	0		0	11.5	30.8	0		42.3	0	0	11.5		11.5	0	46.2	0		46.2	3.7	96.3	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	**3**	0	**3**	**4**
07:15 AM	0	0	0	0	0	**3**	0	**3**	0	0	1	1	0	0	0	0	4
07:30 AM	0	0	0	0	**1**	1	0	2	0	0	0	0	0	2	0	2	4
07:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0	3	4
Total Volume	0	0	0	0	2	4	0	6	0	0	2	2	0	8	0	8	16
% App. Total	0	0	0		33.3	66.7	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.500	.333	.000	.500	.000	.000	.500	.500	.000	.667	.000	.667	1.00

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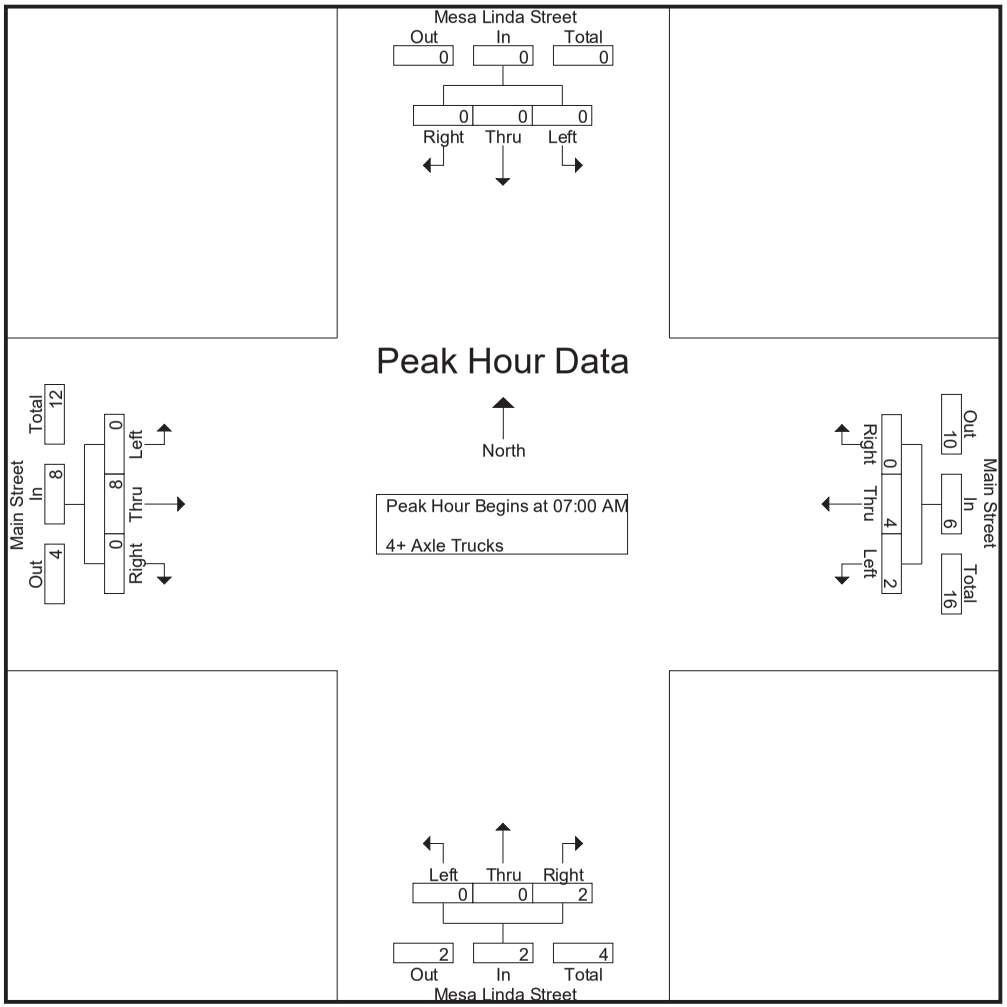

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E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	**3**	0	**3**	
+15 mins.	0	0	0	0	0	**3**	0	**3**	0	0	1	1	0	0	0	0	
+30 mins.	0	0	0	0	**1**	1	0	2	0	0	0	0	0	2	0	2	
+45 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	3	0	3	
Total Volume	0	0	0	0	2	4	0	6	0	0	2	2	0	8	0	8	
% App. Total	0	0	0		33.3	66.7	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.500	.333	.000	.500	.000	.000	.500	.500	.000	.667	.000	.667	

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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	5	0	0	0	5	10	221	19	3	250	4	2	15	10	21	1	194	0	0	195	13	471	484
04:15 PM	8	0	2	2	10	9	232	10	1	251	0	0	14	13	14	2	177	2	0	181	16	456	472
04:30 PM	8	0	0	0	8	10	188	14	2	212	2	5	28	22	35	0	173	3	0	176	24	431	455
04:45 PM	10	0	1	0	11	12	232	10	2	254	3	0	14	12	17	2	169	1	1	172	15	454	469
Total	31	0	3	2	34	41	873	53	8	967	9	7	71	57	87	5	713	6	1	724	68	1812	1880
05:00 PM	7	0	3	3	10	7	226	11	2	244	6	0	15	11	21	2	181	2	0	185	16	460	476
05:15 PM	6	1	2	1	9	14	211	10	1	235	1	1	14	13	16	2	199	3	0	204	15	464	479
05:30 PM	3	0	0	0	3	7	219	10	0	236	1	2	23	20	26	1	159	4	0	164	20	429	449
05:45 PM	6	0	1	1	7	5	202	11	1	218	3	1	11	10	15	2	147	1	0	150	12	390	402
Total	22	1	6	5	29	33	858	42	4	933	11	4	63	54	78	7	686	10	0	703	63	1743	1806
Grand Total	53	1	9	7	63	74	1731	95	12	1900	20	11	134	111	165	12	1399	16	1	1427	131	3555	3686
Apprch %	84.1	1.6	14.3			3.9	91.1	5			12.1	6.7	81.2			0.8	98	1.1					
Total %	1.5	0	0.3		1.8	2.1	48.7	2.7		53.4	0.6	0.3	3.8		4.6	0.3	39.4	0.5		40.1	3.6	96.4	
Passenger Vehicles	53	1	9		70	68	1704	94		1878	19	11	126		261	12	1353	16		1382	0	0	3591
% Passenger Vehicles	100	100	100	100	100	91.9	98.4	98.9	100	98.2	95	100	94	94.6	94.6	100	96.7	100	100	96.8	0	0	97.4
Large 2 Axle Vehicles	0	0	0		0	1	14	1		16	1	0	1		3	0	31	0		31	0	0	50
% Large 2 Axle Vehicles	0	0	0	0	0	1.4	0.8	1.1	0	0.8	5	0	0.7	0.9	1.1	0	2.2	0	0	2.2	0	0	1.4
3 Axle Vehicles	0	0	0		0	2	3	0		5	0	0	2		4	0	0	0		0	0	0	9
% 3 Axle Vehicles	0	0	0	0	0	2.7	0.2	0	0	0.3	0	0	1.5	1.8	1.4	0	0	0	0	0	0	0	0.2
4+ Axle Trucks	0	0	0		0	3	10	0		13	0	0	5		8	0	15	0		15	0	0	36
% 4+ Axle Trucks	0	0	0	0	0	4.1	0.6	0	0	0.7	0	0	3.7	2.7	2.9	0	1.1	0	0	1.1	0	0	1

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	5	0	0	5	10	221	**19**	250	**4**	2	15	21	1	**194**	0	**195**	**471**
04:15 PM	8	0	**2**	10	9	**232**	10	251	0	0	14	14	**2**	177	2	181	456
04:30 PM	8	0	0	8	10	188	14	212	2	**5**	**28**	**35**	0	173	**3**	176	431
04:45 PM	**10**	0	1	**11**	**12**	232	10	**254**	3	0	14	17	2	169	1	172	454
Total Volume	31	0	3	34	41	873	53	967	9	7	71	87	5	713	6	724	1812
% App. Total	91.2	0	8.8		4.2	90.3	5.5		10.3	8	81.6		0.7	98.5	0.8		
PHF	.775	.000	.375	.773	.854	.941	.697	.952	.563	.350	.634	.621	.625	.919	.500	.928	.962

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Site Code : 05119658
Start Date : 9/28/2019
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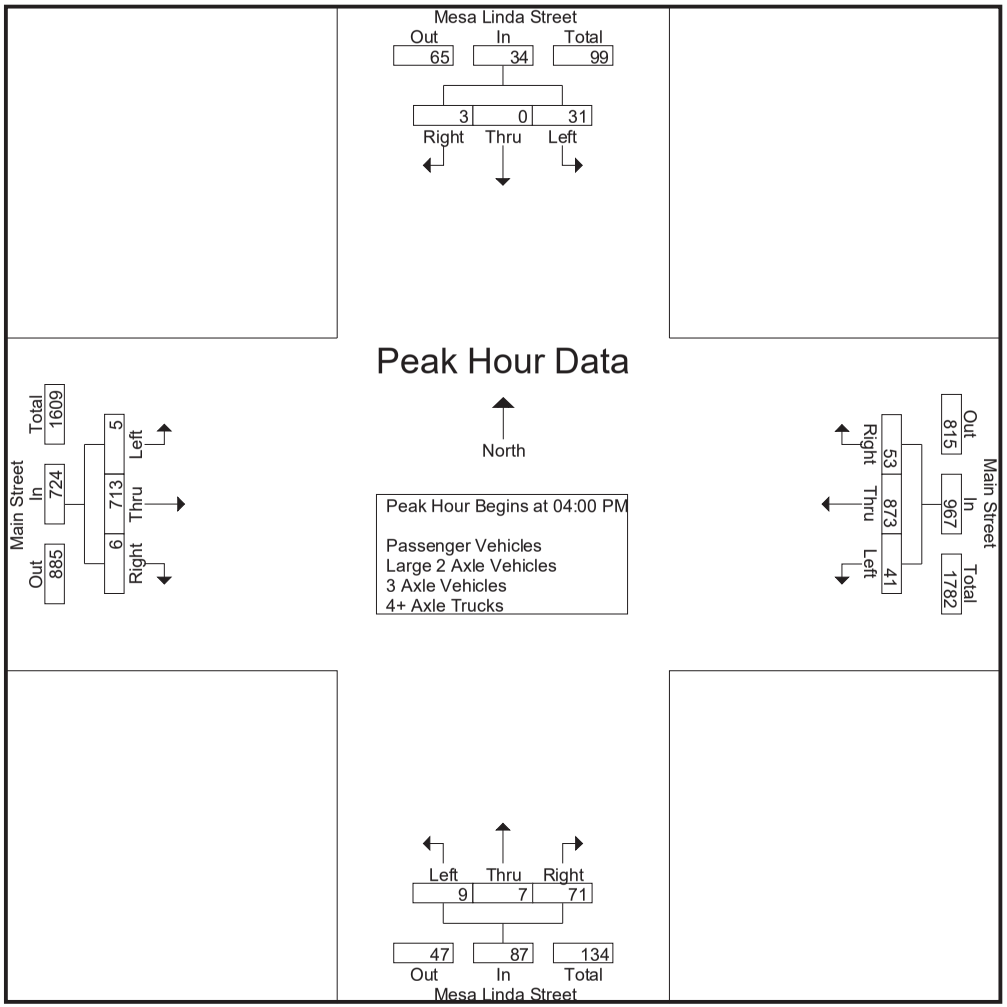

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	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:45 PM				04:30 PM				04:30 PM				
+0 mins.	8	0	2	10	12	**232**	10	**254**	2	**5**	**28**	**35**	0	173	**3**	176	
+15 mins.	8	0	0	8	7	226	**11**	244	3	0	14	17	**2**	169	1	172	
+30 mins.	**10**	0	1	**11**	**14**	211	10	235	**6**	0	15	21	2	181	2	185	
+45 mins.	7	0	**3**	10	7	219	10	236	1	1	14	16	2	**199**	3	**204**	
Total Volume	33	0	6	39	40	888	41	969	12	6	71	89	6	722	9	737	
% App. Total	84.6	0	15.4		4.1	91.6	4.2		13.5	6.7	79.8		0.8	98	1.2		
PHF	.825	.000	.500	.886	.714	.957	.932	.954	.500	.300	.634	.636	.750	.907	.750	.903	

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Groups Printed- Passenger Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	5	0	0	0	5	9	218	19	3	246	3	2	12	7	17	1	189	0	0	190	10	458	468
04:15 PM	8	0	2	2	10	7	226	10	1	243	0	0	12	11	12	2	173	2	0	177	14	442	456
04:30 PM	8	0	0	0	8	9	183	14	2	206	2	5	28	22	35	0	165	3	0	168	24	417	441
04:45 PM	10	0	1	0	11	12	228	10	2	250	3	0	13	12	16	2	164	1	1	167	15	444	459
Total	31	0	3	2	34	37	855	53	8	945	8	7	65	52	80	5	691	6	1	702	63	1761	1824
05:00 PM	7	0	3	3	10	6	222	10	2	238	6	0	15	11	21	2	174	2	0	178	16	447	463
05:15 PM	6	1	2	1	9	13	208	10	1	231	1	1	14	13	16	2	194	3	0	199	15	455	470
05:30 PM	3	0	0	0	3	7	219	10	0	236	1	2	21	19	24	1	154	4	0	159	19	422	441
05:45 PM	6	0	1	1	7	5	200	11	1	216	3	1	11	10	15	2	140	1	0	143	12	381	393
Total	22	1	6	5	29	31	849	41	4	921	11	4	61	53	76	7	662	10	0	679	62	1705	1767
Grand Total	53	1	9	7	63	68	1704	94	12	1866	19	11	126	105	156	12	1353	16	1	1381	125	3466	3591
Apprch %	84.1	1.6	14.3			3.6	91.3	5			12.2	7.1	80.8			0.9	98	1.2					
Total %	1.5	0	0.3		1.8	2	49.2	2.7		53.8	0.5	0.3	3.6		4.5	0.3	39	0.5		39.8	3.5	96.5	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	5	0	0	5	9	218	**19**	246	**3**	2	12	17	1	**189**	0	**190**	**458**
04:15 PM	8	0	**2**	10	7	226	10	243	0	0	12	12	**2**	173	2	177	442
04:30 PM	8	0	0	8	9	183	14	206	2	**5**	**28**	**35**	0	165	**3**	168	417
04:45 PM	**10**	0	1	**11**	**12**	**228**	10	**250**	3	0	13	16	2	164	1	167	444
Total Volume	31	0	3	34	37	855	53	945	8	7	65	80	5	691	6	702	1761
% App. Total	91.2	0	8.8		3.9	90.5	5.6		10	8.8	81.2		0.7	98.4	0.9		
PHF	.775	.000	.375	.773	.771	.938	.697	.945	.667	.350	.580	.571	.625	.914	.500	.924	.961

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City of Hesperia
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Weather: Clear

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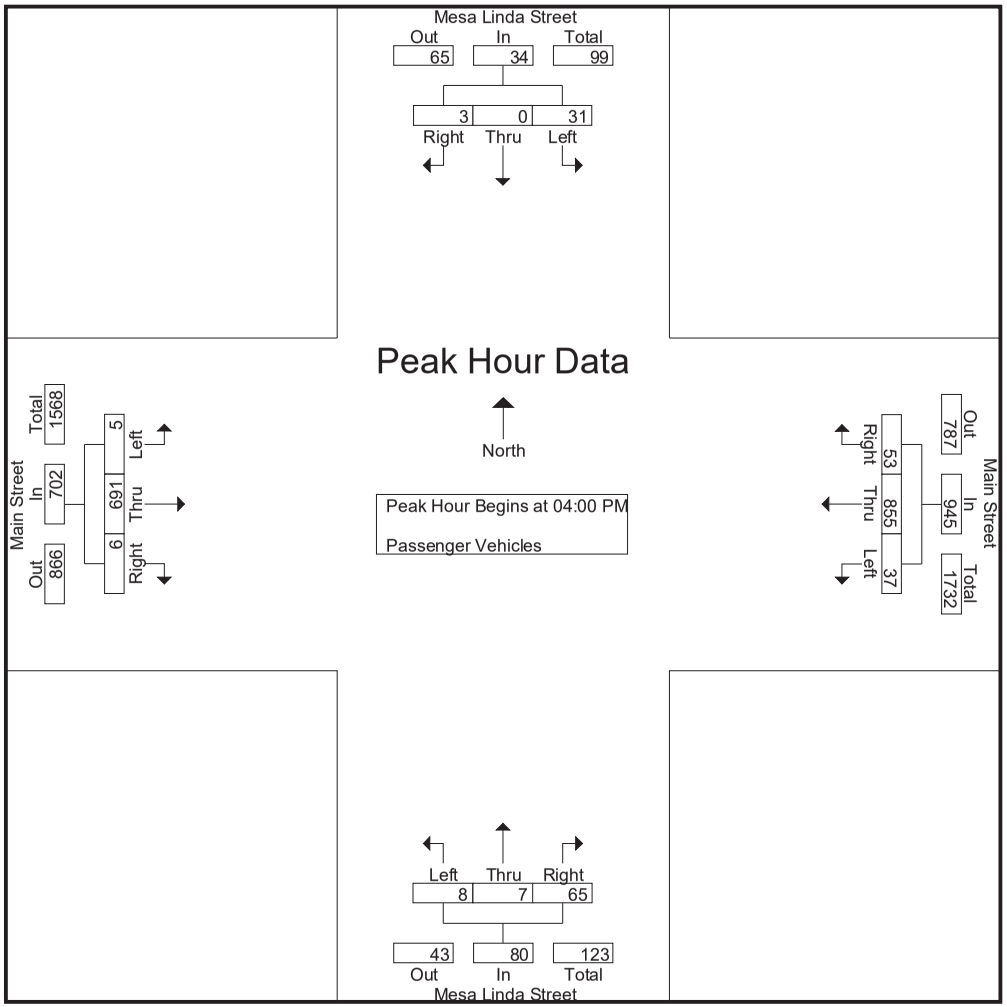
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	5	0	0	5	9	218	**19**	246	**3**	2	12	17	1	**189**	0	**190**	
+15 mins.	8	0	**2**	10	7	226	10	243	0	0	12	12	**2**	173	2	177	
+30 mins.	8	0	0	8	9	183	14	206	2	**5**	**28**	**35**	0	165	**3**	168	
+45 mins.	**10**	0	1	**11**	**12**	**228**	10	**250**	3	0	13	16	2	164	1	167	
Total Volume	31	0	3	34	37	855	53	945	8	7	65	80	5	691	6	702	
% App. Total	91.2	0	8.8		3.9	90.5	5.6		10	8.8	81.2		0.7	98.4	0.9		
PHF	.775	.000	.375	.773	.771	.938	.697	.945	.667	.350	.580	.571	.625	.914	.500	.924	

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	2	0	4	4
04:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	1	1	1	0	3	0	0	3	1	8	9
04:30 PM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	6	0	0	6	0	11	11
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	7	7
Total	0	0	0	0	0	1	11	0	0	12	1	0	1	1	2	0	16	0	0	16	1	30	31
05:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	6	0	0	6	0	9	9
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	5	5
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	15	0	0	15	0	19	19
Grand Total	0	0	0	0	0	1	14	1	0	16	1	0	1	1	2	0	31	0	0	31	1	49	50
Apprch %	0	0	0			6.2	87.5	6.2			50	0	50			0	100	0					
Total %	0	0	0		0	2	28.6	2		32.7	2	0	2		4.1	0	63.3	0		63.3	2	98	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	1	0	1	**1**	0	0	**1**	0	2	0	2	4
04:15 PM	0	0	0	0	0	**4**	0	4	0	0	**1**	1	0	3	0	3	8
04:30 PM	0	0	0	0	**1**	4	0	**5**	0	0	0	0	0	**6**	0	**6**	**11**
04:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	7
Total Volume	0	0	0	0	1	11	0	12	1	0	1	2	0	16	0	16	30
% App. Total	0	0	0		8.3	91.7	0		50	0	50		0	100	0		
PHF	.000	.000	.000	.000	.250	.688	.000	.600	.250	.000	.250	.500	.000	.667	.000	.667	.682

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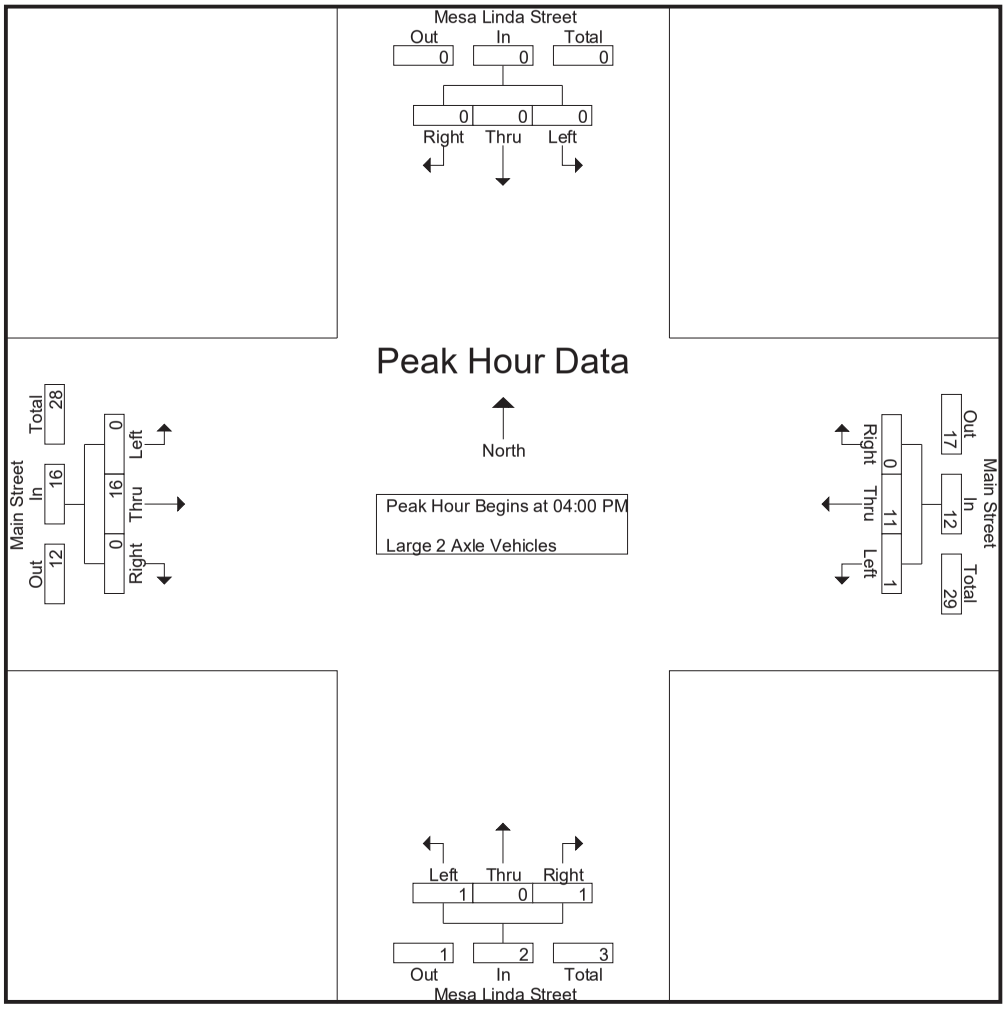

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	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	1	0	1	**1**	0	0	**1**	0	2	0	2	
+15 mins.	0	0	0	0	0	**4**	0	4	0	0	**1**	1	0	3	0	3	
+30 mins.	0	0	0	0	**1**	4	0	**5**	0	0	0	0	0	**6**	0	**6**	
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	5	0	5	
Total Volume	0	0	0	0	1	11	0	12	1	0	1	2	0	16	0	16	
% App. Total	0	0	0		8.3	91.7	0		50	0	50		0	100	0		
PHF	.000	.000	.000	.000	.250	.688	.000	.600	.250	.000	.250	.500	.000	.667	.000	.667	

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Groups Printed- 3 Axle Vehicles

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	2
04:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	1	0	0	2	0	0	1	1	1	0	0	0	0	0	1	3	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	2	0	0	3	0	0	1	1	1	0	0	0	0	0	1	4	5
Grand Total	0	0	0	0	0	2	3	0	0	5	0	0	2	2	2	0	0	0	0	0	2	7	9
Apprch %	0	0	0			40	60	0			0	0	100			0	0	0					
Total %	0	0	0		0	28.6	42.9	0		71.4	0	0	28.6		28.6	0	0	0		0	22.2	77.8	

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
04:15 PM	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	1	0	2	0	0	1	1	0	0	0	0	3
% App. Total	0	0	0		50	50	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000	.375

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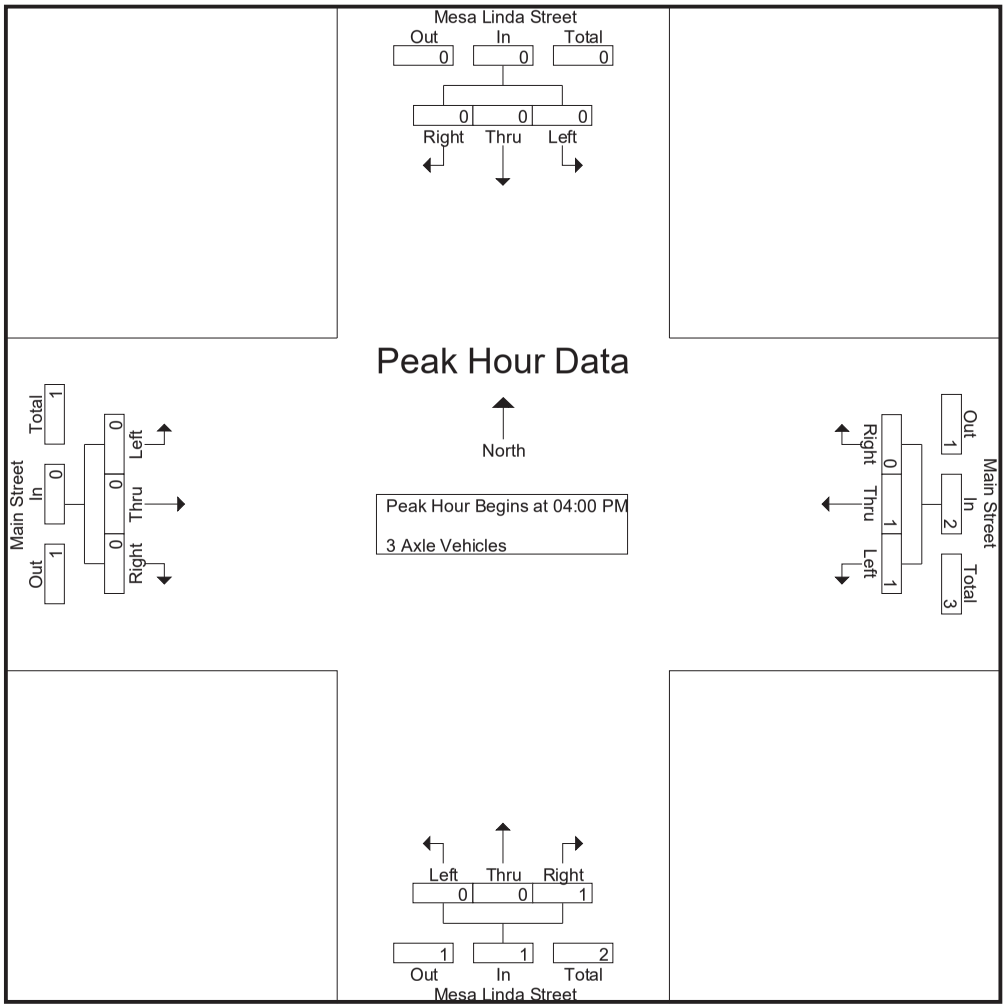
City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	
+15 mins.	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	1	1	0	2	0	0	1	1	0	0	0	0	
% App. Total	0	0	0		50	50	0		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.250	.000	.000	.250	.250	.000	.000	.000	.000	

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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Mesa Linda Street Southbound					Main Street Westbound					Mesa Linda Street Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	1	2	0	0	3	0	0	2	2	2	0	3	0	0	3	2	8	10
04:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	1	1	1	0	1	0	0	1	1	4	5
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	3	3
Total	0	0	0	0	0	2	6	0	0	8	0	0	4	3	4	0	6	0	0	6	3	18	21
05:00 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	7	7
Total	0	0	0	0	0	1	4	0	0	5	0	0	1	0	1	0	9	0	0	9	0	15	15
Grand Total	0	0	0	0	0	3	10	0	0	13	0	0	5	3	5	0	15	0	0	15	3	33	36
Apprch %	0	0	0			23.1	76.9	0			0	0	100			0	100	0			8.3	91.7	
Total %	0	0	0		0	9.1	30.3	0		39.4	0	0	15.2		15.2	0	45.5	0		45.5			

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	**1**	**2**	0	**3**	0	0	**2**	**2**	0	**3**	0	**3**	**8**
04:15 PM	0	0	0	0	1	1	0	2	0	0	1	1	0	1	0	1	4
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
04:45 PM	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3
Total Volume	0	0	0	0	2	6	0	8	0	0	4	4	0	6	0	6	18
% App. Total	0	0	0		25	75	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.500	.750	.000	.667	.000	.000	.500	.500	.000	.500	.000	.500	.563

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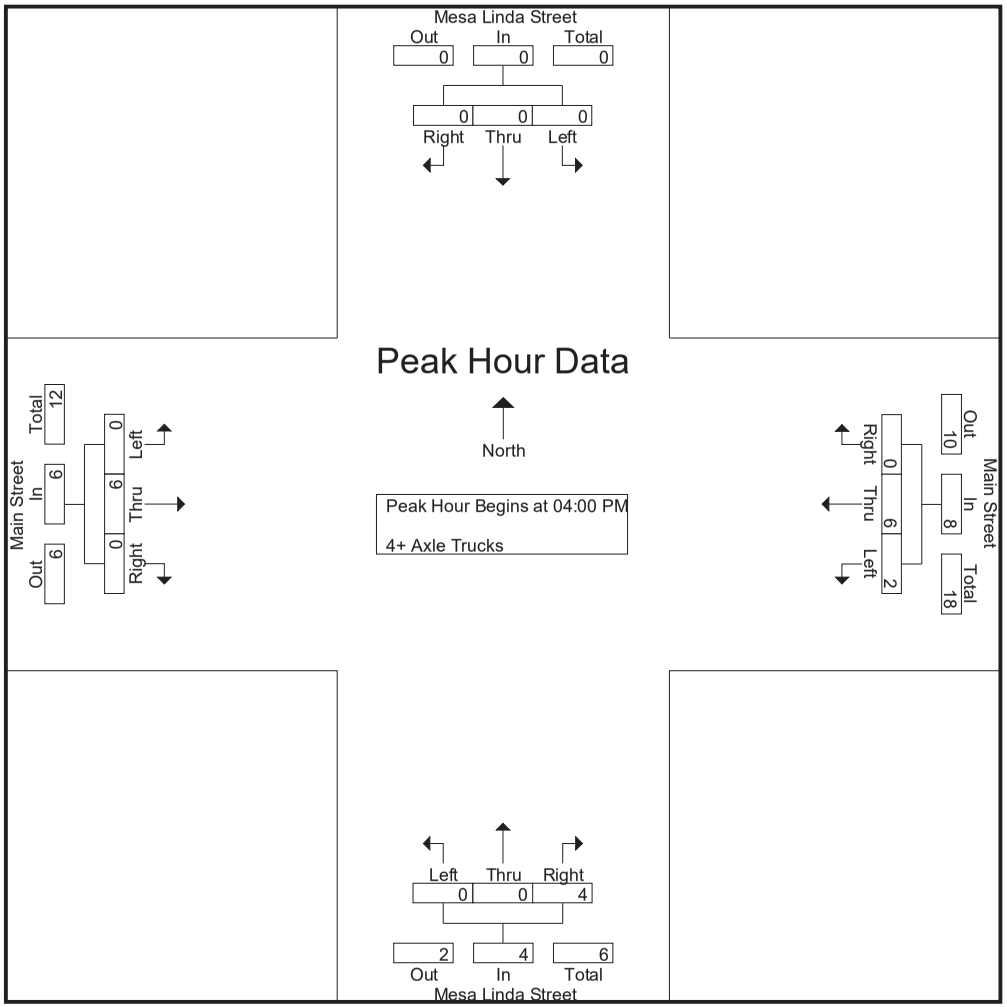
City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Mesa Linda Street
E/W: Main Street
Weather: Clear

File Name : 09_HES_Mesa Linda_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Mesa Linda Street Southbound				Main Street Westbound				Mesa Linda Street Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				04:00 PM				04:00 PM				04:00 PM				
+0 mins.	0	0	0	0	**1**	**2**	0	**3**	0	0	**2**	**2**	0	**3**	0	**3**	
+15 mins.	0	0	0	0	1	1	0	2	0	0	1	1	0	1	0	1	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	
+45 mins.	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	
Total Volume	0	0	0	0	2	6	0	8	0	0	4	4	0	6	0	6	
% App. Total	0	0	0		25	75	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.500	.750	.000	.667	.000	.000	.500	.500	.000	.500	.000	.500	

Location: Hesperia
N/S: Mesa Linda Street
E/W: Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg Mesa Linda Street	East Leg Main Street	South Leg Mesa Linda Street	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	1	1	0	2
TOTAL VOLUMES:	0	2	1	0	3

	North Leg Mesa Linda Street	East Leg Main Street	South Leg Mesa Linda Street	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Hesperia
N/S: Mesa Linda Street
E/W: Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound Mesa Linda Street			Westbound Main Street			Northbound Mesa Linda Street			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Mesa Linda Street			Westbound Main Street			Northbound Mesa Linda Street			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	6	3	7	4	16	14	108	1	0	123	9	2	11	11	22	8	189	8	2	205	17	366	383
07:15 AM	4	0	6	5	10	15	123	8	4	146	6	2	8	6	16	13	180	7	0	200	15	372	387
07:30 AM	6	0	6	4	12	18	160	2	1	180	5	1	10	9	16	8	220	9	2	237	16	445	461
07:45 AM	13	3	6	5	22	20	106	3	1	129	10	2	13	9	25	17	195	12	2	224	17	400	417
Total	29	6	25	18	60	67	497	14	6	578	30	7	42	35	79	46	784	36	6	866	65	1583	1648
08:00 AM	10	0	2	2	12	19	106	2	1	127	5	2	15	13	22	6	154	23	3	183	19	344	363
08:15 AM	9	3	15	12	27	20	95	5	1	120	8	2	15	6	25	17	151	20	5	188	24	360	384
08:30 AM	20	3	10	7	33	20	106	5	1	131	11	2	18	15	31	15	187	13	2	215	25	410	435
08:45 AM	8	4	12	9	24	26	84	4	1	114	8	2	15	8	25	9	148	22	12	179	30	342	372
Total	47	10	39	30	96	85	391	16	4	492	32	8	63	42	103	47	640	78	22	765	98	1456	1554
Grand Total	76	16	64	48	156	152	888	30	10	1070	62	15	105	77	182	93	1424	114	28	1631	163	3039	3202
Apprch %	48.7	10.3	41			14.2	83	2.8			34.1	8.2	57.7			5.7	87.3	7					
Total %	2.5	0.5	2.1		5.1	5	29.2	1		35.2	2	0.5	3.5		6	3.1	46.9	3.8		53.7	5.1	94.9	
Passenger Vehicles	64	16	61		187	148	829	26		1012	61	15	96		244	88	1377	114		1607	0	0	3050
% Passenger Vehicles	84.2	100	95.3	95.8	91.7	97.4	93.4	86.7	90	93.7	98.4	100	91.4	93.5	94.2	94.6	96.7	100	100	96.9	0	0	95.3
Large 2 Axle Vehicles	11	0	3		16	3	38	3		45	1	0	3		5	2	25	0		27	0	0	93
% Large 2 Axle Vehicles	14.5	0	4.7	4.2	7.8	2	4.3	10	10	4.2	1.6	0	2.9	1.3	1.9	2.2	1.8	0	0	1.6	0	0	2.9
3 Axle Vehicles	1	0	0		1	0	8	0		8	0	0	2		3	2	7	0		9	0	0	21
% 3 Axle Vehicles	1.3	0	0	0	0.5	0	0.9	0	0	0.7	0	0	1.9	1.3	1.2	2.2	0.5	0	0	0.5	0	0	0.7
4+ Axle Trucks	0	0	0		0	1	13	1		15	0	0	4		7	1	15	0		16	0	0	38
% 4+ Axle Trucks	0	0	0	0	0	0.7	1.5	3.3	0	1.4	0	0	3.8	3.9	2.7	1.1	1.1	0	0	1	0	0	1.2

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	6	**3**	**7**	16	14	108	1	123	9	**2**	11	22	8	189	8	205	366
07:15 AM	4	0	6	10	15	123	**8**	146	6	2	8	16	13	180	7	200	372
07:30 AM	6	0	6	12	18	**160**	2	**180**	5	1	10	16	8	**220**	9	**237**	**445**
07:45 AM	**13**	3	6	**22**	**20**	106	3	129	**10**	2	**13**	**25**	**17**	195	**12**	224	400
Total Volume	29	6	25	60	67	497	14	578	30	7	42	79	46	784	36	866	1583
% App. Total	48.3	10	41.7		11.6	86	2.4		38	8.9	53.2		5.3	90.5	4.2		
PHF	.558	.500	.893	.682	.838	.777	.438	.803	.750	.875	.808	.790	.676	.891	.750	.914	.889

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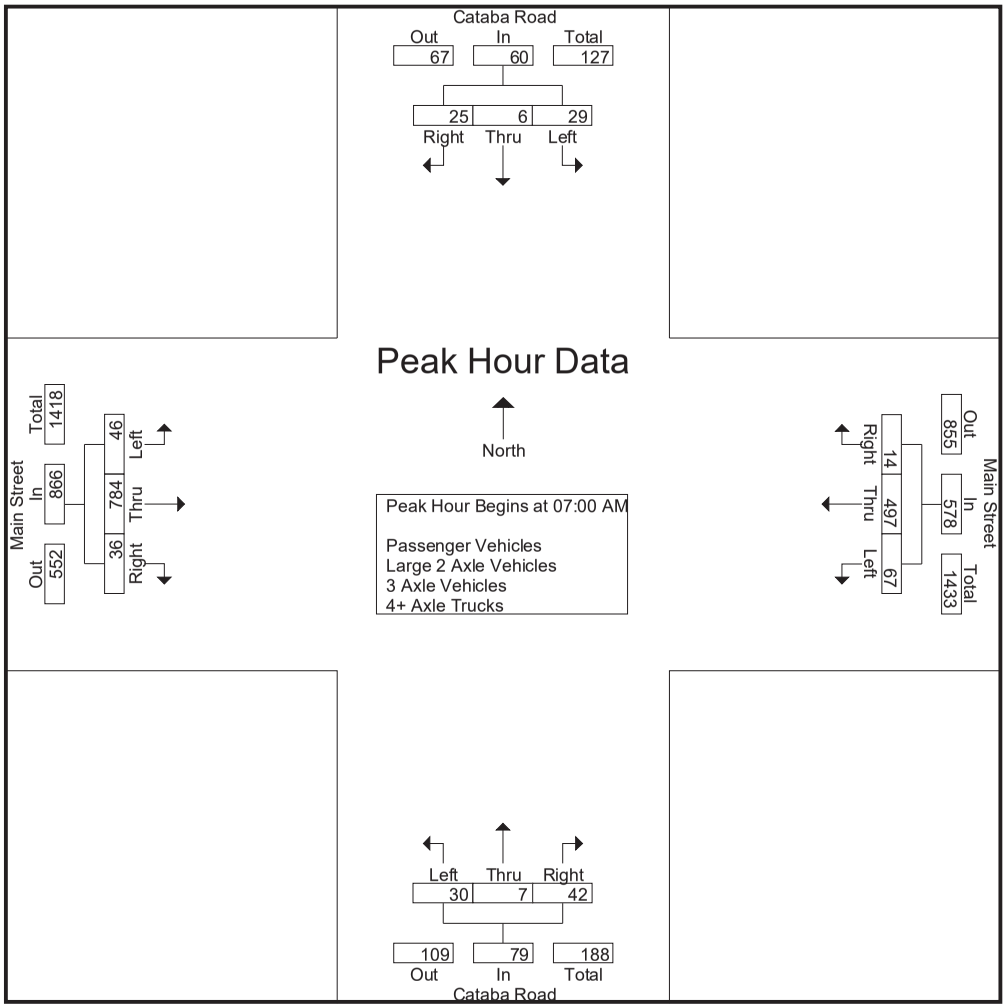
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	08:00 AM				07:15 AM				07:45 AM				07:00 AM				
+0 mins.	10	0	2	12	15	123	**8**	146	10	**2**	13	25	8	189	8	205	
+15 mins.	9	3	**15**	27	18	**160**	2	**180**	5	2	15	22	13	180	7	200	
+30 mins.	**20**	3	10	**33**	**20**	106	3	129	8	2	15	25	8	**220**	9	**237**	
+45 mins.	8	**4**	12	24	19	106	2	127	**11**	2	**18**	**31**	**17**	195	**12**	224	
Total Volume	47	10	39	96	72	495	15	582	34	8	61	103	46	784	36	866	
% App. Total	49	10.4	40.6		12.4	85.1	2.6		33	7.8	59.2		5.3	90.5	4.2		
PHF	.588	.625	.650	.727	.900	.773	.469	.808	.773	1.000	.847	.831	.676	.891	.750	.914	

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File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	3	6	3	12	12	101	0	0	113	9	2	10	10	21	8	182	8	2	198	15	344	359
07:15 AM	4	0	6	5	10	15	117	6	3	138	6	2	8	6	16	13	173	7	0	193	14	357	371
07:30 AM	5	0	6	4	11	17	149	2	1	168	5	1	8	7	14	8	215	9	2	232	14	425	439
07:45 AM	9	3	6	5	18	20	100	3	1	123	9	2	12	8	23	14	190	12	2	216	16	380	396
Total	21	6	24	17	51	64	467	11	5	542	29	7	38	31	74	43	760	36	6	839	59	1506	1565
08:00 AM	9	0	2	2	11	19	101	2	1	122	5	2	14	13	21	5	145	23	3	173	19	327	346
08:15 AM	8	3	14	11	25	20	89	5	1	114	8	2	13	6	23	17	149	20	5	186	23	348	371
08:30 AM	20	3	10	7	33	19	98	4	1	121	11	2	16	14	29	14	179	13	2	206	24	389	413
08:45 AM	6	4	11	9	21	26	74	4	1	104	8	2	15	8	25	9	144	22	12	175	30	325	355
Total	43	10	37	29	90	84	362	15	4	461	32	8	58	41	98	45	617	78	22	740	96	1389	1485
Grand Total	64	16	61	46	141	148	829	26	9	1003	61	15	96	72	172	88	1377	114	28	1579	155	2895	3050
Apprch %	45.4	11.3	43.3			14.8	82.7	2.6			35.5	8.7	55.8			5.6	87.2	7.2					
Total %	2.2	0.6	2.1		4.9	5.1	28.6	0.9		34.6	2.1	0.5	3.3		5.9	3	47.6	3.9		54.5	5.1	94.9	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	**3**	**6**	12	12	101	0	113	**9**	**2**	10	21	8	182	8	198	344
07:15 AM	4	0	6	10	15	117	**6**	138	6	2	8	16	13	173	7	193	357
07:30 AM	5	0	6	11	17	**149**	2	**168**	5	1	8	14	8	**215**	9	**232**	**425**
07:45 AM	**9**	3	6	**18**	**20**	100	3	123	9	2	**12**	**23**	**14**	190	**12**	216	380
Total Volume	21	6	24	51	64	467	11	542	29	7	38	74	43	760	36	839	1506
% App. Total	41.2	11.8	47.1		11.8	86.2	2		39.2	9.5	51.4		5.1	90.6	4.3		
PHF	.583	.500	1.00	.708	.800	.784	.458	.807	.806	.875	.792	.804	.768	.884	.750	.904	.886

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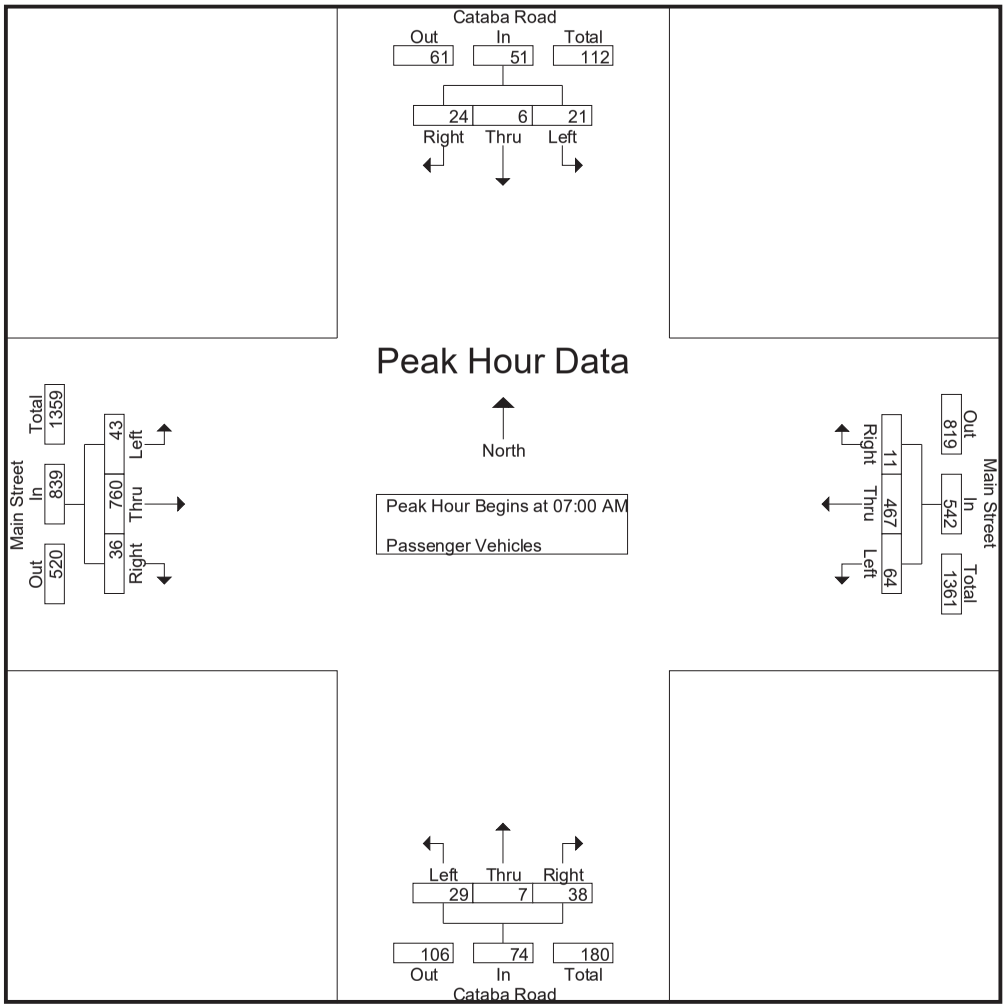
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	3	**3**	**6**	12	12	101	0	113	**9**	**2**	10	21	8	182	8	198	
+15 mins.	4	0	6	10	15	117	**6**	138	6	2	8	16	13	173	7	193	
+30 mins.	5	0	6	11	17	**149**	2	**168**	5	1	8	14	8	**215**	9	**232**	
+45 mins.	**9**	3	6	**18**	**20**	100	3	123	9	2	**12**	**23**	**14**	190	**12**	216	
Total Volume	21	6	24	51	64	467	11	542	29	7	38	74	43	760	36	839	
% App. Total	41.2	11.8	47.1		11.8	86.2	2		39.2	9.5	51.4		5.1	90.6	4.3		
PHF	.583	.500	1.000	.708	.800	.784	.458	.807	.806	.875	.792	.804	.768	.884	.750	.904	

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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	0	1	1	4	1	5	1	0	7	0	0	0	0	0	0	2	0	0	2	1	13	14
07:15 AM	0	0	0	0	0	0	3	1	1	4	0	0	0	0	0	0	3	0	0	3	1	7	8
07:30 AM	1	0	0	0	1	1	6	0	0	7	0	0	0	0	0	0	2	0	0	2	0	10	10
07:45 AM	3	0	0	0	3	0	4	0	0	4	1	0	1	1	2	1	1	0	0	2	1	11	12
Total	7	0	1	1	8	2	18	2	1	22	1	0	1	1	2	1	8	0	0	9	3	41	44
08:00 AM	1	0	0	0	1	0	2	0	0	2	0	0	1	0	1	1	6	0	0	7	0	11	11
08:15 AM	1	0	1	1	2	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	1	7	8
08:30 AM	0	0	0	0	0	1	6	1	0	8	0	0	1	0	1	0	7	0	0	7	0	16	16
08:45 AM	2	0	1	0	3	0	8	0	0	8	0	0	0	0	0	0	3	0	0	3	0	14	14
Total	4	0	2	1	6	1	20	1	0	22	0	0	2	0	2	1	17	0	0	18	1	48	49
Grand Total	11	0	3	2	14	3	38	3	1	44	1	0	3	1	4	2	25	0	0	27	4	89	93
Apprch %	78.6	0	21.4			6.8	86.4	6.8			25	0	75			7.4	92.6	0					
Total %	12.4	0	3.4		15.7	3.4	42.7	3.4		49.4	1.1	0	3.4		4.5	2.2	28.1	0		30.3	4.3	95.7	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**3**	0	**1**	**4**	**1**	5	**1**	**7**	0	0	0	0	0	2	0	2	**13**
07:15 AM	0	0	0	0	0	3	1	4	0	0	0	0	0	**3**	0	**3**	7
07:30 AM	1	0	0	1	1	**6**	0	7	0	0	0	0	0	2	0	2	10
07:45 AM	3	0	0	3	0	4	0	4	**1**	0	**1**	**2**	**1**	1	0	2	11
Total Volume	7	0	1	8	2	18	2	22	1	0	1	2	1	8	0	9	41
% App. Total	87.5	0	12.5		9.1	81.8	9.1		50	0	50		11.1	88.9	0		
PHF	.583	.000	.250	.500	.500	.750	.500	.786	.250	.000	.250	.250	.250	.667	.000	.750	.788

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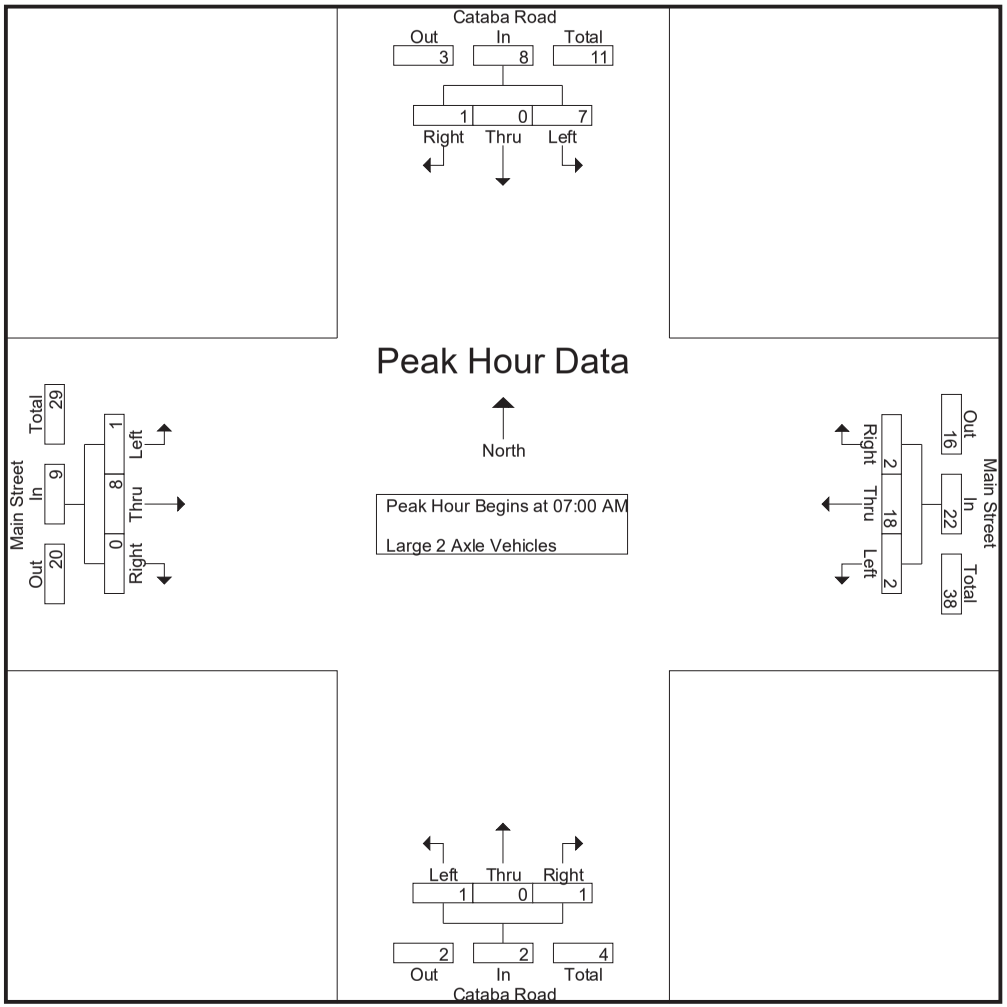
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	**3**	0	**1**	**4**	**1**	5	**1**	**7**	0	0	0	0	0	2	0	2	
+15 mins.	0	0	0	0	0	3	1	4	0	0	0	0	0	**3**	0	**3**	
+30 mins.	1	0	0	1	1	**6**	0	7	0	0	0	0	0	2	0	2	
+45 mins.	3	0	0	3	0	4	0	4	**1**	0	**1**	**2**	**1**	1	0	2	
Total Volume	7	0	1	8	2	18	2	22	1	0	1	2	1	8	0	9	
% App. Total	87.5	0	12.5		9.1	81.8	9.1		50	0	50		11.1	88.9	0		
PHF	.583	.000	.250	.500	.500	.750	.500	.786	.250	.000	.250	.250	.250	.667	.000	.750	

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	3
07:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
07:45 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	4	4
Total	1	0	0	0	1	0	4	0	0	4	0	0	1	1	1	1	5	0	0	6	1	12	13
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	3	3
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	1	2	0	0	3	0	8	8
Grand Total	1	0	0	0	1	0	8	0	0	8	0	0	2	1	2	2	7	0	0	9	1	20	21
Apprch %	100	0	0			0	100	0			0	0	100			22.2	77.8	0					
Total %	5	0	0		5	0	40	0		40	0	0	10		10	10	35	0		45	4.8	95.2	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	**3**	3
07:30 AM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	1	0	1	**4**
07:45 AM	**1**	0	0	**1**	0	1	0	1	0	0	0	0	**1**	1	0	2	4
Total Volume	1	0	0	1	0	4	0	4	0	0	1	1	1	5	0	6	12
% App. Total	100	0	0		0	100	0		0	0	100		16.7	83.3	0		
PHF	.250	.000	.000	.250	.000	.333	.000	.333	.000	.000	.250	.250	.250	.417	.000	.500	.750

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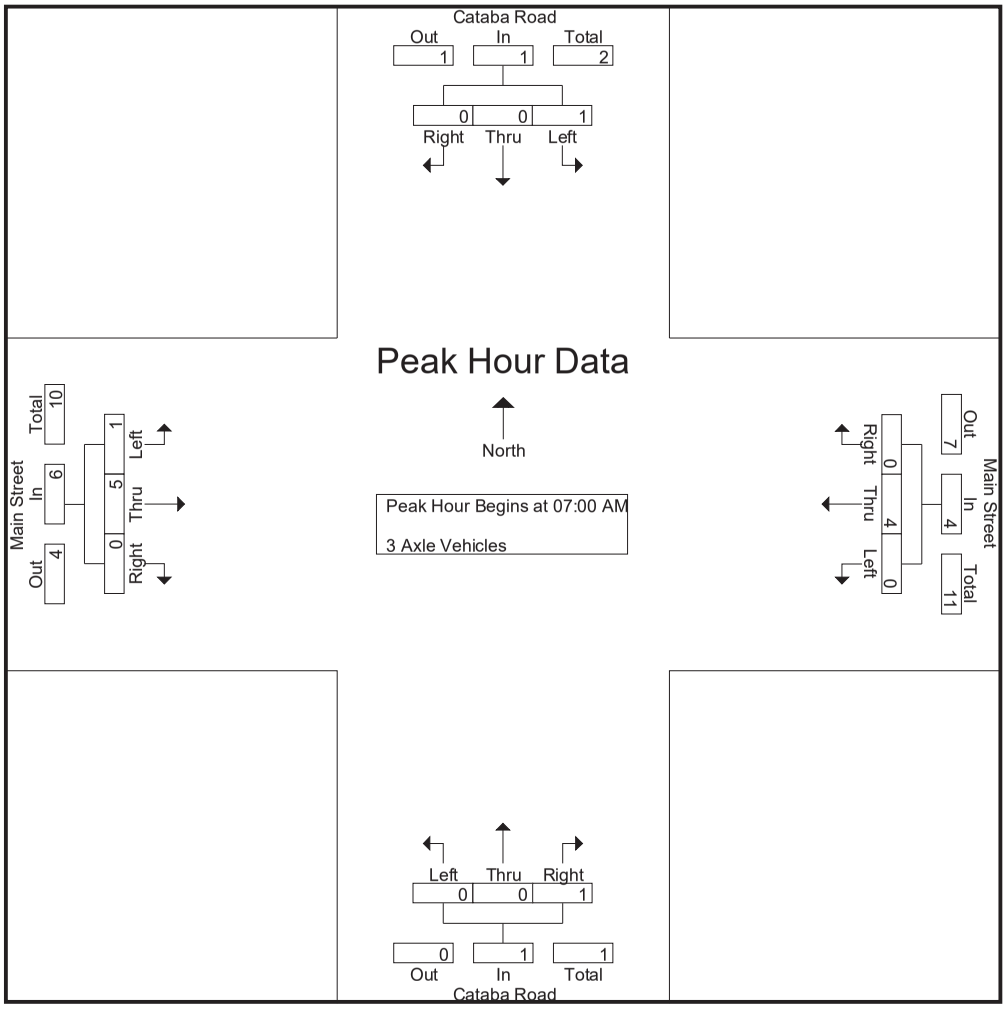
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	**3**	
+30 mins.	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	1	0	1	
+45 mins.	**1**	0	0	**1**	0	1	0	1	0	0	0	0	**1**	1	0	2	
Total Volume	1	0	0	1	0	4	0	4	0	0	1	1	1	5	0	6	
% App. Total	100	0	0		0	100	0		0	0	100		16.7	83.3	0		
PHF	.250	.000	.000	.250	.000	.333	.000	.333	.000	.000	.250	.250	.250	.417	.000	.500	

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City of Hesperia
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Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- 4+ Axle Trucks

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	5	0	0	5	0	8	8
07:15 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
07:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	2	2	2	0	2	0	0	2	2	6	8
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	0	5	5
Total	0	0	0	0	0	1	8	1	0	10	0	0	2	2	2	1	11	0	0	12	2	24	26
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	2	2
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0	0	1	1	3	4
08:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	5	0	0	5	0	0	2	1	2	0	4	0	0	4	1	11	12
Grand Total	0	0	0	0	0	1	13	1	0	15	0	0	4	3	4	1	15	0	0	16	3	35	38
Apprch %	0	0	0			6.7	86.7	6.7			0	0	100			6.2	93.8	0					
Total %	0	0	0		0	2.9	37.1	2.9		42.9	0	0	11.4		11.4	2.9	42.9	0		45.7	7.9	92.1	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	**1**	2	0	3	0	0	0	0	0	**5**	0	**5**	**8**
07:15 AM	0	0	0	0	0	**3**	**1**	**4**	0	0	0	0	0	1	0	1	5
07:30 AM	0	0	0	0	0	2	0	2	0	0	**2**	**2**	0	2	0	2	6
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	**1**	3	0	4	5
Total Volume	0	0	0	0	1	8	1	10	0	0	2	2	1	11	0	12	24
% App. Total	0	0	0		10	80	10		0	0	100		8.3	91.7	0		
PHF	.000	.000	.000	.000	.250	.667	.250	.625	.000	.000	.250	.250	.250	.550	.000	.600	.750

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City of Hesperia
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Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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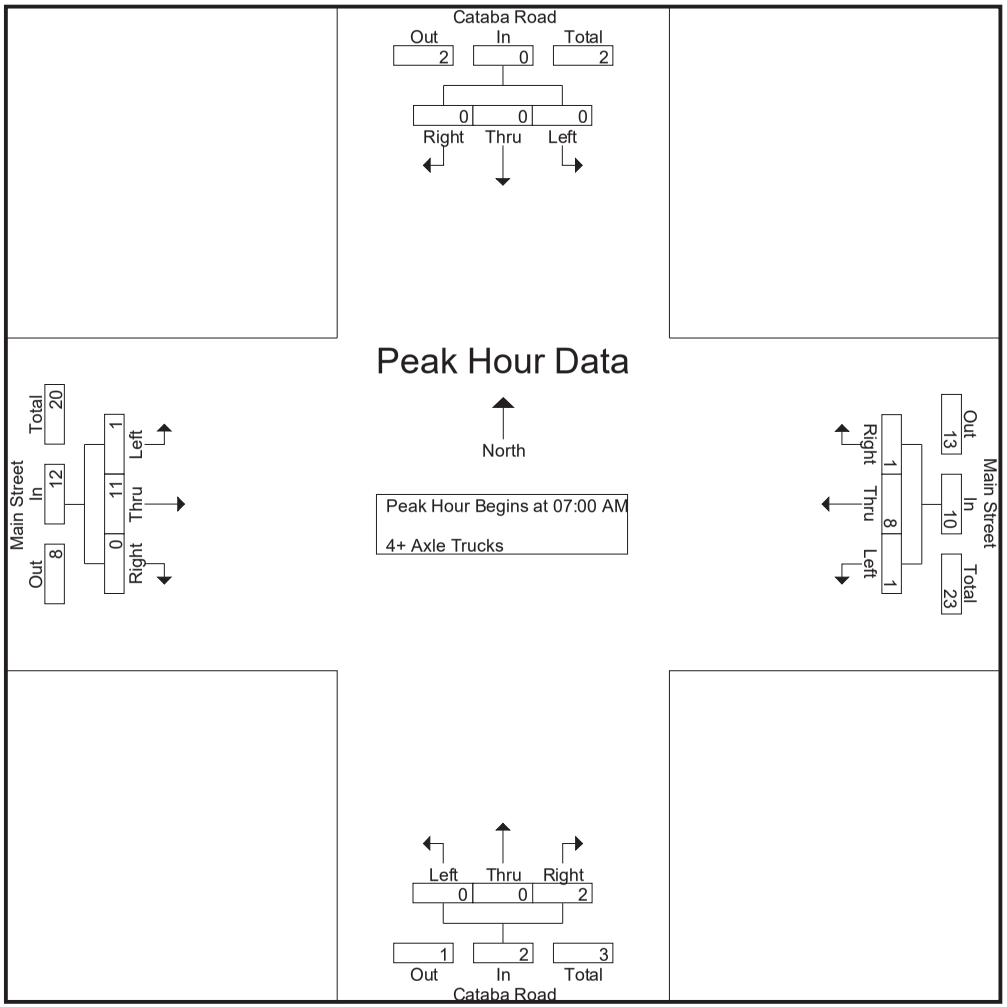

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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	**1**	2	0	3	0	0	0	0	0	**5**	0	**5**	
+15 mins.	0	0	0	0	0	**3**	**1**	**4**	0	0	0	0	0	1	0	1	
+30 mins.	0	0	0	0	0	2	0	2	0	0	**2**	**2**	0	2	0	2	
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	**1**	3	0	4	
Total Volume	0	0	0	0	1	8	1	10	0	0	2	2	1	11	0	12	
% App. Total	0	0	0		10	80	10		0	0	100		8.3	91.7	0		
PHF	.000	.000	.000	.000	.250	.667	.250	.625	.000	.000	.250	.250	.250	.550	.000	.600	

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	10	9	26	20	45	39	189	5	2	233	30	5	31	24	66	29	161	26	11	216	57	560	617
04:15 PM	13	5	28	22	46	36	190	7	4	233	40	9	36	29	85	19	172	22	8	213	63	577	640
04:30 PM	19	10	29	28	58	37	174	10	2	221	27	18	36	23	81	18	164	29	12	211	65	571	636
04:45 PM	16	6	23	18	45	59	187	14	4	260	34	11	29	25	74	19	157	15	7	191	54	570	624
Total	58	30	106	88	194	171	740	36	12	947	131	43	132	101	306	85	654	92	38	831	239	2278	2517
05:00 PM	19	7	30	13	56	56	189	10	3	255	33	10	33	26	76	18	162	22	13	202	55	589	644
05:15 PM	10	6	19	11	35	35	171	10	2	216	32	11	35	25	78	25	165	26	6	216	44	545	589
05:30 PM	14	10	21	15	45	35	192	10	2	237	35	9	28	25	72	13	162	25	14	200	56	554	610
05:45 PM	13	8	25	23	46	26	186	11	4	223	21	9	34	30	64	16	136	28	12	180	69	513	582
Total	56	31	95	62	182	152	738	41	11	931	121	39	130	106	290	72	625	101	45	798	224	2201	2425
Grand Total	114	61	201	150	376	323	1478	77	23	1878	252	82	262	207	596	157	1279	193	83	1629	463	4479	4942
Apprch %	30.3	16.2	53.5			17.2	78.7	4.1			42.3	13.8	44			9.6	78.5	11.8					
Total %	2.5	1.4	4.5		8.4	7.2	33	1.7		41.9	5.6	1.8	5.8		13.3	3.5	28.6	4.3		36.4	9.4	90.6	
Passenger Vehicles	106	59	199		513	323	1445	75		1866	251	80	260		797	151	1231	192		1656	0	0	4832
% Passenger Vehicles	93	96.7	99	99.3	97.5	100	97.8	97.4	100	98.2	99.6	97.6	99.2	99.5	99.3	96.2	96.2	99.5	98.8	96.7	0	0	97.8
Large 2 Axle Vehicles	7	2	1		10	0	17	1		18	1	1	1		4	4	24	0		28	0	0	60
% Large 2 Axle Vehicles	6.1	3.3	0.5	0	1.9	0	1.2	1.3	0	0.9	0.4	1.2	0.4	0.5	0.5	2.5	1.9	0	0	1.6	0	0	1.2
3 Axle Vehicles	0	0	0		0	0	5	0		5	0	0	0		0	0	2	0		2	0	0	7
% 3 Axle Vehicles	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0.1
4+ Axle Trucks	1	0	1		3	0	11	1		12	0	1	1		2	2	22	1		26	0	0	43
% 4+ Axle Trucks	0.9	0	0.5	0.7	0.6	0	0.7	1.3	0	0.6	0	1.2	0.4	0	0.2	1.3	1.7	0.5	1.2	1.5	0	0	0.9

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	13	5	28	46	36	**190**	7	233	**40**	9	**36**	**85**	**19**	**172**	22	**213**	577
04:30 PM	**19**	**10**	29	**58**	37	174	10	221	27	**18**	36	81	18	164	**29**	211	571
04:45 PM	16	6	23	45	**59**	187	**14**	**260**	34	11	29	74	19	157	15	191	570
05:00 PM	19	7	**30**	56	56	189	10	255	33	10	33	76	18	162	22	202	**589**
Total Volume	67	28	110	205	188	740	41	969	134	48	134	316	74	655	88	817	2307
% App. Total	32.7	13.7	53.7		19.4	76.4	4.2		42.4	15.2	42.4		9.1	80.2	10.8		
PHF	.882	.700	.917	.884	.797	.974	.732	.932	.838	.667	.931	.929	.974	.952	.759	.959	.979

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City of Hesperia
N/S: Cataba Road
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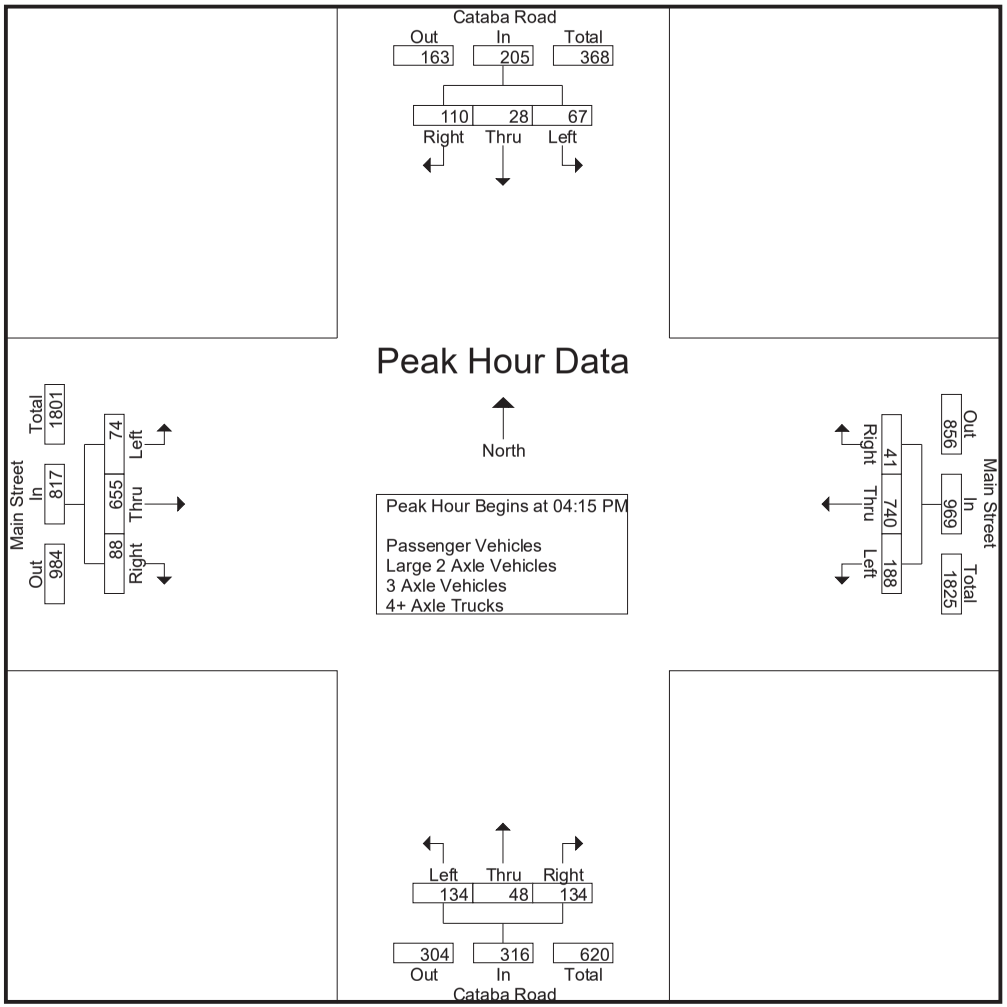
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:15 PM				04:15 PM				04:00 PM				
+0 mins.	13	5	28	46	36	**190**	7	233	**40**	9	**36**	**85**	**29**	161	26	**216**	
+15 mins.	**19**	**10**	29	**58**	37	174	10	221	27	**18**	36	81	19	**172**	22	213	
+30 mins.	16	6	23	45	**59**	187	**14**	**260**	34	11	29	74	18	164	**29**	211	
+45 mins.	19	7	**30**	56	56	189	10	255	33	10	33	76	19	157	15	191	
Total Volume	67	28	110	205	188	740	41	969	134	48	134	316	85	654	92	831	
% App. Total	32.7	13.7	53.7		19.4	76.4	4.2		42.4	15.2	42.4		10.2	78.7	11.1		
PHF	.882	.700	.917	.884	.797	.974	.732	.932	.838	.667	.931	.929	.733	.951	.793	.962	

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Groups Printed- Passenger Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	9	9	25	19	43	39	184	5	2	228	30	5	31	24	66	27	154	26	11	207	56	544	600
04:15 PM	12	3	27	22	42	36	181	7	4	224	40	8	34	28	82	19	165	22	8	206	62	554	616
04:30 PM	18	10	29	28	57	37	170	10	2	217	27	17	36	23	80	18	154	29	12	201	65	555	620
04:45 PM	15	6	23	18	44	59	184	14	4	257	33	11	29	25	73	18	153	15	7	186	54	560	614
Total	54	28	104	87	186	171	719	36	12	926	130	41	130	100	301	82	626	92	38	800	237	2213	2450
05:00 PM	18	7	30	13	55	56	183	8	3	247	33	10	33	26	76	17	157	22	13	196	55	574	629
05:15 PM	10	6	19	11	35	35	167	10	2	212	32	11	35	25	78	24	161	26	6	211	44	536	580
05:30 PM	11	10	21	15	42	35	192	10	2	237	35	9	28	25	72	12	157	24	13	193	55	544	599
05:45 PM	13	8	25	23	46	26	184	11	4	221	21	9	34	30	64	16	130	28	12	174	69	505	574
Total	52	31	95	62	178	152	726	39	11	917	121	39	130	106	290	69	605	100	44	774	223	2159	2382
Grand Total	106	59	199	149	364	323	1445	75	23	1843	251	80	260	206	591	151	1231	192	82	1574	460	4372	4832
Apprch %	29.1	16.2	54.7			17.5	78.4	4.1			42.5	13.5	44			9.6	78.2	12.2					
Total %	2.4	1.3	4.6		8.3	7.4	33.1	1.7		42.2	5.7	1.8	5.9		13.5	3.5	28.2	4.4		36	9.5	90.5	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	12	3	27	42	36	181	7	224	**40**	8	34	**82**	**19**	**165**	22	**206**	554
04:30 PM	**18**	**10**	29	**57**	37	170	10	217	27	**17**	**36**	80	18	154	**29**	201	555
04:45 PM	15	6	23	44	**59**	**184**	**14**	**257**	33	11	29	73	18	153	15	186	560
05:00 PM	18	7	**30**	55	56	183	8	247	33	10	33	76	17	157	22	196	**574**
Total Volume	63	26	109	198	188	718	39	945	133	46	132	311	72	629	88	789	2243
% App. Total	31.8	13.1	55.1		19.9	76	4.1		42.8	14.8	42.4		9.1	79.7	11.2		
PHF	.875	.650	.908	.868	.797	.976	.696	.919	.831	.676	.917	.948	.947	.953	.759	.958	.977

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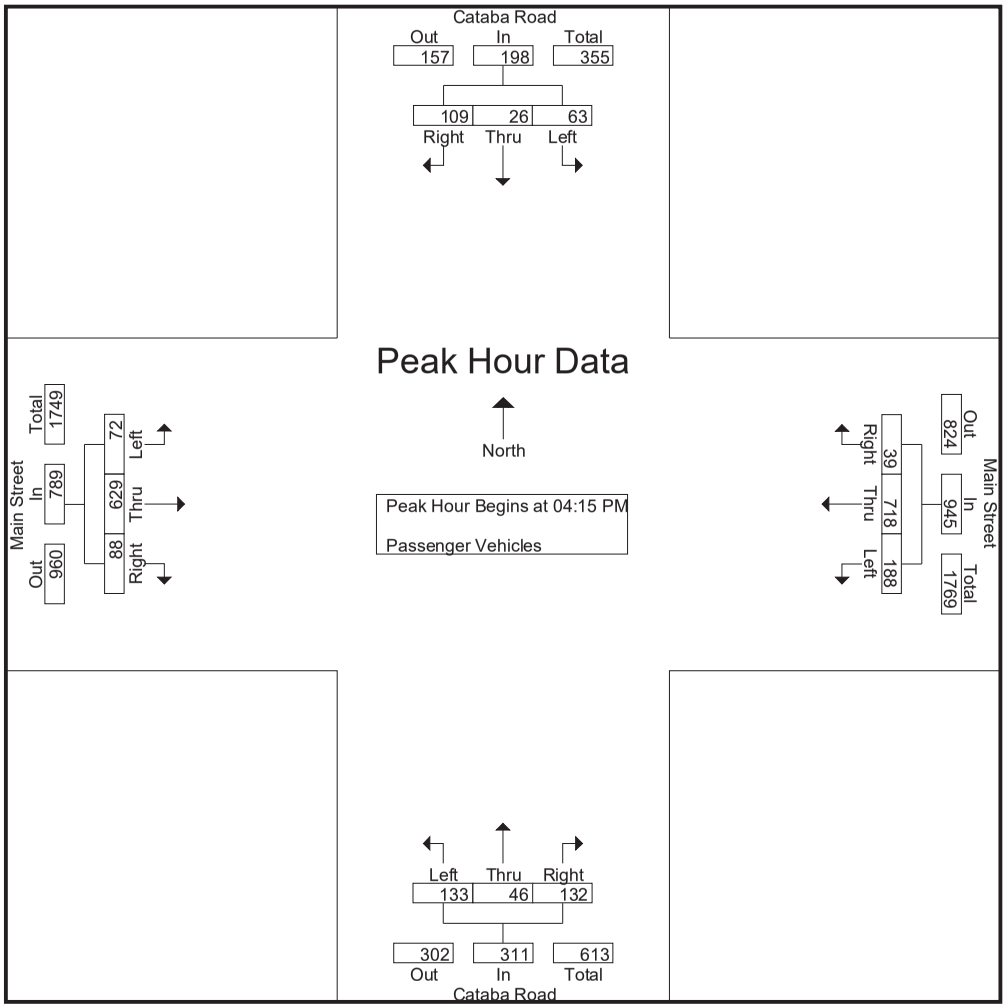

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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:15 PM				04:15 PM				04:15 PM				
+0 mins.	12	3	27	42	36	181	7	224	**40**	8	34	**82**	**19**	**165**	22	**206**	
+15 mins.	**18**	**10**	29	**57**	37	170	10	217	27	**17**	**36**	80	18	154	**29**	201	
+30 mins.	15	6	23	44	**59**	**184**	**14**	**257**	33	11	29	73	18	153	15	186	
+45 mins.	18	7	**30**	55	56	183	8	247	33	10	33	76	17	157	22	196	
Total Volume	63	26	109	198	188	718	39	945	133	46	132	311	72	629	88	789	
% App. Total	31.8	13.1	55.1		19.9	76	4.1		42.8	14.8	42.4		9.1	79.7	11.2		
PHF	.875	.650	.908	.868	.797	.976	.696	.919	.831	.676	.917	.948	.947	.953	.759	.958	

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Groups Printed- Large 2 Axle Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	1	3	0	0	4	0	7	7
04:15 PM	1	2	1	0	4	0	4	0	0	4	0	0	1	1	1	0	2	0	0	2	1	11	12
04:30 PM	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	0	7	0	0	7	0	12	12
04:45 PM	1	0	0	0	1	0	2	0	0	2	1	0	0	0	1	1	2	0	0	3	0	7	7
Total	4	2	1	0	7	0	11	0	0	11	1	1	1	1	3	2	14	0	0	16	1	37	38
05:00 PM	1	0	0	0	1	0	4	1	0	5	0	0	0	0	0	0	4	0	0	4	0	10	10
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	3	3
05:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	6	6
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
Total	3	0	0	0	3	0	6	1	0	7	0	0	0	0	0	2	10	0	0	12	0	22	22
Grand Total	7	2	1	0	10	0	17	1	0	18	1	1	1	1	3	4	24	0	0	28	1	59	60
Apprch %	70	20	10			0	94.4	5.6			33.3	33.3	33.3			14.3	85.7	0					
Total %	11.9	3.4	1.7		16.9	0	28.8	1.7		30.5	1.7	1.7	1.7		5.1	6.8	40.7	0		47.5	1.7	98.3	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**1**	**2**	**1**	**4**	0	**4**	0	4	0	0	**1**	**1**	0	2	0	2	11
04:30 PM	1	0	0	1	0	3	0	3	0	**1**	0	1	0	**7**	0	**7**	**12**
04:45 PM	1	0	0	1	0	2	0	2	**1**	0	0	1	**1**	2	0	3	7
05:00 PM	1	0	0	1	0	4	**1**	**5**	0	0	0	0	0	4	0	4	10
Total Volume	4	2	1	7	0	13	1	14	1	1	1	3	1	15	0	16	40
% App. Total	57.1	28.6	14.3		0	92.9	7.1		33.3	33.3	33.3		6.2	93.8	0		
PHF	1.00	.250	.250	.438	.000	.813	.250	.700	.250	.250	.250	.750	.250	.536	.000	.571	.833

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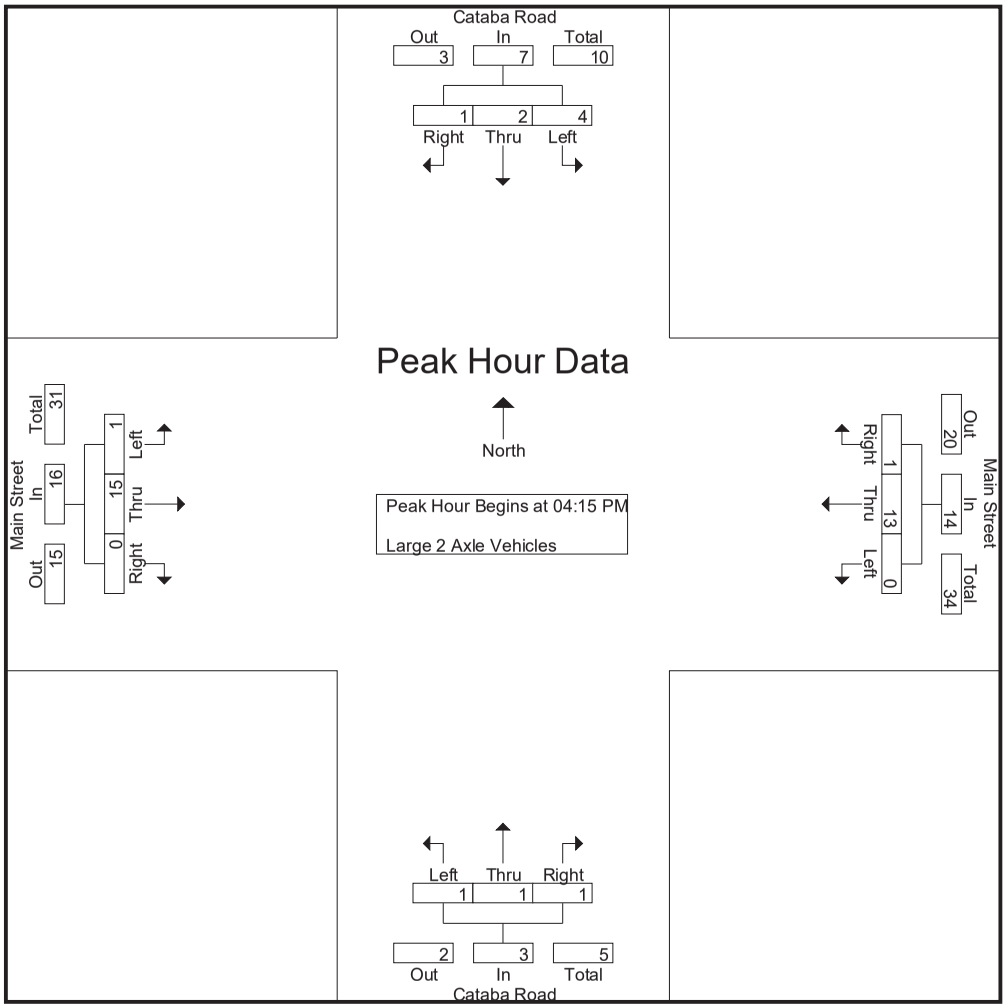

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	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:15 PM				04:15 PM				04:15 PM				
+0 mins.	**1**	**2**	**1**	**4**	0	**4**	0	4	0	0	**1**	**1**	0	2	0	2	
+15 mins.	1	0	0	1	0	3	0	3	0	**1**	0	1	0	**7**	0	**7**	
+30 mins.	1	0	0	1	0	2	0	2	**1**	0	0	1	**1**	2	0	3	
+45 mins.	1	0	0	1	0	4	**1**	**5**	0	0	0	0	0	4	0	4	
Total Volume	4	2	1	7	0	13	1	14	1	1	1	3	1	15	0	16	
% App. Total	57.1	28.6	14.3		0	92.9	7.1		33.3	33.3	33.3		6.2	93.8	0		
PHF	1.000	.250	.250	.438	.000	.813	.250	.700	.250	.250	.250	.750	.250	.536	.000	.571	

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Groups Printed- 3 Axle Vehicles

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
Grand Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	7	7
Apprch %	0	0	0			0	100	0			0	0	0			0	100	0					
Total %	0	0	0		0	0	71.4	0		71.4	0	0	0		0	0	28.6	0		28.6	0	100	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**2**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

Counts Unlimited
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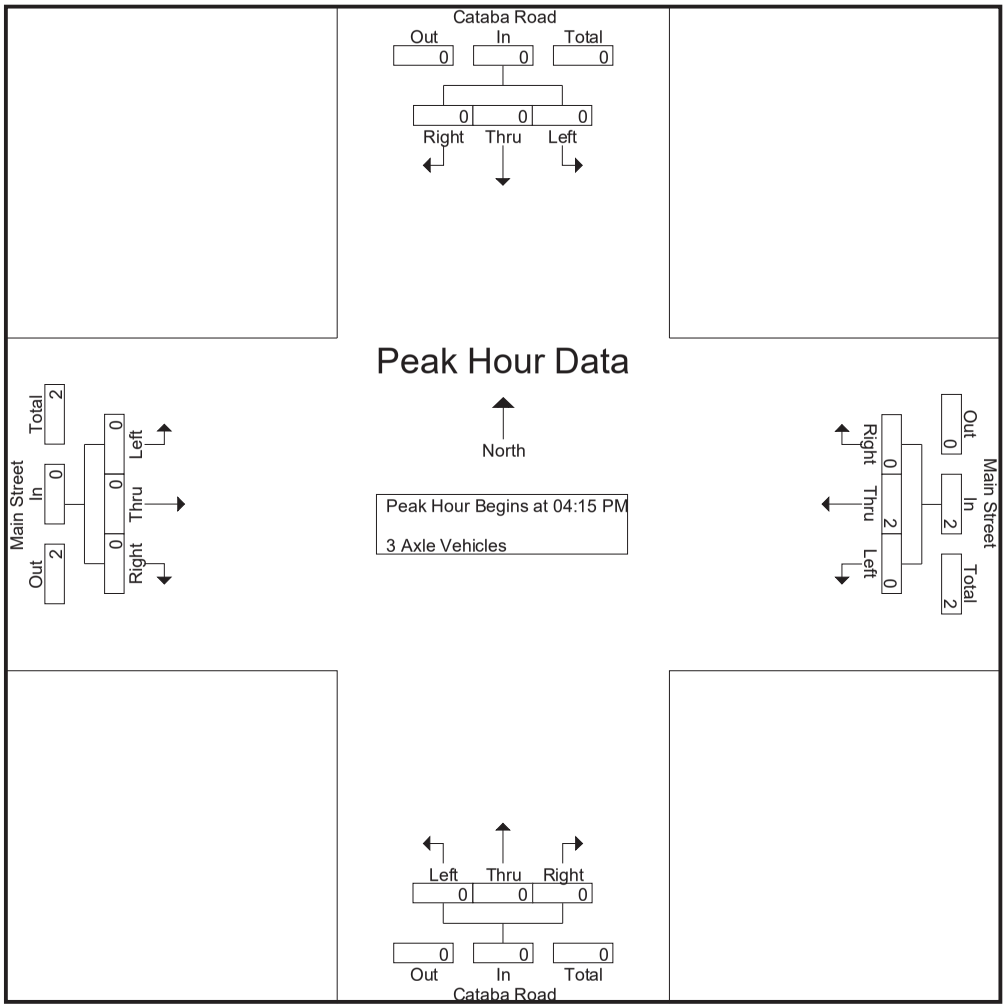
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:15 PM				04:15 PM				04:15 PM				
+0 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	

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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cataba Road Southbound					Main Street Westbound					Cataba Road Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	1	1	1	0	3	0	0	3	0	0	0	0	0	1	3	0	0	4	1	8	9
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	1	1	0	2	0	5	0	0	5	0	10	10
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	4	4
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
Total	0	0	1	1	1	0	8	0	0	8	0	1	1	0	2	1	13	0	0	14	1	25	26
05:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	1	0	0	2	0	5	5
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	3	3
05:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	1	3	4
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	5	5
Total	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	1	9	1	1	11	1	16	17
Grand Total	1	0	1	1	2	0	11	1	0	12	0	1	1	0	2	2	22	1	1	25	2	41	43
Apprch %	50	0	50			0	91.7	8.3			0	50	50			8	88	4					
Total %	2.4	0	2.4		4.9	0	26.8	2.4		29.3	0	2.4	2.4		4.9	4.9	53.7	2.4		61	4.7	95.3	

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	**3**	0	**3**	0	**1**	**1**	**2**	0	**5**	0	**5**	**10**
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	4
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:00 PM	0	0	0	0	0	2	**1**	3	0	0	0	0	**1**	1	0	2	5
Total Volume	0	0	0	0	0	7	1	8	0	1	1	2	1	11	0	12	22
% App. Total	0	0	0		0	87.5	12.5		0	50	50		8.3	91.7	0		
PHF	.000	.000	.000	.000	.000	.583	.250	.667	.000	.250	.250	.250	.250	.550	.000	.600	.550

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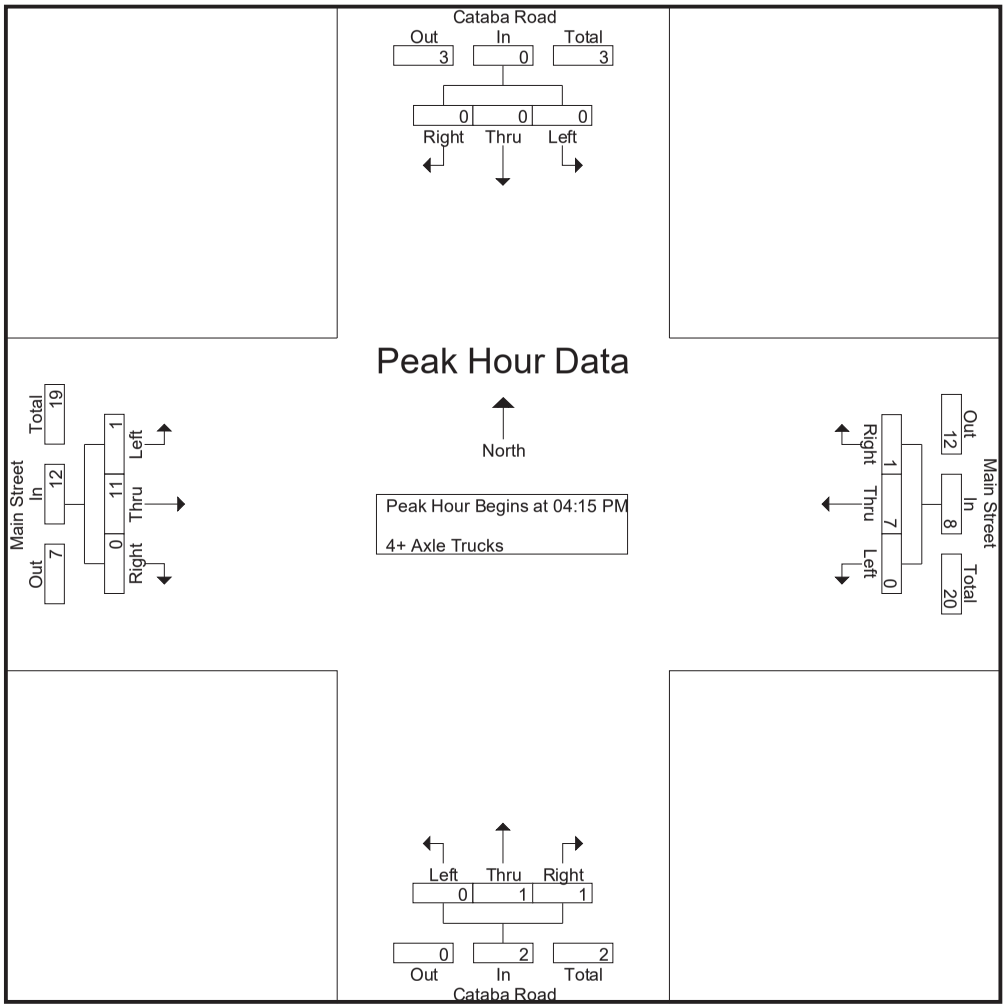
City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Cataba Road
E/W: Main Street
Weather: Clear

File Name : 10_HES_Cataba_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Cataba Road Southbound				Main Street Westbound				Cataba Road Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:15 PM				04:15 PM				04:15 PM				04:15 PM				
+0 mins.	0	0	0	0	0	**3**	0	**3**	0	**1**	**1**	**2**	0	**5**	0	**5**	
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0	3	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	
+45 mins.	0	0	0	0	0	2	**1**	3	0	0	0	0	**1**	1	0	2	
Total Volume	0	0	0	0	0	7	1	8	0	1	1	2	1	11	0	12	
% App. Total	0	0	0		0	87.5	12.5		0	50	50		8.3	91.7	0		
PHF	.000	.000	.000	.000	.000	.583	.250	.667	.000	.250	.250	.250	.250	.550	.000	.600	

Location: Hesperia
N/S: Cataba Road
E/W: Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg Cataba Road Pedestrians	East Leg Main Street Pedestrians	South Leg Cataba Road Pedestrians	West Leg Main Street Pedestrians	
7:00 AM	0	0	0	1	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	2	0	0	2
8:00 AM	0	0	1	0	1
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	2	0	0	2
TOTAL VOLUMES:	0	4	2	1	7

	North Leg Cataba Road Pedestrians	East Leg Main Street Pedestrians	South Leg Cataba Road Pedestrians	West Leg Main Street Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	0	1
4:30 PM	2	4	0	0	6
4:45 PM	0	0	0	0	0
5:00 PM	0	3	0	0	3
5:15 PM	5	4	0	0	9
5:30 PM	0	4	0	0	4
5:45 PM	0	2	1	0	3
TOTAL VOLUMES:	7	18	1	0	26

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Location: Hesperia
N/S: Cataba Road
E/W: Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound Cataba Road			Westbound Main Street			Northbound Cataba Road			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	Southbound Cataba Road			Westbound Main Street			Northbound Cataba Road			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	41	2	0	0	43	26	101	30	9	157	2	2	14	9	18	6	223	0	0	229	18	447	465
07:15 AM	30	5	4	2	39	24	169	23	6	216	2	0	9	8	11	5	221	0	0	226	16	492	508
07:30 AM	34	5	5	1	44	35	180	28	12	243	0	3	24	24	27	5	183	2	2	190	39	504	543
07:45 AM	30	8	4	1	42	36	148	31	11	215	3	5	16	7	24	4	224	3	0	231	19	512	531
Total	135	20	13	4	168	121	598	112	38	831	7	10	63	48	80	20	851	5	2	876	92	1955	2047
08:00 AM	35	8	1	1	44	42	125	17	4	184	5	3	29	20	37	13	208	6	1	227	26	492	518
08:15 AM	34	5	4	4	43	35	151	25	5	211	5	4	27	16	36	15	165	3	0	183	25	473	498
08:30 AM	22	15	4	2	41	30	133	28	11	191	5	7	21	14	33	9	215	7	3	231	30	496	526
08:45 AM	39	18	5	4	62	55	130	22	7	207	6	10	24	15	40	8	184	3	1	195	27	504	531
Total	130	46	14	11	190	162	539	92	27	793	21	24	101	65	146	45	772	19	5	836	108	1965	2073
Grand Total	265	66	27	15	358	283	1137	204	65	1624	28	34	164	113	226	65	1623	24	7	1712	200	3920	4120
Apprch %	74	18.4	7.5			17.4	70	12.6			12.4	15	72.6			3.8	94.8	1.4					
Total %	6.8	1.7	0.7		9.1	7.2	29	5.2		41.4	0.7	0.9	4.2		5.8	1.7	41.4	0.6		43.7	4.9	95.1	
Passenger Vehicles	241	64	26		346	279	1067	186		1594	26	31	163		332	61	1568	22		1658	0	0	3930
% Passenger Vehicles	90.9	97	96.3	100	92.8	98.6	93.8	91.2	95.4	94.4	92.9	91.2	99.4	99.1	97.9	93.8	96.6	91.7	100	96.5	0	0	95.4
Large 2 Axle Vehicles	13	2	1		16	3	47	10		62	2	2	0		4	3	32	2		37	0	0	119
% Large 2 Axle Vehicles	4.9	3	3.7	0	4.3	1.1	4.1	4.9	3.1	3.7	7.1	5.9	0	0	1.2	4.6	2	8.3	0	2.2	0	0	2.9
3 Axle Vehicles	1	0	0		1	0	8	1		9	0	0	0		0	0	4	0		4	0	0	14
% 3 Axle Vehicles	0.4	0	0	0	0.3	0	0.7	0.5	0	0.5	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0.3
4+ Axle Trucks	10	0	0		10	1	15	7		24	0	1	1		3	1	19	0		20	0	0	57
% 4+ Axle Trucks	3.8	0	0	0	2.7	0.4	1.3	3.4	1.5	1.4	0	2.9	0.6	0.9	0.9	1.5	1.2	0	0	1.2	0	0	1.4

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	30	5	4	39	24	169	23	216	2	0	9	11	5	221	0	226	492
07:30 AM	34	5	**5**	**44**	35	**180**	28	**243**	0	3	24	27	5	183	2	190	504
07:45 AM	30	**8**	4	42	36	148	**31**	215	3	**5**	16	24	4	**224**	3	**231**	**512**
08:00 AM	**35**	8	1	44	**42**	125	17	184	**5**	3	**29**	**37**	**13**	208	**6**	227	492
Total Volume	129	26	14	169	137	622	99	858	10	11	78	99	27	836	11	874	2000
% App. Total	76.3	15.4	8.3		16	72.5	11.5		10.1	11.1	78.8		3.1	95.7	1.3		
PHF	.921	.813	.700	.960	.815	.864	.798	.883	.500	.550	.672	.669	.519	.933	.458	.946	.977

Counts Unlimited
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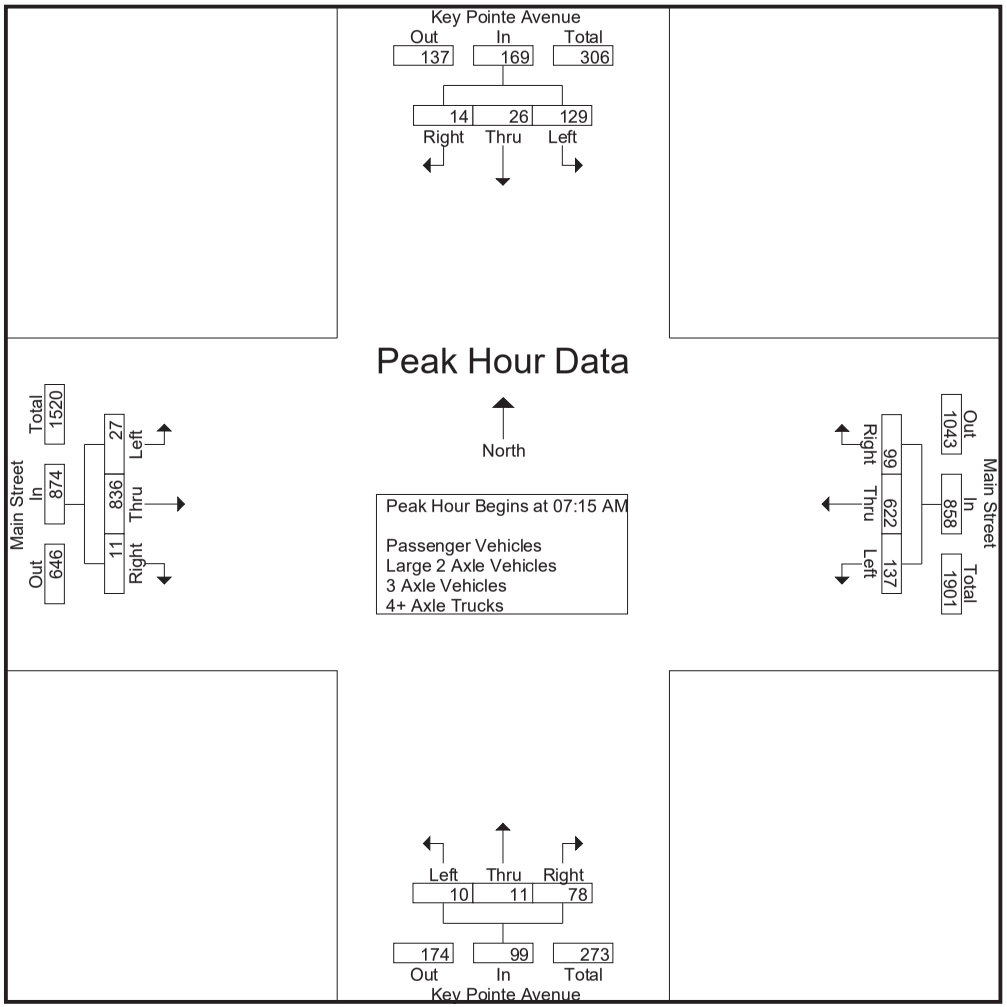
City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
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Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	08:00 AM				07:15 AM				08:00 AM				07:00 AM				
+0 mins.	35	8	1	44	24	169	23	216	5	3	**29**	37	**6**	223	0	229	
+15 mins.	34	5	4	43	35	**180**	28	**243**	5	4	27	36	5	221	0	226	
+30 mins.	22	15	4	41	36	148	**31**	215	5	7	21	33	5	183	2	190	
+45 mins.	**39**	**18**	**5**	**62**	**42**	125	17	184	**6**	**10**	24	**40**	4	**224**	**3**	**231**	
Total Volume	130	46	14	190	137	622	99	858	21	24	101	146	20	851	5	876	
% App. Total	68.4	24.2	7.4		16	72.5	11.5		14.4	16.4	69.2		2.3	97.1	0.6		
PHF	.833	.639	.700	.766	.815	.864	.798	.883	.875	.600	.871	.913	.833	.950	.417	.948	

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City of Hesperia
N/S: Key Pointe Avenue
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File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	38	2	0	0	40	25	95	23	9	143	2	2	14	9	18	6	213	0	0	219	18	420	438
07:15 AM	26	5	4	2	35	24	158	21	6	203	2	0	9	8	11	5	218	0	0	223	16	472	488
07:30 AM	31	5	4	1	40	35	172	26	11	233	0	3	24	24	27	4	177	2	2	183	38	483	521
07:45 AM	25	8	4	1	37	36	137	30	11	203	2	5	16	7	23	4	217	2	0	223	19	486	505
Total	120	20	12	4	152	120	562	100	37	782	6	10	63	48	79	19	825	4	2	848	91	1861	1952
08:00 AM	35	8	1	1	44	41	117	15	4	173	5	3	29	20	37	12	198	5	1	215	26	469	495
08:15 AM	32	5	4	4	41	34	141	24	4	199	4	3	27	16	34	15	155	3	0	173	24	447	471
08:30 AM	18	15	4	2	37	30	123	27	11	180	5	6	21	14	32	8	210	7	3	225	30	474	504
08:45 AM	36	16	5	4	57	54	124	20	6	198	6	9	23	14	38	7	180	3	1	190	25	483	508
Total	121	44	14	11	179	159	505	86	25	750	20	21	100	64	141	42	743	18	5	803	105	1873	1978
Grand Total	241	64	26	15	331	279	1067	186	62	1532	26	31	163	112	220	61	1568	22	7	1651	196	3734	3930
Apprch %	72.8	19.3	7.9			18.2	69.6	12.1			11.8	14.1	74.1			3.7	95	1.3					
Total %	6.5	1.7	0.7		8.9	7.5	28.6	5		41	0.7	0.8	4.4		5.9	1.6	42	0.6		44.2	5	95	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	26	5	**4**	35	24	158	21	203	2	0	9	11	5	**218**	0	**223**	472
07:30 AM	31	5	4	40	35	**172**	26	**233**	0	3	24	27	4	177	2	183	483
07:45 AM	25	**8**	4	37	36	137	**30**	203	2	**5**	16	23	4	217	2	223	**486**
08:00 AM	**35**	8	1	**44**	**41**	117	15	173	**5**	3	**29**	**37**	**12**	198	**5**	215	469
Total Volume	117	26	13	156	136	584	92	812	9	11	78	98	25	810	9	844	1910
% App. Total	75	16.7	8.3		16.7	71.9	11.3		9.2	11.2	79.6		3	96	1.1		
PHF	.836	.813	.813	.886	.829	.849	.767	.871	.450	.550	.672	.662	.521	.929	.450	.946	.983

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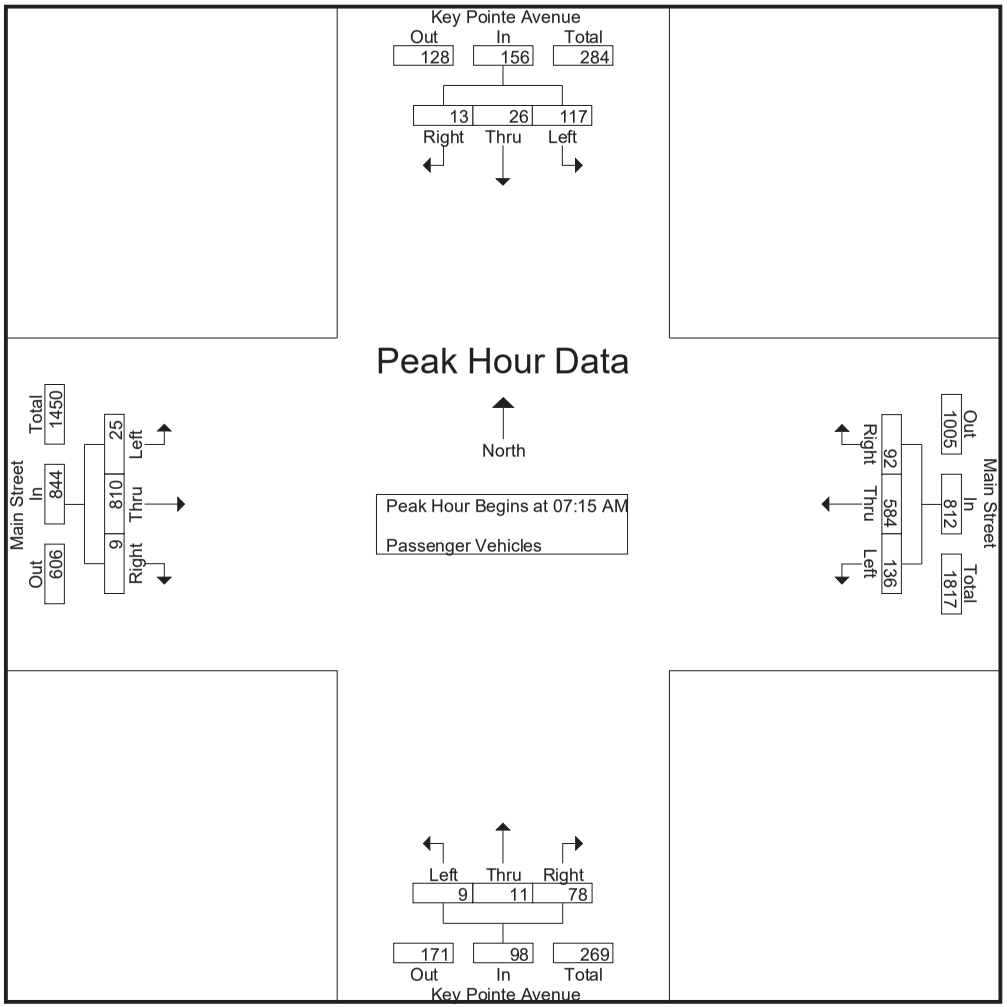
City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	26	5	**4**	35	24	158	21	203	2	0	9	11	5	**218**	0	**223**	
+15 mins.	31	5	4	40	35	**172**	26	**233**	0	3	24	27	4	177	2	183	
+30 mins.	25	**8**	4	37	36	137	**30**	203	2	**5**	16	23	4	217	2	223	
+45 mins.	**35**	8	1	**44**	**41**	117	15	173	**5**	3	**29**	**37**	**12**	198	**5**	215	
Total Volume	117	26	13	156	136	584	92	812	9	11	78	98	25	810	9	844	
% App. Total	75	16.7	8.3		16.7	71.9	11.3		9.2	11.2	79.6		3	96	1.1		
PHF	.836	.813	.813	.886	.829	.849	.767	.871	.450	.550	.672	.662	.521	.929	.450	.946	

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	3	0	0	0	3	1	5	3	0	9	0	0	0	0	0	0	5	0	0	5	0	17	17
07:15 AM	2	0	0	0	2	0	9	0	0	9	0	0	0	0	0	0	2	0	0	2	0	13	13
07:30 AM	2	0	1	0	3	0	4	2	1	6	0	0	0	0	0	0	5	0	0	5	1	14	15
07:45 AM	2	0	0	0	2	0	8	1	0	9	1	0	0	0	1	0	3	1	0	4	0	16	16
Total	9	0	1	0	10	1	26	6	1	33	1	0	0	0	1	0	15	1	0	16	1	60	61
08:00 AM	0	0	0	0	0	1	7	1	0	9	0	0	0	0	0	1	5	1	0	7	0	16	16
08:15 AM	0	0	0	0	0	0	3	0	0	3	1	0	0	0	1	0	6	0	0	6	0	10	10
08:30 AM	3	0	0	0	3	0	6	1	0	7	0	1	0	0	1	1	3	0	0	4	0	15	15
08:45 AM	1	2	0	0	3	1	5	2	1	8	0	1	0	0	1	1	3	0	0	4	1	16	17
Total	4	2	0	0	6	2	21	4	1	27	1	2	0	0	3	3	17	1	0	21	1	57	58
Grand Total	13	2	1	0	16	3	47	10	2	60	2	2	0	0	4	3	32	2	0	37	2	117	119
Apprch %	81.2	12.5	6.2			5	78.3	16.7			50	50	0			8.1	86.5	5.4					
Total %	11.1	1.7	0.9		13.7	2.6	40.2	8.5		51.3	1.7	1.7	0		3.4	2.6	27.4	1.7		31.6	1.7	98.3	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**2**	0	0	2	0	**9**	0	**9**	0	0	0	0	0	2	0	2	13
07:30 AM	2	0	**1**	**3**	0	4	**2**	6	0	0	0	0	0	**5**	0	5	14
07:45 AM	2	0	0	2	0	8	1	9	**1**	0	0	**1**	0	3	**1**	4	**16**
08:00 AM	0	0	0	0	**1**	7	1	9	0	0	0	0	**1**	5	1	**7**	16
Total Volume	6	0	1	7	1	28	4	33	1	0	0	1	1	15	2	18	59
% App. Total	85.7	0	14.3		3	84.8	12.1		100	0	0		5.6	83.3	11.1		
PHF	.750	.000	.250	.583	.250	.778	.500	.917	.250	.000	.000	.250	.250	.750	.500	.643	.922

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
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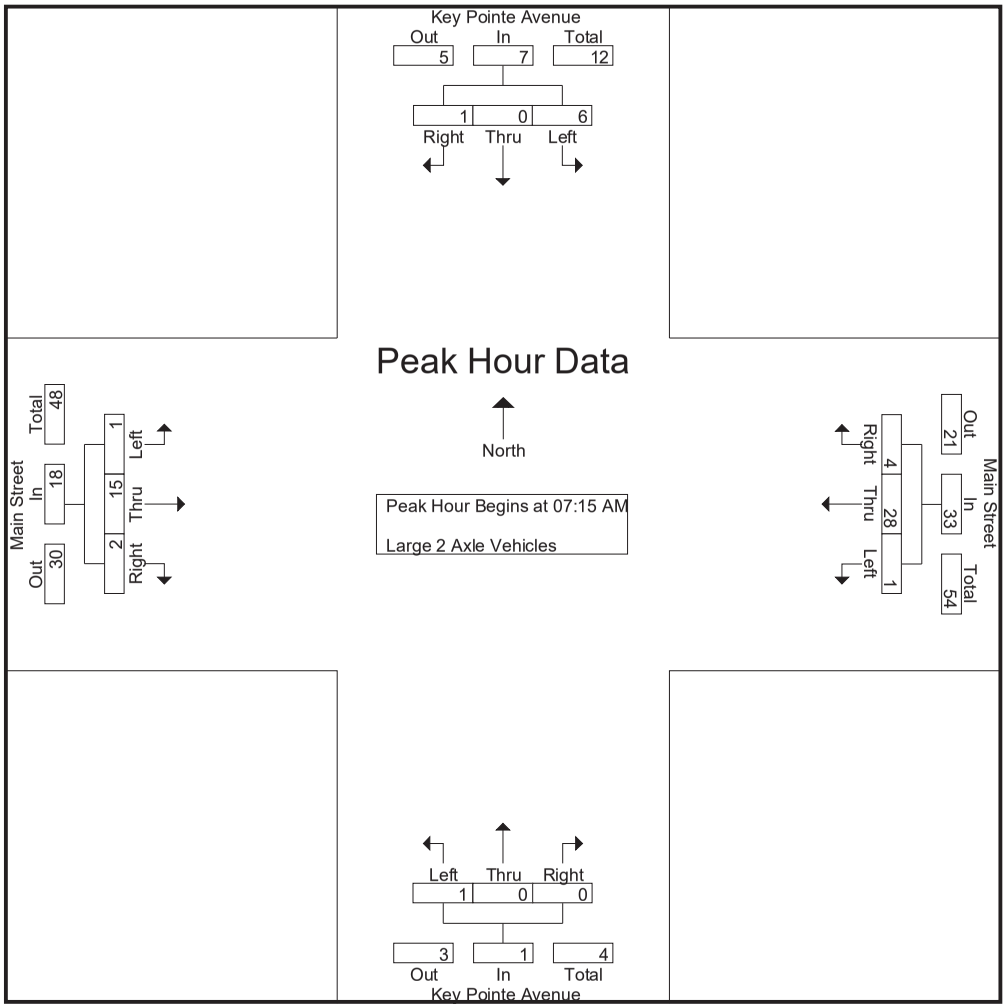

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	**2**	0	0	2	0	**9**	0	**9**	0	0	0	0	0	2	0	2	
+15 mins.	2	0	**1**	**3**	0	4	**2**	6	0	0	0	0	0	**5**	0	5	
+30 mins.	2	0	0	2	0	8	1	9	**1**	0	0	**1**	0	3	**1**	4	
+45 mins.	0	0	0	0	**1**	7	1	9	0	0	0	0	**1**	5	1	**7**	
Total Volume	6	0	1	7	1	28	4	33	1	0	0	1	1	15	2	18	
% App. Total	85.7	0	14.3		3	84.8	12.1		100	0	0		5.6	83.3	11.1		
PHF	.750	.000	.250	.583	.250	.778	.500	.917	.250	.000	.000	.250	.250	.750	.500	.643	

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
07:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	3
07:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
Total	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	0	2	0	0	2	0	9	9
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	5	5
Grand Total	1	0	0	0	1	0	8	1	0	9	0	0	0	0	0	0	4	0	0	4	0	14	14
Apprch %	100	0	0			0	88.9	11.1			0	0	0			0	100	0					
Total %	7.1	0	0		7.1	0	57.1	7.1		64.3	0	0	0		0	0	28.6	0		28.6	0	100	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	**1**	0	0	**1**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	**3**
07:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
Total Volume	1	0	0	1	0	5	0	5	0	0	0	0	0	3	0	3	9
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.625	.000	.625	.000	.000	.000	.000	.000	.375	.000	.375	.750

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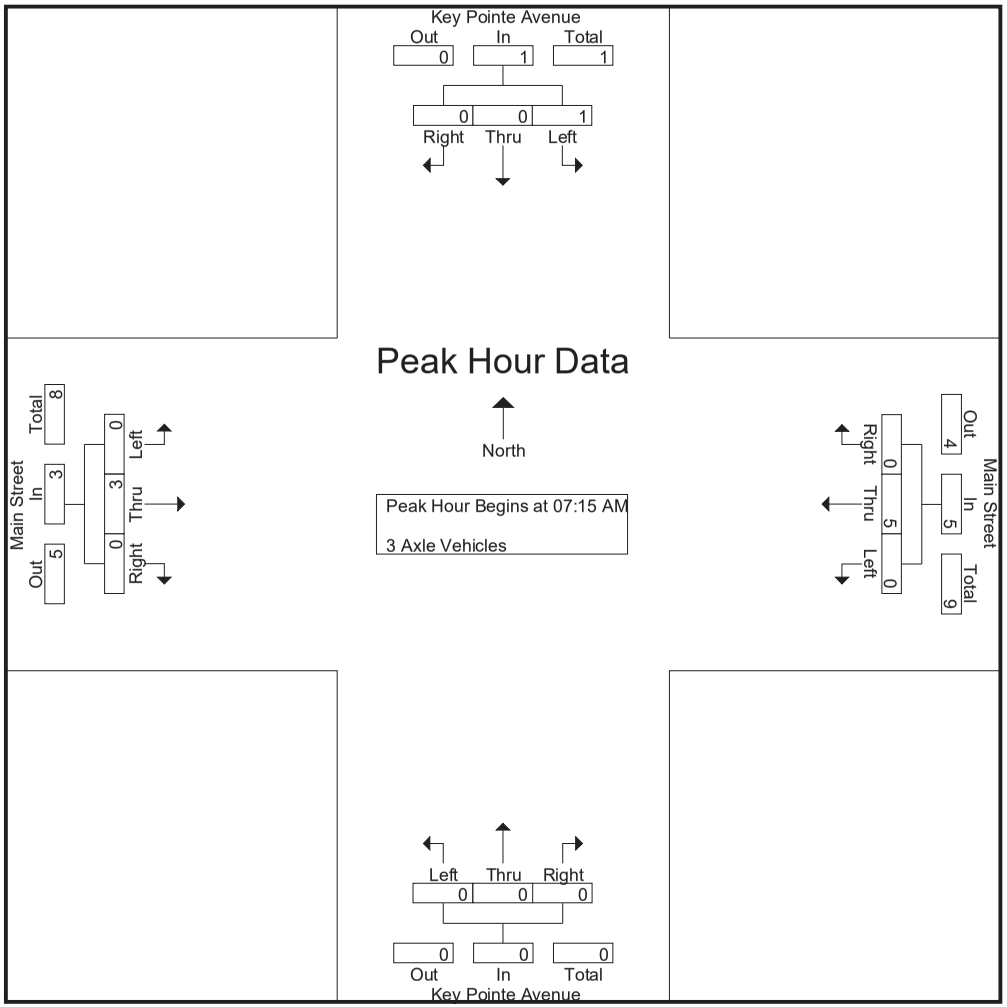
City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	**1**	0	0	**1**	0	**2**	0	**2**	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	
Total Volume	1	0	0	1	0	5	0	5	0	0	0	0	0	3	0	3	
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.625	.000	.625	.000	.000	.000	.000	.000	.375	.000	.375	

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City of Hesperia
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Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
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Groups Printed- 4+ Axle Trucks

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	3	0	4	0	0	0	0	0	0	4	0	0	4	0	8	8
07:15 AM	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	4	4
07:30 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	5	5
07:45 AM	3	0	0	0	3	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	8	8
Total	5	0	0	0	5	0	5	5	0	10	0	0	0	0	0	1	9	0	0	10	0	25	25
08:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
08:15 AM	2	0	0	0	2	1	5	1	1	7	0	1	0	0	1	0	4	0	0	4	1	14	15
08:30 AM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	6	6
08:45 AM	2	0	0	0	2	0	1	0	0	1	0	0	1	1	1	0	1	0	0	1	1	5	6
Total	5	0	0	0	5	1	10	2	1	13	0	1	1	1	2	0	10	0	0	10	2	30	32
Grand Total	10	0	0	0	10	1	15	7	1	23	0	1	1	1	2	1	19	0	0	20	2	55	57
Apprch %	100	0	0			4.3	65.2	30.4			0	50	50			5	95	0					
Total %	18.2	0	0		18.2	1.8	27.3	12.7		41.8	0	1.8	1.8		3.6	1.8	34.5	0		36.4	3.5	96.5	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	1	0	0	1	0	0	**2**	**2**	0	0	0	0	0	1	0	1	4
07:30 AM	1	0	0	1	0	**2**	0	2	0	0	0	0	**1**	1	0	2	5
07:45 AM	**3**	0	0	**3**	0	2	0	2	0	0	0	0	0	**3**	0	**3**	**8**
08:00 AM	0	0	0	0	0	1	1	2	0	0	0	0	0	3	0	3	5
Total Volume	5	0	0	5	0	5	3	8	0	0	0	0	1	8	0	9	22
% App. Total	100	0	0		0	62.5	37.5		0	0	0		11.1	88.9	0		
PHF	.417	.000	.000	.417	.000	.625	.375	1.00	.000	.000	.000	.000	.250	.667	.000	.750	.688

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City of Hesperia
N/S: Key Pointe Avenue
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Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
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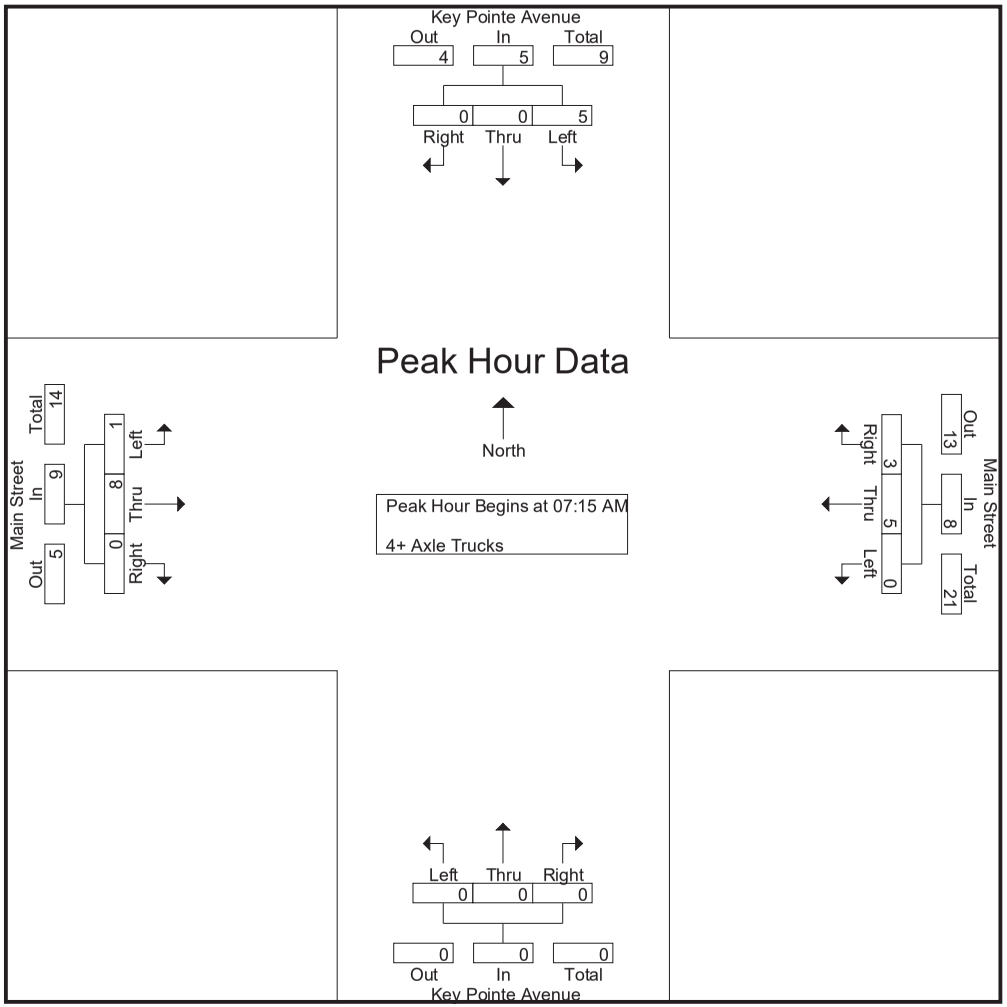

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:15 AM				07:15 AM				07:15 AM				07:15 AM				
+0 mins.	1	0	0	1	0	0	**2**	**2**	0	0	0	0	0	1	0	1	
+15 mins.	1	0	0	1	0	**2**	0	2	0	0	0	0	**1**	1	0	2	
+30 mins.	**3**	0	0	**3**	0	2	0	2	0	0	0	0	0	**3**	0	**3**	
+45 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	3	0	3	
Total Volume	5	0	0	5	0	5	3	8	0	0	0	0	1	8	0	9	
% App. Total	100	0	0		0	62.5	37.5		0	0	0		11.1	88.9	0		
PHF	.417	.000	.000	.417	.000	.625	.375	1.000	.000	.000	.000	.000	.250	.667	.000	.750	

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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	54	30	1	0	85	66	201	38	7	305	10	19	49	31	78	14	240	3	1	257	39	725	764
04:15 PM	58	19	8	7	85	72	239	44	22	355	6	8	67	37	81	6	221	1	0	228	66	749	815
04:30 PM	53	24	6	4	83	67	249	43	12	359	5	17	71	34	93	15	225	3	2	243	52	778	830
04:45 PM	46	22	5	4	73	51	265	47	15	363	11	22	55	30	88	12	231	10	0	253	49	777	826
Total	211	95	20	15	326	256	954	172	56	1382	32	66	242	132	340	47	917	17	3	981	206	3029	3235
05:00 PM	57	15	9	7	81	44	264	52	13	360	7	18	57	41	82	16	215	4	1	235	62	758	820
05:15 PM	63	19	9	4	91	63	261	54	16	378	5	16	55	28	76	12	210	4	1	226	49	771	820
05:30 PM	52	28	7	6	87	56	275	58	30	389	6	15	63	39	84	12	210	6	2	228	77	788	865
05:45 PM	62	19	5	1	86	76	242	55	10	373	11	14	57	30	82	14	205	5	1	224	42	765	807
Total	234	81	30	18	345	239	1042	219	69	1500	29	63	232	138	324	54	840	19	5	913	230	3082	3312
Grand Total	445	176	50	33	671	495	1996	391	125	2882	61	129	474	270	664	101	1757	36	8	1894	436	6111	6547
Apprch %	66.3	26.2	7.5			17.2	69.3	13.6			9.2	19.4	71.4			5.3	92.8	1.9					
Total %	7.3	2.9	0.8		11	8.1	32.7	6.4		47.2	1	2.1	7.8		10.9	1.7	28.8	0.6		31	6.7	93.3	
Passenger Vehicles	437	176	49		695	493	1948	378		2942	61	128	471		929	97	1688	35		1828	0	0	6394
% Passenger Vehicles	98.2	100	98	100	98.7	99.6	97.6	96.7	98.4	97.8	100	99.2	99.4	99.6	99.5	96	96.1	97.2	100	96.1	0	0	97.7
Large 2 Axle Vehicles	3	0	1		4	2	21	9		34	0	1	3		5	3	43	1		47	0	0	90
% Large 2 Axle Vehicles	0.7	0	2	0	0.6	0.4	1.1	2.3	1.6	1.1	0	0.8	0.6	0.4	0.5	3	2.4	2.8	0	2.5	0	0	1.4
3 Axle Vehicles	2	0	0		2	0	4	1		5	0	0	0		0	0	7	0		7	0	0	14
% 3 Axle Vehicles	0.4	0	0	0	0.3	0	0.2	0.3	0	0.2	0	0	0	0	0	0	0.4	0	0	0.4	0	0	0.2
4+ Axle Trucks	3	0	0		3	0	23	3		26	0	0	0		0	1	19	0		20	0	0	49
% 4+ Axle Trucks	0.7	0	0	0	0.4	0	1.2	0.8	0	0.9	0	0	0	0	0	1	1.1	0	0	1.1	0	0	0.7

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	46	22	5	73	51	265	47	363	**11**	**22**	55	**88**	12	**231**	**10**	**253**	777
05:00 PM	57	15	**9**	81	44	264	52	360	7	18	57	82	**16**	215	4	235	758
05:15 PM	**63**	19	9	**91**	**63**	261	54	378	5	16	55	76	12	210	4	226	771
05:30 PM	52	**28**	7	87	56	**275**	**58**	**389**	6	15	**63**	84	12	210	6	228	**788**
Total Volume	218	84	30	332	214	1065	211	1490	29	71	230	330	52	866	24	942	3094
% App. Total	65.7	25.3	9		14.4	71.5	14.2		8.8	21.5	69.7		5.5	91.9	2.5		
PHF	.865	.750	.833	.912	.849	.968	.909	.958	.659	.807	.913	.938	.813	.937	.600	.931	.982

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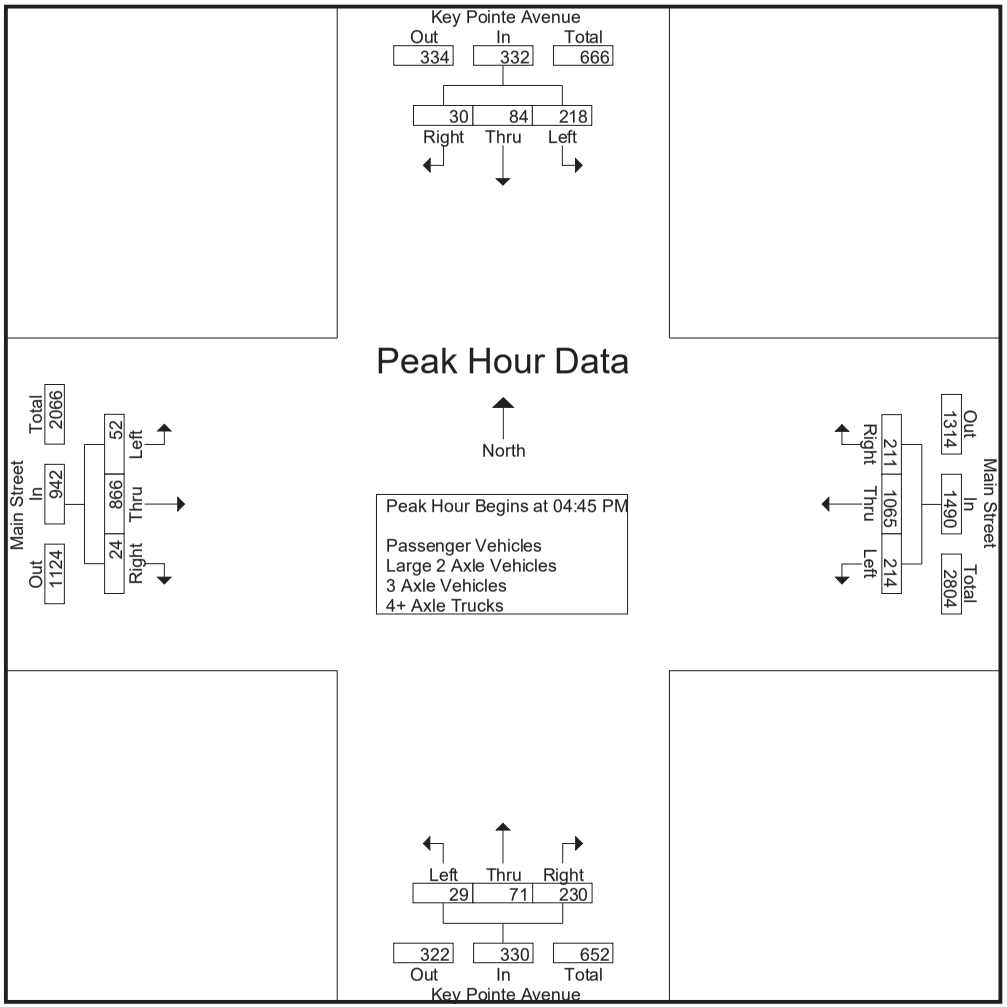
City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
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File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	05:00 PM				05:00 PM				04:15 PM				04:00 PM				
+0 mins.	57	15	**9**	81	44	264	52	360	6	8	67	81	14	**240**	3	**257**	
+15 mins.	**63**	19	9	**91**	63	261	54	378	5	17	**71**	**93**	6	221	1	228	
+30 mins.	52	**28**	7	87	56	**275**	**58**	**389**	**11**	**22**	55	88	**15**	225	3	243	
+45 mins.	62	19	5	86	**76**	242	55	373	7	18	57	82	12	231	**10**	253	
Total Volume	234	81	30	345	239	1042	219	1500	29	65	250	344	47	917	17	981	
% App. Total	67.8	23.5	8.7		15.9	69.5	14.6		8.4	18.9	72.7		4.8	93.5	1.7		
PHF	.929	.723	.833	.948	.786	.947	.944	.964	.659	.739	.880	.925	.783	.955	.425	.954	

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City of Hesperia
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Weather: Clear

File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	52	30	1	0	83	65	196	34	6	295	10	18	49	31	77	14	226	2	1	242	38	697	735
04:15 PM	57	19	8	7	84	72	230	44	22	346	6	8	65	37	79	6	211	1	0	218	66	727	793
04:30 PM	52	24	6	4	82	67	243	41	12	351	5	17	70	33	92	15	218	3	2	236	51	761	812
04:45 PM	45	22	5	4	72	51	262	46	15	359	11	22	55	30	88	12	222	10	0	244	49	763	812
Total	206	95	20	15	321	255	931	165	55	1351	32	65	239	131	336	47	877	16	3	940	204	2948	3152
05:00 PM	55	15	9	7	79	44	261	52	13	357	7	18	57	41	82	14	207	4	1	225	62	743	805
05:15 PM	62	19	8	4	89	63	253	52	16	368	5	16	55	28	76	12	201	4	1	217	49	750	799
05:30 PM	52	28	7	6	87	55	267	58	30	380	6	15	63	39	84	12	202	6	2	220	77	771	848
05:45 PM	62	19	5	1	86	76	236	51	9	363	11	14	57	30	82	12	201	5	1	218	41	749	790
Total	231	81	29	18	341	238	1017	213	68	1468	29	63	232	138	324	50	811	19	5	880	229	3013	3242
Grand Total	437	176	49	33	662	493	1948	378	123	2819	61	128	471	269	660	97	1688	35	8	1820	433	5961	6394
Apprch %	66	26.6	7.4			17.5	69.1	13.4			9.2	19.4	71.4			5.3	92.7	1.9					
Total %	7.3	3	0.8		11.1	8.3	32.7	6.3		47.3	1	2.1	7.9		11.1	1.6	28.3	0.6		30.5	6.8	93.2	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	45	22	5	72	51	262	46	359	**11**	**22**	55	**88**	12	**222**	**10**	**244**	763
05:00 PM	55	15	**9**	79	44	261	52	357	7	18	57	82	**14**	207	4	225	743
05:15 PM	**62**	19	8	**89**	**63**	253	52	368	5	16	55	76	12	201	4	217	750
05:30 PM	52	**28**	7	87	55	**267**	**58**	**380**	6	15	**63**	84	12	202	6	220	**771**
Total Volume	214	84	29	327	213	1043	208	1464	29	71	230	330	50	832	24	906	3027
% App. Total	65.4	25.7	8.9		14.5	71.2	14.2		8.8	21.5	69.7		5.5	91.8	2.6		
PHF	.863	.750	.806	.919	.845	.977	.897	.963	.659	.807	.913	.938	.893	.937	.600	.928	.982

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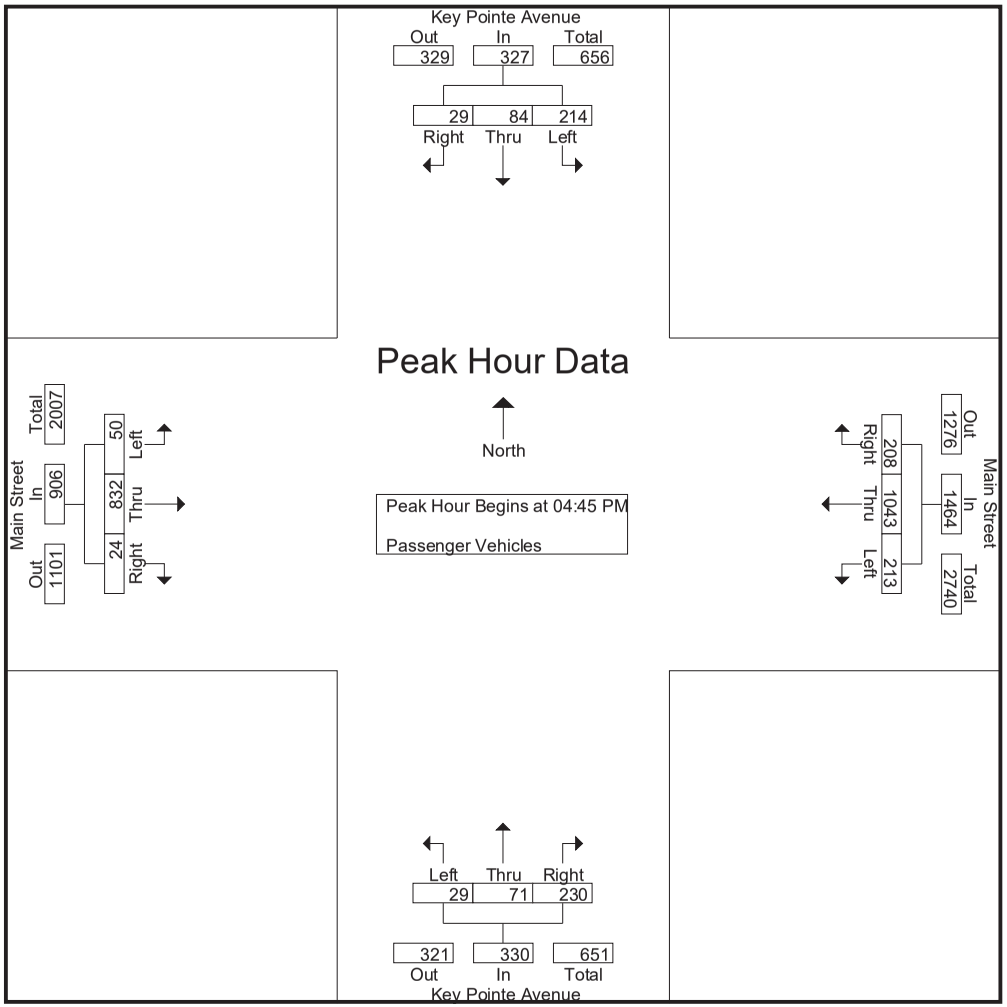
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
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File Name : 11_HES_Key Pointe_Main PM
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Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	45	22	5	72	51	262	46	359	**11**	**22**	55	**88**	12	**222**	**10**	**244**	
+15 mins.	55	15	**9**	79	44	261	52	357	7	18	57	82	**14**	207	4	225	
+30 mins.	**62**	19	8	**89**	**63**	253	52	368	5	16	55	76	12	201	4	217	
+45 mins.	52	**28**	7	87	55	**267**	**58**	**380**	6	15	**63**	84	12	202	6	220	
Total Volume	214	84	29	327	213	1043	208	1464	29	71	230	330	50	832	24	906	
% App. Total	65.4	25.7	8.9		14.5	71.2	14.2		8.8	21.5	69.7		5.5	91.8	2.6		
PHF	.863	.750	.806	.919	.845	.977	.897	.963	.659	.807	.913	.938	.893	.937	.600	.928	

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City of Hesperia
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File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	0	0	0	1	1	2	3	1	6	0	1	0	0	1	0	11	1	0	12	1	20	21
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	2	0	2	0	6	0	0	6	0	11	11
04:30 PM	0	0	0	0	0	0	2	1	0	3	0	0	1	1	1	0	5	0	0	5	1	9	10
04:45 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	5	0	0	5	0	7	7
Total	1	0	0	0	1	1	8	5	1	14	0	1	3	1	4	0	27	1	0	28	2	47	49
05:00 PM	2	0	0	0	2	0	2	0	0	2	0	0	0	0	0	1	3	0	0	4	0	8	8
05:15 PM	0	0	1	0	1	0	3	2	0	5	0	0	0	0	0	0	5	0	0	5	0	11	11
05:30 PM	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	5	0	0	5	0	11	11
05:45 PM	0	0	0	0	0	0	3	2	1	5	0	0	0	0	0	2	3	0	0	5	1	10	11
Total	2	0	1	0	3	1	13	4	1	18	0	0	0	0	0	3	16	0	0	19	1	40	41
Grand Total	3	0	1	0	4	2	21	9	2	32	0	1	3	1	4	3	43	1	0	47	3	87	90
Apprch %	75	0	25			6.2	65.6	28.1			0	25	75			6.4	91.5	2.1					
Total %	3.4	0	1.1		4.6	2.3	24.1	10.3		36.8	0	1.1	3.4		4.6	3.4	49.4	1.1		54	3.3	96.7	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	**5**	0	**5**	7
05:00 PM	**2**	0	0	**2**	0	2	0	2	0	0	0	0	**1**	3	0	4	8
05:15 PM	0	0	**1**	1	0	3	**2**	5	0	0	0	0	0	5	0	5	**11**
05:30 PM	0	0	0	0	**1**	**5**	0	**6**	0	0	0	0	0	5	0	5	11
Total Volume	2	0	1	3	1	11	3	15	0	0	0	0	1	18	0	19	37
% App. Total	66.7	0	33.3		6.7	73.3	20		0	0	0		5.3	94.7	0		
PHF	.250	.000	.250	.375	.250	.550	.375	.625	.000	.000	.000	.000	.250	.900	.000	.950	.841

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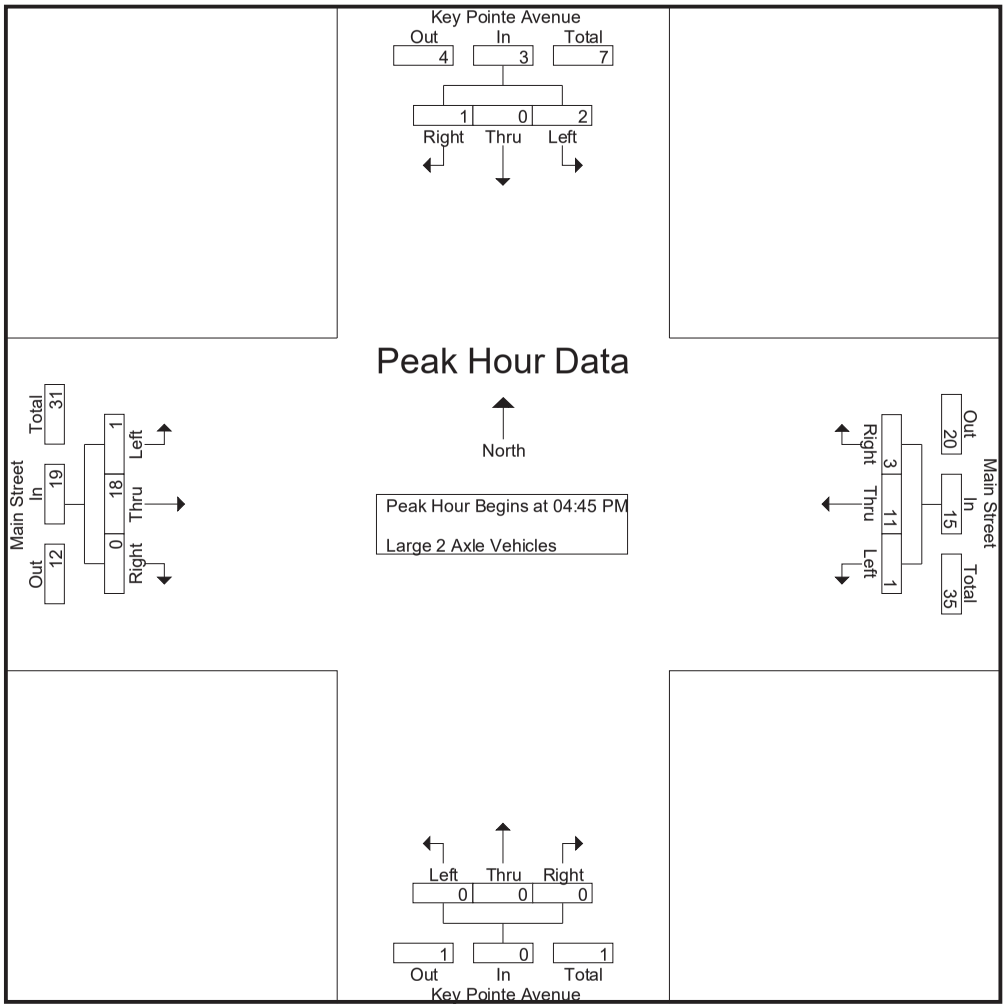

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	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	1	1	2	0	0	0	0	0	**5**	0	**5**	
+15 mins.	**2**	0	0	**2**	0	2	0	2	0	0	0	0	**1**	3	0	4	
+30 mins.	0	0	**1**	1	0	3	**2**	5	0	0	0	0	0	5	0	5	
+45 mins.	0	0	0	0	**1**	**5**	0	**6**	0	0	0	0	0	5	0	5	
Total Volume	2	0	1	3	1	11	3	15	0	0	0	0	1	18	0	19	
% App. Total	66.7	0	33.3		6.7	73.3	20		0	0	0		5.3	94.7	0		
PHF	.250	.000	.250	.375	.250	.550	.375	.625	.000	.000	.000	.000	.250	.900	.000	.950	

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File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- 3 Axle Vehicles

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	0	8	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
05:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	3	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	0	6	6
Grand Total	2	0	0	0	2	0	4	1	0	5	0	0	0	0	0	0	7	0	0	7	0	14	14
Apprch %	100	0	0			0	80	20			0	0	0			0	100	0					
Total %	14.3	0	0		14.3	0	28.6	7.1		35.7	0	0	0		0	0	50	0		50	0	100	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	2
05:15 PM	**1**	0	0	**1**	0	**1**	0	**1**	0	0	0	0	0	1	0	1	**3**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	1	0	0	1	0	1	0	1	0	0	0	0	0	5	0	5	7
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.625	.000	.625	.583

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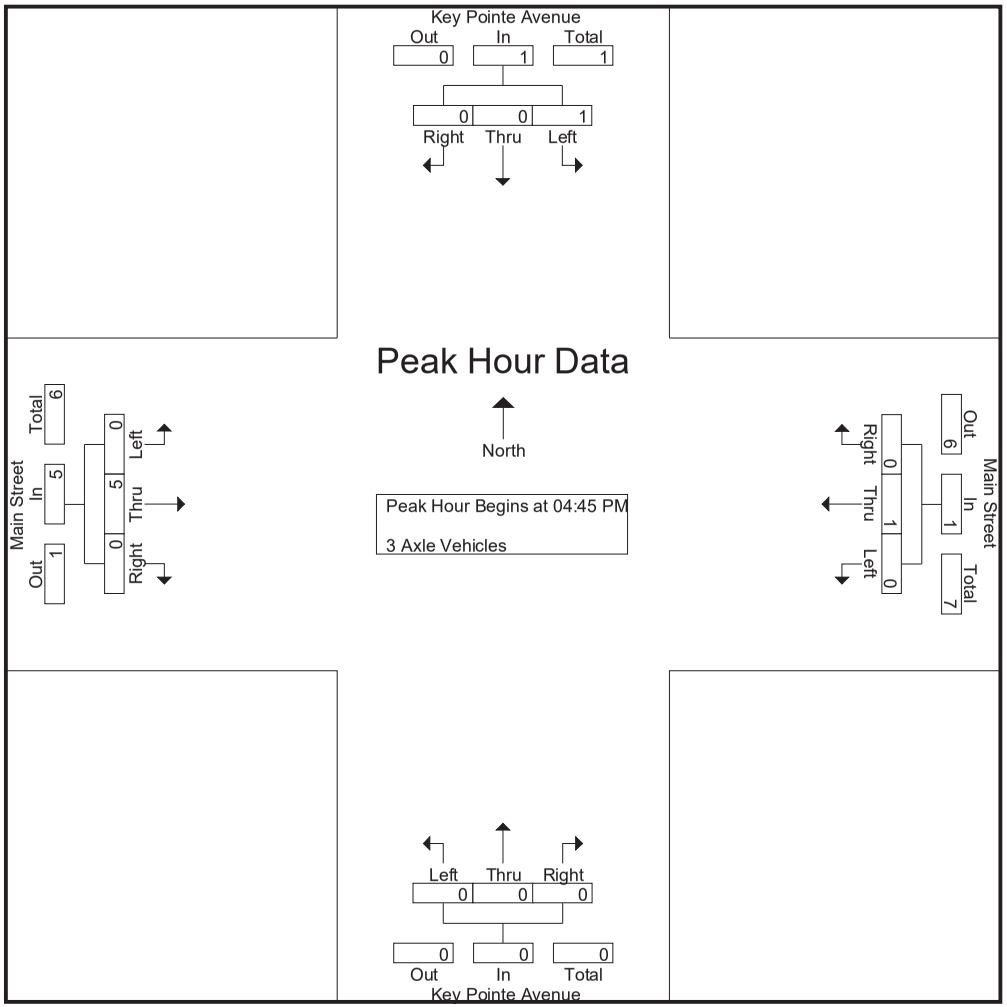
City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: Key Pointe Avenue
E/W: Main Street
Weather: Clear

File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	
+30 mins.	**1**	0	0	**1**	0	**1**	0	**1**	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
Total Volume	1	0	0	1	0	1	0	1	0	0	0	0	0	5	0	5	
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.250	.000	.250	.000	.000	.000	.000	.000	.625	.000	.625	

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City of Hesperia
N/S: Key Pointe Avenue
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Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	Key Pointe Avenue Southbound					Main Street Westbound					Key Pointe Avenue Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	7	7
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	0	7	7
04:30 PM	1	0	0	0	1	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0	6	6
04:45 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	6	6
Total	3	0	0	0	3	0	12	1	0	13	0	0	0	0	0	0	10	0	0	10	0	26	26
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	0	5	5
05:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	7	7
05:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	5	5
05:45 PM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	1	0	0	1	0	6	6
Total	0	0	0	0	0	0	11	2	0	13	0	0	0	0	0	1	9	0	0	10	0	23	23
Grand Total	3	0	0	0	3	0	23	3	0	26	0	0	0	0	0	1	19	0	0	20	0	49	49
Apprch %	100	0	0			0	88.5	11.5			0	0	0			5	95	0					
Total %	6.1	0	0		6.1	0	46.9	6.1		53.1	0	0	0		0	2	38.8	0		40.8	0	100	

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	**1**	0	0	**1**	0	2	0	2	0	0	0	0	0	**3**	0	3	6
05:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	**1**	3	0	**4**	5
05:15 PM	0	0	0	0	0	**4**	0	**4**	0	0	0	0	0	3	0	3	**7**
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
Total Volume	1	0	0	1	0	10	0	10	0	0	0	0	1	11	0	12	23
% App. Total	100	0	0		0	100	0		0	0	0		8.3	91.7	0		
PHF	.250	.000	.000	.250	.000	.625	.000	.625	.000	.000	.000	.000	.250	.917	.000	.750	.821

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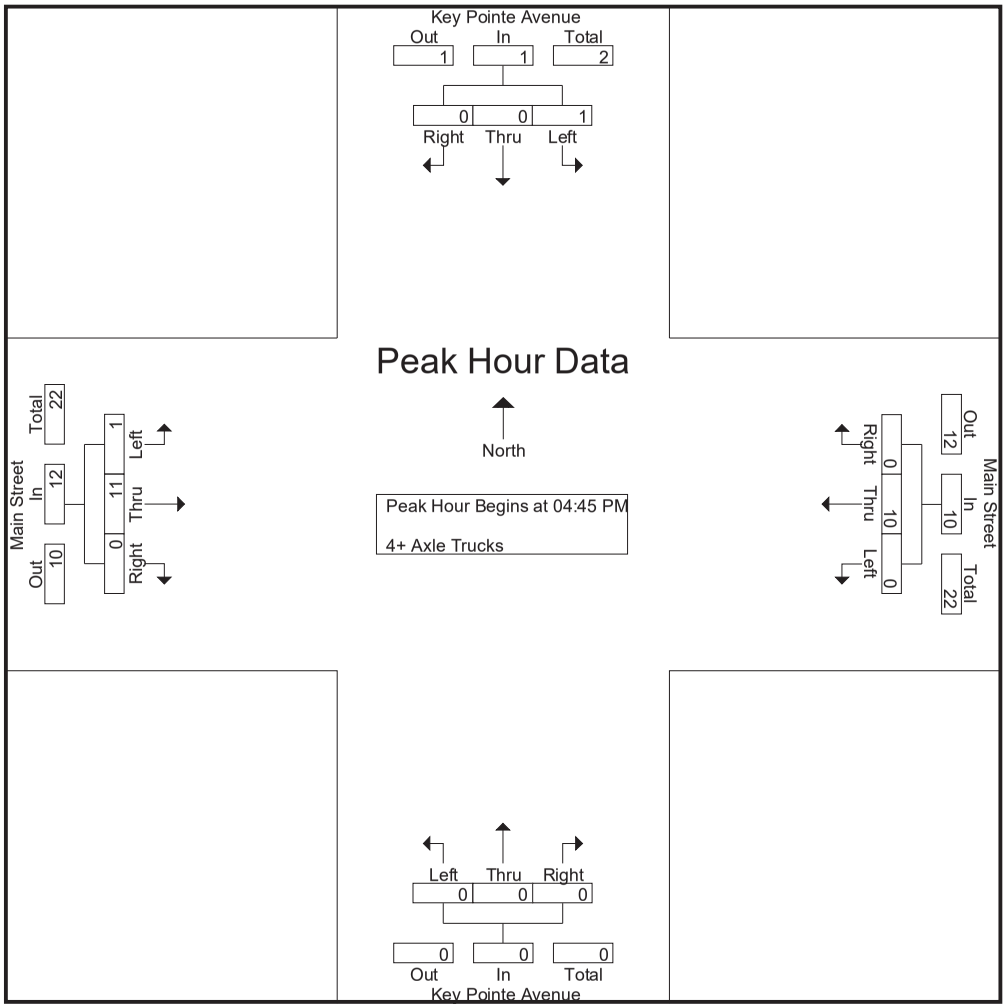

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N/S: Key Pointe Avenue
E/W: Main Street
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File Name : 11_HES_Key Pointe_Main PM
Site Code : 05119658
Start Date : 9/28/2019

	Key Pointe Avenue Southbound				Main Street Westbound				Key Pointe Avenue Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	**1**	0	0	**1**	0	2	0	2	0	0	0	0	0	**3**	0	3	
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	**1**	3	0	**4**	
+30 mins.	0	0	0	0	0	**4**	0	**4**	0	0	0	0	0	3	0	3	
+45 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	
Total Volume	1	0	0	1	0	10	0	10	0	0	0	0	1	11	0	12	
% App. Total	100	0	0		0	100	0		0	0	0		8.3	91.7	0		
PHF	.250	.000	.000	.250	.000	.625	.000	.625	.000	.000	.000	.000	.250	.917	.000	.750	

Location: Hesperia
N/S: Key Pointe Avenue
E/W: Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg Key Pointe Avenue	East Leg Main Street	South Leg Key Pointe Avenue	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	1	1	0	2
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	2	0	0	0	2
8:30 AM	0	0	1	0	1
8:45 AM	2	0	1	0	3
TOTAL VOLUMES:	4	1	3	0	8

	North Leg Key Pointe Avenue	East Leg Main Street	South Leg Key Pointe Avenue	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	2	3
4:30 PM	0	2	0	1	3
4:45 PM	1	0	0	1	2
5:00 PM	0	0	0	1	1
5:15 PM	0	0	0	1	1
5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	2	3
TOTAL VOLUMES:	3	2	0	8	13

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Location: Hesperia
N/S: Key Pointe Avenue
E/W: Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound Key Pointe Avenue			Westbound Main Street			Northbound Key Pointe Avenue			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Key Pointe Avenue			Westbound Main Street			Northbound Key Pointe Avenue			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	2	0	0	0	2

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	97	29	10	126	128	0	0	128	0	242	0	242	10	496	506
07:15 AM	59	38	20	97	177	0	0	177	0	237	0	237	20	511	531
07:30 AM	47	46	29	93	196	0	0	196	0	218	0	218	29	507	536
07:45 AM	68	42	18	110	176	0	0	176	0	254	0	254	18	540	558
Total	271	155	77	426	677	0	0	677	0	951	0	951	77	2054	2131
08:00 AM	55	32	18	87	143	0	0	143	0	222	0	222	18	452	470
08:15 AM	42	48	23	90	166	0	0	166	0	221	0	221	23	477	500
08:30 AM	52	45	25	97	156	0	0	156	0	229	0	229	25	482	507
08:45 AM	63	54	27	117	157	0	0	157	0	213	0	213	27	487	514
Total	212	179	93	391	622	0	0	622	0	885	0	885	93	1898	1991
Grand Total	483	334	170	817	1299	0	0	1299	0	1836	0	1836	170	3952	4122
Apprch %	59.1	40.9			100	0			0	100					
Total %	12.2	8.5		20.7	32.9	0		32.9	0	46.5		46.5	4.1	95.9	
Passenger Vehicles	469	309		937	1223	0		1223	0	1776		1776	0	0	3936
% Passenger Vehicles	97.1	92.5	93.5	94.9	94.1	0	0	94.1	0	96.7	0	96.7	0	0	95.5
Large 2 Axle Vehicles	5	16		30	59	0		59	0	34		34	0	0	123
% Large 2 Axle Vehicles	1	4.8	5.3	3	4.5	0	0	4.5	0	1.9	0	1.9	0	0	3
3 Axle Vehicles	2	3		6	8	0		8	0	4		4	0	0	18
% 3 Axle Vehicles	0.4	0.9	0.6	0.6	0.6	0	0	0.6	0	0.2	0	0.2	0	0	0.4
4+ Axle Trucks	7	6		14	9	0		9	0	22		22	0	0	45
% 4+ Axle Trucks	1.4	1.8	0.6	1.4	0.7	0	0	0.7	0	1.2	0	1.2	0	0	1.1

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	**97**	29	**126**	128	0	128	0	242	242	496
07:15 AM	59	38	97	177	0	177	0	237	237	511
07:30 AM	47	**46**	93	**196**	0	**196**	0	218	218	507
07:45 AM	68	42	110	176	0	176	0	**254**	**254**	**540**
Total Volume	271	155	426	677	0	677	0	951	951	2054
% App. Total	63.6	36.4		100	0		0	100		
PHF	.698	.842	.845	.864	.000	.864	.000	.936	.936	.951

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City of Hesperia
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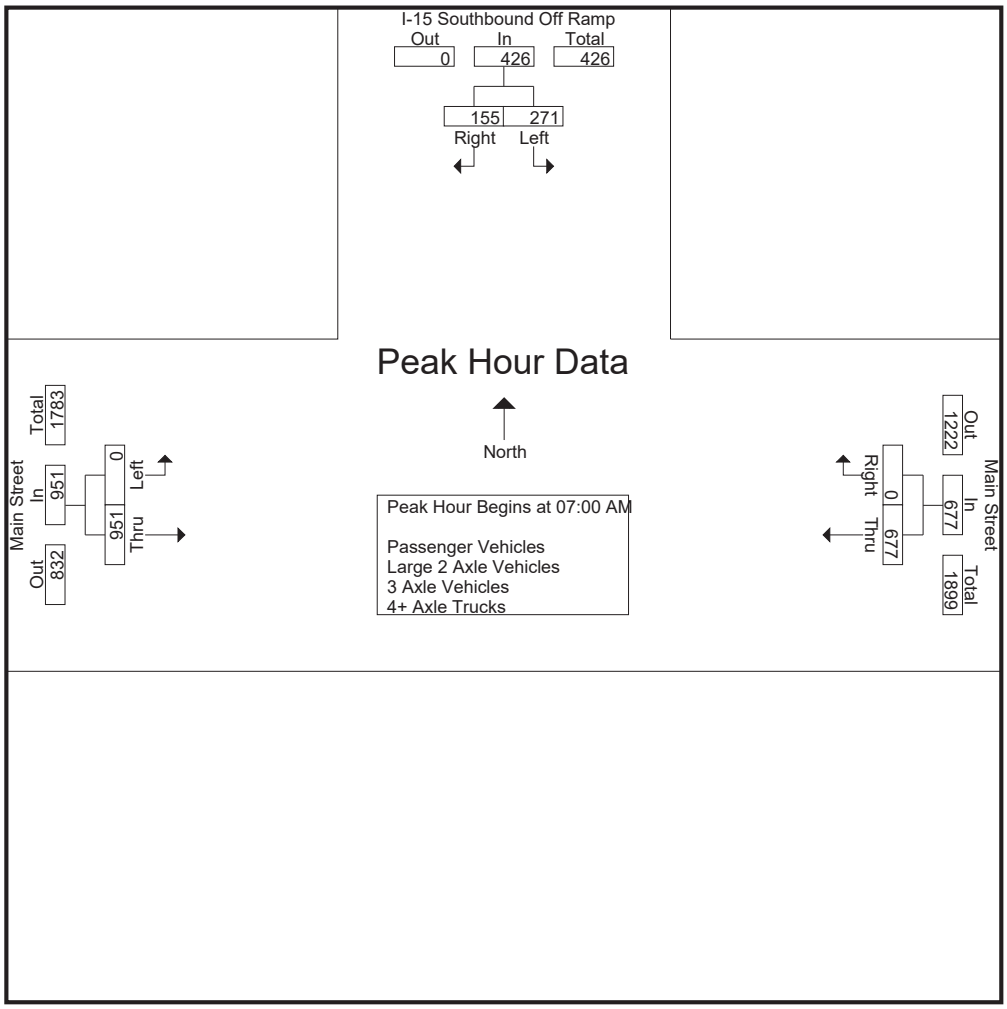
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:15 AM			07:00 AM		
+0 mins.	**97**	29	**126**	177	0	177	0	242	242
+15 mins.	59	38	97	**196**	0	**196**	0	237	237
+30 mins.	47	**46**	93	176	0	176	0	218	218
+45 mins.	68	42	110	143	0	143	0	**254**	**254**
Total Volume	271	155	426	692	0	692	0	951	951
% App. Total	63.6	36.4		100	0		0	100	
PHF	.698	.842	.845	.883	.000	.883	.000	.936	.936

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City of Hesperia
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E/W: Main Street
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Page No : 1

Groups Printed- Passenger Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	95	26	10	121	116	0	0	116	0	231	0	231	10	468	478
07:15 AM	57	32	17	89	166	0	0	166	0	232	0	232	17	487	504
07:30 AM	45	44	27	89	188	0	0	188	0	213	0	213	27	490	517
07:45 AM	66	40	17	106	163	0	0	163	0	245	0	245	17	514	531
Total	263	142	71	405	633	0	0	633	0	921	0	921	71	1959	2030
08:00 AM	54	28	16	82	137	0	0	137	0	216	0	216	16	435	451
08:15 AM	42	46	22	88	155	0	0	155	0	209	0	209	22	452	474
08:30 AM	51	43	25	94	146	0	0	146	0	221	0	221	25	461	486
08:45 AM	59	50	25	109	152	0	0	152	0	209	0	209	25	470	495
Total	206	167	88	373	590	0	0	590	0	855	0	855	88	1818	1906
Grand Total	469	309	159	778	1223	0	0	1223	0	1776	0	1776	159	3777	3936
Apprch %	60.3	39.7			100	0			0	100					
Total %	12.4	8.2		20.6	32.4	0		32.4	0	47		47	4	96	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	**95**	26	**121**	116	0	116	0	231	231	468
07:15 AM	57	32	89	166	0	166	0	232	232	487
07:30 AM	45	**44**	89	**188**	0	**188**	0	213	213	490
07:45 AM	66	40	106	163	0	163	0	**245**	**245**	**514**
Total Volume	263	142	405	633	0	633	0	921	921	1959
% App. Total	64.9	35.1		100	0		0	100		
PHF	.692	.807	.837	.842	.000	.842	.000	.940	.940	.953

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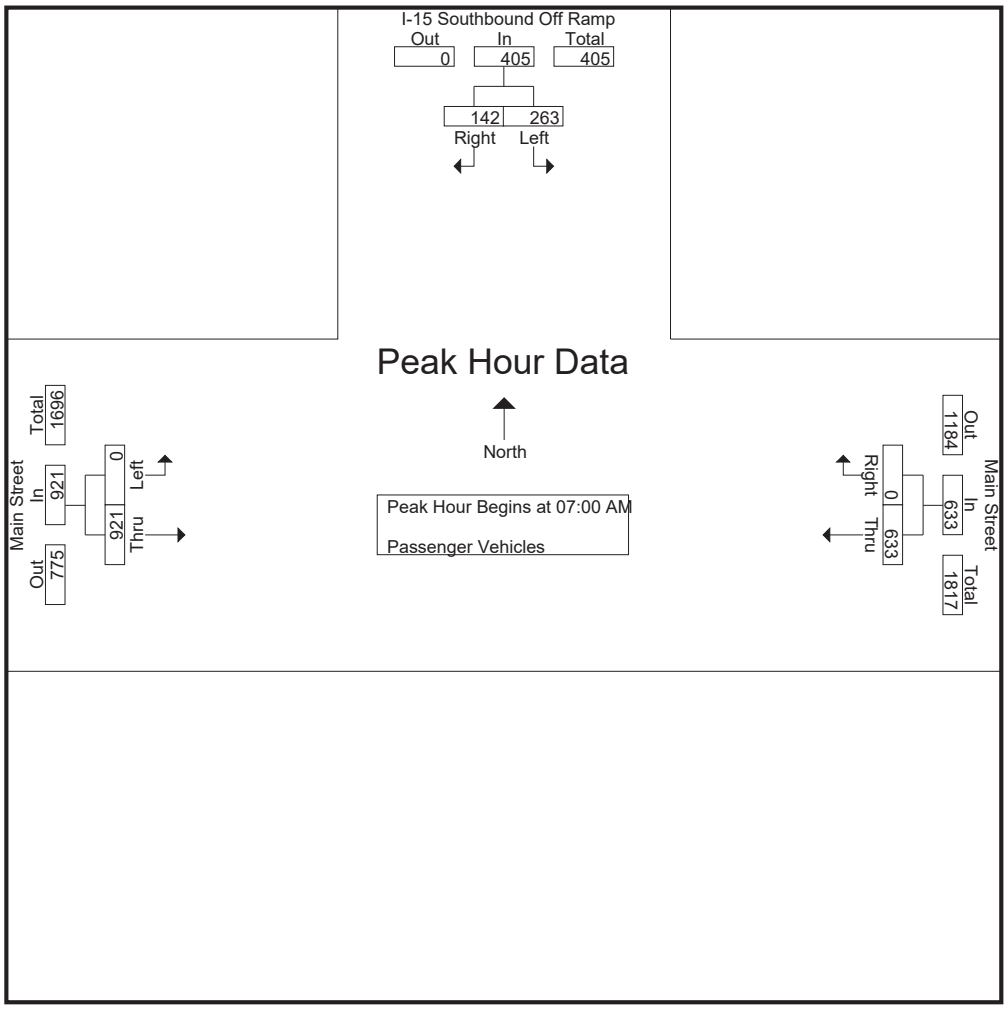

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	**95**	26	**121**	116	0	116	0	231	231
+15 mins.	57	32	89	166	0	166	0	232	232
+30 mins.	45	**44**	89	**188**	0	**188**	0	213	213
+45 mins.	66	40	106	163	0	163	0	**245**	**245**
Total Volume	263	142	405	633	0	633	0	921	921
% App. Total	64.9	35.1		100	0		0	100	
PHF	.692	.807	.837	.842	.000	.842	.000	.940	.940

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Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	0	0	1	10	0	0	10	0	6	0	6	0	17	17
07:15 AM	0	4	3	4	9	0	0	9	0	3	0	3	3	16	19
07:30 AM	1	1	1	2	5	0	0	5	0	4	0	4	1	11	12
07:45 AM	0	2	1	2	10	0	0	10	0	5	0	5	1	17	18
Total	2	7	5	9	34	0	0	34	0	18	0	18	5	61	66
08:00 AM	0	4	2	4	6	0	0	6	0	3	0	3	2	13	15
08:15 AM	0	0	0	0	6	0	0	6	0	5	0	5	0	11	11
08:30 AM	1	2	0	3	8	0	0	8	0	5	0	5	0	16	16
08:45 AM	2	3	2	5	5	0	0	5	0	3	0	3	2	13	15
Total	3	9	4	12	25	0	0	25	0	16	0	16	4	53	57
Grand Total	5	16	9	21	59	0	0	59	0	34	0	34	9	114	123
Apprch %	23.8	76.2			100	0			0	100					
Total %	4.4	14		18.4	51.8	0		51.8	0	29.8		29.8	7.3	92.7	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	**1**	0	1	**10**	0	**10**	0	**6**	**6**	**17**
07:15 AM	0	**4**	**4**	9	0	9	0	3	3	16
07:30 AM	1	1	2	5	0	5	0	4	4	11
07:45 AM	0	2	2	10	0	10	0	5	5	17
Total Volume	2	7	9	34	0	34	0	18	18	61
% App. Total	22.2	77.8		100	0		0	100		
PHF	.500	.438	.563	.850	.000	.850	.000	.750	.750	.897

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main AM
Site Code : 05119658
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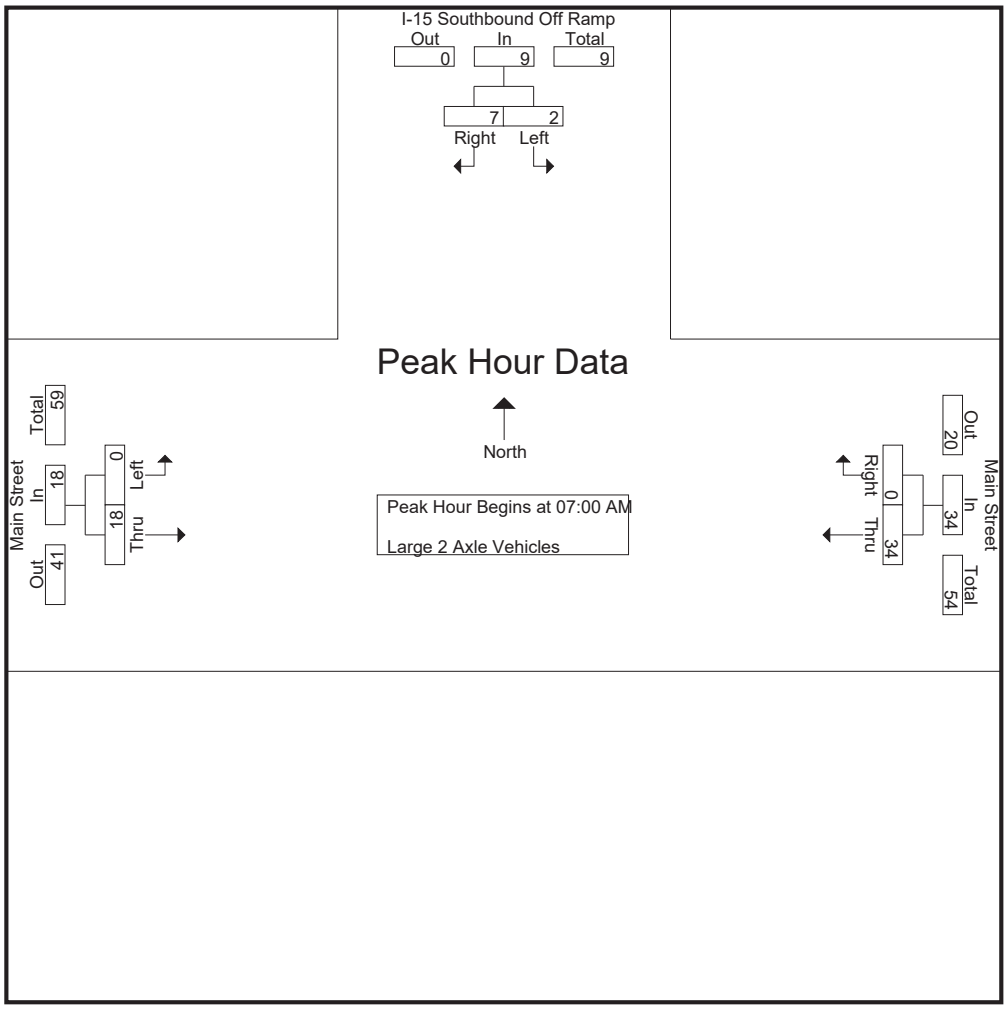

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	**1**	0	1	**10**	0	**10**	0	**6**	**6**
+15 mins.	0	**4**	**4**	9	0	9	0	3	3
+30 mins.	1	1	2	5	0	5	0	4	4
+45 mins.	0	2	2	10	0	10	0	5	5
Total Volume	2	7	9	34	0	34	0	18	18
% App. Total	22.2	77.8		100	0		0	100	
PHF	.500	.438	.563	.850	.000	.850	.000	.750	.750

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main AM
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Groups Printed- 3 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	2	2
07:15 AM	0	1	0	1	1	0	0	1	0	0	0	0	0	2	2
07:30 AM	1	1	1	2	2	0	0	2	0	0	0	0	1	4	5
07:45 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	2	2
Total	1	2	1	3	5	0	0	5	0	2	0	2	1	10	11
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
08:15 AM	0	1	0	1	2	0	0	2	0	1	0	1	0	4	4
08:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	1
08:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Total	1	1	0	2	3	0	0	3	0	2	0	2	0	7	7
Grand Total	2	3	1	5	8	0	0	8	0	4	0	4	1	17	18
Apprch %	40	60			100	0			0	100					
Total %	11.8	17.6		29.4	47.1	0		47.1	0	23.5		23.5	5.6	94.4	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	1	0	1	0	**1**	**1**	2
07:15 AM	0	**1**	1	1	0	1	0	0	0	2
07:30 AM	**1**	1	**2**	**2**	0	**2**	0	0	0	**4**
07:45 AM	0	0	0	1	0	1	0	1	1	2
Total Volume	1	2	3	5	0	5	0	2	2	10
% App. Total	33.3	66.7		100	0		0	100		
PHF	.250	.500	.375	.625	.000	.625	.000	.500	.500	.625

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main AM
Site Code : 05119658
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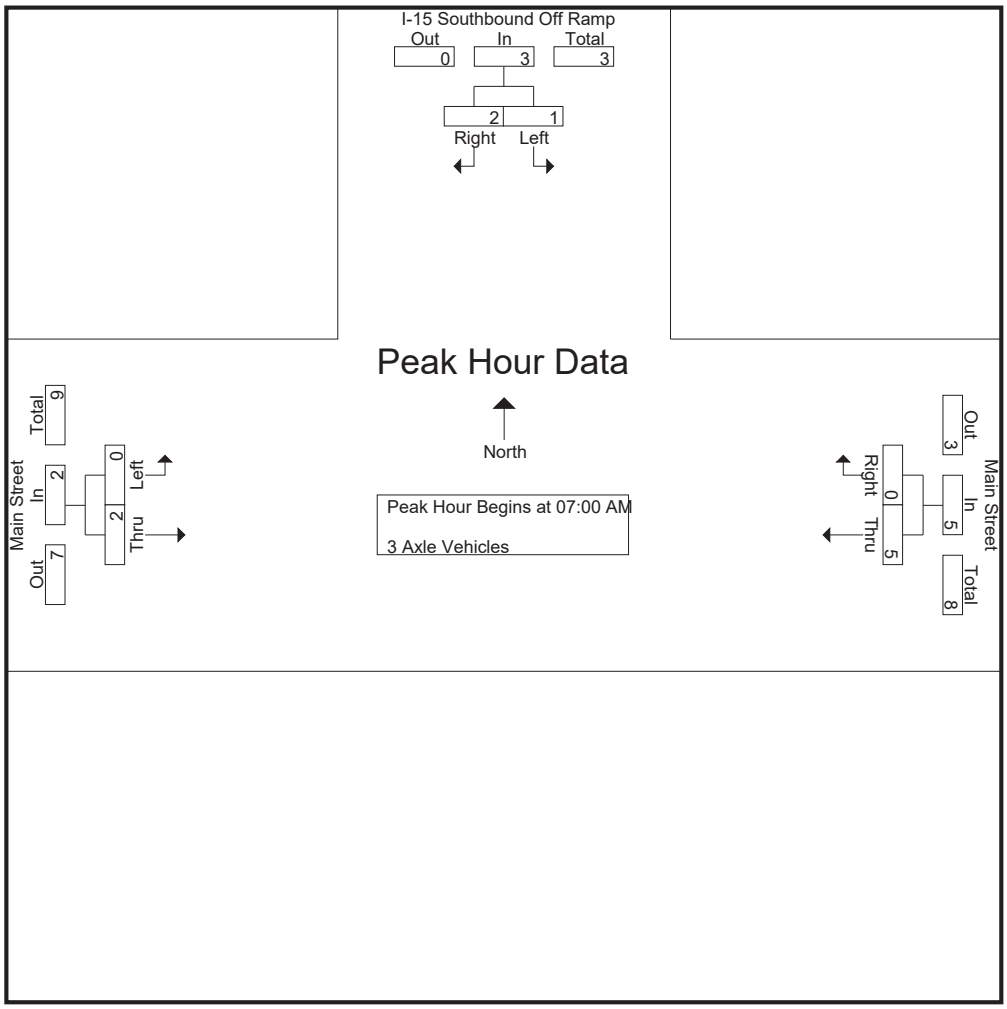

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	1	0	1	0	**1**	**1**
+15 mins.	0	**1**	1	1	0	1	0	0	0
+30 mins.	**1**	1	**2**	**2**	0	**2**	0	0	0
+45 mins.	0	0	0	1	0	1	0	1	1
Total Volume	1	2	3	5	0	5	0	2	2
% App. Total	33.3	66.7		100	0		0	100	
PHF	.250	.500	.375	.625	.000	.625	.000	.500	.500

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

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Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	1	3	0	4	1	0	0	1	0	4	0	4	0	9	9
07:15 AM	2	1	0	3	1	0	0	1	0	2	0	2	0	6	6
07:30 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	2	2
07:45 AM	2	0	0	2	2	0	0	2	0	3	0	3	0	7	7
Total	5	4	0	9	5	0	0	5	0	10	0	10	0	24	24
08:00 AM	1	0	0	1	0	0	0	0	0	2	0	2	0	3	3
08:15 AM	0	1	1	1	3	0	0	3	0	6	0	6	1	10	11
08:30 AM	0	0	0	0	1	0	0	1	0	3	0	3	0	4	4
08:45 AM	1	1	0	2	0	0	0	0	0	1	0	1	0	3	3
Total	2	2	1	4	4	0	0	4	0	12	0	12	1	20	21
Grand Total	7	6	1	13	9	0	0	9	0	22	0	22	1	44	45
Apprch %	53.8	46.2			100	0			0	100					
Total %	15.9	13.6		29.5	20.5	0		20.5	0	50		50	2.2	97.8	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	1	**3**	**4**	1	0	1	0	**4**	**4**	**9**
07:15 AM	**2**	1	3	1	0	1	0	2	2	6
07:30 AM	0	0	0	1	0	1	0	1	1	2
07:45 AM	2	0	2	**2**	0	**2**	0	3	3	7
Total Volume	5	4	9	5	0	5	0	10	10	24
% App. Total	55.6	44.4		100	0		0	100		
PHF	.625	.333	.563	.625	.000	.625	.000	.625	.625	.667

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City of Hesperia
N/S: I-15 Southbound Off Ramp
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Weather: Clear

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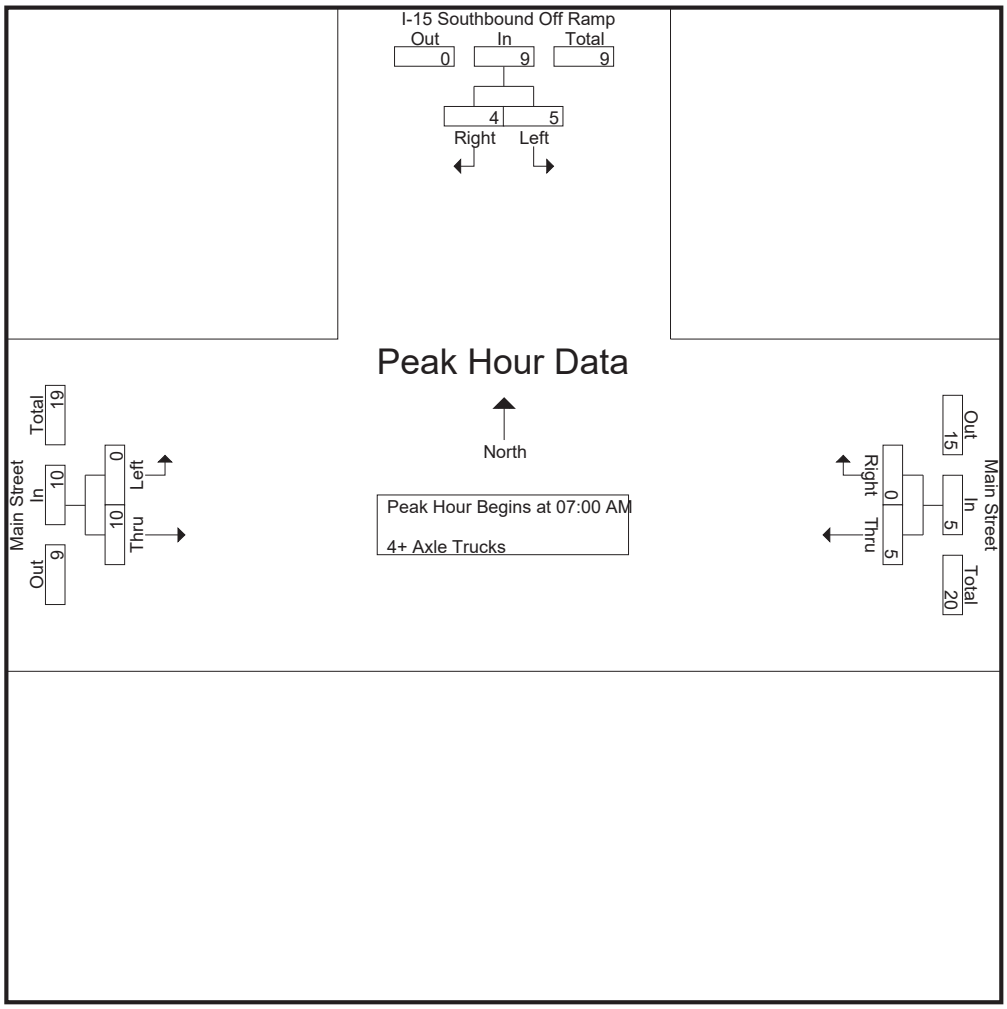

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	1	**3**	**4**	1	0	1	0	**4**	**4**
+15 mins.	**2**	1	3	1	0	1	0	2	2
+30 mins.	0	0	0	1	0	1	0	1	1
+45 mins.	2	0	2	**2**	0	**2**	0	3	3
Total Volume	5	4	9	5	0	5	0	10	10
% App. Total	55.6	44.4		100	0		0	100	
PHF	.625	.333	.563	.625	.000	.625	.000	.625	.625

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	94	68	30	162	242	0	0	242	0	329	0	329	30	733	763
04:15 PM	115	80	28	195	273	0	0	273	0	307	0	307	28	775	803
04:30 PM	88	91	32	179	274	0	0	274	0	310	0	310	32	763	795
04:45 PM	140	99	34	239	265	0	0	265	0	302	0	302	34	806	840
Total	437	338	124	775	1054	0	0	1054	0	1248	0	1248	124	3077	3201
05:00 PM	125	97	29	222	264	0	0	264	0	295	0	295	29	781	810
05:15 PM	146	91	25	237	288	0	0	288	0	269	0	269	25	794	819
05:30 PM	110	92	22	202	296	0	0	296	0	332	0	332	22	830	852
05:45 PM	95	89	26	184	282	0	0	282	0	286	0	286	26	752	778
Total	476	369	102	845	1130	0	0	1130	0	1182	0	1182	102	3157	3259
Grand Total	913	707	226	1620	2184	0	0	2184	0	2430	0	2430	226	6234	6460
Apprch %	56.4	43.6			100	0			0	100					
Total %	14.6	11.3		26	35	0		35	0	39		39	3.5	96.5	
Passenger Vehicles	894	683		1800	2145	0		2145	0	2374		2374	0	0	6319
% Passenger Vehicles	97.9	96.6	98.7	97.5	98.2	0	0	98.2	0	97.7	0	97.7	0	0	97.8
Large 2 Axle Vehicles	8	8		18	26	0		26	0	34		34	0	0	78
% Large 2 Axle Vehicles	0.9	1.1	0.9	1	1.2	0	0	1.2	0	1.4	0	1.4	0	0	1.2
3 Axle Vehicles	4	2		6	4	0		4	0	6		6	0	0	16
% 3 Axle Vehicles	0.4	0.3	0	0.3	0.2	0	0	0.2	0	0.2	0	0.2	0	0	0.2
4+ Axle Trucks	7	14		22	9	0		9	0	16		16	0	0	47
% 4+ Axle Trucks	0.8	2	0.4	1.2	0.4	0	0	0.4	0	0.7	0	0.7	0	0	0.7

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	140	**99**	**239**	265	0	265	0	302	302	806
05:00 PM	125	97	222	264	0	264	0	295	295	781
05:15 PM	**146**	91	237	288	0	288	0	269	269	794
05:30 PM	110	92	202	**296**	0	**296**	0	**332**	**332**	**830**
Total Volume	521	379	900	1113	0	1113	0	1198	1198	3211
% App. Total	57.9	42.1		100	0		0	100		
PHF	.892	.957	.941	.940	.000	.940	.000	.902	.902	.967

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
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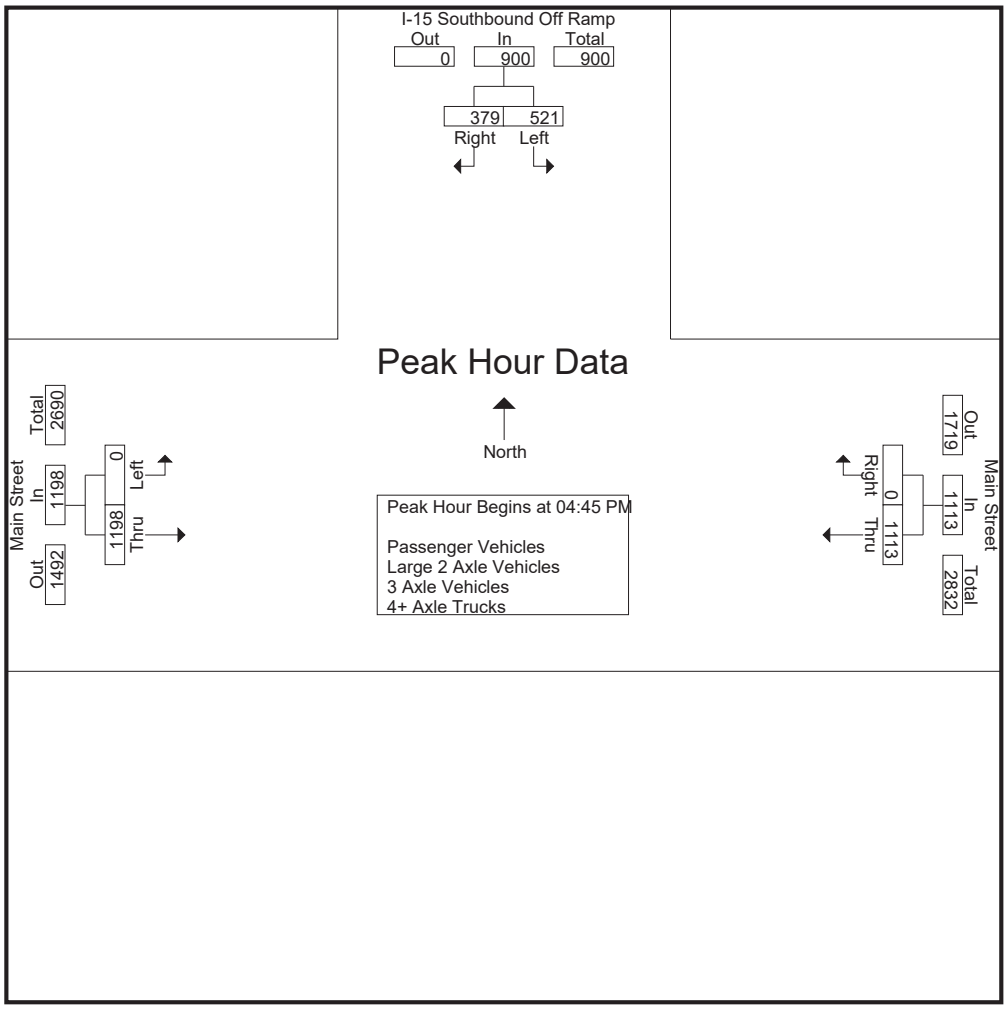

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			05:00 PM			04:00 PM		
+0 mins.	140	**99**	**239**	264	0	264	0	**329**	**329**
+15 mins.	125	97	222	288	0	288	0	307	307
+30 mins.	**146**	91	237	**296**	0	**296**	0	310	310
+45 mins.	110	92	202	282	0	282	0	302	302
Total Volume	521	379	900	1130	0	1130	0	1248	1248
% App. Total	57.9	42.1		100	0		0	100	
PHF	.892	.957	.941	.954	.000	.954	.000	.948	.948

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City of Hesperia
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Groups Printed- Passenger Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	94	63	29	157	237	0	0	237	0	316	0	316	29	710	739
04:15 PM	113	78	28	191	267	0	0	267	0	298	0	298	28	756	784
04:30 PM	85	87	31	172	269	0	0	269	0	302	0	302	31	743	774
04:45 PM	137	97	34	234	261	0	0	261	0	295	0	295	34	790	824
Total	429	325	122	754	1034	0	0	1034	0	1211	0	1211	122	2999	3121
05:00 PM	122	97	29	219	261	0	0	261	0	291	0	291	29	771	800
05:15 PM	142	86	25	228	285	0	0	285	0	262	0	262	25	775	800
05:30 PM	106	90	22	196	288	0	0	288	0	325	0	325	22	809	831
05:45 PM	95	85	25	180	277	0	0	277	0	285	0	285	25	742	767
Total	465	358	101	823	1111	0	0	1111	0	1163	0	1163	101	3097	3198
Grand Total	894	683	223	1577	2145	0	0	2145	0	2374	0	2374	223	6096	6319
Apprch %	56.7	43.3			100	0			0	100					
Total %	14.7	11.2		25.9	35.2	0		35.2	0	38.9		38.9	3.5	96.5	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	137	**97**	**234**	261	0	261	0	295	295	790
05:00 PM	122	97	219	261	0	261	0	291	291	771
05:15 PM	**142**	86	228	285	0	285	0	262	262	775
05:30 PM	106	90	196	**288**	0	**288**	0	**325**	**325**	**809**
Total Volume	507	370	877	1095	0	1095	0	1173	1173	3145
% App. Total	57.8	42.2		100	0		0	100		
PHF	.893	.954	.937	.951	.000	.951	.000	.902	.902	.972

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City of Hesperia
N/S: I-15 Southbound Off Ramp
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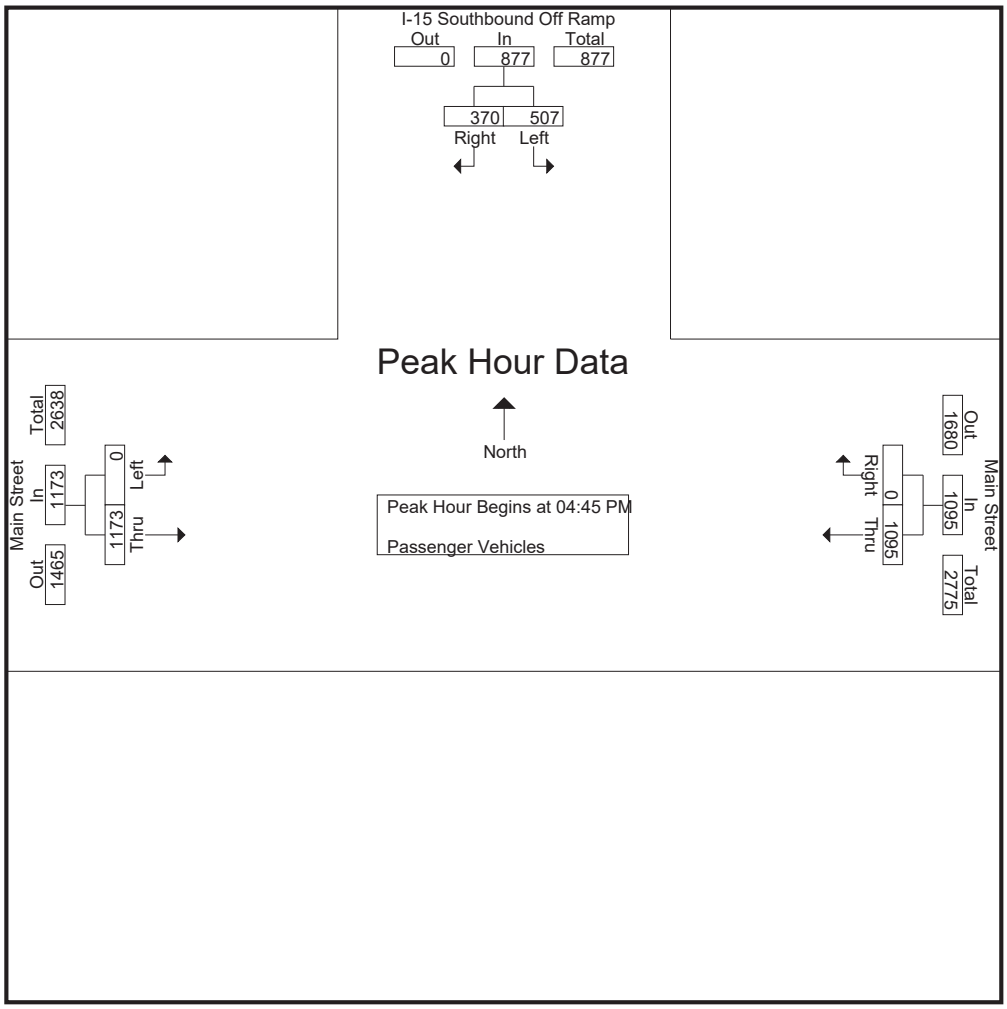

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	137	**97**	**234**	261	0	261	0	295	295
+15 mins.	122	97	219	261	0	261	0	291	291
+30 mins.	**142**	86	228	285	0	285	0	262	262
+45 mins.	106	90	196	**288**	0	**288**	0	**325**	**325**
Total Volume	507	370	877	1095	0	1095	0	1173	1173
% App. Total	57.8	42.2		100	0		0	100	
PHF	.893	.954	.937	.951	.000	.951	.000	.902	.902

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
Site Code : 05119658
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Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	1	1	4	0	0	4	0	9	0	9	1	14	15
04:15 PM	1	0	0	1	3	0	0	3	0	7	0	7	0	11	11
04:30 PM	1	1	0	2	4	0	0	4	0	5	0	5	0	11	11
04:45 PM	2	1	0	3	2	0	0	2	0	4	0	4	0	9	9
Total	4	3	1	7	13	0	0	13	0	25	0	25	1	45	46
05:00 PM	1	0	0	1	2	0	0	2	0	1	0	1	0	4	4
05:15 PM	3	2	0	5	2	0	0	2	0	4	0	4	0	11	11
05:30 PM	0	0	0	0	7	0	0	7	0	4	0	4	0	11	11
05:45 PM	0	3	1	3	2	0	0	2	0	0	0	0	1	5	6
Total	4	5	1	9	13	0	0	13	0	9	0	9	1	31	32
Grand Total	8	8	2	16	26	0	0	26	0	34	0	34	2	76	78
Apprch %	50	50			100	0			0	100					
Total %	10.5	10.5		21.1	34.2	0		34.2	0	44.7		44.7	2.6	97.4	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	2	1	3	2	0	2	0	**4**	**4**	9
05:00 PM	1	0	1	2	0	2	0	1	1	4
05:15 PM	**3**	**2**	**5**	2	0	2	0	4	4	**11**
05:30 PM	0	0	0	**7**	0	**7**	0	4	4	11
Total Volume	6	3	9	13	0	13	0	13	13	35
% App. Total	66.7	33.3		100	0		0	100		
PHF	.500	.375	.450	.464	.000	.464	.000	.813	.813	.795

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City of Hesperia
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Weather: Clear

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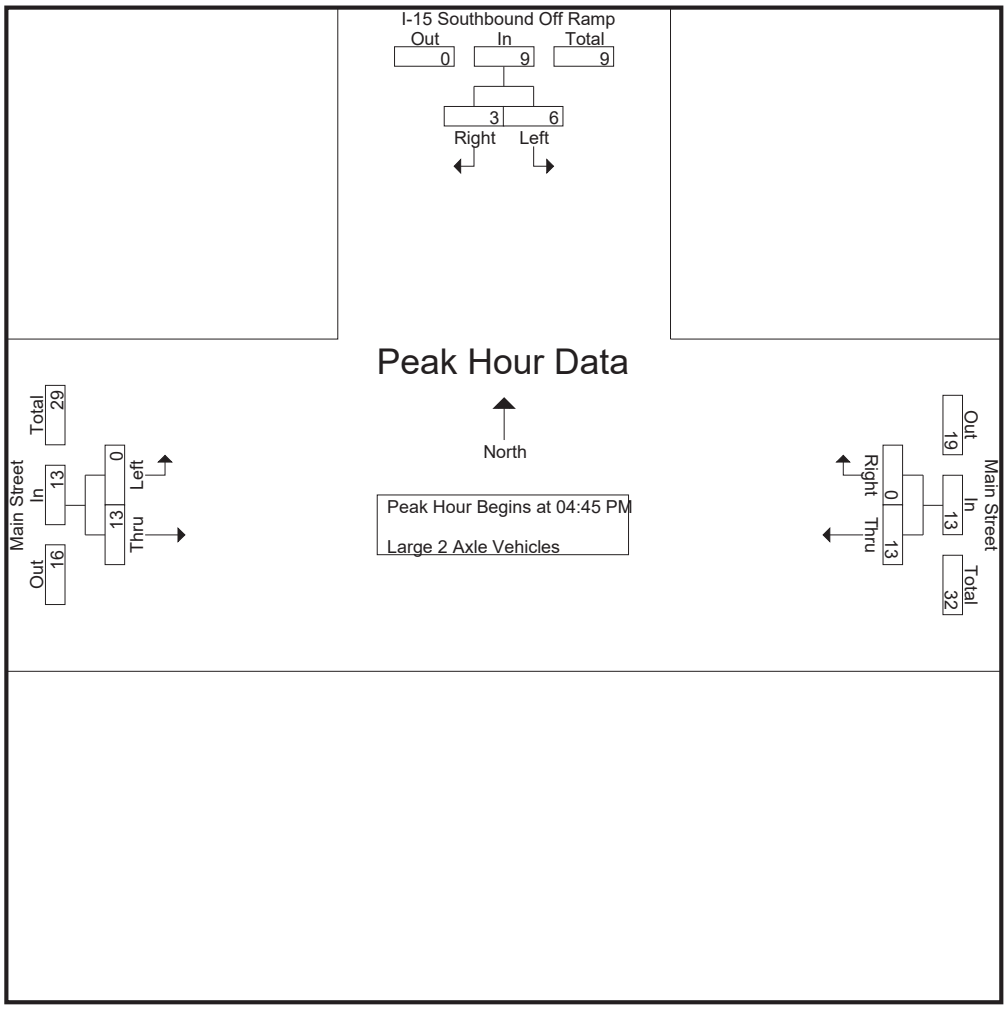

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	2	1	3	2	0	2	0	**4**	**4**
+15 mins.	1	0	1	2	0	2	0	1	1
+30 mins.	**3**	**2**	**5**	2	0	2	0	4	4
+45 mins.	0	0	0	**7**	0	**7**	0	4	4
Total Volume	6	3	9	13	0	13	0	13	13
% App. Total	66.7	33.3		100	0		0	100	
PHF	.500	.375	.450	.464	.000	.464	.000	.813	.813

Counts Unlimited
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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	1	1	0	2	2	0	0	2	0	0	0	0	0	4	4
04:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2
04:45 PM	1	0	0	1	1	0	0	1	0	1	0	1	0	3	3
Total	2	2	0	4	3	0	0	3	0	3	0	3	0	10	10
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1
05:15 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	2	2
05:30 PM	2	0	0	2	0	0	0	0	0	1	0	1	0	3	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	2	1	0	0	1	0	3	0	3	0	6	6
Grand Total	4	2	0	6	4	0	0	4	0	6	0	6	0	16	16
Apprch %	66.7	33.3			100	0			0	100					
Total %	25	12.5		37.5	25	0		25	0	37.5		37.5	0	100	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	1	0	1	**1**	0	**1**	0	**1**	**1**	**3**
05:00 PM	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	1	0	1	0	1	1	2
05:30 PM	**2**	0	**2**	0	0	0	0	1	1	3
Total Volume	3	0	3	2	0	2	0	4	4	9
% App. Total	100	0		100	0		0	100		
PHF	.375	.000	.375	.500	.000	.500	.000	1.00	1.00	.750

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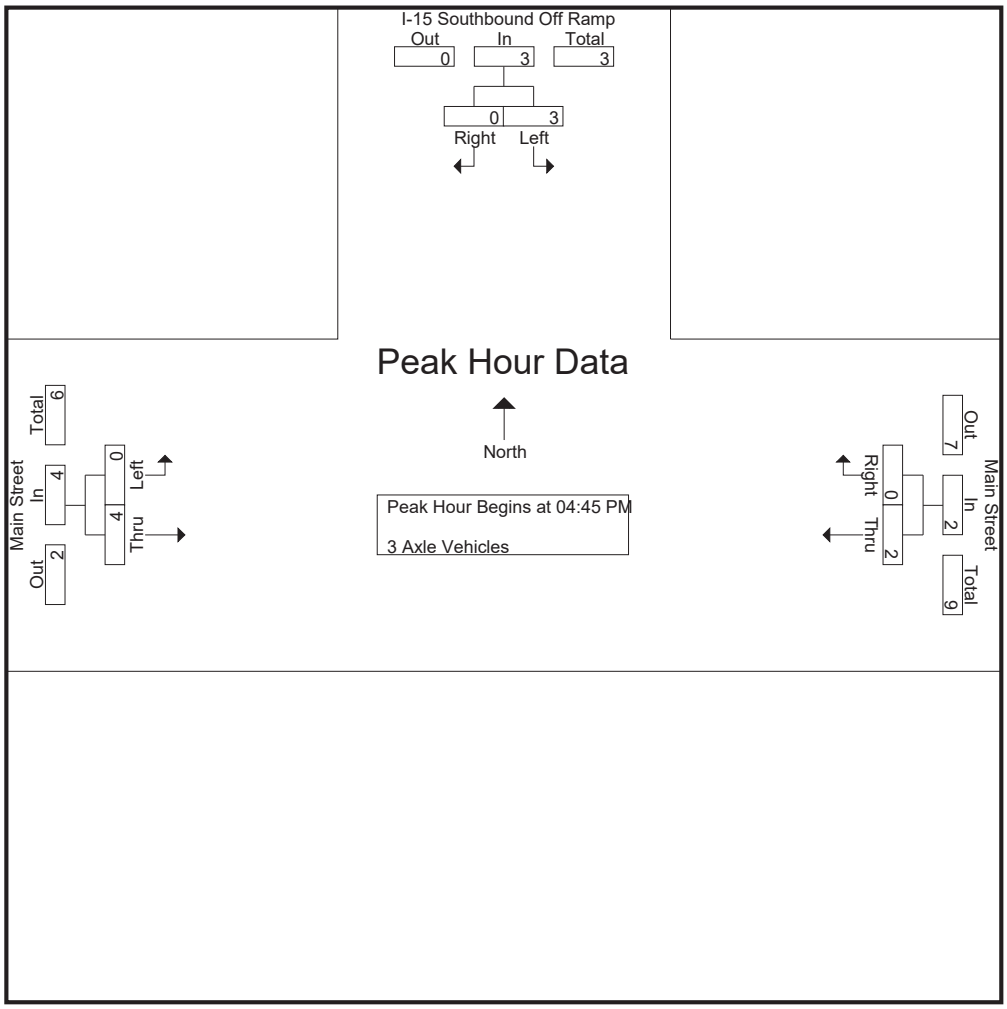
City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	1	0	1	**1**	0	**1**	0	**1**	**1**
+15 mins.	0	0	0	0	0	0	0	1	1
+30 mins.	0	0	0	1	0	1	0	1	1
+45 mins.	**2**	0	**2**	0	0	0	0	1	1
Total Volume	3	0	3	2	0	2	0	4	4
% App. Total	100	0		100	0		0	100	
PHF	.375	.000	.375	.500	.000	.500	.000	1.000	1.000

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City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Main Street Westbound				Main Street Eastbound						
Start Time	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	3	0	3	1	0	0	1	0	4	0	4	0	8	8
04:15 PM	0	1	0	1	1	0	0	1	0	2	0	2	0	4	4
04:30 PM	2	3	1	5	1	0	0	1	0	1	0	1	1	7	8
04:45 PM	0	1	0	1	1	0	0	1	0	2	0	2	0	4	4
Total	2	8	1	10	4	0	0	4	0	9	0	9	1	23	24
05:00 PM	2	0	0	2	1	0	0	1	0	2	0	2	0	5	5
05:15 PM	1	3	0	4	0	0	0	0	0	2	0	2	0	6	6
05:30 PM	2	2	0	4	1	0	0	1	0	2	0	2	0	7	7
05:45 PM	0	1	0	1	3	0	0	3	0	1	0	1	0	5	5
Total	5	6	0	11	5	0	0	5	0	7	0	7	0	23	23
Grand Total	7	14	1	21	9	0	0	9	0	16	0	16	1	46	47
Apprch %	33.3	66.7			100	0			0	100					
Total %	15.2	30.4		45.7	19.6	0		19.6	0	34.8		34.8	2.1	97.9	

	I-15 Southbound Off Ramp Southbound			Main Street Westbound			Main Street Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	1	1	**1**	0	**1**	0	**2**	**2**	4
05:00 PM	**2**	0	2	1	0	1	0	2	2	5
05:15 PM	1	**3**	**4**	0	0	0	0	2	2	6
05:30 PM	2	2	4	1	0	1	0	2	2	**7**
Total Volume	5	6	11	3	0	3	0	8	8	22
% App. Total	45.5	54.5		100	0		0	100		
PHF	.625	.500	.688	.750	.000	.750	.000	1.00	1.00	.786

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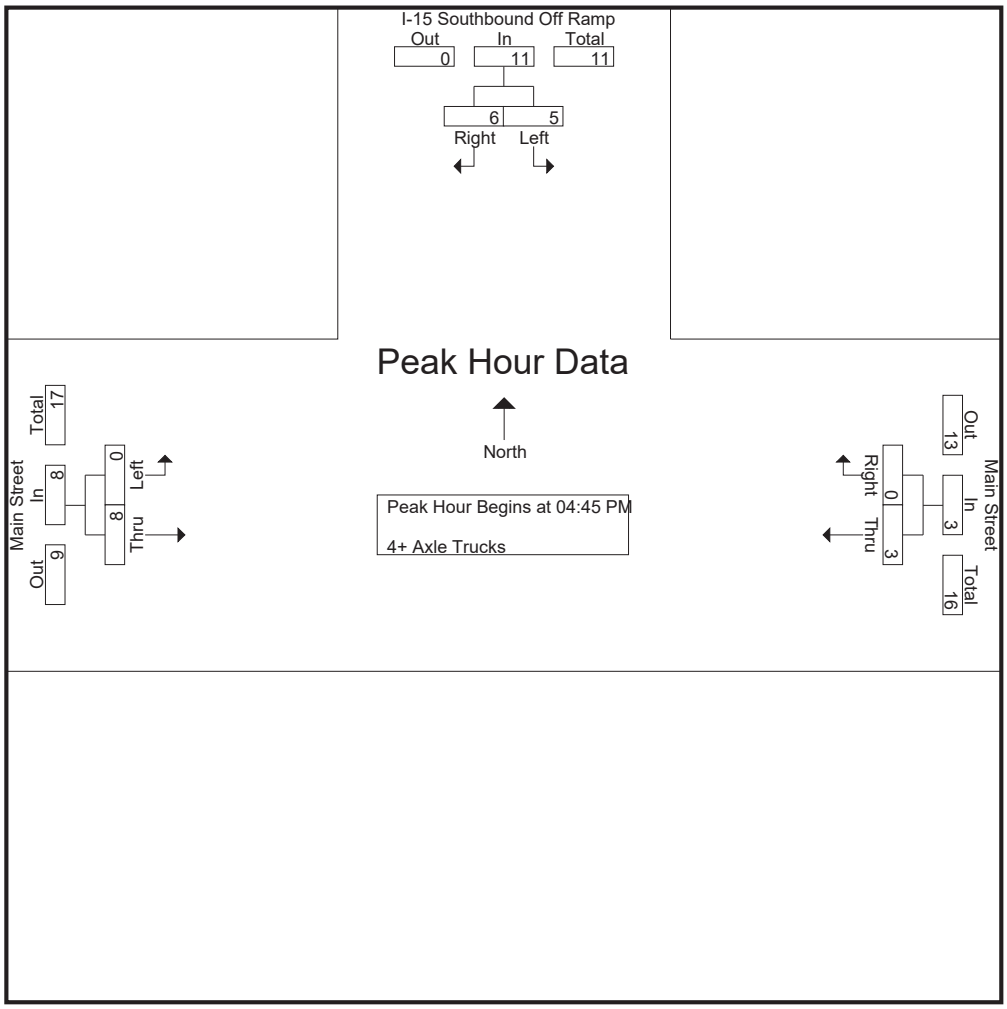
City of Hesperia
N/S: I-15 Southbound Off Ramp
E/W: Main Street
Weather: Clear

File Name : 12_HES_15S Off Ramp_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	1	1	**1**	0	**1**	0	**2**	**2**
+15 mins.	**2**	0	2	1	0	1	0	2	2
+30 mins.	1	**3**	**4**	0	0	0	0	2	2
+45 mins.	2	2	4	1	0	1	0	2	2
Total Volume	5	6	11	3	0	3	0	8	8
% App. Total	45.5	54.5		100	0		0	100	
PHF	.625	.500	.688	.750	.000	.750	.000	1.000	1.000

Location: Hesperia
N/S: I-15 SB Off Ramp
E/W: Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg I-15 SB Off Ramp	East Leg Main Street	South Leg Dead End	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg I-15 SB Off Ramp	East Leg Main Street	South Leg Dead End	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	1	0	0	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1

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Location: Hesperia
N/S: I-15 SB Off Ramp
E/W: Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound I-15 SB Off Ramp			Westbound Main Street			Northbound Dead End			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound I-15 SB Off Ramp			Westbound Main Street			Northbound Dead End			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	270	84	6	354	10	1	116	55	127	0	281	54	0	335	61	816	877
07:15 AM	0	0	0	0	0	0	278	129	13	407	14	1	84	55	99	0	236	65	0	301	68	807	875
07:30 AM	0	0	0	0	0	0	324	129	6	453	19	0	81	51	100	0	182	70	0	252	57	805	862
07:45 AM	0	0	0	0	0	0	274	96	6	370	21	1	75	45	97	0	233	80	0	313	51	780	831
Total	0	0	0	0	0	0	1146	438	31	1584	64	3	356	206	423	0	932	269	0	1201	237	3208	3445
08:00 AM	0	0	0	0	0	0	277	96	1	373	4	2	65	49	71	0	208	57	0	265	50	709	759
08:15 AM	0	0	0	0	0	0	278	83	16	361	12	0	56	41	68	0	189	69	0	258	57	687	744
08:30 AM	0	0	0	0	0	0	251	94	14	345	11	0	65	36	76	0	205	65	0	270	50	691	741
08:45 AM	0	0	0	0	0	0	273	82	11	355	22	0	67	37	89	0	209	56	0	265	48	709	757
Total	0	0	0	0	0	0	1079	355	42	1434	49	2	253	163	304	0	811	247	0	1058	205	2796	3001
Grand Total	0	0	0	0	0	0	2225	793	73	3018	113	5	609	369	727	0	1743	516	0	2259	442	6004	6446
Apprch %	0	0	0			0	73.7	26.3			15.5	0.7	83.8			0	77.2	22.8					
Total %	0	0	0		0	0	37.1	13.2		50.3	1.9	0.1	10.1		12.1	0	29	8.6		37.6	6.9	93.1	
Passenger Vehicles	0	0	0		0	0	2118	766		2952	99	3	570		1017	0	1688	492		2180	0	0	6149
% Passenger Vehicles	0	0	0	0	0	0	95.2	96.6	93.2	95.5	87.6	60	93.6	93.5	92.8	0	96.8	95.3	0	96.5	0	0	95.4
Large 2 Axle Vehicles	0	0	0		0	0	68	16		86	6	1	25		48	0	36	8		44	0	0	178
% Large 2 Axle Vehicles	0	0	0	0	0	0	3.1	2	2.7	2.8	5.3	20	4.1	4.3	4.4	0	2.1	1.6	0	1.9	0	0	2.8
3 Axle Vehicles	0	0	0		0	0	11	2		13	0	0	2		4	0	5	2		7	0	0	24
% 3 Axle Vehicles	0	0	0	0	0	0	0.5	0.3	0	0.4	0	0	0.3	0.5	0.4	0	0.3	0.4	0	0.3	0	0	0.4
4+ Axle Trucks	0	0	0		0	0	28	9		40	8	1	12		27	0	14	14		28	0	0	95
% 4+ Axle Trucks	0	0	0	0	0	0	1.3	1.1	4.1	1.3	7.1	20	2	1.6	2.5	0	0.8	2.7	0	1.2	0	0	1.5

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	270	84	354	10	**1**	**116**	**127**	0	**281**	54	**335**	**816**
07:15 AM	0	0	0	0	0	278	**129**	407	14	1	84	99	0	236	65	301	807
07:30 AM	0	0	0	0	0	**324**	129	**453**	19	0	81	100	0	182	70	252	805
07:45 AM	0	0	0	0	0	274	96	370	**21**	1	75	97	0	233	**80**	313	780
Total Volume	0	0	0	0	0	1146	438	1584	64	3	356	423	0	932	269	1201	3208
% App. Total	0	0	0		0	72.3	27.7		15.1	0.7	84.2		0	77.6	22.4		
PHF	.000	.000	.000	.000	.000	.884	.849	.874	.762	.750	.767	.833	.000	.829	.841	.896	.983

Counts Unlimited
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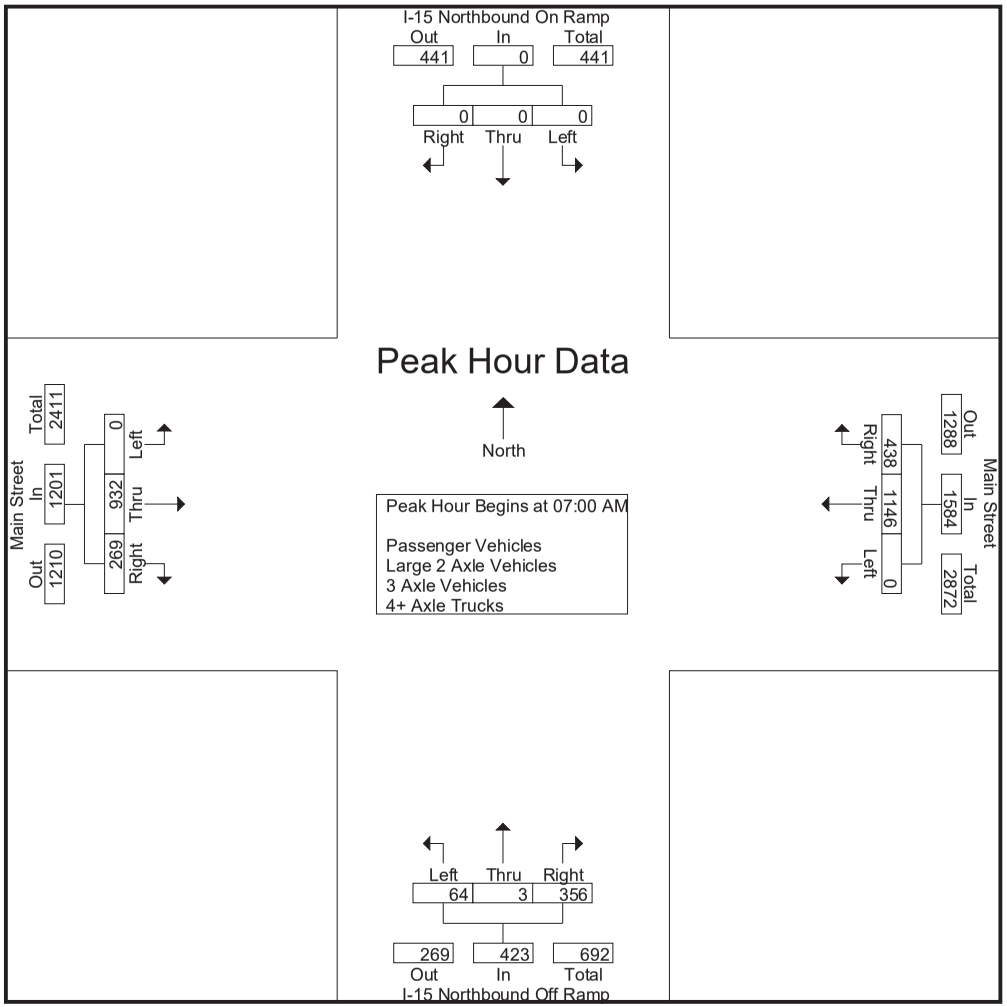
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:15 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	278	**129**	407	10	**1**	**116**	**127**	0	**281**	54	**335**	
+15 mins.	0	0	0	0	0	**324**	129	**453**	14	1	84	99	0	236	65	301	
+30 mins.	0	0	0	0	0	274	96	370	19	0	81	100	0	182	70	252	
+45 mins.	0	0	0	0	0	277	96	373	**21**	1	75	97	0	233	**80**	313	
Total Volume	0	0	0	0	0	1153	450	1603	64	3	356	423	0	932	269	1201	
% App. Total	0	0	0		0	71.9	28.1		15.1	0.7	84.2		0	77.6	22.4		
PHF	.000	.000	.000	.000	.000	.890	.872	.885	.762	.750	.767	.833	.000	.829	.841	.896	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	260	83	5	343	7	0	111	53	118	0	272	49	0	321	58	782	840
07:15 AM	0	0	0	0	0	0	262	127	13	389	13	1	78	53	92	0	229	64	0	293	66	774	840
07:30 AM	0	0	0	0	0	0	310	124	5	434	17	0	75	47	92	0	175	69	0	244	52	770	822
07:45 AM	0	0	0	0	0	0	261	92	5	353	18	0	71	43	89	0	226	76	0	302	48	744	792
Total	0	0	0	0	0	0	1093	426	28	1519	55	1	335	196	391	0	902	258	0	1160	224	3070	3294
08:00 AM	0	0	0	0	0	0	263	94	1	357	4	2	58	44	64	0	204	54	0	258	45	679	724
08:15 AM	0	0	0	0	0	0	263	80	15	343	10	0	53	39	63	0	181	64	0	245	54	651	705
08:30 AM	0	0	0	0	0	0	236	89	14	325	10	0	61	32	71	0	200	61	0	261	46	657	703
08:45 AM	0	0	0	0	0	0	263	77	10	340	20	0	63	34	83	0	201	55	0	256	44	679	723
Total	0	0	0	0	0	0	1025	340	40	1365	44	2	235	149	281	0	786	234	0	1020	189	2666	2855
Grand Total	0	0	0	0	0	0	2118	766	68	2884	99	3	570	345	672	0	1688	492	0	2180	413	5736	6149
Apprch %	0	0	0			0	73.4	26.6			14.7	0.4	84.8			0	77.4	22.6					
Total %	0	0	0		0	0	36.9	13.4		50.3	1.7	0.1	9.9		11.7	0	29.4	8.6		38	6.7	93.3	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	260	83	343	7	0	**111**	**118**	0	**272**	49	**321**	**782**
07:15 AM	0	0	0	0	0	262	**127**	389	13	**1**	78	92	0	229	64	293	774
07:30 AM	0	0	0	0	0	**310**	124	**434**	17	0	75	92	0	175	69	244	770
07:45 AM	0	0	0	0	0	261	92	353	**18**	0	71	89	0	226	**76**	302	744
Total Volume	0	0	0	0	0	1093	426	1519	55	1	335	391	0	902	258	1160	3070
% App. Total	0	0	0		0	72	28		14.1	0.3	85.7		0	77.8	22.2		
PHF	.000	.000	.000	.000	.000	.881	.839	.875	.764	.250	.755	.828	.000	.829	.849	.903	.981

Counts Unlimited
PO Box 1178
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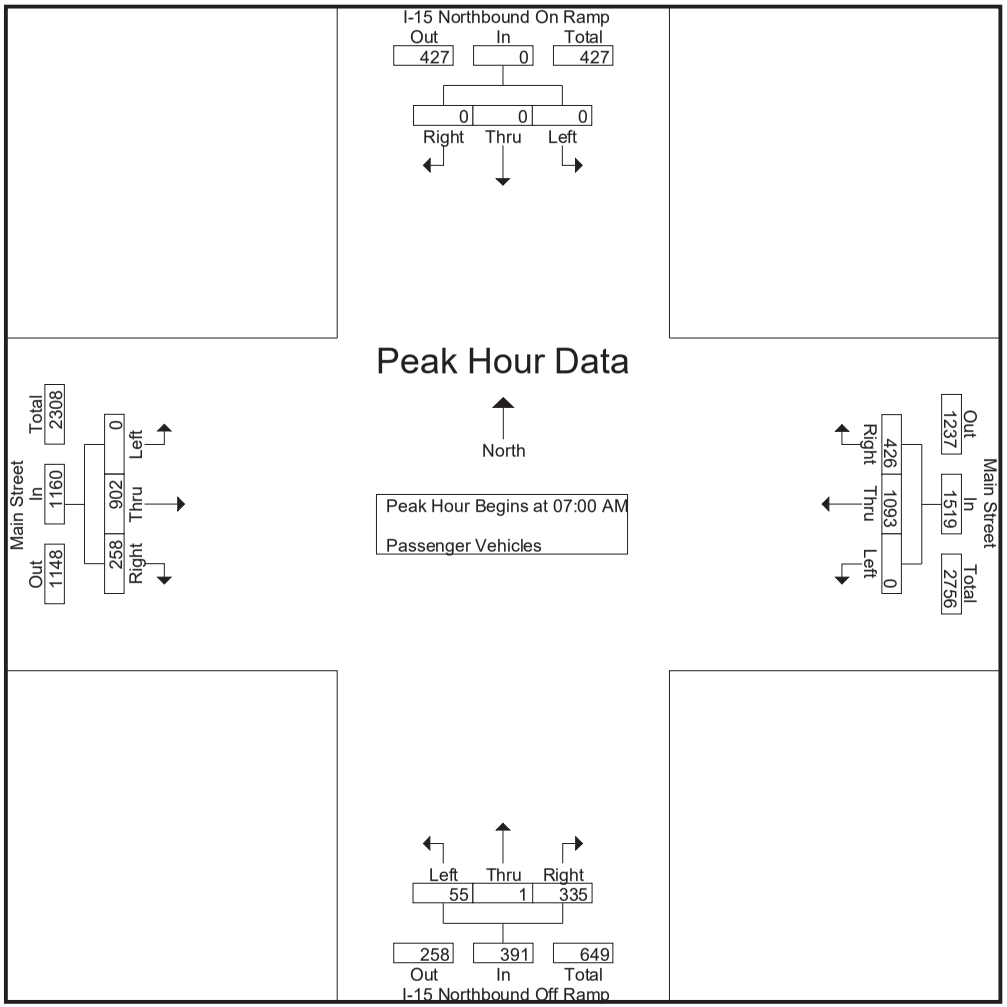
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	260	83	343	7	0	**111**	**118**	0	**272**	49	**321**	
+15 mins.	0	0	0	0	0	262	**127**	389	13	**1**	78	92	0	229	64	293	
+30 mins.	0	0	0	0	0	**310**	124	**434**	17	0	75	92	0	175	69	244	
+45 mins.	0	0	0	0	0	261	92	353	**18**	0	71	89	0	226	**76**	302	
Total Volume	0	0	0	0	0	1093	426	1519	55	1	335	391	0	902	258	1160	
% App. Total	0	0	0		0	72	28		14.1	0.3	85.7		0	77.8	22.2		
PHF	.000	.000	.000	.000	.000	.881	.839	.875	.764	.250	.755	.828	.000	.829	.849	.903	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	7	0	0	7	2	1	3	1	6	0	6	2	0	8	1	21	22
07:15 AM	0	0	0	0	0	0	12	2	0	14	0	0	4	2	4	0	4	0	0	4	2	22	24
07:30 AM	0	0	0	0	0	0	7	2	0	9	0	0	4	3	4	0	6	0	0	6	3	19	22
07:45 AM	0	0	0	0	0	0	10	1	0	11	1	0	2	1	3	0	4	0	0	4	1	18	19
Total	0	0	0	0	0	0	36	5	0	41	3	1	13	7	17	0	20	2	0	22	7	80	87
08:00 AM	0	0	0	0	0	0	9	1	0	10	0	0	4	3	4	0	2	1	0	3	3	17	20
08:15 AM	0	0	0	0	0	0	5	2	1	7	0	0	3	2	3	0	5	2	0	7	3	17	20
08:30 AM	0	0	0	0	0	0	11	4	0	15	1	0	4	3	5	0	4	3	0	7	3	27	30
08:45 AM	0	0	0	0	0	0	7	4	1	11	2	0	1	1	3	0	5	0	0	5	2	19	21
Total	0	0	0	0	0	0	32	11	2	43	3	0	12	9	15	0	16	6	0	22	11	80	91
Grand Total	0	0	0	0	0	0	68	16	2	84	6	1	25	16	32	0	36	8	0	44	18	160	178
Apprch %	0	0	0			0	81	19			18.8	3.1	78.1			0	81.8	18.2					
Total %	0	0	0		0	0	42.5	10		52.5	3.8	0.6	15.6		20	0	22.5	5		27.5	10.1	89.9	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	7	0	7	**2**	**1**	3	**6**	0	**6**	**2**	**8**	21
07:15 AM	0	0	0	0	0	**12**	**2**	**14**	0	0	**4**	4	0	4	0	4	**22**
07:30 AM	0	0	0	0	0	7	2	9	0	0	4	4	0	6	0	6	19
07:45 AM	0	0	0	0	0	10	1	11	1	0	2	3	0	4	0	4	18
Total Volume	0	0	0	0	0	36	5	41	3	1	13	17	0	20	2	22	80
% App. Total	0	0	0		0	87.8	12.2		17.6	5.9	76.5		0	90.9	9.1		
PHF	.000	.000	.000	.000	.000	.750	.625	.732	.375	.250	.813	.708	.000	.833	.250	.688	.909

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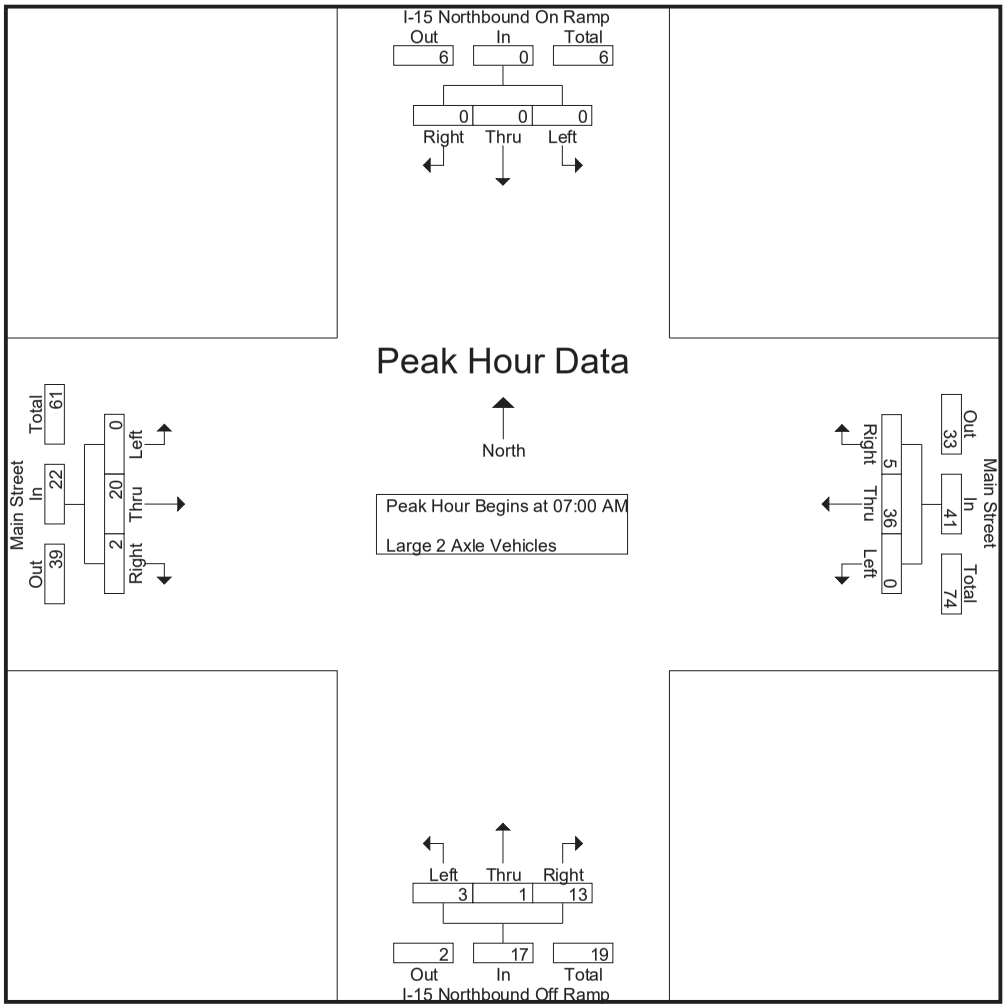
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	7	0	7	**2**	**1**	3	**6**	0	**6**	**2**	**8**	
+15 mins.	0	0	0	0	0	**12**	**2**	**14**	0	0	**4**	4	0	4	0	4	
+30 mins.	0	0	0	0	0	7	2	9	0	0	4	4	0	6	0	6	
+45 mins.	0	0	0	0	0	10	1	11	1	0	2	3	0	4	0	4	
Total Volume	0	0	0	0	0	36	5	41	3	1	13	17	0	20	2	22	
% App. Total	0	0	0		0	87.8	12.2		17.6	5.9	76.5		0	90.9	9.1		
PHF	.000	.000	.000	.000	.000	.750	.625	.732	.375	.250	.813	.708	.000	.833	.250	.688	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	4	4
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	1	0	0	1	0	5	5
07:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	2	0	2	0	4	4
Total	0	0	0	0	0	0	7	2	0	9	0	0	1	0	1	0	2	2	0	4	0	14	14
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	3	3
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1	2
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	1	1	0	1	0	0	1	1	3	4
Total	0	0	0	0	0	0	4	0	0	4	0	0	1	2	1	0	3	0	0	3	2	8	10
Grand Total	0	0	0	0	0	0	11	2	0	13	0	0	2	2	2	0	5	2	0	7	2	22	24
Apprch %	0	0	0			0	84.6	15.4			0	0	100			0	71.4	28.6					
Total %	0	0	0		0	0	50	9.1		59.1	0	0	9.1		9.1	0	22.7	9.1		31.8	8.3	91.7	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	**3**	0	3	0	0	0	0	0	**1**	0	1	4
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	3	**1**	**4**	0	0	0	0	0	1	0	1	**5**
07:45 AM	0	0	0	0	0	0	1	1	0	0	**1**	**1**	0	0	**2**	**2**	4
Total Volume	0	0	0	0	0	7	2	9	0	0	1	1	0	2	2	4	14
% App. Total	0	0	0		0	77.8	22.2		0	0	100		0	50	50		
PHF	.000	.000	.000	.000	.000	.583	.500	.563	.000	.000	.250	.250	.000	.500	.250	.500	.700

Counts Unlimited
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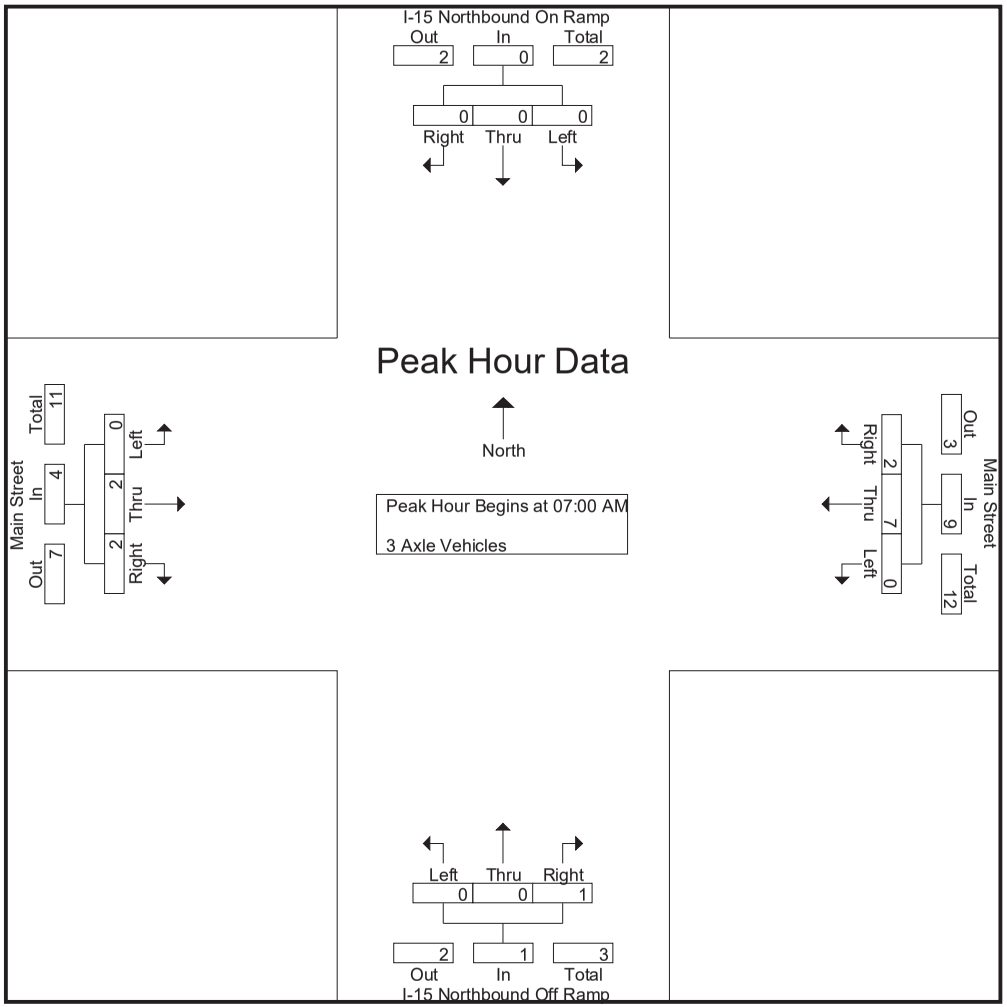
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	**3**	0	3	0	0	0	0	0	**1**	0	1	
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	3	**1**	**4**	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	0	1	1	0	0	**1**	**1**	0	0	**2**	**2**	
Total Volume	0	0	0	0	0	7	2	9	0	0	1	1	0	2	2	4	
% App. Total	0	0	0		0	77.8	22.2		0	0	100		0	50	50		
PHF	.000	.000	.000	.000	.000	.583	.500	.563	.000	.000	.250	.250	.000	.500	.250	.500	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	1	1	1	1	0	2	1	3	0	2	3	0	5	2	9	11
07:15 AM	0	0	0	0	0	0	3	0	0	3	1	0	2	0	3	0	3	1	0	4	0	10	10
07:30 AM	0	0	0	0	0	0	4	2	1	6	2	0	2	1	4	0	0	1	0	1	2	11	13
07:45 AM	0	0	0	0	0	0	3	2	1	5	2	1	1	1	4	0	3	2	0	5	2	14	16
Total	0	0	0	0	0	0	10	5	3	15	6	1	7	3	14	0	8	7	0	15	6	44	50
08:00 AM	0	0	0	0	0	0	5	1	0	6	0	0	3	2	3	0	1	2	0	3	2	12	14
08:15 AM	0	0	0	0	0	0	8	1	0	9	2	0	0	0	2	0	2	3	0	5	0	16	16
08:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	1	1	0	2	0	6	6
08:45 AM	0	0	0	0	0	0	2	1	0	3	0	0	2	1	2	0	2	1	0	3	1	8	9
Total	0	0	0	0	0	0	18	4	0	22	2	0	5	3	7	0	6	7	0	13	3	42	45
Grand Total	0	0	0	0	0	0	28	9	3	37	8	1	12	6	21	0	14	14	0	28	9	86	95
Apprch %	0	0	0			0	75.7	24.3			38.1	4.8	57.1			0	50	50					
Total %	0	0	0		0	0	32.6	10.5		43	9.3	1.2	14		24.4	0	16.3	16.3		32.6	9.5	90.5	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	1	1	1	0	**2**	3	0	2	**3**	**5**	9
07:15 AM	0	0	0	0	0	3	0	3	1	0	2	3	0	**3**	1	4	10
07:30 AM	0	0	0	0	0	**4**	**2**	**6**	**2**	0	2	**4**	0	0	1	1	11
07:45 AM	0	0	0	0	0	3	2	5	2	**1**	1	4	0	3	2	5	**14**
Total Volume	0	0	0	0	0	10	5	15	6	1	7	14	0	8	7	15	44
% App. Total	0	0	0		0	66.7	33.3		42.9	7.1	50		0	53.3	46.7		
PHF	.000	.000	.000	.000	.000	.625	.625	.625	.750	.250	.875	.875	.000	.667	.583	.750	.786

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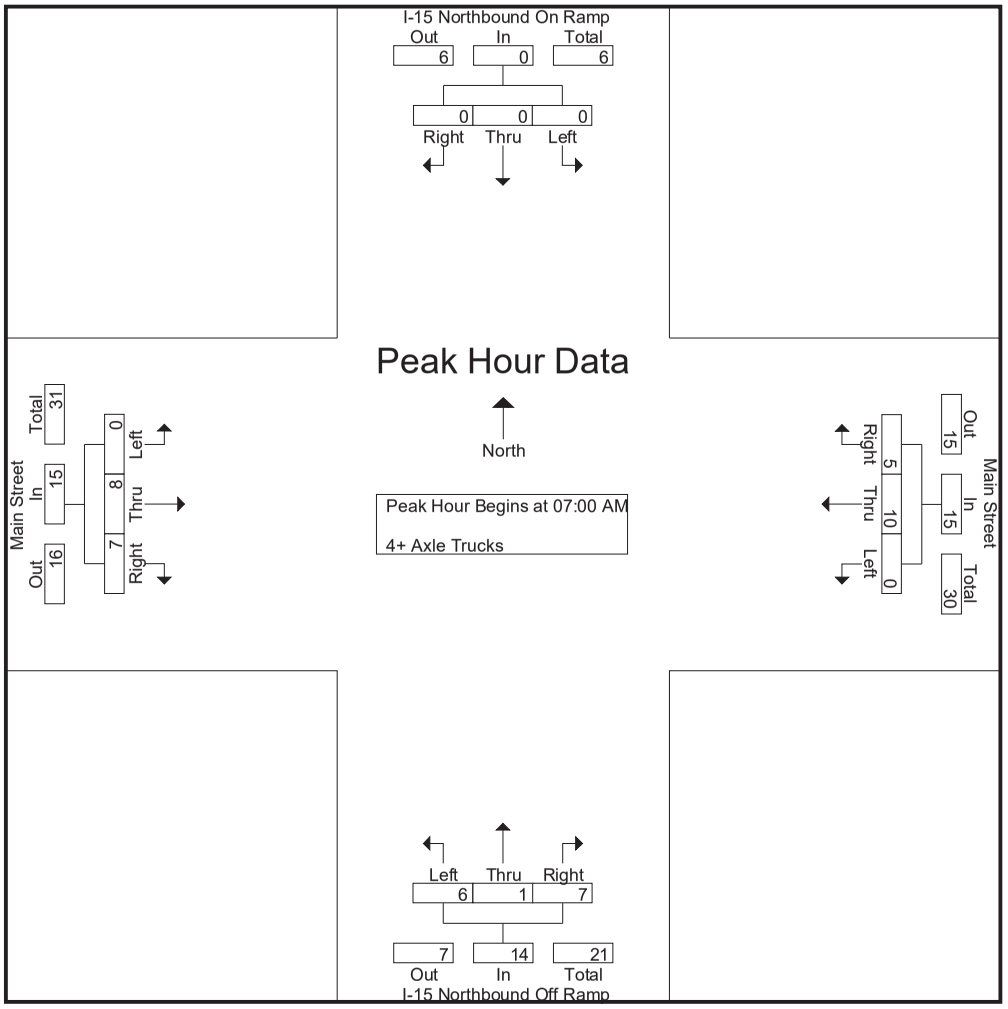
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main AM
Site Code : 05119658
Start Date : 9/28/2019

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	07:00 AM				07:00 AM				07:00 AM				07:00 AM				
+0 mins.	0	0	0	0	0	0	1	1	1	0	**2**	3	0	2	**3**	**5**	
+15 mins.	0	0	0	0	0	3	0	3	1	0	2	3	0	**3**	1	4	
+30 mins.	0	0	0	0	0	**4**	**2**	**6**	**2**	0	2	**4**	0	0	1	1	
+45 mins.	0	0	0	0	0	3	2	5	2	**1**	1	4	0	3	2	5	
Total Volume	0	0	0	0	0	10	5	15	6	1	7	14	0	8	7	15	
% App. Total	0	0	0		0	66.7	33.3		42.9	7.1	50		0	53.3	46.7		
PHF	.000	.000	.000	.000	.000	.625	.625	.625	.750	.250	.875	.875	.000	.667	.583	.750	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	275	96	22	371	36	1	161	19	189	0	352	65	0	417	41	977	1018
04:15 PM	0	0	0	0	0	0	350	86	25	436	38	1	161	28	200	0	366	56	0	422	53	1058	1111
04:30 PM	0	0	0	0	0	0	334	83	24	417	38	0	232	38	270	0	347	42	0	389	62	1076	1138
04:45 PM	0	0	0	0	0	0	316	85	28	401	52	0	213	38	265	0	384	38	0	422	66	1088	1154
Total	0	0	0	0	0	0	1275	350	99	1625	164	2	758	123	924	0	1449	201	0	1650	222	4199	4421
05:00 PM	0	0	0	0	0	0	288	90	20	378	32	0	155	54	187	0	363	40	0	403	74	968	1042
05:15 PM	0	0	0	0	0	0	349	95	39	444	42	0	191	29	233	0	340	51	0	391	68	1068	1136
05:30 PM	0	0	0	0	0	0	321	108	56	429	49	0	196	22	245	0	360	57	0	417	78	1091	1169
05:45 PM	0	0	0	0	0	0	318	94	22	412	48	2	198	32	248	0	344	24	0	368	54	1028	1082
Total	0	0	0	0	0	0	1276	387	137	1663	171	2	740	137	913	0	1407	172	0	1579	274	4155	4429
Grand Total	0	0	0	0	0	0	2551	737	236	3288	335	4	1498	260	1837	0	2856	373	0	3229	496	8354	8850
Apprch %	0	0	0			0	77.6	22.4			18.2	0.2	81.5			0	88.4	11.6					
Total %	0	0	0		0	0	30.5	8.8		39.4	4	0	17.9		22	0	34.2	4.5		38.7	5.6	94.4	
Passenger Vehicles	0	0	0		0	0	2486	717		3432	326	3	1437		2014	0	2797	355		3152	0	0	8598
% Passenger Vehicles	0	0	0	0	0	0	97.5	97.3	97	97.4	97.3	75	95.9	95.4	96	0	97.9	95.2	0	97.6	0	0	97.2
Large 2 Axle Vehicles	0	0	0		0	0	39	10		53	1	0	29		35	0	36	9		45	0	0	133
% Large 2 Axle Vehicles	0	0	0	0	0	0	1.5	1.4	1.7	1.5	0.3	0	1.9	1.9	1.7	0	1.3	2.4	0	1.4	0	0	1.5
3 Axle Vehicles	0	0	0		0	0	10	0		10	0	1	5		6	0	9	1		10	0	0	26
% 3 Axle Vehicles	0	0	0	0	0	0	0.4	0	0	0.3	0	25	0.3	0	0.3	0	0.3	0.3	0	0.3	0	0	0.3
4+ Axle Trucks	0	0	0		0	0	16	10		29	8	0	27		42	0	14	8		22	0	0	93
% 4+ Axle Trucks	0	0	0	0	0	0	0.6	1.4	1.3	0.8	2.4	0	1.8	2.7	2	0	0.5	2.1	0	0.7	0	0	1.1

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	316	85	401	**52**	0	**213**	**265**	0	**384**	38	**422**	1088
05:00 PM	0	0	0	0	0	288	90	378	32	0	155	187	0	363	40	403	968
05:15 PM	0	0	0	0	0	**349**	95	**444**	42	0	191	233	0	340	51	391	1068
05:30 PM	0	0	0	0	0	321	**108**	429	49	0	196	245	0	360	**57**	417	**1091**
Total Volume	0	0	0	0	0	1274	378	1652	175	0	755	930	0	1447	186	1633	4215
% App. Total	0	0	0		0	77.1	22.9		18.8	0	81.2		0	88.6	11.4		
PHF	.000	.000	.000	.000	.000	.913	.875	.930	.841	.000	.886	.877	.000	.942	.816	.967	.966

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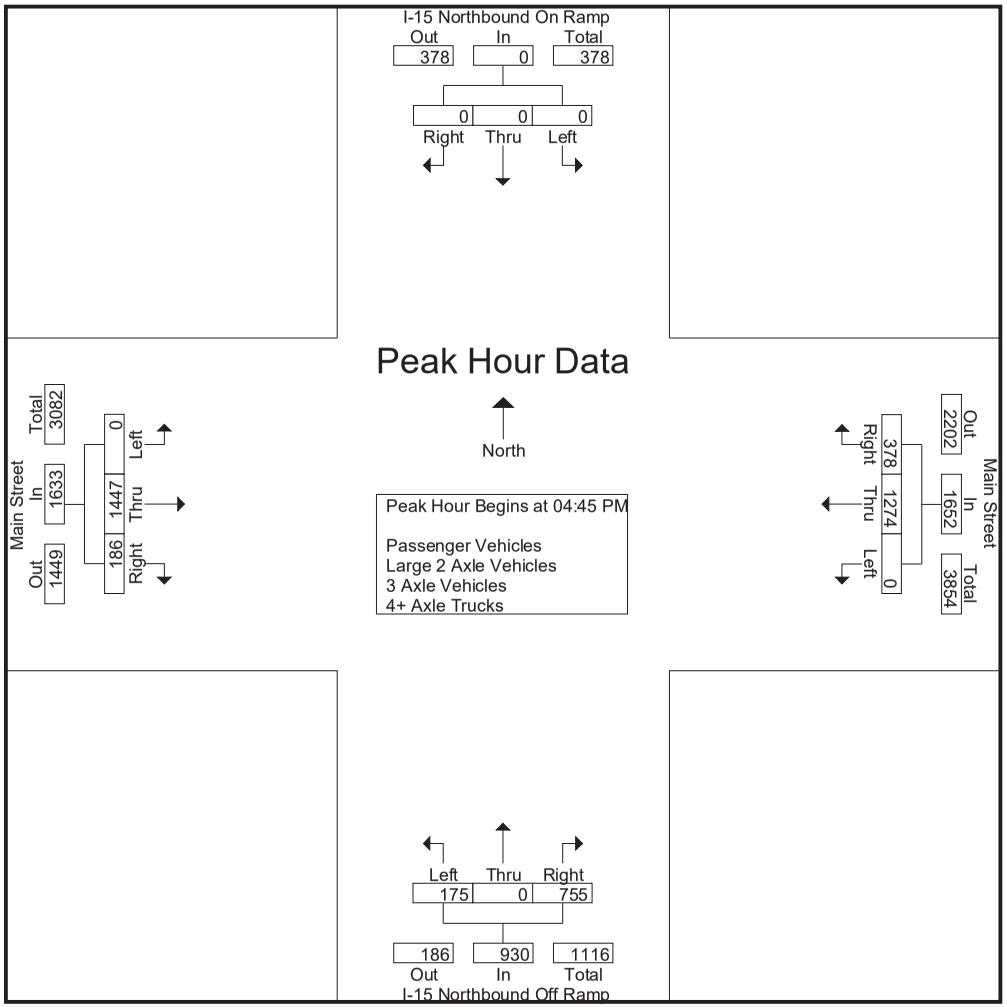
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
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Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:00 PM				05:00 PM				04:30 PM				04:00 PM				
+0 mins.	0	0	0	0	0	288	90	378	38	0	**232**	**270**	0	352	**65**	417	
+15 mins.	0	0	0	0	0	**349**	95	**444**	**52**	0	213	265	0	366	56	**422**	
+30 mins.	0	0	0	0	0	321	**108**	429	32	0	155	187	0	347	42	389	
+45 mins.	0	0	0	0	0	318	94	412	42	0	191	233	0	**384**	38	422	
Total Volume	0	0	0	0	0	1276	387	1663	164	0	791	955	0	1449	201	1650	
% App. Total	0	0	0		0	76.7	23.3		17.2	0	82.8		0	87.8	12.2		
PHF	.000	.000	.000	.000	.000	.914	.896	.936	.788	.000	.852	.884	.000	.943	.773	.977	

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City of Hesperia
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E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	269	96	22	365	34	1	149	18	184	0	345	60	0	405	40	954	994
04:15 PM	0	0	0	0	0	0	343	83	25	426	37	0	154	28	191	0	359	55	0	414	53	1031	1084
04:30 PM	0	0	0	0	0	0	323	82	24	405	37	0	224	36	261	0	338	38	0	376	60	1042	1102
04:45 PM	0	0	0	0	0	0	307	82	27	389	50	0	201	37	251	0	375	35	0	410	64	1050	1114
Total	0	0	0	0	0	0	1242	343	98	1585	158	1	728	119	887	0	1417	188	0	1605	217	4077	4294
05:00 PM	0	0	0	0	0	0	283	88	20	371	32	0	142	48	174	0	355	39	0	394	68	939	1007
05:15 PM	0	0	0	0	0	0	340	88	36	428	42	0	183	27	225	0	333	49	0	382	63	1035	1098
05:30 PM	0	0	0	0	0	0	311	105	54	416	49	0	193	22	242	0	350	55	0	405	76	1063	1139
05:45 PM	0	0	0	0	0	0	310	93	21	403	45	2	191	32	238	0	342	24	0	366	53	1007	1060
Total	0	0	0	0	0	0	1244	374	131	1618	168	2	709	129	879	0	1380	167	0	1547	260	4044	4304
Grand Total	0	0	0	0	0	0	2486	717	229	3203	326	3	1437	248	1766	0	2797	355	0	3152	477	8121	8598
Apprch %	0	0	0			0	77.6	22.4			18.5	0.2	81.4			0	88.7	11.3					
Total %	0	0	0		0	0	30.6	8.8		39.4	4	0	17.7		21.7	0	34.4	4.4		38.8	5.5	94.5	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	307	82	389	**50**	0	**201**	**251**	0	**375**	35	**410**	1050
05:00 PM	0	0	0	0	0	283	88	371	32	0	142	174	0	355	39	394	939
05:15 PM	0	0	0	0	0	**340**	88	**428**	42	0	183	225	0	333	49	382	1035
05:30 PM	0	0	0	0	0	311	**105**	416	49	0	193	242	0	350	**55**	405	**1063**
Total Volume	0	0	0	0	0	1241	363	1604	173	0	719	892	0	1413	178	1591	4087
% App. Total	0	0	0		0	77.4	22.6		19.4	0	80.6		0	88.8	11.2		
PHF	.000	.000	.000	.000	.000	.913	.864	.937	.865	.000	.894	.888	.000	.942	.809	.970	.961

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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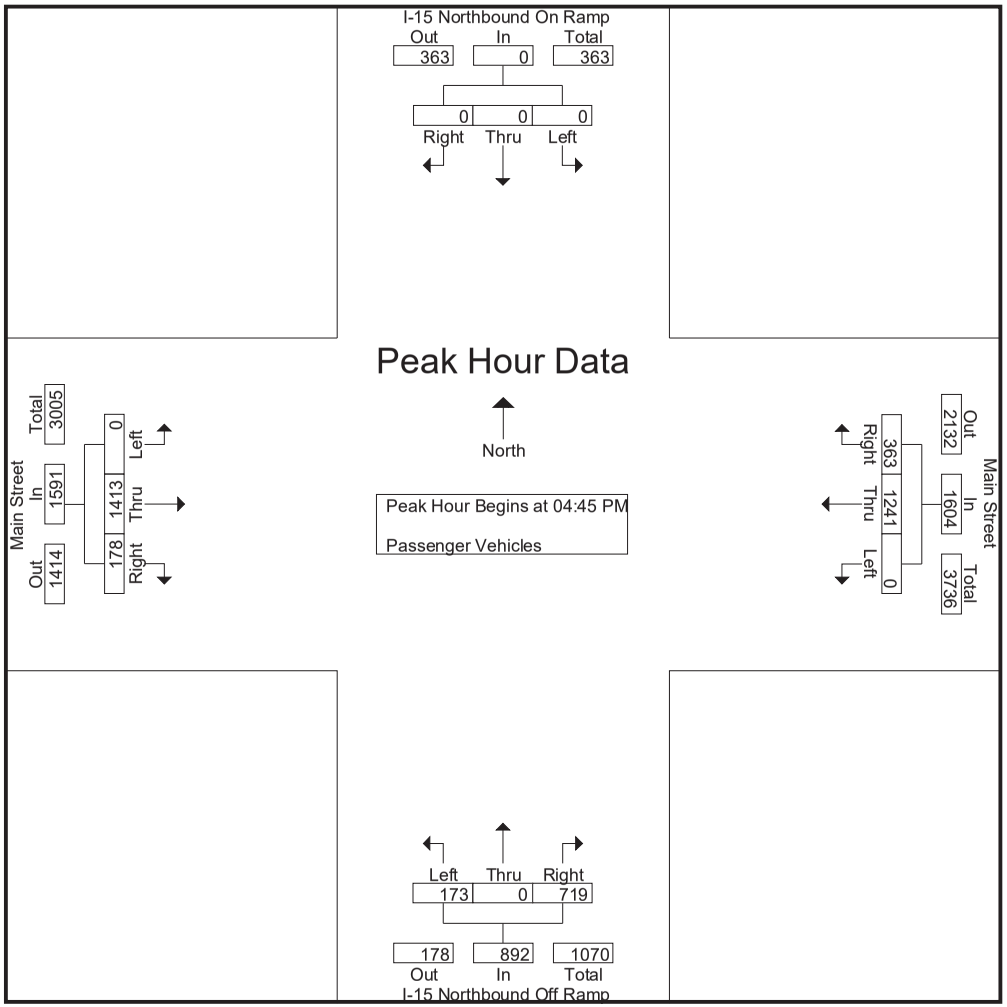

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	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	307	82	389	**50**	0	**201**	**251**	0	**375**	35	**410**	
+15 mins.	0	0	0	0	0	283	88	371	32	0	142	174	0	355	39	394	
+30 mins.	0	0	0	0	0	**340**	88	**428**	42	0	183	225	0	333	49	382	
+45 mins.	0	0	0	0	0	311	**105**	416	49	0	193	242	0	350	**55**	405	
Total Volume	0	0	0	0	0	1241	363	1604	173	0	719	892	0	1413	178	1591	
% App. Total	0	0	0		0	77.4	22.6		19.4	0	80.6		0	88.8	11.2		
PHF	.000	.000	.000	.000	.000	.913	.864	.937	.865	.000	.894	.888	.000	.942	.809	.970	

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File Name : 13_HES_15N_Main PM
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Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	5	0	0	5	1	0	0	0	1	0	4	4	0	8	0	14	14
04:15 PM	0	0	0	0	0	0	4	1	0	5	0	0	4	0	4	0	5	0	0	5	0	14	14
04:30 PM	0	0	0	0	0	0	7	1	0	8	0	0	4	1	4	0	6	2	0	8	1	20	21
04:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	5	0	5	0	7	1	0	8	0	16	16
Total	0	0	0	0	0	0	19	2	0	21	1	0	13	1	14	0	22	7	0	29	1	64	65
05:00 PM	0	0	0	0	0	0	3	1	0	4	0	0	5	3	5	0	4	0	0	4	3	13	16
05:15 PM	0	0	0	0	0	0	7	4	2	11	0	0	5	1	5	0	4	1	0	5	3	21	24
05:30 PM	0	0	0	0	0	0	6	3	2	9	0	0	3	0	3	0	5	1	0	6	2	18	20
05:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	3	0	3	0	1	0	0	1	0	8	8
Total	0	0	0	0	0	0	20	8	4	28	0	0	16	4	16	0	14	2	0	16	8	60	68
Grand Total	0	0	0	0	0	0	39	10	4	49	1	0	29	5	30	0	36	9	0	45	9	124	133
Apprch %	0	0	0			0	79.6	20.4			3.3	0	96.7			0	80	20					
Total %	0	0	0		0	0	31.5	8.1		39.5	0.8	0	23.4		24.2	0	29	7.3		36.3	6.8	93.2	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	3	0	3	0	0	**5**	**5**	0	**7**	**1**	**8**	16
05:00 PM	0	0	0	0	0	3	1	4	0	0	5	5	0	4	0	4	13
05:15 PM	0	0	0	0	0	**7**	**4**	**11**	0	0	5	5	0	4	1	5	**21**
05:30 PM	0	0	0	0	0	6	3	9	0	0	3	3	0	5	1	6	18
Total Volume	0	0	0	0	0	19	8	27	0	0	18	18	0	20	3	23	68
% App. Total	0	0	0		0	70.4	29.6		0	0	100		0	87	13		
PHF	.000	.000	.000	.000	.000	.679	.500	.614	.000	.000	.900	.900	.000	.714	.750	.719	.810

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Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
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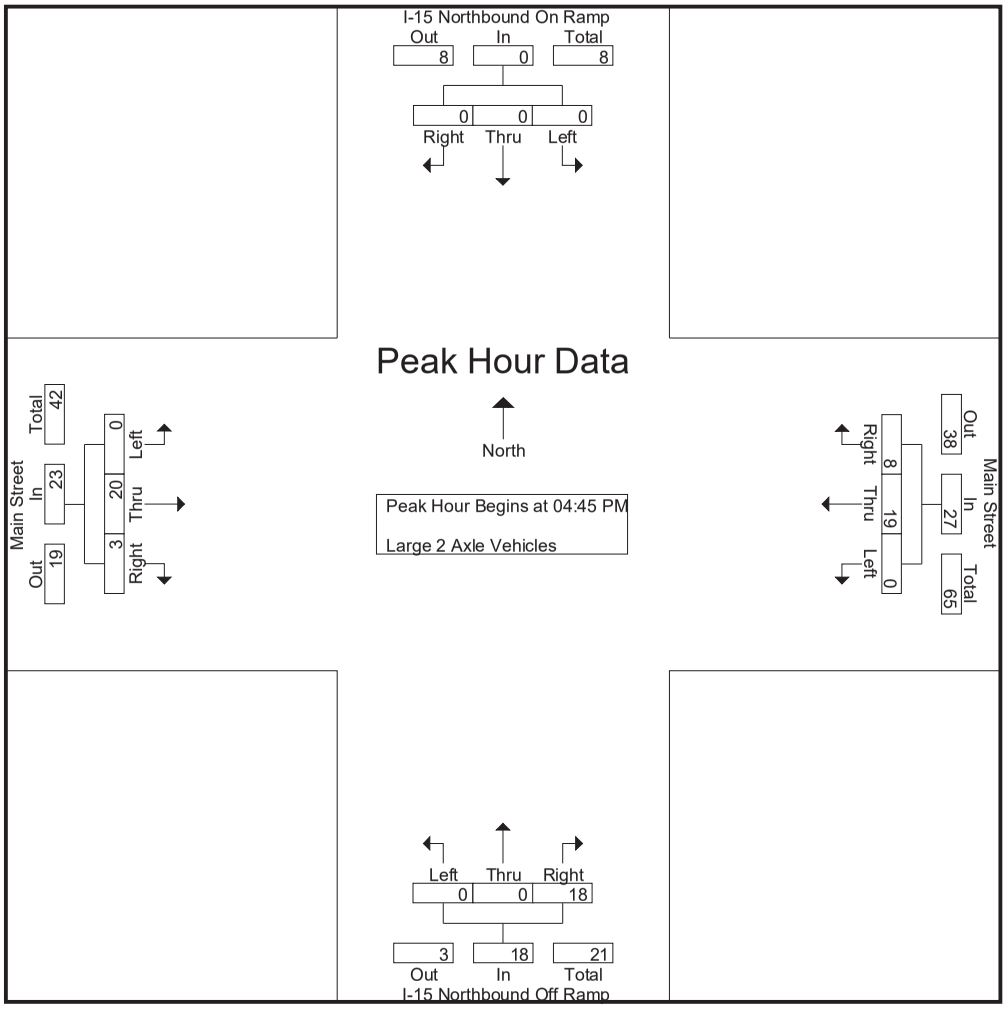

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City of Hesperia
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Site Code : 05119658
Start Date : 9/28/2019

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	3	0	3	0	0	**5**	**5**	0	**7**	**1**	**8**	
+15 mins.	0	0	0	0	0	3	1	4	0	0	5	5	0	4	0	4	
+30 mins.	0	0	0	0	0	**7**	**4**	**11**	0	0	5	5	0	4	1	5	
+45 mins.	0	0	0	0	0	6	3	9	0	0	3	3	0	5	1	6	
Total Volume	0	0	0	0	0	19	8	27	0	0	18	18	0	20	3	23	
% App. Total	0	0	0		0	70.4	29.6		0	0	100		0	87	13		
PHF	.000	.000	.000	.000	.000	.679	.500	.614	.000	.000	.900	.900	.000	.714	.750	.719	

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City of Hesperia
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E/W: Main Street
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File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	0	1	0	0	1	0	5	5
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	1	1	0	2	0	5	5
04:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	4	4
Total	0	0	0	0	0	0	6	0	0	6	0	1	3	0	4	0	4	1	0	5	0	15	15
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	2	2
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	2
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	5	5
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	2	2
Total	0	0	0	0	0	0	4	0	0	4	0	0	2	0	2	0	5	0	0	5	0	11	11
Grand Total	0	0	0	0	0	0	10	0	0	10	0	1	5	0	6	0	9	1	0	10	0	26	26
Apprch %	0	0	0			0	100	0			0	16.7	83.3			0	90	10					
Total %	0	0	0		0	0	38.5	0		38.5	0	3.8	19.2		23.1	0	34.6	3.8		38.5	0	100	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	2	0	2	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	1	0	1	2
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	**3**	**5**
Total Volume	0	0	0	0	0	5	0	5	0	0	1	1	0	7	0	7	13
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.250	.250	.000	.583	.000	.583	.650

Counts Unlimited
PO Box 1178
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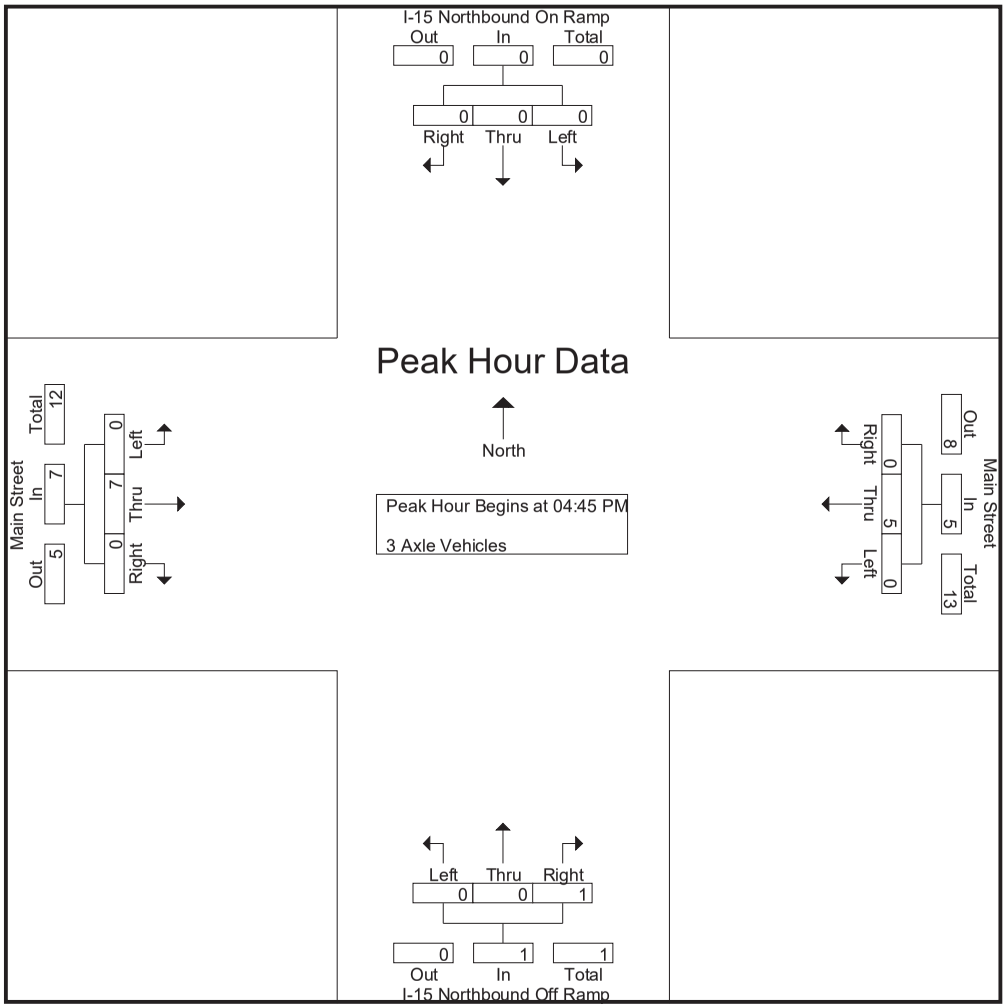
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	2	0	2	
+15 mins.	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	1	0	1	
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	**3**	0	**3**	
Total Volume	0	0	0	0	0	5	0	5	0	0	1	1	0	7	0	7	
% App. Total	0	0	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.250	.250	.000	.583	.000	.583	

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City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound					Main Street Westbound					I-15 Northbound Off Ramp Northbound					Main Street Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	3	1	4	0	3	1	0	4	1	8	9
04:15 PM	0	0	0	0	0	0	1	2	0	3	1	0	2	0	3	0	1	1	0	2	0	8	8
04:30 PM	0	0	0	0	0	0	3	0	0	3	1	0	2	1	3	0	2	1	0	3	1	9	10
04:45 PM	0	0	0	0	0	0	4	3	1	7	2	0	7	1	9	0	0	2	0	2	2	18	20
Total	0	0	0	0	0	0	8	5	1	13	5	0	14	3	19	0	6	5	0	11	4	43	47
05:00 PM	0	0	0	0	0	0	2	1	0	3	0	0	7	3	7	0	3	1	0	4	3	14	17
05:15 PM	0	0	0	0	0	0	1	3	1	4	0	0	3	1	3	0	2	1	0	3	2	10	12
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	0	5	5
05:45 PM	0	0	0	0	0	0	3	1	1	4	3	0	3	0	6	0	1	0	0	1	1	11	12
Total	0	0	0	0	0	0	8	5	2	13	3	0	13	4	16	0	8	3	0	11	6	40	46
Grand Total	0	0	0	0	0	0	16	10	3	26	8	0	27	7	35	0	14	8	0	22	10	83	93
Apprch %	0	0	0			0	61.5	38.5			22.9	0	77.1			0	63.6	36.4					
Total %	0	0	0		0	0	19.3	12		31.3	9.6	0	32.5		42.2	0	16.9	9.6		26.5	10.8	89.2	

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	0	**4**	**3**	**7**	**2**	0	**7**	**9**	0	0	**2**	2	**18**
05:00 PM	0	0	0	0	0	2	1	3	0	0	7	7	0	**3**	1	**4**	14
05:15 PM	0	0	0	0	0	1	3	4	0	0	3	3	0	2	1	3	10
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	1	3	5
Total Volume	0	0	0	0	0	9	7	16	2	0	17	19	0	7	5	12	47
% App. Total	0	0	0		0	56.2	43.8		10.5	0	89.5		0	58.3	41.7		
PHF	.000	.000	.000	.000	.000	.563	.583	.571	.250	.000	.607	.528	.000	.583	.625	.750	.653

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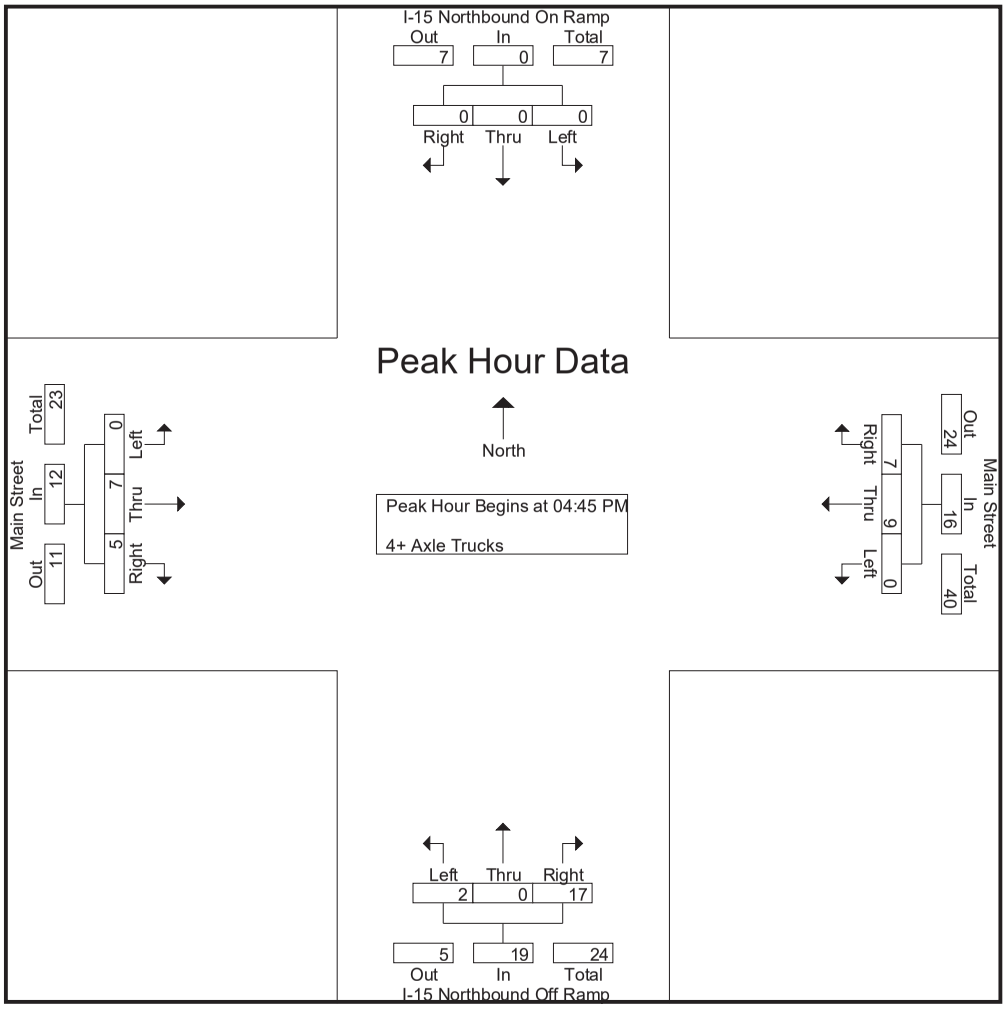
City of Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street
Weather: Clear

File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 2



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City of Hesperia
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File Name : 13_HES_15N_Main PM
Site Code : 05119658
Start Date : 9/28/2019
Page No : 3

	I-15 Northbound On Ramp Southbound				Main Street Westbound				I-15 Northbound Off Ramp Northbound				Main Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Each Approach Begins at:																	
	04:45 PM				04:45 PM				04:45 PM				04:45 PM				
+0 mins.	0	0	0	0	0	**4**	**3**	**7**	**2**	0	**7**	**9**	0	0	**2**	2	
+15 mins.	0	0	0	0	0	2	1	3	0	0	7	7	0	**3**	1	**4**	
+30 mins.	0	0	0	0	0	1	3	4	0	0	3	3	0	2	1	3	
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	1	3	
Total Volume	0	0	0	0	0	9	7	16	2	0	17	19	0	7	5	12	
% App. Total	0	0	0		0	56.2	43.8		10.5	0	89.5		0	58.3	41.7		
PHF	.000	.000	.000	.000	.000	.563	.583	.571	.250	.000	.607	.528	.000	.583	.625	.750	

Location: Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street

Date: 9/28/2019
Day: Saturday

PEDESTRIANS

	North Leg I-15 Northbound Ramps	East Leg Main Street	South Leg I-15 Northbound Ramps	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg I-15 Northbound Ramps	East Leg Main Street	South Leg I-15 Northbound Ramps	West Leg Main Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	2	0	2
TOTAL VOLUMES:	0	0	2	0	2

Location: Hesperia
N/S: I-15 Northbound Ramps
E/W: Main Street

Date: 9/28/2019
Day: Saturday

BICYCLES

	Southbound I-15 Northbound Ramps			Westbound Main Street			Northbound I-15 Northbound Ramps			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound I-15 Northbound Ramps			Westbound Main Street			Northbound I-15 Northbound Ramps			Eastbound Main Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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PO Box 1178
Corona, CA 92878
951-268-6268

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
	EAST & WEST:	Main	CONTROL:	SIGNAL

NOTES:

Queue WB AM 7:15:43, 7:43:20, 8:07:45, 8:23:38, 8:42:30; WB PM 4:01:49 - 4:05:00, 4:39:40 - 4:53:38, 5:02:50, 5:33:00, 5:43:35 - 5:56:30; EB PM 4:06:16, 4:34:49, 5:17:20

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	18	13	9	12	24	44	26	278	52	22	304	3	805
	7:15 AM	21	7	4	6	11	31	30	240	16	8	359	7	740
	7:30 AM	14	9	13	11	6	51	27	209	8	6	344	15	713
	7:45 AM	15	8	5	6	7	34	30	258	14	6	353	3	739
	8:00 AM	14	2	2	13	2	29	17	228	13	10	289	17	636
	8:15 AM	12	5	9	10	7	36	25	243	12	10	306	5	680
	8:30 AM	12	2	9	10	6	39	15	198	12	9	271	14	597
	8:45 AM	20	2	4	11	5	27	25	206	12	11	270	15	608
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	126	48	55	79	68	291	195	1,860	139	82	2,496	79	5,518
	APPROACH %	55%	21%	24%	18%	16%	66%	9%	85%	6%	3%	94%	3%	
	APP/DEPART	229	/	320	438	/	285	2,194	/	1,998	2,657	/	2,915	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	68	37	31	35	48	160	113	985	90	42	1,360	28	2,997
	APPROACH %	50%	27%	23%	14%	20%	66%	10%	83%	8%	3%	95%	2%	
	PEAK HR FACTOR		0.850			0.759			0.834			0.956		0.931
	APP/DEPART	136	/	177	243	/	179	1,188	/	1,052	1,430	/	1,589	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	24	17	22	36	12	46	62	464	19	17	318	13	1,050
	4:15 PM	18	12	13	26	10	45	54	457	22	16	381	18	1,072
	4:30 PM	25	13	17	20	12	37	55	448	28	10	358	22	1,045
	4:45 PM	19	20	12	24	18	46	60	462	37	12	323	15	1,048
	5:00 PM	33	19	14	34	18	39	53	423	41	20	342	17	1,053
	5:15 PM	33	26	23	31	12	45	53	461	28	23	314	25	1,074
	5:30 PM	36	16	13	26	13	58	46	483	48	15	306	23	1,083
	5:45 PM	23	14	18	40	5	37	59	491	27	21	329	34	1,098
	VOLUMES	211	137	132	237	100	353	442	3,689	250	134	2,671	167	8,523
	APPROACH %	44%	29%	28%	34%	14%	51%	10%	84%	6%	5%	90%	6%	
	APP/DEPART	480	/	736	690	/	476	4,381	/	4,066	2,972	/	3,245	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	125	75	68	131	48	179	211	1,858	144	79	1,291	99	4,308
	APPROACH %	47%	28%	25%	37%	13%	50%	10%	84%	7%	5%	88%	7%	
	PEAK HR FACTOR		0.817			0.923			0.959			0.956		0.981
	APP/DEPART	268	/	380	358	/	265	2,213	/	2,063	1,469	/	1,600	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	1	1	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	2	4	6
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	2	2
0	0	2	0	2
0	0	2	0	2
0	0	2	1	3
0	0	1	1	2
0	0	1	2	3
0	0	1	2	3
0	0	10	8	18

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
4	19	5	0
2	13	4	1
11	25	1	0
3	20	2	0
2	19	1	1
8	22	0	2
4	21	0	0
3	19	2	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
37	158	15	4
20	77	12	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
11	19	0	2
7	22	1	7
10	14	3	2
6	20	1	3
7	12	1	4
4	21	5	4
7	23	8	3
8	14	2	5
60	145	21	30
26	70	16	16

Mariposa

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

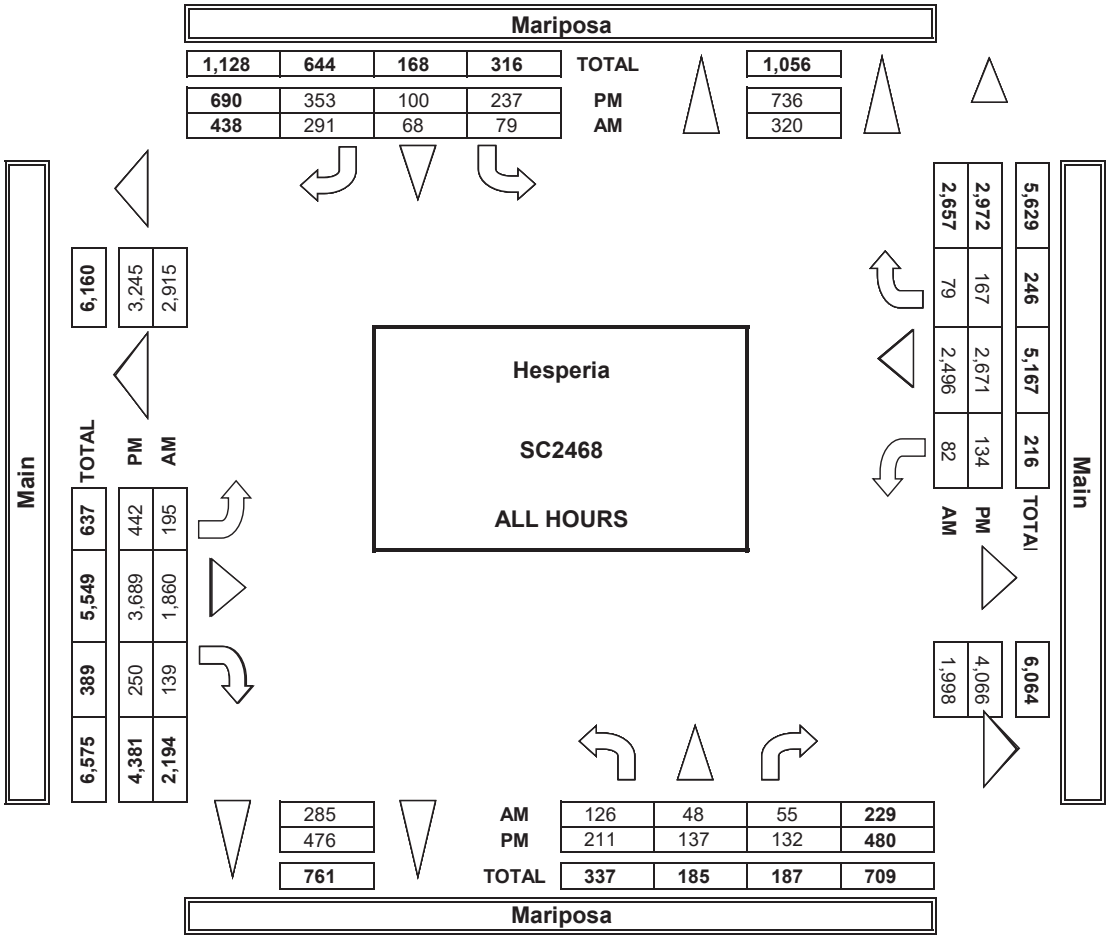
SOUTH SIDE

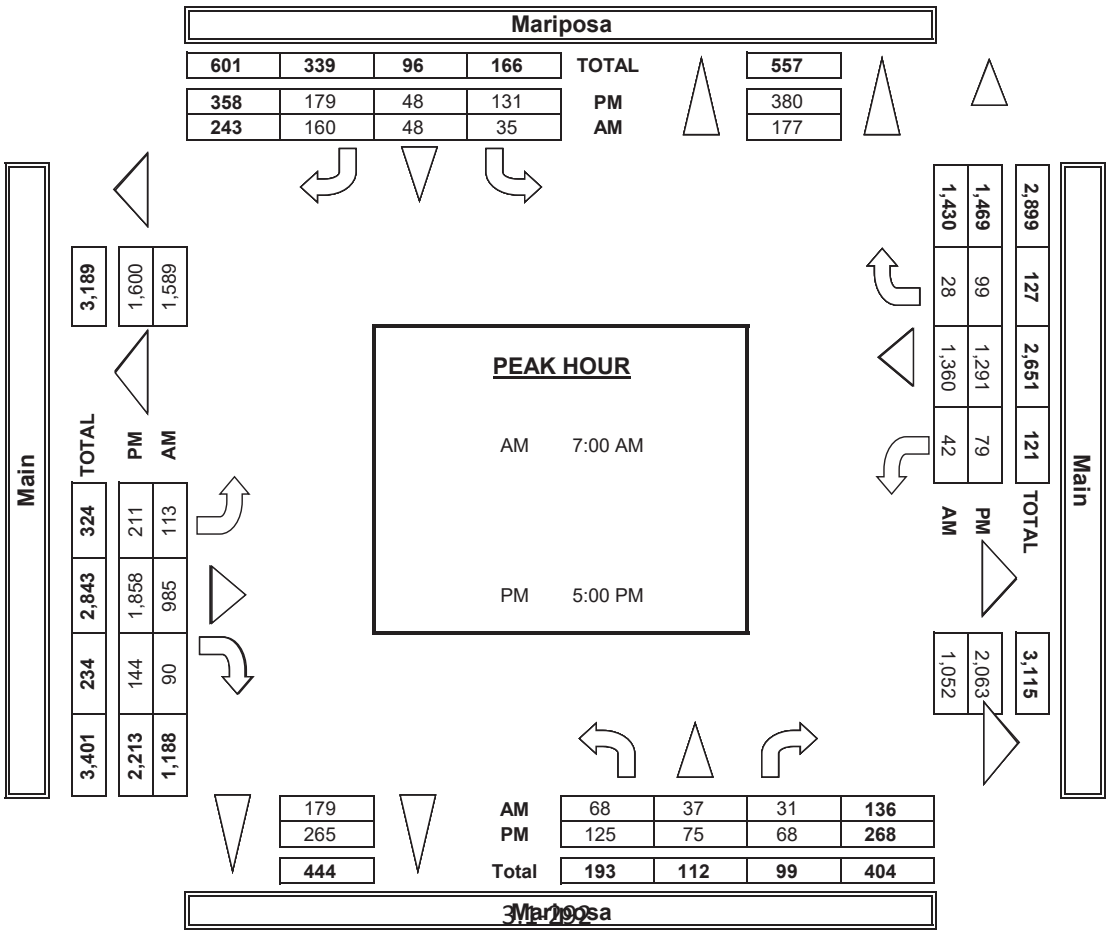
Mariposa

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	4:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	4:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	5:15 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1
	5:30 PM	1	4	2	0	7	1	4	2	0	7	0	0	0	0	0
	5:45 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0
	TOTAL	2	9	3	0	14	1	9	3	0	13	1	0	0	0	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	16	13	8	12	24	37	26	248	52	22	282	3	743
	7:15 AM	20	6	4	6	11	30	28	222	16	8	328	7	686
	7:30 AM	14	9	12	10	6	48	25	191	6	4	315	15	655
	7:45 AM	13	7	3	5	7	30	27	236	13	6	319	3	669
	8:00 AM	13	1	2	13	2	27	16	204	11	7	253	17	566
	8:15 AM	11	5	8	10	6	31	23	220	10	8	276	5	613
	8:30 AM	11	2	8	10	6	35	15	183	11	8	247	12	548
	8:45 AM	16	2	4	11	5	24	21	180	10	10	245	15	543
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	114	45	49	77	67	262	181	1,684	129	73	2,265	77	5,023
	APPROACH %	55%	22%	24%	19%	17%	65%	9%	84%	6%	3%	94%	3%	
	APP/DEPART	208	/	302	406	/	266	1,994	/	1,813	2,415	/	2,642	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	63	35	27	33	48	145	105	897	87	39	1,244	28	2,753
	APPROACH %	50%	28%	22%	15%	21%	64%	10%	82%	8%	3%	95%	2%	
	PEAK HR FACTOR		0.845			0.774			0.836			0.956		0.926
	APP/DEPART	125	/	168	226	/	174	1,090	/	958	1,312	/	1,453	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	22	17	21	34	12	39	55	432	18	17	307	12	986
	4:15 PM	16	12	12	25	10	45	49	430	21	16	360	17	1,013
	4:30 PM	24	11	16	19	11	37	49	427	26	10	337	19	986
	4:45 PM	19	16	12	24	18	43	58	427	35	12	312	15	991
	5:00 PM	29	17	14	34	16	35	51	395	39	18	330	16	994
	5:15 PM	32	26	23	30	12	44	49	445	25	22	306	24	1,038
	5:30 PM	36	16	13	25	13	57	43	460	48	14	287	22	1,034
	5:45 PM	23	14	17	40	4	36	57	468	27	19	319	34	1,058
	VOLUMES	201	129	128	231	96	336	411	3,484	239	128	2,558	159	8,100
	APPROACH %	44%	28%	28%	35%	14%	51%	10%	84%	6%	4%	90%	6%	
	APP/DEPART	458	/	691	663	/	458	4,134	/	3,848	2,845	/	3,103	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	120	73	67	129	45	172	197	1,768	139	70	1,242	96	4,124
	APPROACH %	46%	28%	26%	37%	13%	50%	9%	84%	7%	5%	88%	7%	
	PEAK HR FACTOR		0.802			0.911			0.954			0.948		0.974
	APP/DEPART	260	/	366	346	/	254	2,107	/	1,967	1,411	/	1,537	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	3	4
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	2	2
0	0	2	0	2
0	0	2	0	2
0	0	2	1	3
0	0	1	1	2
0	0	0	1	1
0	0	0	0	0
0	0	8	5	13

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
4	13	5	0
2	13	4	1
10	23	1	0
2	17	2	0
2	17	1	1
8	20	0	2
3	17	0	0
3	17	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
34	137	14	4
18	66	12	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
10	19	0	2
6	22	1	6
9	14	3	2
6	17	1	3
7	11	1	3
4	21	5	4
7	22	8	3
8	13	2	5
57	139	21	28
26	67	16	15

Mariposa

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

SOUTH SIDE

Mariposa

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	1	0	0	0	0	5	0	15	0	0	13	0	34
	7:15 AM	0	1	0	0	0	0	1	10	0	0	20	0	32
	7:30 AM	0	0	1	0	0	3	1	14	2	2	17	0	40
	7:45 AM	2	1	2	0	0	3	2	15	0	0	20	0	45
	8:00 AM	1	0	0	0	0	1	0	17	2	1	23	0	45
	8:15 AM	0	0	1	0	1	2	2	16	1	2	16	0	41
	8:30 AM	0	0	0	0	0	0	0	10	1	1	16	0	28
	8:45 AM	3	0	0	0	0	3	2	18	2	0	13	0	41
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	7	2	4	0	1	17	8	115	8	6	138	0	306
	APPROACH %	54%	15%	31%	0%	6%	94%	6%	88%	6%	4%	96%	0%	
	APP/DEPART	13	/	10	18	/	15	131	/	119	144	/	162	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	3	1	4	0	1	9	5	62	5	5	76	0	171
	APPROACH %	38%	13%	50%	0%	10%	90%	7%	86%	7%	6%	94%	0%	
	PEAK HR FACTOR		0.400			0.833			0.947			0.844		0.950
	APP/DEPART	8	/	6	10	/	11	72	/	66	81	/	88	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	2	0	0	2	0	5	6	23	1	0	9	0	48
	4:15 PM	2	0	1	1	0	0	5	19	1	0	12	1	42
	4:30 PM	0	2	1	1	0	0	4	15	2	0	10	1	36
	4:45 PM	0	4	0	0	0	1	1	24	2	0	7	0	39
	5:00 PM	3	1	0	0	0	4	0	22	2	0	8	1	41
	5:15 PM	0	0	0	1	0	0	2	9	1	1	7	0	21
	5:30 PM	0	0	0	0	0	1	1	16	0	0	14	1	33
	5:45 PM	0	0	1	0	1	1	0	14	0	1	6	0	24
	VOLUMES	7	7	3	5	1	12	19	142	9	2	73	4	284
	APPROACH %	41%	41%	18%	28%	6%	67%	11%	84%	5%	3%	92%	5%	
	APP/DEPART	17	/	29	18	/	11	170	/	151	79	/	93	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	4	6	2	4	0	6	16	81	6	0	38	2	165
	APPROACH %	33%	50%	17%	40%	0%	60%	16%	79%	6%	0%	95%	5%	
	PEAK HR FACTOR		0.750			0.357			0.858			0.769		0.859
	APP/DEPART	12	/	24	10	/	6	103	/	87	40	/	48	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND Mariposa			SOUTHBOUND Mariposa			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
7:00 AM	1	0	0	0	0	0	0	3	0	0	1	0	5
7:15 AM	0	0	0	0	0	1	1	2	0	0	1	0	5
7:30 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:45 AM	0	0	0	0	0	1	1	2	1	0	6	0	11
8:00 AM	0	0	0	0	0	1	1	1	0	1	4	0	8
8:15 AM	1	0	0	0	0	1	0	1	1	0	3	0	7
8:30 AM	0	0	0	0	0	1	0	2	0	0	3	0	6
8:45 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	2	0	0	0	0	5	3	14	2	1	23	0	50
APPROACH %	100%	0%	0%	0%	0%	100%	16%	74%	11%	4%	96%	0%	
APP/DEPART	2	/	3	5	/	3	19	/	14	24	/	30	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	1	0	0	0	0	4	2	6	2	1	16	0	32
APPROACH %	100%	0%	0%	0%	0%	100%	20%	60%	20%	6%	94%	0%	
PEAK HR FACTOR		0.250			1.000			0.625			0.708		0.727
APP/DEPART	1	/	2	4	/	3	10	/	6	17	/	21	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	1	3	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
4:30 PM	0	0	0	0	0	0	1	0	0	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	4	0	0	1	0	5
5:00 PM	0	1	0	0	0	0	1	2	0	0	1	0	5
5:15 PM	0	0	0	0	0	0	0	4	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
VOLUMES	0	1	0	0	0	1	3	16	0	0	5	0	26
APPROACH %	0%	100%	0%	0%	0%	100%	16%	84%	0%	0%	100%	0%	
APP/DEPART	1	/	4	1	/	0	19	/	16	5	/	6	0
BEGIN PEAK HR		4:30 PM											
VOLUMES	0	1	0	0	0	0	2	10	0	0	3	0	16
APPROACH %	0%	100%	0%	0%	0%	0%	17%	83%	0%	0%	100%	0%	
PEAK HR FACTOR		0.250			0.000			0.750			0.750		0.800
APP/DEPART	1	/	3	0	/	0	12	/	10	3	/	3	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
0	1	0	0
0	1	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	4	0	0
0	4	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Mariposa

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

SOUTH SIDE

Mariposa

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	0	0	1	0	0	2	0	7	0	0	5	0	15
	7:15 AM	0	0	0	0	0	0	0	5	0	0	8	0	13
	7:30 AM	0	0	0	0	0	0	0	2	0	0	8	0	10
	7:45 AM	0	0	0	0	0	0	0	5	0	0	6	0	11
	8:00 AM	0	1	0	0	0	0	0	5	0	0	7	0	13
	8:15 AM	0	0	0	0	0	2	0	5	0	0	10	0	17
	8:30 AM	1	0	1	0	0	2	0	1	0	0	4	1	10
	8:45 AM	1	0	0	0	0	0	1	5	0	1	8	0	16
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	2	1	2	0	0	6	1	35	0	1	56	1	105
	APPROACH %	40%	20%	40%	0%	0%	100%	3%	97%	0%	2%	97%	2%	
	APP/DEPART	5	/	3	6	/	1	36	/	37	58	/	64	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	2	1	1	0	0	4	1	16	0	1	29	1	56
	APPROACH %	50%	25%	25%	0%	0%	100%	6%	94%	0%	3%	94%	3%	
	PEAK HR FACTOR		0.500			0.500			0.708			0.775		0.824
	APP/DEPART	4	/	3	4	/	1	17	/	17	31	/	35	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	1	0	0	1	0	6	0	0	1	1	10
	4:15 PM	0	0	0	0	0	0	0	4	0	0	4	0	8
	4:30 PM	1	0	0	0	1	0	1	4	0	0	9	1	17
	4:45 PM	0	0	0	0	0	1	1	6	0	0	3	0	11
	5:00 PM	1	0	0	0	2	0	1	3	0	2	2	0	11
	5:15 PM	0	0	0	0	0	1	2	3	1	0	1	1	9
	5:30 PM	0	0	0	0	0	0	1	5	0	0	5	0	11
	5:45 PM	0	0	0	0	0	0	1	9	0	0	2	0	12
	VOLUMES	2	0	1	0	3	3	7	40	1	2	27	3	89
	APPROACH %	67%	0%	33%	0%	50%	50%	15%	83%	2%	6%	84%	9%	
	APP/DEPART	3	/	10	6	/	6	48	/	41	32	/	32	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	2	0	0	0	3	2	5	16	1	2	15	2	48
	APPROACH %	100%	0%	0%	0%	60%	40%	23%	73%	5%	11%	79%	11%	
	PEAK HR FACTOR		0.500			0.625			0.786			0.475		0.706
	APP/DEPART	2	/	7	5	/	6	22	/	16	19	/	19	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	1	0	1	0	2
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	1	1	/	0	1	/	1	0
	BEGIN PEAK HR		3:30 PM											
	VOLUMES	0	0	0	0	0	0	0	0	1	0	0	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.250			0.000		0.250
	APP/DEPART	0	/	0	0	/	1	1	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Mariposa

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

SOUTH SIDE

Mariposa

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mariposa	LOCATION #:	22
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 6:	NOTES:	AM / PM / MD / OTHER / OTHER
BUSES		▲ N ◄ W E ► S ▼

		NORTHBOUND (Mariposa)			SOUTHBOUND (Mariposa)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 0.5	NR 0.5	SL 1	ST 0.5	SR 0.5	EL 1	ET 4	ER 0	WL 1	WT 4	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	5	0	0	3	0	8
	7:15 AM	1	0	0	0	0	0	0	1	0	0	2	0	4
	7:30 AM	0	0	0	1	0	0	1	1	0	0	1	0	4
	7:45 AM	0	0	0	1	0	0	0	0	0	0	1	0	2
	8:00 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
	8:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
	8:30 AM	0	0	0	0	0	1	0	2	0	0	1	1	5
	8:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	0	0	2	0	1	1	12	0	0	13	1	31
	APPROACH %	100%	0%	0%	67%	0%	33%	8%	92%	0%	0%	93%	7%	
	APP/DEPART	1	/	2	3	/	0	13	/	14	14	/	15	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	1	0	0	2	0	0	1	7	0	0	7	0	18
	APPROACH %	100%	0%	0%	100%	0%	0%	13%	88%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.250			0.500			0.400			0.583		0.563
	APP/DEPART	1	/	1	2	/	0	8	/	9	7	/	8	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:15 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
	4:30 PM	0	0	0	0	0	0	0	2	0	0	1	1	4
	4:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	2
	5:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	1	0	0	1	1	0	0	0	0	3
	5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	VOLUMES	1	0	0	1	0	1	1	7	0	0	7	1	19
	APPROACH %	100%	0%	0%	50%	0%	50%	13%	88%	0%	0%	88%	13%	
	APP/DEPART	1	/	2	2	/	0	8	/	8	8	/	9	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	0	0	0	0	0	1	0	6	0	0	5	1	13
	APPROACH %	0%	0%	0%	0%	0%	100%	0%	100%	0%	0%	83%	17%	
	PEAK HR FACTOR		0.000			0.250			0.750			0.500		0.650
	APP/DEPART	0	/	1	1	/	0	6	/	6	6	/	6	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
	EAST & WEST:	Main	CONTROL:	SIGNAL

NOTES:

Queue WB PM 4:12:30 - 4:12:51; EB PM 4:02:10 - 4:02:26, 4:07:16-4:07:28, 4:45:30- 4:45:42

AM PM MD OTHER OTHER — ▲ N ◄ W E ► S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Mountain Vista)			SOUTHBOUND (Mountain Vista)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	4	0	6	11	1	0	1	289	3	18	334	8	675
	7:15 AM	3	0	8	6	1	2	2	226	6	11	366	13	644
	7:30 AM	3	1	3	7	0	3	5	224	2	15	398	19	680
	7:45 AM	3	0	6	19	0	4	7	256	6	15	311	13	640
	8:00 AM	3	0	5	12	1	4	8	238	1	18	332	12	634
	8:15 AM	5	2	7	12	3	3	6	221	6	11	320	17	613
	8:30 AM	8	0	4	9	0	0	5	217	1	22	268	10	544
	8:45 AM	6	1	8	10	1	0	2	208	2	17	309	13	577
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	35	4	47	86	7	16	36	1,879	27	127	2,638	105	5,007
	APPROACH %	41%	5%	55%	79%	6%	15%	2%	97%	1%	4%	92%	4%	
	APP/DEPART	86	/	126	109	/	159	1,942	/	2,014	2,870	/	2,708	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	13	1	23	43	2	9	15	995	17	59	1,409	53	2,639
	APPROACH %	35%	3%	62%	80%	4%	17%	1%	97%	2%	4%	93%	3%	
	PEAK HR FACTOR		0.841			0.587			0.876			0.880		0.970
	APP/DEPART	37	/	59	54	/	77	1,027	/	1,062	1,521	/	1,441	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	7	0	3	17	0	1	8	529	4	16	387	16	988
	4:15 PM	9	3	6	14	2	1	9	452	4	14	378	15	907
	4:30 PM	6	0	5	24	1	4	9	475	0	14	392	20	950
	4:45 PM	7	2	10	20	4	0	21	454	8	14	344	17	901
	5:00 PM	3	1	6	21	1	0	21	474	2	14	386	17	946
	5:15 PM	13	1	7	12	1	2	11	454	6	27	337	10	881
	5:30 PM	11	2	7	17	2	1	16	485	2	25	334	12	914
	5:45 PM	15	1	5	18	0	1	17	526	5	18	360	9	975
	VOLUMES	71	10	49	143	11	10	112	3,849	31	142	2,918	116	7,462
	APPROACH %	55%	8%	38%	87%	7%	6%	3%	96%	1%	4%	92%	4%	
	APP/DEPART	130	/	175	164	/	184	3,992	/	4,041	3,176	/	3,062	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	29	5	24	75	7	6	47	1,910	16	58	1,501	68	3,746
	APPROACH %	50%	9%	41%	85%	8%	7%	2%	97%	1%	4%	92%	4%	
	PEAK HR FACTOR		0.763			0.759			0.912			0.955		0.948
	APP/DEPART	58	/	100	88	/	81	1,973	/	2,009	1,627	/	1,556	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	
0	0	1	1	2
0	0	1	0	1
0	0	3	0	3
0	0	5	0	5
0	0	3	0	3
0	0	2	0	2
0	0	2	1	3
0	0	2	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	19	2	21
0	0	63	0	63

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
6	0	0	1
6	1	0	1
2	2	0	1
5	2	1	0
5	3	0	2
5	2	4	0
3	0	0	1
7	0	0	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
39	10	5	9
19	5	1	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
3	0	0	2
27	2	2	23
14	1	2	14

Mountain Vista

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

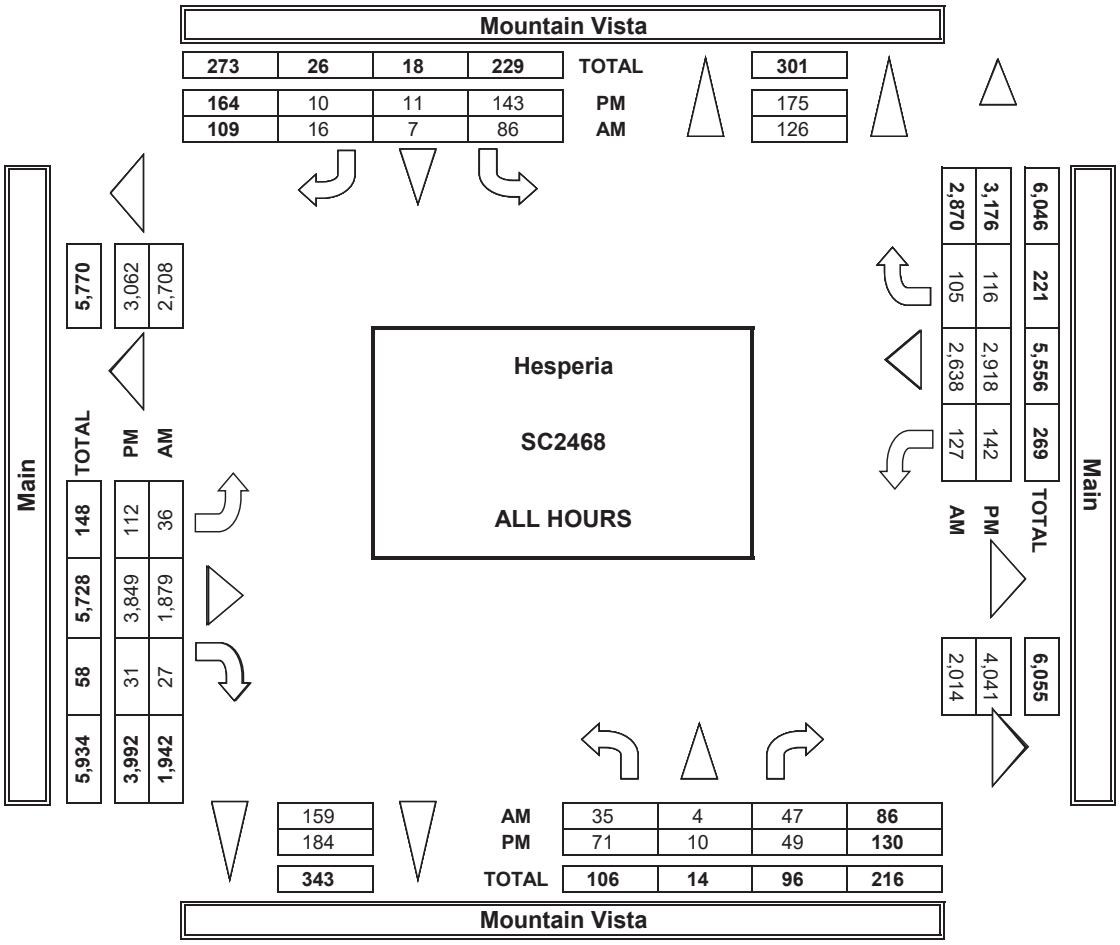
SOUTH SIDE

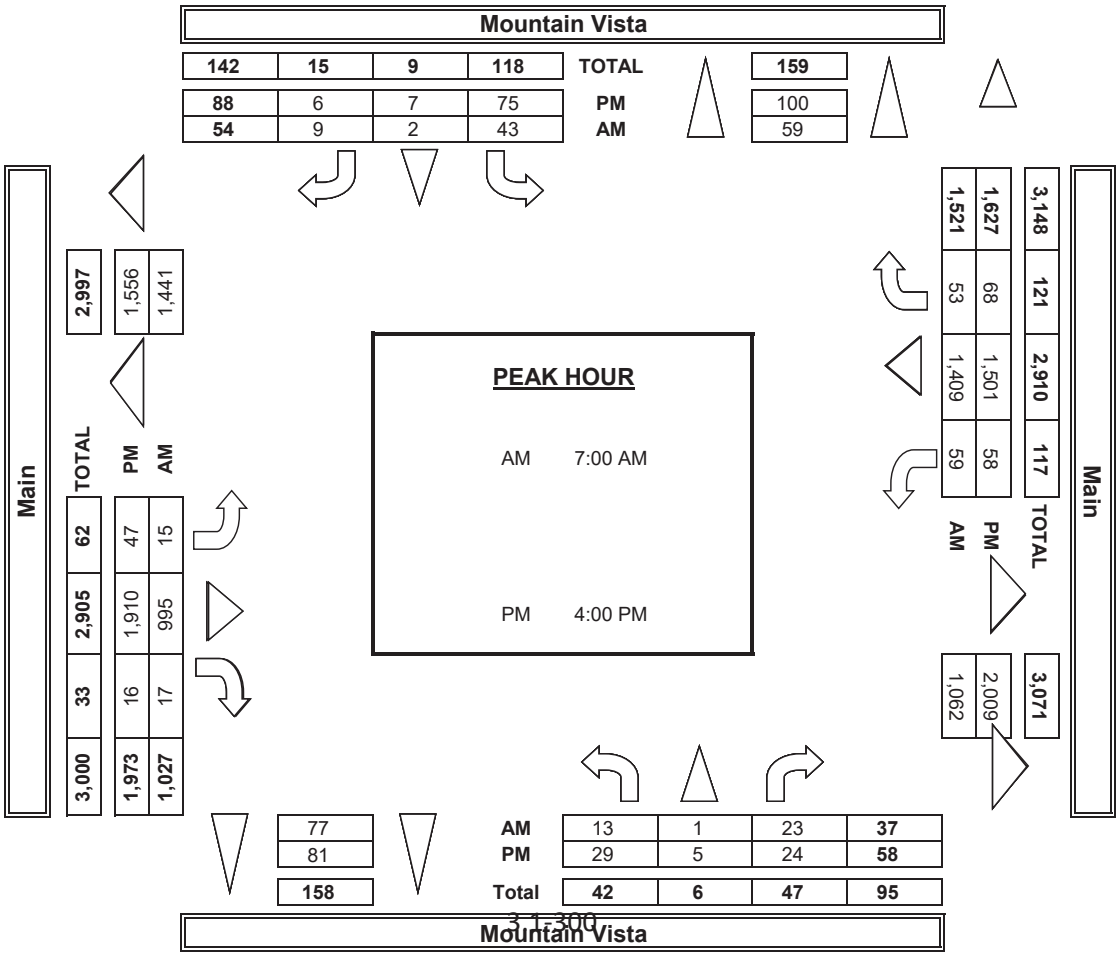
Mountain Vista

		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	1	1	1	3	0	1	1	1	3	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	1	2	1	4	0	1	2	1	4	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	3	3	0	6	0	3	3	0	6	0	0	0	0	0
	4:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	2	3	1	6	0	2	2	0	4	0	0	1	1	2
	5:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	5:45 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	TOTAL	0	7	7	1	15	0	7	6	0	13	0	0	1	1	2

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Mountain Vista			SOUTHBOUND Mountain Vista			EASTBOUND Main			WESTBOUND Main			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1.5	1.5	2	1.3	0.3	0.3	2	4	0	1	3	1	
AM	7:00 AM	4	0	5	9	1	0	1	258	3	15	313	8	617
	7:15 AM	3	0	5	5	1	2	1	211	3	10	344	11	596
	7:30 AM	2	1	1	6	0	3	5	208	2	14	364	19	625
	7:45 AM	2	0	5	18	0	4	7	230	5	11	279	13	574
	8:00 AM	2	0	1	12	1	4	7	214	1	16	300	10	568
	8:15 AM	3	2	5	12	3	2	5	201	6	7	291	17	554
	8:30 AM	6	0	3	8	0	0	4	206	1	17	253	10	508
	8:45 AM	5	1	6	9	1	0	2	179	0	15	280	13	511
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	27	4	31	79	7	15	32	1,707	21	105	2,424	101	4,553
	APPROACH %	44%	6%	50%	78%	7%	15%	2%	97%	1%	4%	92%	4%	
	APP/DEPART	62	/	118	101	/	132	1,760	/	1,818	2,630	/	2,485	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	11	1	16	38	2	9	4	907	13	49	1,300	51	2,412
	APPROACH %	39%	4%	57%	78%	4%	18%	0%	97%	1%	3%	93%	4%	
	PEAK HR FACTOR		0.778			0.557			0.891			0.882		0.965
	APP/DEPART	28	/	56	49	/	64	934	/	962	1,401	/	1,330	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	7	0	2	16	0	1	8	490	4	15	376	16	935
	4:15 PM	9	3	6	14	2	1	9	429	4	14	366	15	872
	4:30 PM	5	0	4	23	1	4	8	449	0	13	375	20	902
	4:45 PM	7	2	10	19	4	0	20	424	7	14	331	17	855
	5:00 PM	3	1	6	21	1	0	19	453	2	14	377	17	914
	5:15 PM	13	1	7	12	1	2	10	434	6	26	320	10	842
	5:30 PM	11	2	6	17	2	1	15	469	2	25	321	12	883
	5:45 PM	14	1	5	18	0	1	17	509	5	18	347	8	943
	VOLUMES	69	10	46	140	11	10	106	3,657	30	139	2,813	115	7,146
	APPROACH %	55%	8%	37%	87%	7%	6%	3%	96%	1%	5%	92%	4%	
	APP/DEPART	125	/	172	161	/	180	3,793	/	3,843	3,067	/	2,951	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	41	5	24	68	4	4	21	1,865	15	83	1,365	47	3,582
	APPROACH %	59%	7%	34%	89%	5%	5%	1%	96%	1%	6%	91%	3%	
	PEAK HR FACTOR		0.833			0.864			0.914			0.916		0.950
	APP/DEPART	70	/	73	76	/	102	1,941	/	1,957	1,495	/	1,450	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	1	1	2
0	0	1	0	1
0	0	3	0	3
0	0	5	0	5
0	0	3	0	3
0	0	2	0	2
0	0	2	0	2
0	0	2	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	19	1	20
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	3	0	3
0	0	6	0	6
0	0	2	0	2
0	0	8	0	8
0	0	15	0	15
0	0	6	0	6
0	0	8	0	8
0	0	11	0	11
0	0	59	0	59

RTOR

NRR	SRR	ERR	WRR
0	0	0	1
0	1	0	1
0	2	0	1
0	2	1	0
0	3	0	2
0	1	4	0
0	0	0	1
0	0	0	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
28	9	5	9
14	5	1	3
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	2
0	0	0	4
2	1	0	4
7	0	2	7
4	0	0	1
5	1	0	2
1	0	0	4
3	0	0	2
26	2	2	23
13	1	0	9

Mountain Vista

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

SOUTH SIDE

Mountain Vista

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Mountain Vista)			SOUTHBOUND (Mountain Vista)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	0	0	0	1	0	0	0	17	0	1	14	0	33
	7:15 AM	0	0	1	0	0	0	1	9	2	0	12	0	25
	7:30 AM	0	0	1	1	0	0	0	12	0	0	23	0	37
	7:45 AM	1	0	0	1	0	0	0	18	1	2	14	0	37
	8:00 AM	1	0	1	0	0	0	1	16	0	0	18	1	38
	8:15 AM	1	0	0	0	0	1	1	13	0	2	15	0	33
	8:30 AM	0	0	0	1	0	0	1	6	0	1	8	0	17
	8:45 AM	0	0	0	1	0	0	0	16	1	0	16	0	34
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	3	0	3	5	0	1	4	107	4	6	120	1	254
	APPROACH %	50%	0%	50%	83%	0%	17%	3%	93%	3%	5%	94%	1%	
	APP/DEPART	6	/	5	6	/	10	115	/	115	127	/	124	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	3	0	2	2	0	1	2	59	1	4	70	1	145
	APPROACH %	60%	0%	40%	67%	0%	33%	3%	95%	2%	5%	93%	1%	
	PEAK HR FACTOR		0.625			0.750			0.816			0.815		0.954
	APP/DEPART	5	/	3	3	/	5	62	/	63	75	/	74	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	1	0	0	0	27	0	1	8	0	37
	4:15 PM	0	0	0	0	0	0	0	16	0	0	4	0	20
	4:30 PM	1	0	1	1	0	0	1	19	0	0	4	0	27
	4:45 PM	0	0	0	1	0	0	1	18	0	0	8	0	28
	5:00 PM	0	0	0	0	0	0	2	17	0	0	4	0	23
	5:15 PM	0	0	0	0	0	0	1	12	0	1	12	0	26
	5:30 PM	0	0	1	0	0	0	1	8	0	0	9	0	19
	5:45 PM	0	0	0	0	0	0	0	8	0	0	11	1	20
	VOLUMES	1	0	2	3	0	0	6	125	0	2	60	1	200
	APPROACH %	33%	0%	67%	100%	0%	0%	5%	95%	0%	3%	95%	2%	
	APP/DEPART	3	/	3	3	/	2	131	/	130	63	/	65	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	0	1	3	0	0	1	80	0	1	24	0	112
	APPROACH %	50%	0%	50%	100%	0%	0%	1%	98%	0%	4%	96%	0%	
	PEAK HR FACTOR		0.250			0.750			0.759			0.694		0.757
	APP/DEPART	2	/	1	3	/	1	82	/	84	25	/	26	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	4	0	4

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
2	1	0	0
1	1	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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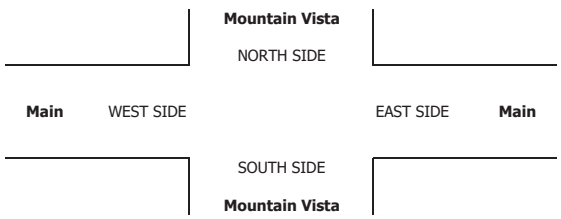
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
1	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Mountain Vista			SOUTHBOUND Mountain Vista			EASTBOUND Main			WESTBOUND Main			
	LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	0	0	1	0	0	0	0	3	0	0	0	0	4
	7:15 AM	0	0	2	0	0	0	0	2	0	0	2	0	6
	7:30 AM	0	0	1	0	0	0	0	1	0	1	2	0	5
	7:45 AM	0	0	1	0	0	0	0	1	0	0	7	0	9
	8:00 AM	0	0	3	0	0	0	0	1	0	0	3	1	8
	8:15 AM	0	0	2	0	0	0	0	0	0	0	4	0	6
	8:30 AM	0	0	1	0	0	0	0	2	0	0	3	0	6
	8:45 AM	0	0	2	0	0	0	0	5	1	0	3	0	11
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	13	0	0	0	0	15	1	1	24	1	55
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	94%	6%	4%	92%	4%	
	APP/DEPART	13	/	1	0	/	2	16	/	28	26	/	24	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	0	8	0	0	0	0	8	1	0	13	1	31
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	89%	11%	0%	93%	7%	
	PEAK HR FACTOR		0.667			0.000			0.375			0.875		0.705
	APP/DEPART	8	/	1	0	/	1	9	/	16	14	/	13	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3
	4:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:45 PM	0	0	0	0	0	0	0	5	0	0	2	0	7
	5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	5:15 PM	0	0	0	0	0	0	0	5	0	0	2	0	7
	5:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	5:45 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	VOLUMES	0	0	0	0	0	0	0	19	0	0	8	0	27
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	19	/	19	8	/	8	0
	BEGIN PEAK HR		4:45 PM											
	VOLUMES	0	0	0	0	0	0	0	12	0	0	5	0	17
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.600			0.625		0.607
	APP/DEPART	0	/	0	0	/	0	12	/	12	5	/	5	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
1	0	0	0
1	0	0	0
1	0	0	0
1	0	0	0
3	0	0	0
1	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
9	0	0	0
5	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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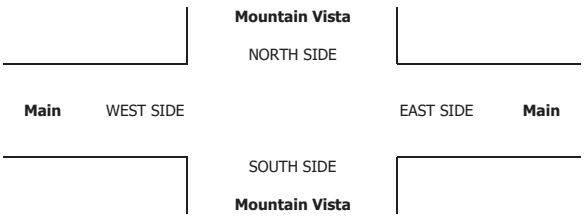
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Mountain Vista			SOUTHBOUND Mountain Vista			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
7:00 AM	0	0	0	1	0	0	0	8	0	2	5	0	16
7:15 AM	0	0	0	1	0	0	0	2	1	1	6	2	13
7:30 AM	1	0	0	0	0	0	0	2	0	0	8	0	11
7:45 AM	0	0	0	0	0	0	0	5	0	2	8	0	15
8:00 AM	0	0	0	0	0	0	0	7	0	2	10	0	19
8:15 AM	1	0	0	0	0	0	0	5	0	2	9	0	17
8:30 AM	2	0	0	0	0	0	0	2	0	3	2	0	9
8:45 AM	1	0	0	0	0	0	0	6	0	2	8	0	17
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	5	0	0	2	0	0	0	37	1	14	56	2	117
APPROACH %	100%	0%	0%	100%	0%	0%	0%	97%	3%	19%	78%	3%	
APP/DEPART	5	/	2	2	/	15	38	/	39	72	/	61	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	4	0	0	0	0	0	0	20	0	9	29	0	62
APPROACH %	100%	0%	0%	0%	0%	0%	0%	100%	0%	24%	76%	0%	
PEAK HR FACTOR		0.500			0.000			0.714			0.792		0.816
APP/DEPART	4	/	0	0	/	9	20	/	20	38	/	33	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	1	0	0	0	0	9	0	0	1	0	11
4:15 PM	0	0	0	0	0	0	0	2	0	0	4	0	6
4:30 PM	0	0	0	0	0	0	0	6	0	1	10	0	17
4:45 PM	0	0	0	0	0	0	0	6	1	0	2	0	9
5:00 PM	0	0	0	0	0	0	0	2	0	0	4	0	6
5:15 PM	0	0	0	0	0	0	0	3	0	0	3	0	6
5:30 PM	0	0	0	0	0	0	0	5	0	0	3	0	8
5:45 PM	1	0	0	0	0	0	0	7	0	0	1	0	9
VOLUMES	1	0	1	0	0	0	0	40	1	1	28	0	72
APPROACH %	50%	0%	50%	0%	0%	0%	0%	98%	2%	3%	97%	0%	
APP/DEPART	2	/	0	0	/	2	41	/	41	29	/	29	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	0	1	0	0	0	0	23	1	1	17	0	43
APPROACH %	0%	0%	100%	0%	0%	0%	0%	96%	4%	6%	94%	0%	
PEAK HR FACTOR		0.250			0.000			0.667			0.409		0.632
APP/DEPART	1	/	0	0	/	2	24	/	24	18	/	17	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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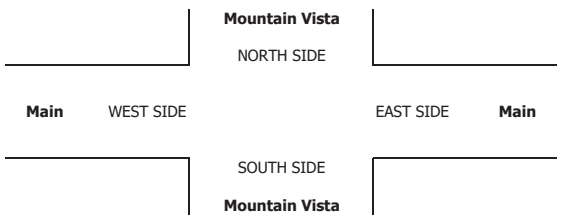
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Mountain Vista			SOUTHBOUND Mountain Vista			EASTBOUND Main			WESTBOUND Main			
	LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		3:30 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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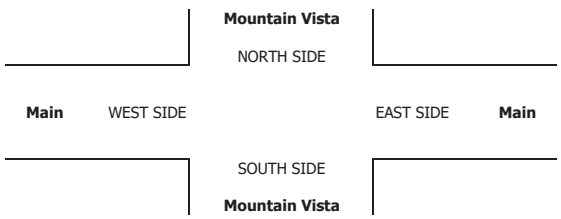
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Mountain Vista	LOCATION #:	23
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 6:	NOTES:	AM / PM / MD / OTHER / OTHER
BUSES		▲ N ◄ W E ► S ▼

	NORTHBOUND Mountain Vista			SOUTHBOUND Mountain Vista			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 1.5	NT 1.5	NR 2	SL 1.3	ST 0.3	SR 0.3	EL 2	ET 4	ER 0	WL 1	WT 3	WR 1	TOTAL
AM 7:00 AM	0	0	0	0	0	0	0	3	0	0	2	0	5
7:15 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
7:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
7:45 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
8:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
8:45 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	13	0	0	13	0	26
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
APP/DEPART	0	/	0	0	/	0	13	/	13	13	/	13	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	0	0	0	0	0	0	8	0	0	7	0	15
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
PEAK HR FACTOR		0.000			0.000			0.667			0.875		0.750
APP/DEPART	0	/	0	0	/	0	8	/	8	7	/	7	0
PM 03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:15 PM	0	0	0	0	0	0	0	3	0	0	2	0	5
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
4:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	8	0	0	8	0	16
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
APP/DEPART	0	/	0	0	/	0	8	/	8	8	/	8	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	0	0	0	0	0	0	0	6	0	0	6	0	12
APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	
PEAK HR FACTOR		0.000			0.000			0.500			0.750		0.600
APP/DEPART	0	/	0	0	/	0	6	/	6	6	/	6	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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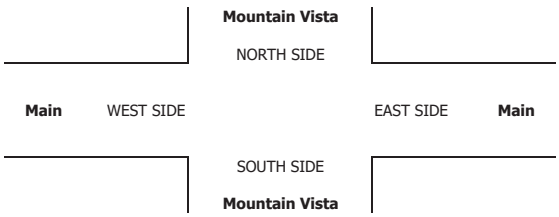
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
Tue, Jan 7, 20	NORTH & SOUTH:	Escondido	LOCATION #:	24
	EAST & WEST:	Main	CONTROL:	SIGNAL

NOTES:

Queue WB PM 4:00:30 - 4:00:51

AM PM MD OTHER OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

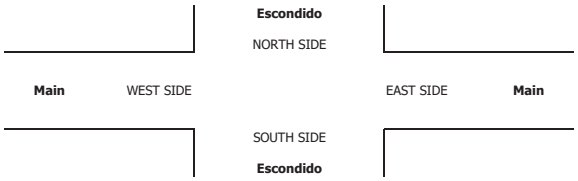
		NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM	7:00 AM	156	3	76	0	1	2	0	168	129	61	206	1	803
	7:15 AM	165	6	85	1	1	4	2	180	75	88	195	1	803
	7:30 AM	168	8	94	0	1	3	0	177	50	57	264	1	823
	7:45 AM	152	4	62	0	0	3	2	197	74	54	210	0	758
	8:00 AM	137	4	61	1	1	4	3	183	69	82	222	0	767
	8:15 AM	139	0	57	0	0	0	3	172	72	75	200	1	719
	8:30 AM	121	2	58	1	2	2	2	162	61	54	204	0	669
	8:45 AM	125	3	56	0	2	3	6	164	45	50	194	1	649
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1,163	30	549	3	8	21	18	1,403	575	521	1,695	5	5,991
	APPROACH %	67%	2%	32%	9%	25%	66%	1%	70%	29%	23%	76%	0%	
	APP/DEPART	1,742	/	53	32	/	1,106	1,996	/	1,955	2,221	/	2,877	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	641	21	317	1	3	12	4	722	328	260	875	3	3,187
	APPROACH %	65%	2%	32%	6%	19%	75%	0%	69%	31%	23%	77%	0%	
	PEAK HR FACTOR		0.906			0.667			0.887			0.884		0.968
	APP/DEPART	979	/	28	16	/	592	1,054	/	1,040	1,138	/	1,527	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	137	11	51	22	12	19	17	350	151	80	255	2	1,107
	4:15 PM	143	23	62	15	11	31	19	304	145	97	234	1	1,085
	4:30 PM	138	15	50	11	9	23	13	341	150	81	268	3	1,102
	4:45 PM	149	9	54	21	10	16	13	322	138	84	215	3	1,034
	5:00 PM	151	11	43	18	8	12	10	322	156	87	247	2	1,067
	5:15 PM	130	14	58	11	10	12	10	329	164	93	251	3	1,085
	5:30 PM	141	12	52	9	12	14	14	382	157	103	235	3	1,134
	5:45 PM	144	13	40	16	7	12	18	306	169	123	212	2	1,062
	VOLUMES	1,133	108	410	123	79	139	114	2,656	1,230	748	1,917	19	8,676
	APPROACH %	69%	7%	25%	36%	23%	41%	3%	66%	31%	28%	71%	1%	
	APP/DEPART	1,651	/	241	341	/	2,057	4,000	/	3,190	2,684	/	3,188	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	566	50	193	54	37	50	52	1,339	646	406	945	10	4,348
	APPROACH %	70%	6%	24%	38%	26%	35%	3%	66%	32%	30%	69%	1%	
	PEAK HR FACTOR		0.987			0.928			0.921			0.981		0.959
	APP/DEPART	809	/	112	141	/	1,090	2,037	/	1,586	1,361	/	1,560	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
1	0	0	0	1
0	0	0	0	0
1	0	0	1	2

RTOR

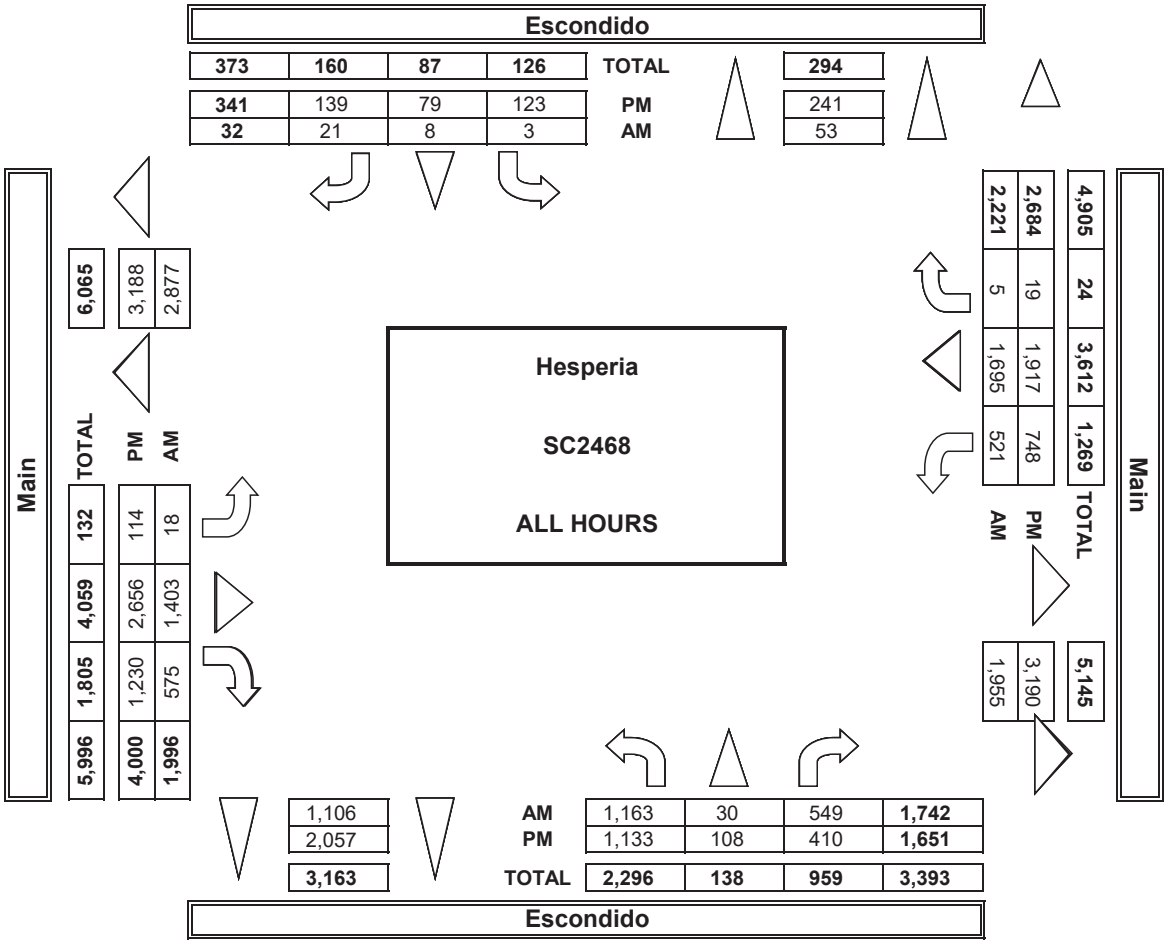
NRR	SRR	ERR	WRR
0	0	0	0
28	1	50	0
33	0	26	0
58	0	11	0
38	0	24	0
44	2	24	0
29	0	24	1
34	0	22	0
33	0	21	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
297	3	202	1
157	1	111	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
14	2	50	1
26	2	67	0
20	2	47	0
17	5	65	1
20	1	49	0
22	0	40	2
22	1	45	0
14	1	48	0
155	14	411	4
78	3	182	2

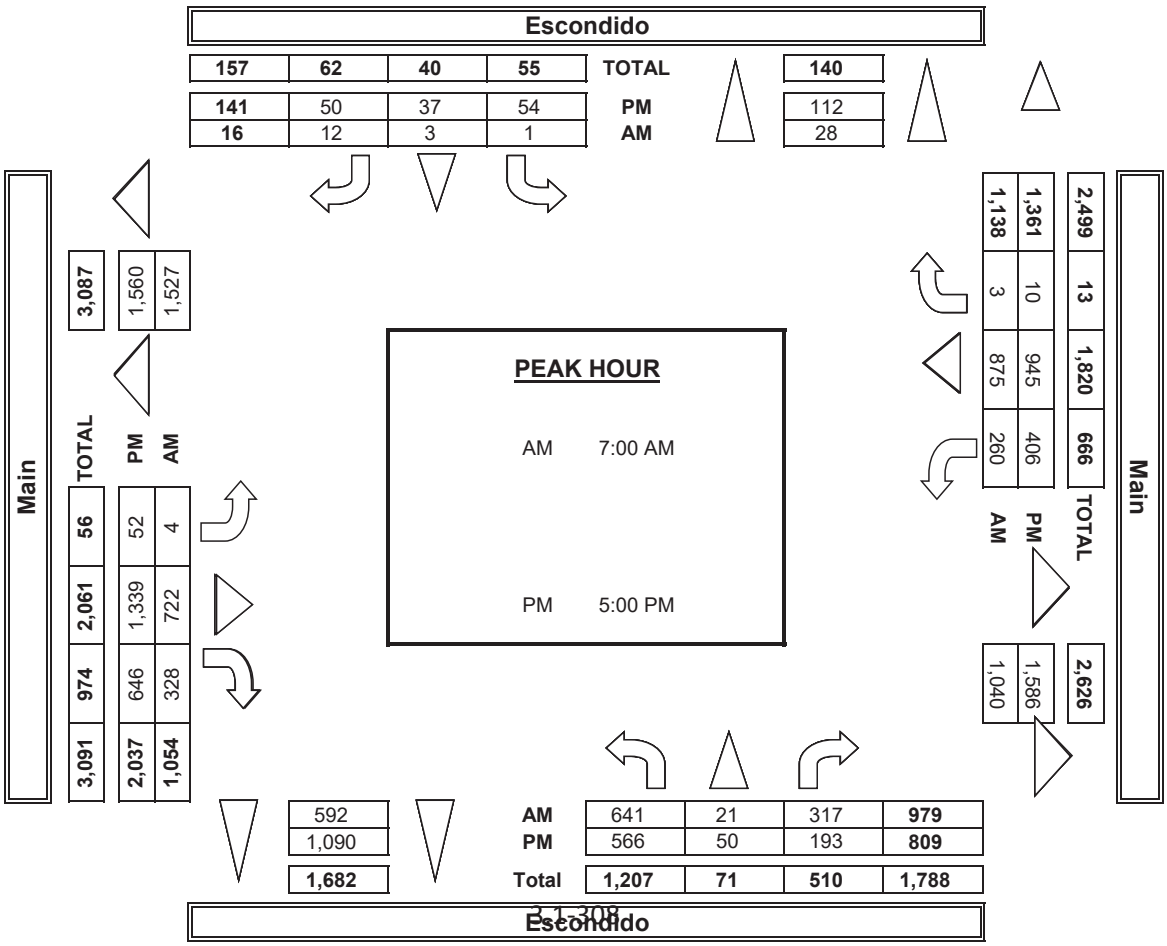


		ALL PED AND BIKE					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL	ES	WS	SS	NS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	1	0	1	0	2	1	0	1	0	2	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	2	0	1	0	3	2	0	1	0	3	0	0	0	0	0
PM	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	4:15 PM	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
	5:30 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	5:45 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	TOTAL	0	0	5	1	6	0	0	5	0	5	0	0	0	1	1

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	Escondido	LOCATION #:	24
	EAST & WEST:	Main	CONTROL:	SIGNAL

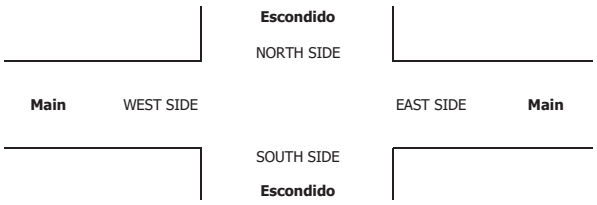
CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM	7:00 AM	152	3	73	0	1	2	0	150	116	61	182	1	741
	7:15 AM	159	6	81	1	1	4	2	165	69	86	172	1	747
	7:30 AM	162	8	90	0	1	3	0	165	44	53	241	1	768
	7:45 AM	141	4	61	0	0	3	2	181	67	51	183	0	693
	8:00 AM	128	4	56	1	1	4	2	164	64	78	199	0	701
	8:15 AM	132	0	53	0	0	0	3	154	67	72	179	1	661
	8:30 AM	115	2	56	1	2	2	2	149	58	46	184	0	617
	8:45 AM	117	3	55	0	2	3	5	146	37	48	174	1	591
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1,106	30	525	3	8	21	16	1,274	522	495	1,514	5	5,519
	APPROACH %	67%	2%	32%	9%	25%	66%	1%	70%	29%	25%	75%	0%	
	APP/DEPART	1,661	/	51	32	/	1,027	1,812	/	1,802	2,014	/	2,639	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	613	21	305	1	3	12	4	661	296	251	778	3	2,949
	APPROACH %	65%	2%	32%	6%	19%	75%	0%	69%	31%	24%	75%	0%	
	PEAK HR FACTOR		0.904			0.667			0.903			0.875		0.960
	APP/DEPART	940	/	28	16	/	551	961	/	967	1,032	/	1,403	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	135	11	49	21	12	19	17	323	143	78	248	2	1,058
	4:15 PM	140	23	60	15	11	31	18	282	135	96	223	1	1,035
	4:30 PM	134	15	49	11	9	22	13	321	144	78	253	3	1,052
	4:45 PM	145	9	51	21	10	16	13	300	133	83	208	3	992
	5:00 PM	151	11	41	18	8	12	10	306	145	87	236	2	1,027
	5:15 PM	129	14	58	11	10	12	10	316	162	92	236	3	1,053
	5:30 PM	139	12	52	9	12	14	13	374	154	102	223	3	1,107
	5:45 PM	140	13	40	15	7	12	18	296	161	122	201	2	1,027
	VOLUMES	1,113	108	400	121	79	138	112	2,518	1,177	738	1,828	19	8,351
	APPROACH %	69%	7%	25%	36%	23%	41%	3%	66%	31%	29%	71%	1%	
	APP/DEPART	1,621	/	239	338	/	1,995	3,807	/	3,039	2,585	/	3,078	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	558	50	191	53	37	50	51	1,292	622	403	896	10	4,214
	APPROACH %	70%	6%	24%	38%	26%	36%	3%	66%	32%	31%	68%	1%	
	PEAK HR FACTOR		0.985			0.921			0.908			0.989		0.952
	APP/DEPART	800	/	111	140	/	1,063	1,965	/	1,536	1,309	/	1,504	0

U-TURNS					RTOR			
NB	SB	EB	WB	TTL	NRR	SRR	ERR	WRR
1	0	0	0	1	0	0	0	0
0	0	0	0	0	27	1	46	0
0	0	0	0	0	31	0	23	0
0	0	0	0	0	55	0	11	0
0	0	0	0	0	37	0	23	0
0	0	0	0	0	43	2	22	0
0	0	0	0	0	28	0	24	1
1	0	0	0	1	32	0	21	0
0	0	0	0	0	33	0	17	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
2	0	0	0	2	286	3	187	1
					150	1	103	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	13	2	46	1
0	0	0	0	0	25	2	62	0
0	0	0	0	0	19	2	45	0
0	0	0	0	0	17	5	64	1
0	0	0	0	0	19	1	48	0
0	0	0	0	0	22	0	40	2
1	0	0	0	1	22	1	45	0
0	0	0	0	0	14	1	46	0
1	0	0	0	1	151	14	396	4
					77	3	179	2



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	24
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

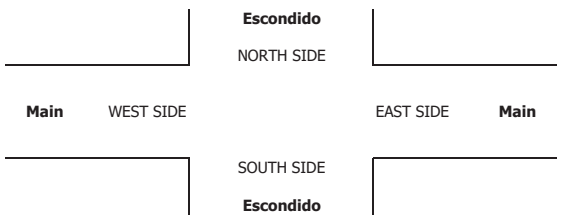
		NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM	7:00 AM	3	0	1	0	0	0	0	9	7	0	13	0	33
	7:15 AM	5	0	0	0	0	0	0	8	2	1	12	0	28
	7:30 AM	1	0	2	0	0	0	0	9	3	2	14	0	31
	7:45 AM	7	0	1	0	0	0	0	12	3	1	14	0	38
	8:00 AM	7	0	1	0	0	0	1	12	2	2	11	0	36
	8:15 AM	3	0	1	0	0	0	0	11	2	1	9	0	27
	8:30 AM	2	0	1	0	0	0	0	7	2	5	10	0	27
	8:45 AM	5	0	0	0	0	0	0	10	6	2	10	0	33
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	33	0	7	0	0	0	1	78	27	14	93	0	253
	APPROACH %	83%	0%	18%	0%	0%	0%	1%	74%	25%	13%	87%	0%	
	APP/DEPART	40	/	1	0	/	41	106	/	85	107	/	126	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	20	0	4	0	0	0	1	41	10	6	51	0	133
	APPROACH %	83%	0%	17%	0%	0%	0%	2%	79%	19%	11%	89%	0%	
	PEAK HR FACTOR	0.750			0.000			0.867			0.891			0.875
	APP/DEPART	24	/	1	0	/	16	52	/	45	57	/	71	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	0	0	1	0	0	0	17	5	0	6	0	30
	4:15 PM	1	0	1	0	0	0	0	16	8	1	5	0	32
	4:30 PM	0	0	1	0	0	1	0	15	5	2	6	0	30
	4:45 PM	2	0	0	0	0	0	0	16	3	0	3	0	24
	5:00 PM	0	0	1	0	0	0	0	11	10	0	6	0	28
	5:15 PM	1	0	0	0	0	0	0	5	2	0	12	0	20
	5:30 PM	2	0	0	0	0	0	1	5	1	1	8	0	18
	5:45 PM	3	0	0	1	0	0	0	4	7	1	6	0	22
	VOLUMES	10	0	3	2	0	1	1	89	41	5	52	0	204
	APPROACH %	77%	0%	23%	67%	0%	33%	1%	68%	31%	9%	91%	0%	
	APP/DEPART	13	/	1	3	/	46	131	/	94	57	/	63	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	4	0	2	1	0	1	0	64	21	3	20	0	116
	APPROACH %	67%	0%	33%	50%	0%	50%	0%	75%	25%	13%	87%	0%	
	PEAK HR FACTOR	0.750			0.500			0.885			0.719			0.906
	APP/DEPART	6	/	0	2	/	24	85	/	67	23	/	25	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	2	0
0	0	1	0
2	0	0	0
1	0	1	0
0	0	1	0
0	0	0	0
1	0	1	0
0	0	2	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
4	0	8	0
3	0	3	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	2	0
2	0	11	0
1	0	8	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	24
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Main			WESTBOUND Main			
	LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	3	0	0	1	0	4
	7:15 AM	0	0	0	0	0	0	0	5	0	0	3	0	8
	7:30 AM	1	0	0	0	0	0	0	2	0	1	2	0	6
	7:45 AM	1	0	0	0	0	0	0	0	1	0	5	0	7
	8:00 AM	1	0	0	0	0	0	0	3	1	0	3	0	8
	8:15 AM	1	0	0	0	0	0	0	2	0	1	2	0	6
	8:30 AM	2	0	0	0	0	0	0	4	0	1	2	0	9
	8:45 AM	0	0	0	0	0	0	0	3	1	0	2	0	6
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	6	0	0	0	0	0	0	22	3	3	20	0	54
	APPROACH %	100%	0%	0%	0%	0%	0%	0%	88%	12%	13%	87%	0%	
	APP/DEPART	6	/	0	0	/	6	25	/	22	23	/	26	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	5	0	0	0	0	0	0	9	2	2	12	0	30
	APPROACH %	100%	0%	0%	0%	0%	0%	0%	82%	18%	14%	86%	0%	
	PEAK HR FACTOR		0.625			0.000			0.688			0.700		0.833
	APP/DEPART	5	/	0	0	/	4	11	/	9	14	/	17	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	3	1	0	0	0	4
	4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	2
	4:30 PM	1	0	0	0	0	0	0	1	0	0	0	0	2
	4:45 PM	1	0	1	0	0	0	0	3	0	0	2	0	7
	5:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	4
	5:15 PM	0	0	0	0	0	0	0	3	0	1	1	0	5
	5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
	5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	VOLUMES	2	0	2	0	0	0	1	12	2	1	6	0	26
	APPROACH %	50%	0%	50%	0%	0%	0%	7%	80%	13%	14%	86%	0%	
	APP/DEPART	4	/	1	0	/	3	15	/	14	7	/	8	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	2	0	1	0	0	0	0	9	0	1	5	0	18
	APPROACH %	67%	0%	33%	0%	0%	0%	0%	100%	0%	17%	83%	0%	
	PEAK HR FACTOR		0.375			0.000			0.750			0.750		0.643
	APP/DEPART	3	/	0	0	/	1	9	/	10	6	/	7	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

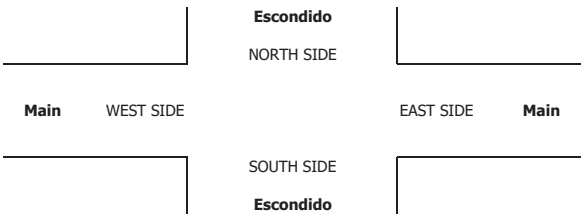
RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	2	0

0	0	1	0

0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0

0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	24
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
7:00 AM	1	0	0	0	0	0	0	5	2	0	8	0	16
7:15 AM	0	0	0	0	0	0	0	2	3	0	7	0	12
7:30 AM	3	0	0	0	0	0	0	0	2	1	6	0	12
7:45 AM	2	0	0	0	0	0	0	4	2	1	7	0	16
8:00 AM	0	0	0	0	0	0	0	3	2	0	8	0	13
8:15 AM	3	0	1	0	0	0	0	5	2	1	9	0	21
8:30 AM	1	0	0	0	0	0	0	1	1	1	7	0	11
8:45 AM	2	0	0	0	0	0	1	4	0	0	8	0	15
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	12	0	1	0	0	0	1	24	14	4	60	0	116
APPROACH %	92%	0%	8%	0%	0%	0%	3%	62%	36%	6%	94%	0%	
APP/DEPART	13	/	1	0	/	18	39	/	25	64	/	72	0
BEGIN PEAK HR		7:30 AM											
VOLUMES	8	0	1	0	0	0	0	12	8	3	30	0	62
APPROACH %	89%	0%	11%	0%	0%	0%	0%	60%	40%	9%	91%	0%	
PEAK HR FACTOR		0.563			0.000			0.714			0.825		0.738
APP/DEPART	9	/	0	0	/	11	20	/	13	33	/	38	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	7	1	0	1	0	9
4:15 PM	0	0	0	0	0	0	0	3	2	0	4	0	9
4:30 PM	1	0	0	0	0	0	0	3	0	0	9	0	13
4:45 PM	1	0	1	0	0	0	0	3	2	0	2	0	9
5:00 PM	0	0	1	0	0	0	0	3	0	0	2	0	6
5:15 PM	0	0	0	0	0	0	0	4	0	0	2	0	6
5:30 PM	0	0	0	0	0	0	0	3	0	0	4	0	7
5:45 PM	0	0	0	0	0	0	0	6	1	0	4	0	11
VOLUMES	2	0	2	0	0	0	0	32	6	0	28	0	70
APPROACH %	50%	0%	50%	0%	0%	0%	0%	84%	16%	0%	100%	0%	
APP/DEPART	4	/	0	0	/	6	38	/	34	28	/	30	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	2	0	1	0	0	0	0	16	5	0	16	0	40
APPROACH %	67%	0%	33%	0%	0%	0%	0%	76%	24%	0%	100%	0%	
PEAK HR FACTOR		0.375			0.000			0.656			0.444		0.769
APP/DEPART	3	/	0	0	/	5	21	/	17	16	/	18	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	24
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Main			WESTBOUND Main			
	LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		3:30 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	24
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 2	NT 1	NR 1	SL 1	ST 0.5	SR 0.5	EL 1	ET 3	ER 1	WL 2	WT 2	WR 1	TOTAL
AM													
7:00 AM	0	0	2	0	0	0	0	1	4	0	2	0	9
7:15 AM	1	0	4	0	0	0	0	0	1	1	1	0	8
7:30 AM	1	0	2	0	0	0	0	1	1	0	1	0	6
7:45 AM	1	0	0	0	0	0	0	0	1	1	0	0	3
8:00 AM	1	0	4	0	0	0	0	1	0	2	1	0	9
8:15 AM	0	0	2	0	0	0	0	0	1	0	1	0	4
8:30 AM	1	0	1	0	0	0	0	1	0	1	1	0	5
8:45 AM	1	0	1	0	0	0	0	1	1	0	0	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	6	0	16	0	0	0	0	5	9	5	7	0	48
APPROACH %	27%	0%	73%	0%	0%	0%	0%	36%	64%	42%	58%	0%	
APP/DEPART	22	/	0	0	/	14	14	/	21	12	/	13	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	3	0	8	0	0	0	0	2	7	2	4	0	26
APPROACH %	27%	0%	73%	0%	0%	0%	0%	22%	78%	33%	67%	0%	
PEAK HR FACTOR		0.550			0.000			0.450			0.750		0.722
APP/DEPART	11	/	0	0	/	9	9	/	10	6	/	7	0
PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	0	2	0	0	0	0	0	1	2	0	0	6
4:15 PM	2	0	0	0	0	0	0	3	0	0	1	0	6
4:30 PM	2	0	0	0	0	0	0	1	1	1	0	0	5
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
5:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
VOLUMES	6	0	3	0	0	0	0	5	4	3	2	0	23
APPROACH %	67%	0%	33%	0%	0%	0%	0%	56%	44%	60%	40%	0%	
APP/DEPART	9	/	0	0	/	7	9	/	8	5	/	8	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	5	0	3	0	0	0	0	4	2	3	1	0	18
APPROACH %	63%	0%	38%	0%	0%	0%	0%	67%	33%	75%	25%	0%	
PEAK HR FACTOR		0.667			0.000			0.500			0.500		0.750
APP/DEPART	8	/	0	0	/	5	6	/	7	4	/	6	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
1	0	1	0
2	0	0	0
1	0	0	0
0	0	0	0
1	0	0	0
1	0	0	0
1	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
7	0	2	0
4	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
1	0	2	0
1	0	2	0

Escondido

NORTH SIDE

Main WEST SIDE EAST SIDE **Main**

SOUTH SIDE

Escondido

INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Jan 7, 20

LOCATION: Hesperia
NORTH & SOUTH: Escondido
EAST & WEST: Sultana

PROJECT #: SC2468
LOCATION #: 25
CONTROL: STOP E/W

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

		NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Sultana)			WESTBOUND (Sultana)			
	LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
AM	7:00 AM	0	201	11	17	147	0	0	0	0	13	0	53	442
	7:15 AM	0	230	10	23	136	0	0	0	0	6	0	36	441
	7:30 AM	0	224	7	27	83	0	0	0	0	2	0	58	401
	7:45 AM	0	128	3	14	108	0	0	0	0	2	0	48	303
	8:00 AM	1	187	2	15	113	0	0	0	0	2	0	32	352
	8:15 AM	0	168	2	20	92	0	0	0	0	1	0	31	314
	8:30 AM	0	149	2	22	60	0	0	0	0	1	0	34	268
	8:45 AM	0	125	0	14	56	0	0	0	0	0	0	28	223
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	1	1,412	37	152	795	0	0	0	0	27	0	320	2,744
	APPROACH %	0%	97%	3%	16%	84%	0%	0%	0%	0%	8%	0%	92%	
	APP/DEPART	1,450	/	1,733	947	/	822	0	/	188	347	/	1	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	783	31	81	474	0	0	0	0	23	0	195	1,587
	APPROACH %	0%	96%	4%	15%	85%	0%	0%	0%	0%	11%	0%	89%	
	PEAK HR FACTOR		0.848			0.846			0.000			0.826		0.898
	APP/DEPART	814	/	979	555	/	497	0	/	111	218	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	144	5	51	174	0	0	0	1	3	0	36	414
	4:15 PM	0	169	5	53	166	0	0	0	0	1	0	27	421
	4:30 PM	0	147	8	60	160	0	0	0	0	2	0	22	399
	4:45 PM	0	113	1	60	155	0	0	0	0	1	0	32	362
	5:00 PM	0	135	1	60	178	0	0	0	0	3	0	29	406
	5:15 PM	0	151	4	53	191	0	0	0	0	3	0	35	437
	5:30 PM	0	137	2	58	182	0	0	1	0	1	0	40	421
	5:45 PM	0	118	3	66	194	0	0	0	0	4	0	23	408
	VOLUMES	0	1,114	29	461	1,400	0	0	1	1	18	0	244	3,268
	APPROACH %	0%	97%	3%	25%	75%	0%	0%	50%	50%	7%	0%	93%	
	APP/DEPART	1,143	/	1,361	1,861	/	1,419	2	/	488	262	/	0	0
	BEGIN PEAK HR		5:00 PM											
	VOLUMES	0	541	10	237	745	0	0	1	0	11	0	127	1,672
	APPROACH %	0%	98%	2%	24%	76%	0%	0%	100%	0%	8%	0%	92%	
	PEAK HR FACTOR		0.889			0.944			0.250			0.841		0.957
	APP/DEPART	551	/	669	982	/	756	1	/	247	138	/	0	0

U-TURNS

NB 0	SB 0	EB 0	WB 0	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	3	0	0	3

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Escondido
NORTH SIDE

Sultana WEST SIDE EAST SIDE Sultana

SOUTH SIDE
Escondido

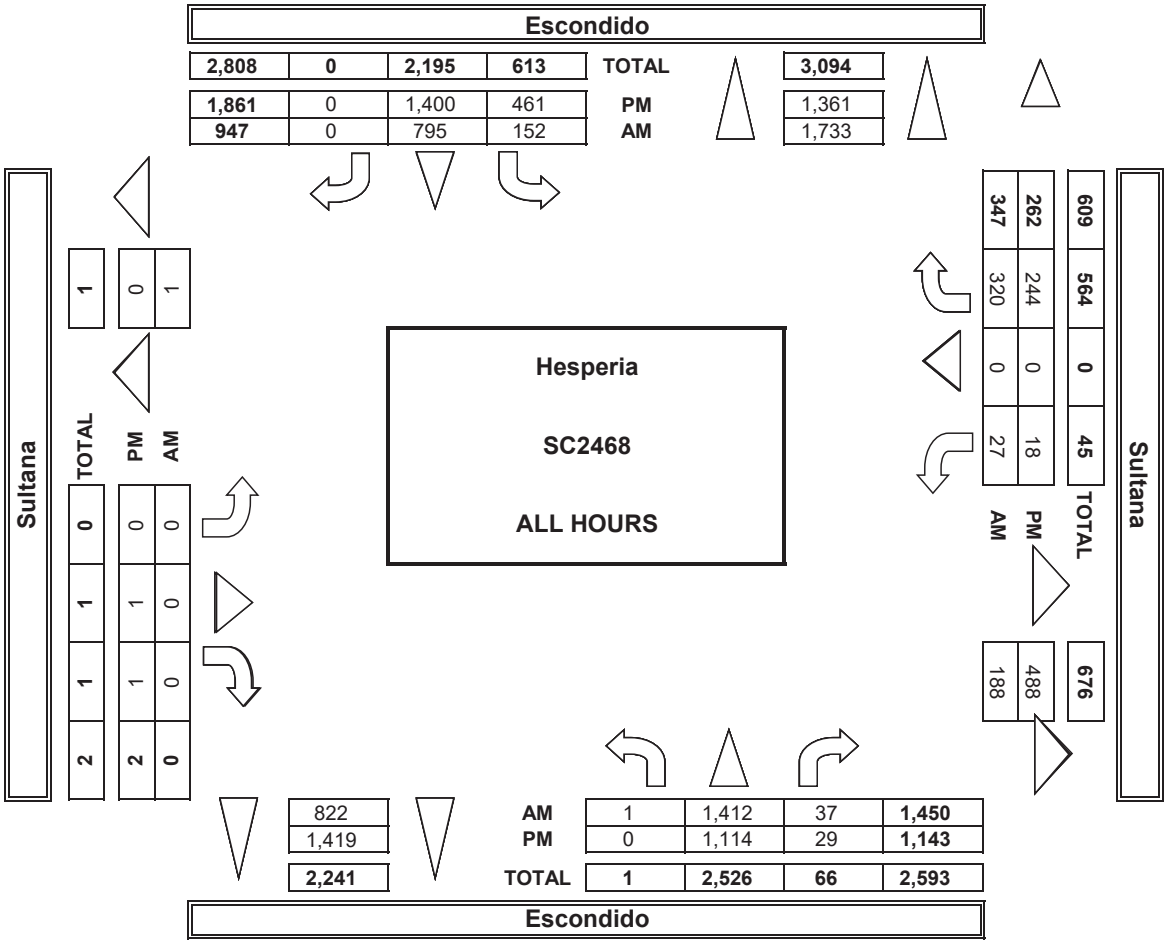
	ALL PED AND BIKE				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	1	0	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	4	0	0	5
8:45 AM	2	0	0	0	2
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	4	5	0	0	9
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	3	0	0	0	3
TOTAL	4	2	0	0	6

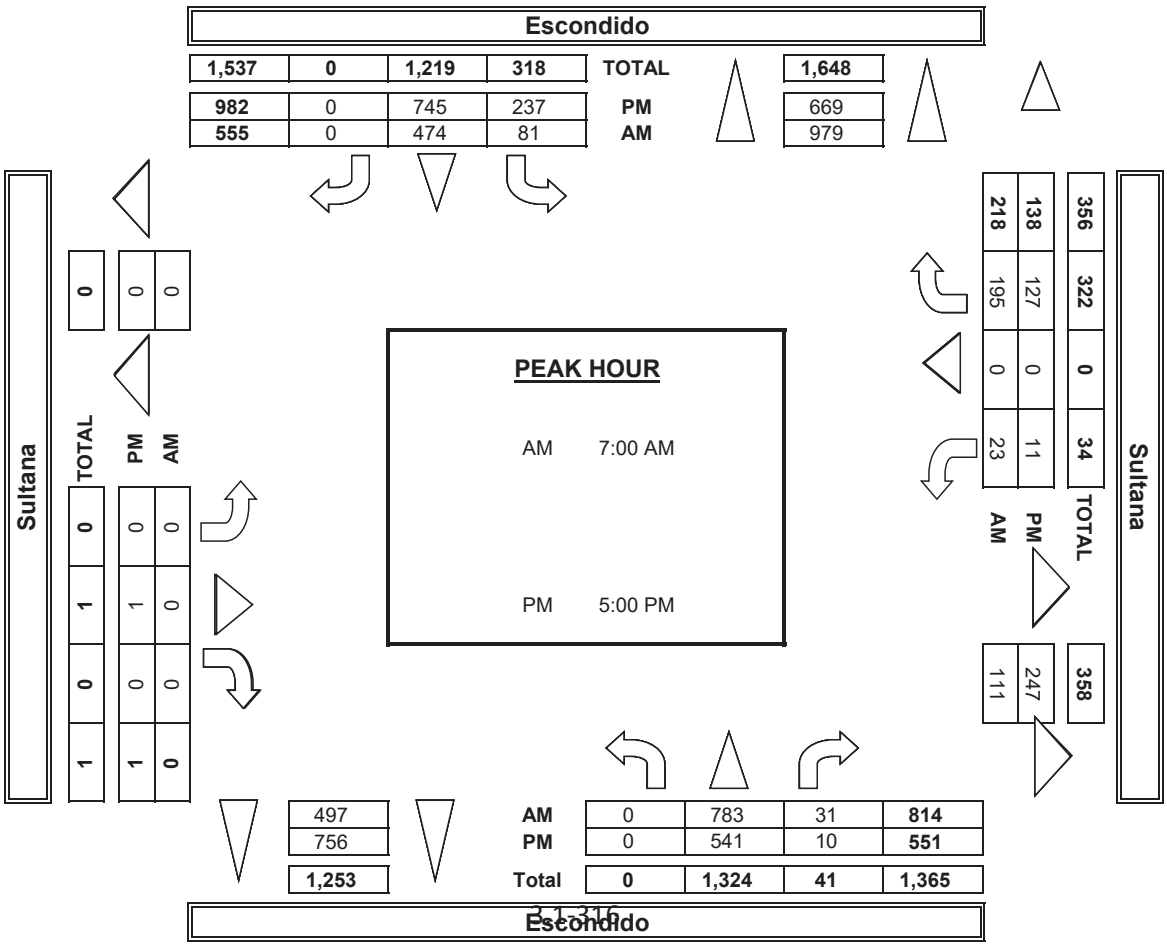
	PEDESTRIAN CROSSINGS				
	E SIDE	W SIDE	S SIDE	N SIDE	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	1	4	0	0	5
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	1	4	0	0	5
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	1	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	0	0
5:45 PM	3	0	0	0	3
TOTAL	4	2	0	0	6

	BICYCLE CROSSINGS				
	ES	WS	SS	NS	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	1	0	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	2	0	0	0	2
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL	3	1	0	0	4
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL	0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	Escondido	LOCATION #:	25
	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Sultana)			WESTBOUND (Sultana)			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	196	10	16	142	0	0	0	0	13	0	49	426
7:15 AM	0	224	10	22	131	0	0	0	0	6	0	33	426
7:30 AM	0	215	7	25	81	0	0	0	0	2	0	56	386
7:45 AM	0	120	3	12	99	0	0	0	0	2	0	41	277
8:00 AM	1	182	2	13	107	0	0	0	0	2	0	29	336
8:15 AM	0	162	2	19	87	0	0	0	0	1	0	30	301
8:30 AM	0	142	2	21	55	0	0	0	0	1	0	30	251
8:45 AM	0	118	0	12	52	0	0	0	0	0	0	27	209
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	1,359	36	140	754	0	0	0	0	27	0	295	2,612
APPROACH %	0%	97%	3%	16%	84%	0%	0%	0%	0%	8%	0%	92%	
APP/DEPART	1,396	/	1,654	894	/	781	0	/	176	322	/	1	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	755	30	75	453	0	0	0	0	23	0	179	1,515
APPROACH %	0%	96%	4%	14%	86%	0%	0%	0%	0%	11%	0%	89%	
PEAK HR FACTOR		0.839			0.835			0.000			0.815		0.889
APP/DEPART	785	/	934	528	/	476	0	/	105	202	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	138	5	51	167	0	0	0	1	3	0	32	397
4:15 PM	0	169	5	51	161	0	0	0	0	1	0	27	414
4:30 PM	0	142	8	59	158	0	0	0	0	2	0	22	391
4:45 PM	0	110	1	59	152	0	0	0	0	1	0	32	355
5:00 PM	0	133	0	60	177	0	0	0	0	3	0	29	402
5:15 PM	0	149	4	53	191	0	0	0	0	3	0	35	435
5:30 PM	0	137	2	58	182	0	0	1	0	1	0	40	421
5:45 PM	0	117	3	66	191	0	0	0	0	4	0	23	404
VOLUMES	0	1,095	28	457	1,379	0	0	1	1	18	0	240	3,219
APPROACH %	0%	98%	2%	25%	75%	0%	0%	50%	50%	7%	0%	93%	
APP/DEPART	1,123	/	1,337	1,836	/	1,398	2	/	484	258	/	0	0
BEGIN PEAK HR		5:00 PM											
VOLUMES	0	536	9	236	741	0	0	1	0	11	0	127	1,662
APPROACH %	0%	98%	2%	24%	76%	0%	0%	100%	0%	8%	0%	92%	
PEAK HR FACTOR		0.891			0.951			0.250			0.841		0.955
APP/DEPART	545	/	664	978	/	752	1	/	246	138	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	2	0	0	2

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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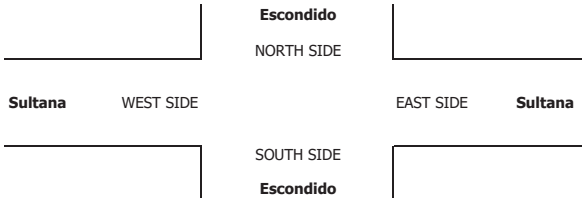
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	25
TUESDAY	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Sultana			WESTBOUND Sultana			
	LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
AM	7:00 AM	0	3	1	1	2	0	0	0	0	0	0	3	10
	7:15 AM	0	2	0	0	0	0	0	0	0	0	0	1	3
	7:30 AM	0	5	0	1	1	0	0	0	0	0	0	1	8
	7:45 AM	0	6	0	0	4	0	0	0	0	0	0	3	13
	8:00 AM	0	2	0	1	2	0	0	0	0	0	0	1	6
	8:15 AM	0	1	0	0	3	0	0	0	0	0	0	0	4
	8:30 AM	0	5	0	0	2	0	0	0	0	0	0	3	10
	8:45 AM	0	1	0	1	2	0	0	0	0	0	0	1	5
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	25	1	4	16	0	0	0	0	0	0	13	59
	APPROACH %	0%	96%	4%	20%	80%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	26	/	38	20	/	16	0	/	5	13	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	16	1	2	7	0	0	0	0	0	0	8	34
	APPROACH %	0%	94%	6%	22%	78%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.708			0.563			0.000			0.667		0.654
	APP/DEPART	17	/	24	9	/	7	0	/	3	8	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	1	0	0	2	0	0	0	0	0	0	3	6
	4:15 PM	0	0	0	1	3	0	0	0	0	0	0	0	4
	4:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	2
	4:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	2
	5:00 PM	0	1	1	0	0	0	0	0	0	0	0	0	2
	5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	VOLUMES	0	4	1	3	8	0	0	0	0	0	0	3	19
	APPROACH %	0%	80%	20%	27%	73%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	5	/	7	11	/	8	0	/	4	3	/	0	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	2	0	3	6	0	0	0	0	0	0	3	14
	APPROACH %	0%	100%	0%	33%	67%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.500			0.563			0.000			0.250		0.583
	APP/DEPART	2	/	5	9	/	6	0	/	3	3	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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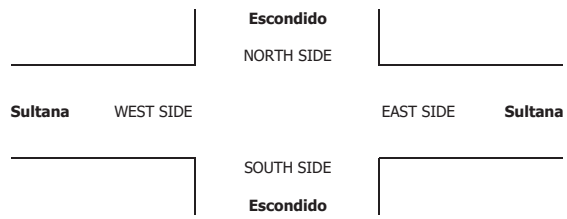
0	0	0	0
0	0	0	0
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	25
TUESDAY	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Sultana			WESTBOUND Sultana			
	LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	1	1	0	0	0	0	0	0	1	3
	7:45 AM	0	0	0	1	2	0	0	0	0	0	0	1	4
	8:00 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
	8:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
	8:30 AM	0	0	0	1	1	0	0	0	0	0	0	1	3
	8:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	2
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	6	4	0	0	0	0	0	0	5	16
	APPROACH %	0%	100%	0%	60%	40%	0%	0%	0%	0%	0%	0%	100%	
	APP/DEPART	1	/	7	10	/	4	0	/	5	5	/	0	0
	BEGIN PEAK HR		7:30 AM											
	VOLUMES	0	0	0	3	3	0	0	0	0	0	0	4	11
	APPROACH %	0%	0%	0%	43%	43%	0%	0%	0%	0%	0%	0%	100%	
	PEAK HR FACTOR		0.000			0.583			0.000			1.000		0.688
	APP/DEPART	0	/	5	7	/	3	0	/	3	4	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	VOLUMES	0	2	0	0	3	0	0	0	0	0	0	0	5
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	2	/	2	3	/	3	0	/	0	0	/	0	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	2	0	0	2	0	0	0	0	0	0	0	4
	APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.500			0.250			0.000			0.000		0.333
	APP/DEPART	2	/	2	2	/	2	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

Escondido

NORTH SIDE

Sultana WEST SIDE EAST SIDE **Sultana**

SOUTH SIDE

Escondido

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	25
TUESDAY	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND (Escondido)			SOUTHBOUND (Escondido)			EASTBOUND (Sultana)			WESTBOUND (Sultana)			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	1	2	0	0	0	0	0	0	2	5
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	2	0	0	0	0	0	0	1	4
8:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
8:15 AM	0	4	0	0	1	0	0	0	0	0	0	0	5
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	9	0	1	10	0	0	0	0	0	0	3	23
APPROACH %	0%	100%	0%	9%	91%	0%	0%	0%	0%	0%	0%	100%	
APP/DEPART	9	/	12	11	/	10	0	/	1	3	/	0	0
BEGIN PEAK HR		7:45 AM											
VOLUMES	0	8	0	0	5	0	0	0	0	0	0	0	13
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.500			0.625			0.000			0.000		0.650
APP/DEPART	8	/	8	5	/	5	0	/	0	0	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	2
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	5	0	1	5	0	0	0	0	0	0	0	11
APPROACH %	0%	100%	0%	17%	83%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	5	/	6	6	/	5	0	/	0	0	/	0	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	4	0	0	4	0	0	0	0	0	0	0	9
APPROACH %	0%	100%	0%	0%	80%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.500			0.625			0.000			0.000		0.563
APP/DEPART	4	/	5	5	/	4	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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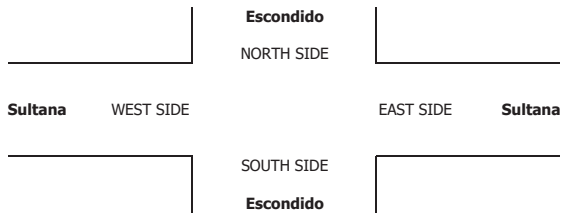
0	0	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	25
TUESDAY	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 5:	NOTES:
RV	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

	NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Sultana			WESTBOUND Sultana			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
BEGIN PEAK HR		3:00 PM											
VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Escondido	LOCATION #:	25
TUESDAY	EAST & WEST:	Sultana	CONTROL:	STOP E/W

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

	NORTHBOUND Escondido			SOUTHBOUND Escondido			EASTBOUND Sultana			WESTBOUND Sultana			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 0	WR 1	TOTAL
7:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	5
7:15 AM	0	4	0	0	3	0	0	0	0	0	0	0	7
7:30 AM	0	4	0	0	0	0	0	0	0	0	0	0	4
7:45 AM	0	1	0	1	1	0	0	0	0	0	0	2	5
8:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	5
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
8:45 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	0	18	0	1	11	0	0	0	0	0	0	4	34
APPROACH %	0%	100%	0%	8%	92%	0%	0%	0%	0%	0%	0%	100%	
APP/DEPART	18	/	22	12	/	11	0	/	1	4	/	0	0
BEGIN PEAK HR		7:15 AM											
VOLUMES	0	11	0	1	6	0	0	0	0	0	0	3	21
APPROACH %	0%	100%	0%	14%	86%	0%	0%	0%	0%	0%	0%	100%	
PEAK HR FACTOR		0.688			0.583			0.000			0.375		0.750
APP/DEPART	11	/	14	7	/	6	0	/	1	3	/	0	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	4	0	0	2	0	0	0	0	0	0	1	7
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	3	0	0	1	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
VOLUMES	0	8	0	0	5	0	0	0	0	0	0	1	14
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	
APP/DEPART	8	/	9	5	/	5	0	/	0	1	/	0	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	7	0	0	4	0	0	0	0	0	0	1	12
APPROACH %	0%	100%	0%	0%	100%	0%	0%	0%	0%	0%	0%	100%	
PEAK HR FACTOR		0.438			0.500			0.000			0.250		0.429
APP/DEPART	7	/	8	4	/	4	0	/	0	1	/	0	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
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0	0	0	0	0
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0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR X	SRR X	ERR X	WRR X
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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0	0	0	0
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0	0	0	0
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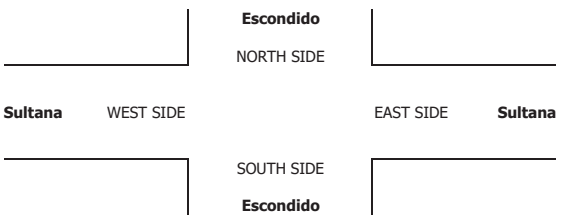


INTERSECTION TURNING MOVEMENT COUNTS

T1218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tue, Jan 7, 20

LOCATION: Hesperia
NORTH & SOUTH: Topaz
EAST & WEST: Main

PROJECT #: SC2468
LOCATION #: 26
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

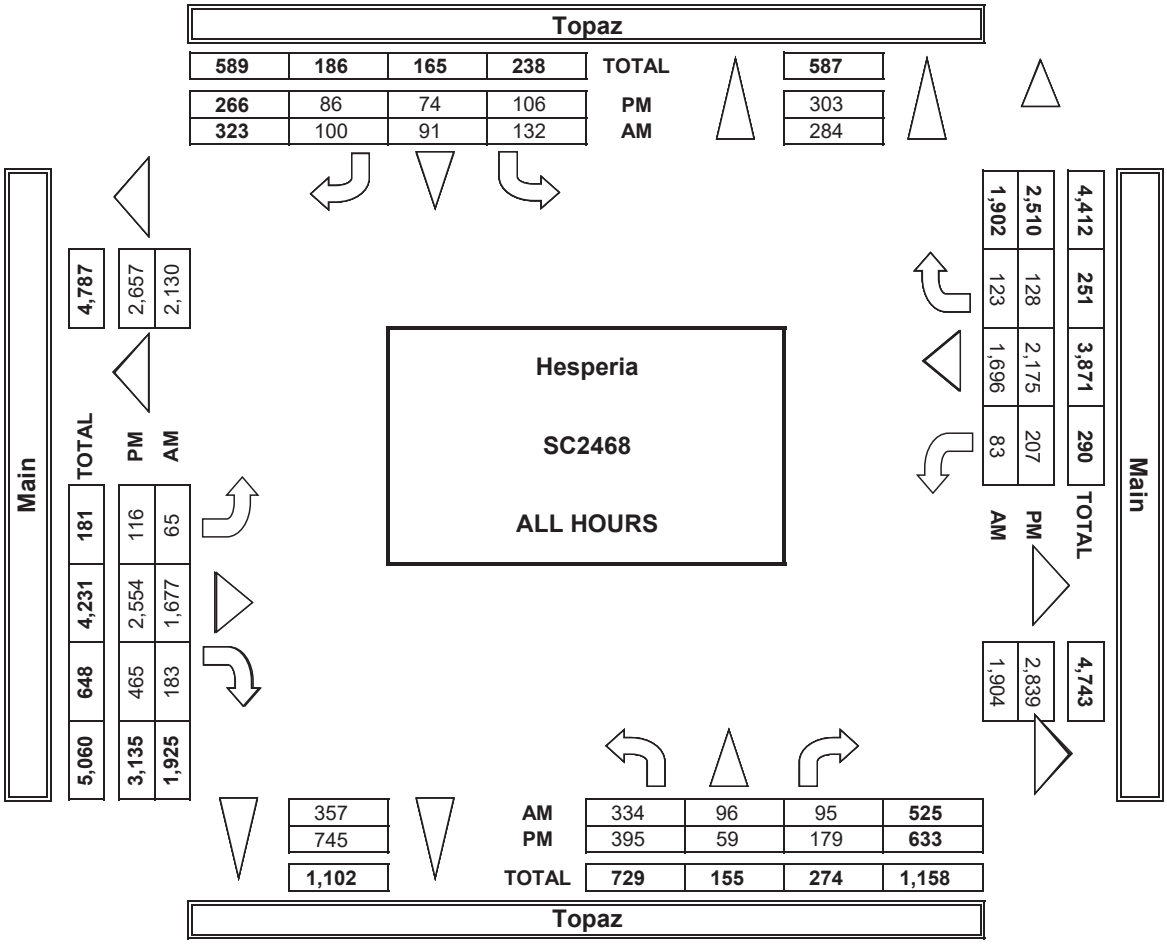
		NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	31	25	10	22	12	21	10	219	14	3	201	35	603
	7:15 AM	38	37	11	30	29	29	15	215	20	11	231	41	707
	7:30 AM	51	7	15	25	13	15	8	228	21	6	227	3	619
	7:45 AM	41	9	21	16	5	5	5	259	25	10	217	9	622
	8:00 AM	53	5	6	12	9	4	11	205	16	14	220	8	563
	8:15 AM	35	4	12	7	7	14	2	193	36	10	202	11	533
	8:30 AM	44	4	8	9	11	7	7	185	25	15	202	8	525
	8:45 AM	41	5	12	11	5	5	7	173	26	14	196	8	503
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	334	96	95	132	91	100	65	1,677	183	83	1,696	123	4,675
	APPROACH %	64%	18%	18%	41%	28%	31%	3%	87%	10%	4%	89%	6%	
	APP/DEPART	525	/	284	323	/	357	1,925	/	1,904	1,902	/	2,130	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	161	78	57	93	59	70	38	921	80	30	876	88	2,551
	APPROACH %	54%	26%	19%	42%	27%	32%	4%	89%	8%	3%	88%	9%	
	PEAK HR FACTOR		0.860			0.631			0.899			0.878		0.902
	APP/DEPART	296	/	204	222	/	169	1,039	/	1,071	994	/	1,107	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	47	7	17	13	17	4	10	312	67	24	294	12	824
	4:15 PM	61	10	16	8	6	7	12	333	67	22	280	15	837
	4:30 PM	47	8	24	13	8	11	18	309	50	26	258	19	791
	4:45 PM	54	7	31	21	4	8	15	339	46	34	273	14	846
	5:00 PM	46	7	22	19	17	17	13	346	48	20	285	18	858
	5:15 PM	45	7	30	10	8	8	13	292	64	35	288	16	816
	5:30 PM	49	7	19	13	11	15	20	310	62	29	233	13	781
	5:45 PM	46	6	20	9	3	16	15	313	61	17	264	21	791
	VOLUMES	395	59	179	106	74	86	116	2,554	465	207	2,175	128	6,544
	APPROACH %	62%	9%	28%	40%	28%	32%	4%	81%	15%	8%	87%	5%	
	APP/DEPART	633	/	303	266	/	745	3,135	/	2,839	2,510	/	2,657	0
	BEGIN PEAK HR		4:15 PM											
	VOLUMES	208	32	93	61	35	43	58	1,327	211	102	1,096	66	3,332
	APPROACH %	62%	10%	28%	44%	25%	31%	4%	83%	13%	8%	87%	5%	
	PEAK HR FACTOR		0.905			0.656			0.968			0.978		0.971
	APP/DEPART	333	/	155	139	/	348	1,596	/	1,481	1,264	/	1,348	0

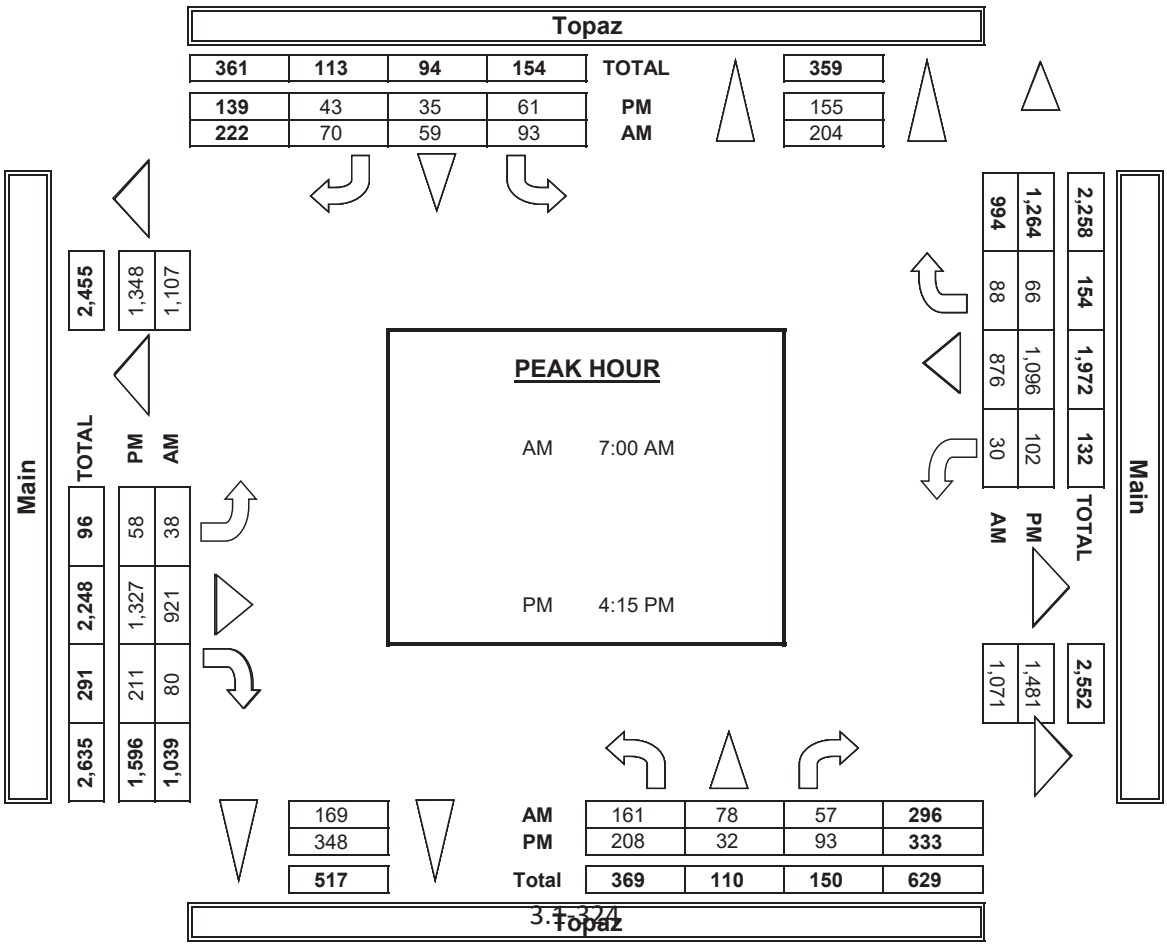
U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: 1/7/20 TUESDAY	LOCATION:	Hesperia	PROJECT #:	SC2468
	NORTH & SOUTH:	Topaz	LOCATION #:	26
	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 1: PASSENGER VEHICLES

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

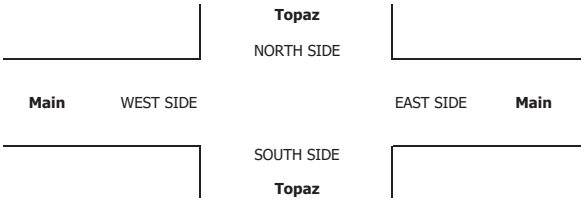
	NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM	29	25	10	22	11	21	10	202	14	3	182	32	561
7:15 AM	37	37	11	29	28	29	14	203	20	11	209	38	666
7:30 AM	49	7	15	24	13	15	8	216	21	6	203	2	579
7:45 AM	38	8	19	15	4	5	5	250	23	9	193	8	577
8:00 AM	51	5	6	12	8	4	9	186	14	12	192	8	507
8:15 AM	34	4	12	7	7	14	2	181	36	10	184	10	501
8:30 AM	43	4	8	9	9	6	7	172	25	14	188	8	493
8:45 AM	40	5	12	11	5	4	7	161	26	13	181	8	473
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	321	95	93	129	85	98	62	1,571	179	78	1,532	114	4,357
APPROACH %	63%	19%	18%	41%	27%	31%	3%	87%	10%	5%	89%	7%	
APP/DEPART	509	/	271	312	/	342	1,812	/	1,793	1,724	/	1,951	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	153	77	55	90	56	70	37	871	78	29	787	80	2,383
APPROACH %	54%	27%	19%	42%	26%	32%	4%	88%	8%	3%	88%	9%	
PEAK HR FACTOR		0.838			0.628			0.887			0.868		0.895
APP/DEPART	285	/	194	216	/	163	986	/	1,016	896	/	1,010	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	46	7	16	13	17	4	10	295	67	23	285	12	795
4:15 PM	61	10	15	8	6	7	11	320	67	22	264	15	806
4:30 PM	47	7	24	13	8	11	18	293	49	25	243	18	756
4:45 PM	54	7	31	20	4	8	14	317	45	34	268	14	816
5:00 PM	46	7	22	19	17	17	10	335	43	20	280	18	834
5:15 PM	42	7	29	10	8	8	13	281	63	35	280	16	792
5:30 PM	49	7	19	13	11	15	19	301	62	29	226	13	764
5:45 PM	45	6	20	9	3	16	15	304	60	16	259	21	774
VOLUMES	390	58	176	105	74	86	110	2,446	456	204	2,105	127	6,337
APPROACH %	63%	9%	28%	40%	28%	32%	4%	81%	15%	8%	86%	5%	
APP/DEPART	624	/	295	265	/	733	3,012	/	2,727	2,436	/	2,582	0
BEGIN PEAK HR		4:15 PM											
VOLUMES	208	31	92	60	35	43	52	1,265	204	101	1,055	65	3,212
APPROACH %	63%	9%	28%	43%	25%	31%	3%	83%	13%	8%	86%	5%	
PEAK HR FACTOR		0.899			0.651			0.956			0.960		0.963
APP/DEPART	331	/	148	138	/	340	1,522	/	1,417	1,221	/	1,307	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	1	2
0	0	0	0	0
0	0	0	0	0
0	1	1	1	3

RTOR

NRR 0	SRR 0	ERR 0	WRR 0
5	16	1	1
3	16	3	2
5	8	6	0
4	3	2	0
4	1	2	0
3	6	11	0
3	6	6	0
7	2	7	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
34	58	38	4
17	43	12	3
0	0	0	0
0	0	0	0
0	0	0	0
4	1	18	0
3	6	22	3
9	10	18	1
10	2	12	2
8	12	16	1
11	5	24	0
7	8	20	0
4	9	8	3
56	53	138	10
30	30	68	7



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Topaz	LOCATION #:	26
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 2: 2-AXLE WORK VEHICLES/ TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	2	0	0	0	1	0	0	5	0	0	8	0	16
	7:15 AM	1	0	0	0	0	0	0	3	0	0	9	2	15
	7:30 AM	2	0	0	1	0	0	0	7	0	0	14	0	24
	7:45 AM	1	0	1	0	0	0	0	6	2	0	8	1	19
	8:00 AM	1	0	0	0	0	0	0	8	2	2	14	0	27
	8:15 AM	1	0	0	0	0	0	0	2	0	0	9	1	13
	8:30 AM	0	0	0	0	1	0	0	6	0	1	5	0	13
	8:45 AM	0	0	0	0	0	0	0	4	0	0	7	0	11
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	8	0	1	1	2	0	0	41	4	3	74	4	138
	APPROACH %	89%	0%	11%	33%	67%	0%	0%	91%	9%	4%	91%	5%	
	APP/DEPART	9	/	4	3	/	9	45	/	43	81	/	82	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	5	0	1	1	0	0	0	24	4	2	45	3	85
	APPROACH %	83%	0%	17%	100%	0%	0%	0%	86%	14%	4%	90%	6%	
	PEAK HR FACTOR		0.750			0.250			0.700			0.781		0.787
	APP/DEPART	6	/	3	1	/	6	28	/	26	50	/	50	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	1	0	1	0	0	0	0	7	0	1	4	0	14
	4:15 PM	0	0	1	0	0	0	1	4	0	0	8	0	14
	4:30 PM	0	0	0	0	0	0	0	12	1	0	3	0	16
	4:45 PM	0	0	0	0	0	0	0	10	1	0	1	0	12
	5:00 PM	0	0	0	0	0	0	3	5	4	0	1	0	13
	5:15 PM	3	0	1	0	0	0	0	2	1	0	2	0	9
	5:30 PM	0	0	0	0	0	0	0	5	0	0	4	0	9
	5:45 PM	1	0	0	0	0	0	0	5	1	0	4	0	11
	VOLUMES	5	0	3	0	0	0	4	50	8	1	27	0	98
	APPROACH %	63%	0%	38%	0%	0%	0%	6%	81%	13%	4%	96%	0%	
	APP/DEPART	8	/	4	0	/	9	62	/	53	28	/	32	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	1	0	2	0	0	0	1	33	2	1	16	0	56
	APPROACH %	33%	0%	67%	0%	0%	0%	3%	92%	6%	6%	94%	0%	
	PEAK HR FACTOR		0.375			0.000			0.692			0.531		0.875
	APP/DEPART	3	/	1	0	/	3	36	/	35	17	/	17	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

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DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Topaz	LOCATION #:	26
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 3: 3-AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

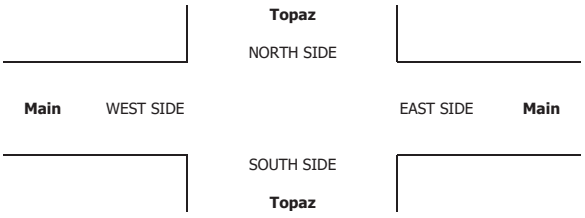
		NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	4	0	0	2	0	6
	7:15 AM	0	0	0	0	0	0	0	4	0	0	5	0	9
	7:30 AM	0	0	0	0	0	0	0	2	0	0	3	1	6
	7:45 AM	1	0	0	1	0	0	0	1	0	0	10	0	13
	8:00 AM	0	0	0	0	1	0	1	4	0	0	4	0	10
	8:15 AM	0	0	0	0	0	0	0	3	0	0	4	0	7
	8:30 AM	1	0	0	0	1	0	0	3	0	0	6	0	11
	8:45 AM	0	0	0	0	0	0	0	3	0	1	4	0	8
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	2	0	0	1	2	0	1	24	0	1	38	1	70
	APPROACH %	100%	0%	0%	33%	67%	0%	4%	96%	0%	3%	95%	3%	
	APP/DEPART	2	/	2	3	/	3	25	/	25	40	/	40	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	2	0	0	1	2	0	1	11	0	0	24	0	41
	APPROACH %	100%	0%	0%	33%	67%	0%	8%	92%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.500			0.750			0.600			0.600		0.788
	APP/DEPART	2	/	1	3	/	2	12	/	12	24	/	26	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
	4:15 PM	0	0	0	0	0	0	0	3	0	0	2	0	5
	4:30 PM	0	0	0	0	0	0	0	1	0	0	2	1	4
	4:45 PM	0	0	0	0	0	0	0	4	0	0	1	0	5
	5:00 PM	0	0	0	0	0	0	0	3	0	0	1	0	4
	5:15 PM	0	0	0	0	0	0	0	4	0	0	2	0	6
	5:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
	5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
	VOLUMES	0	0	0	0	0	0	0	19	0	1	9	1	30
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	9%	82%	9%	
	APP/DEPART	0	/	1	0	/	1	19	/	19	11	/	9	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	0	0	0	0	12	0	0	6	1	19
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	86%	14%	
	PEAK HR FACTOR		0.000			0.000			0.750			0.583		0.792
	APP/DEPART	0	/	1	0	/	0	12	/	12	7	/	6	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

RTOR

NRR	SRR	ERR	WRR
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0



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DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Topaz	LOCATION #:	26
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 4: 4 OR MORE AXLE TRUCKS

NOTES:

AM / PM / MD / OTHER / OTHER

▲ N ◄ W E ► S ▼

	NORTHBOUND Topaz			SOUTHBOUND Topaz			EASTBOUND Main			WESTBOUND Main			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM	0	0	0	0	0	0	0	5	0	0	7	0	12
7:15 AM	0	0	0	0	0	0	1	2	0	0	5	1	9
7:30 AM	0	0	0	0	0	0	0	0	0	0	6	0	6
7:45 AM	0	1	0	0	1	0	0	2	0	1	6	0	11
8:00 AM	0	0	0	0	0	0	0	3	0	0	8	0	11
8:15 AM	0	0	0	0	0	0	0	5	0	0	4	0	9
8:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
8:45 AM	1	0	0	0	0	1	0	3	0	0	3	0	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
VOLUMES	1	1	0	0	1	1	1	21	0	1	41	1	69
APPROACH %	50%	50%	0%	0%	50%	50%	5%	95%	0%	2%	95%	2%	
APP/DEPART	2	/	3	2	/	2	22	/	21	43	/	43	0
BEGIN PEAK HR		7:00 AM											
VOLUMES	0	1	0	0	1	0	1	9	0	1	24	1	38
APPROACH %	0%	100%	0%	0%	100%	0%	10%	90%	0%	4%	92%	4%	
PEAK HR FACTOR		0.250			0.250			0.500			0.929		0.792
APP/DEPART	1	/	3	1	/	2	10	/	9	26	/	24	0
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	6	0	0	1	0	7
4:15 PM	0	0	0	0	0	0	0	5	0	0	5	0	10
4:30 PM	0	0	0	0	0	0	0	1	0	0	10	0	11
4:45 PM	0	0	0	0	0	0	1	7	0	0	3	0	11
5:00 PM	0	0	0	0	0	0	0	3	1	0	2	0	6
5:15 PM	0	0	0	0	0	0	0	4	0	0	4	0	8
5:30 PM	0	0	0	0	0	0	1	2	0	0	2	0	5
5:45 PM	0	0	0	0	0	0	0	4	0	0	1	0	5
VOLUMES	0	0	0	0	0	0	2	32	1	0	28	0	63
APPROACH %	0%	0%	0%	0%	0%	0%	6%	91%	3%	0%	100%	0%	
APP/DEPART	0	/	2	0	/	1	35	/	32	28	/	28	0
BEGIN PEAK HR		4:00 PM											
VOLUMES	0	0	0	0	0	0	1	19	0	0	19	0	39
APPROACH %	0%	0%	0%	0%	0%	0%	5%	95%	0%	0%	100%	0%	
PEAK HR FACTOR		0.000			0.000			0.625			0.475		0.886
APP/DEPART	0	/	1	0	/	0	20	/	19	19	/	19	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

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DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Topaz	LOCATION #:	26
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 5: RV

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	0	0	0
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.000		0.000
	APP/DEPART	0	/	0	0	/	0	0	/	0	0	/	0	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0
	BEGIN PEAK HR		3:15 PM											
	VOLUMES	0	0	0	0	0	0	0	0	0	0	1	0	1
	APPROACH %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.000			0.000			0.000			0.250		0.250
	APP/DEPART	0	/	0	0	/	0	0	/	0	1	/	1	0

U-TURNS

NB	SB	EB	WB	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Hesperia	PROJECT #:	SC2468
1/7/20	NORTH & SOUTH:	Topaz	LOCATION #:	26
TUESDAY	EAST & WEST:	Main	CONTROL:	SIGNAL

CLASS 6:	NOTES:
BUSES	

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND (Topaz)			SOUTHBOUND (Topaz)			EASTBOUND (Main)			WESTBOUND (Main)			
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	3	0	0	2	3	8
	7:15 AM	0	0	0	1	1	0	0	3	0	0	3	0	8
	7:30 AM	0	0	0	0	0	0	0	3	0	0	1	0	4
	7:45 AM	1	0	1	0	0	0	0	0	0	0	0	0	2
	8:00 AM	1	0	0	0	0	0	1	4	0	0	2	0	8
	8:15 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
	8:30 AM	0	0	0	0	0	1	0	3	0	0	1	0	5
	8:45 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	2	0	1	1	1	1	1	20	0	0	11	3	41
	APPROACH %	67%	0%	33%	33%	33%	33%	5%	95%	0%	0%	79%	21%	
	APP/DEPART	3	/	4	3	/	1	21	/	22	14	/	14	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	2	0	1	1	1	0	1	10	0	0	6	0	22
	APPROACH %	67%	0%	33%	50%	50%	0%	9%	91%	0%	0%	100%	0%	
	PEAK HR FACTOR		0.375			0.250			0.550			0.500		0.688
	APP/DEPART	3	/	1	2	/	1	11	/	12	6	/	8	0
PM	03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
	4:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
	4:30 PM	0	1	0	0	0	0	0	2	0	1	0	0	4
	4:45 PM	0	0	0	1	0	0	0	1	0	0	0	0	2
	5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	VOLUMES	0	1	0	1	0	0	0	7	0	1	5	0	15
	APPROACH %	0%	100%	0%	100%	0%	0%	0%	100%	0%	17%	83%	0%	
	APP/DEPART	1	/	1	1	/	1	7	/	8	6	/	5	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	1	0	1	0	0	0	6	0	1	4	0	13
	APPROACH %	0%	100%	0%	100%	0%	0%	0%	100%	0%	20%	80%	0%	
	PEAK HR FACTOR		0.250			0.250			0.750			0.417		0.650
	APP/DEPART	1	/	1	1	/	1	6	/	7	5	/	4	0

U-TURNS					
NB	SB	EB	WB	TTL	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
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0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	
0	0	0	0	0	

RTOR			
NRR 0	SRR 0	ERR 0	WRR 0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
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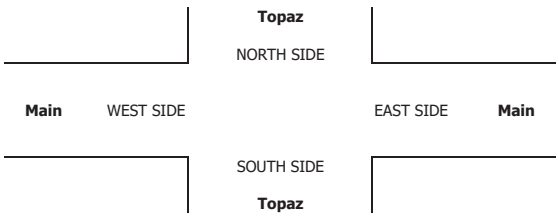
0	0	0	0
0	0	0	0



APPENDIX 3.2:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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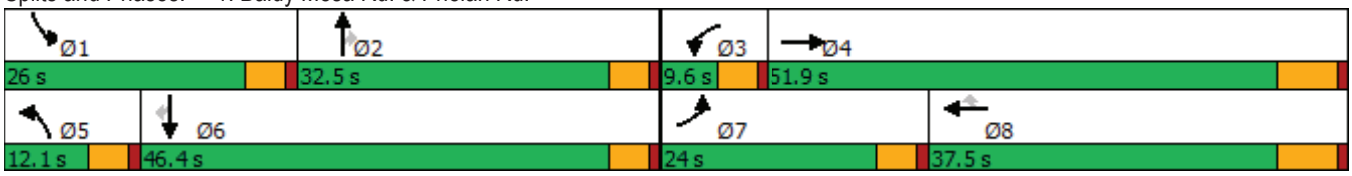
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	155	554	12	335	142	36	72	52	182	49	185
Future Volume (vph)	155	554	12	335	142	36	72	52	182	49	185
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	14.5	50.3	5.2	32.6	32.6	6.6	13.4	13.4	16.5	24.1	24.1
Actuated g/C Ratio	0.15	0.54	0.06	0.35	0.35	0.07	0.14	0.14	0.18	0.26	0.26
v/c Ratio	0.73	0.37	0.16	0.33	0.25	0.37	0.33	0.15	0.75	0.12	0.39
Control Delay	57.9	16.6	54.2	27.6	4.9	57.3	43.0	0.8	56.2	28.5	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	16.6	54.2	27.6	4.9	57.3	43.0	0.8	56.2	28.5	6.2
LOS	E	B	D	C	A	E	D	A	E	C	A
Approach Delay		25.4		21.7			32.6			30.7	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 52.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	554	23	12	335	142	36	72	52	182	49	185
Future Volume (veh/h)	155	554	23	12	335	142	36	72	52	182	49	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	180	644	17	14	390	109	42	84	32	212	57	108
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	211	1627	43	85	1370	611	57	189	161	244	397	336
Arrive On Green	0.13	0.48	0.48	0.05	0.40	0.40	0.04	0.11	0.11	0.15	0.22	0.22
Sat Flow, veh/h	1619	3404	90	1619	3420	1525	1619	1800	1525	1619	1800	1525
Grp Volume(v), veh/h	180	323	338	14	390	109	42	84	32	212	57	108
Grp Sat Flow(s),veh/h/ln	1619	1710	1784	1619	1710	1525	1619	1800	1525	1619	1800	1525
Q Serve(g_s), s	10.3	11.6	11.6	0.8	7.3	4.4	2.4	4.2	1.8	12.2	2.4	5.6
Cycle Q Clear(g_c), s	10.3	11.6	11.6	0.8	7.3	4.4	2.4	4.2	1.8	12.2	2.4	5.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	817	853	85	1370	611	57	189	161	244	397	336
V/C Ratio(X)	0.86	0.40	0.40	0.16	0.28	0.18	0.74	0.44	0.20	0.87	0.14	0.32
Avail Cap(c_a), veh/h	331	817	853	85	1370	611	128	529	448	365	792	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	16.0	16.0	43.0	19.3	18.4	45.4	39.9	38.8	39.4	29.8	31.1
Incr Delay (d2), s/veh	7.3	1.4	1.4	0.3	0.5	0.6	6.7	1.6	0.6	9.8	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	4.2	4.4	0.3	2.7	1.5	1.1	1.9	0.7	5.5	1.1	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	17.4	17.3	43.3	19.8	19.0	52.0	41.5	39.4	49.2	30.0	31.6
LnGrp LOS	D	B	B	D	B	B	D	D	D	D	C	C
Approach Vol, veh/h		841			513			158			377	
Approach Delay, s/veh		23.9			20.3			43.9			41.3	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.9	14.6	9.6	51.9	7.9	25.5	16.9	44.6
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	14.2	6.2	2.8	13.6	4.4	7.6	12.3	9.3
Green Ext Time (p_c), s	0.2	0.5	0.0	3.6	0.0	0.7	0.1	2.4

Intersection Summary	
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	814	6	5	445	0	16	0	19	6	0	9
Future Vol, veh/h	3	814	6	5	445	0	16	0	19	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	947	7	6	517	0	19	0	22	7	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	517	0	0	954	0	0	1487	1482	947	1497	1489	517
Stage 1	-	-	-	-	-	-	953	953	-	529	529	-
Stage 2	-	-	-	-	-	-	534	529	-	968	960	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1059	-	-	729	-	-	104	126	319	102	125	562
Stage 1	-	-	-	-	-	-	314	340	-	537	530	-
Stage 2	-	-	-	-	-	-	534	530	-	308	338	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1059	-	-	729	-	-	101	125	319	94	124	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	220	241	-	205	238	-
Stage 1	-	-	-	-	-	-	313	339	-	535	526	-
Stage 2	-	-	-	-	-	-	520	526	-	286	337	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	21	16.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	265	1059	-	-	729	-	-	331
HCM Lane V/C Ratio	0.154	0.003	-	-	0.008	-	-	0.053
HCM Control Delay (s)	21	8.4	-	-	10	-	-	16.5
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	797	10	3	421	14	6
Future Vol, veh/h	797	10	3	421	14	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	916	11	3	484	16	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	927	0	1412	922
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	490	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	746	-	154	330
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	620	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	746	-	153	330
Mov Cap-2 Maneuver	-	-	-	-	283	-
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	618	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	296	-	-	746	-
HCM Lane V/C Ratio	0.078	-	-	0.005	-
HCM Control Delay (s)	18.2	-	-	9.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	49	122	68	64	92	36	711	43	210	788	68
Future Volume (vph)	49	122	68	64	92	36	711	43	210	788	68
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	21.3	21.3	21.3	21.3	21.3	5.8	45.4	45.4	17.2	61.1	61.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.06	0.46	0.46	0.17	0.62	0.62
v/c Ratio	0.70	0.33	0.17	0.27	0.84	0.37	0.47	0.06	0.73	0.38	0.07
Control Delay	79.8	34.6	3.7	34.8	41.4	59.9	22.5	0.7	53.9	12.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.8	34.6	3.7	34.8	41.4	59.9	22.5	0.7	53.9	12.4	3.5
LOS	E	C	A	C	D	E	C	A	D	B	A
Approach Delay		35.0			40.4		23.0			20.0	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	122	68	64	92	264	36	711	43	210	788	68
Future Volume (veh/h)	49	122	68	64	92	264	36	711	43	210	788	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	53	133	41	70	100	221	39	773	31	228	857	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	148	468	397	315	130	286	59	1675	745	263	2083	929
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.46	0.46	0.15	0.58	0.58
Sat Flow, veh/h	1134	1900	1610	1298	526	1162	1810	3610	1605	1810	3610	1610
Grp Volume(v), veh/h	53	133	41	70	0	321	39	773	31	228	857	56
Grp Sat Flow(s),veh/h/ln	1134	1900	1610	1298	0	1688	1810	1805	1605	1810	1805	1610
Q Serve(g_s), s	4.7	5.9	2.0	4.8	0.0	18.4	2.2	15.2	1.1	12.8	13.7	1.6
Cycle Q Clear(g_c), s	23.2	5.9	2.0	10.7	0.0	18.4	2.2	15.2	1.1	12.8	13.7	1.6
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	468	397	315	0	416	59	1675	745	263	2083	929
V/C Ratio(X)	0.36	0.28	0.10	0.22	0.00	0.77	0.66	0.46	0.04	0.87	0.41	0.06
Avail Cap(c_a), veh/h	294	712	604	482	0	633	104	1675	745	470	2083	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	31.8	30.3	36.1	0.0	36.5	49.8	19.0	15.2	43.5	12.2	9.6
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.0	1.4	9.1	0.9	0.1	6.4	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.6	0.8	1.5	0.0	7.5	1.1	5.8	0.4	5.9	4.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	31.9	30.3	36.2	0.0	37.8	58.9	19.9	15.3	49.9	12.8	9.8
LnGrp LOS	D	C	C	D	A	D	E	B	B	D	B	A
Approach Vol, veh/h		227			391			843			1141	
Approach Delay, s/veh		35.3			37.5			21.6			20.1	
Approach LOS		D			D			C			C	

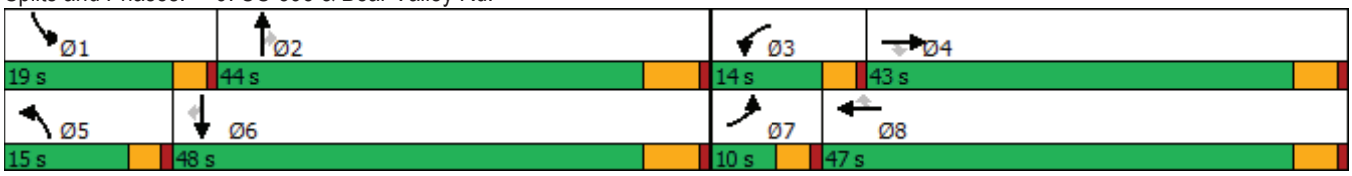
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.1	54.3		30.6	7.4	66.0		30.6				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	14.8	17.2		25.2	4.2	15.7		20.4				
Green Ext Time (p_c), s	0.3	3.8		0.5	0.0	4.7		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		24.5	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	298	165	150	246	93	105	674	95	163	734	22
Future Volume (vph)	41	298	165	150	246	93	105	674	95	163	734	22
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	14.0	47.0	47.0	15.0	44.0	44.0	19.0	48.0	48.0
Total Split (%)	8.3%	35.8%	35.8%	11.7%	39.2%	39.2%	12.5%	36.7%	36.7%	15.8%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.9	16.1	16.1	10.1	24.5	24.5	9.7	39.2	39.2	13.0	42.5	42.5
Actuated g/C Ratio	0.06	0.16	0.16	0.10	0.25	0.25	0.10	0.40	0.40	0.13	0.44	0.44
v/c Ratio	0.39	0.52	0.42	0.83	0.28	0.20	0.60	0.48	0.14	0.70	0.48	0.03
Control Delay	58.7	39.6	8.2	78.9	31.0	6.5	59.0	24.9	5.9	58.4	22.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	39.6	8.2	78.9	31.0	6.5	59.0	24.9	5.9	58.4	22.7	0.1
LOS	E	D	A	E	C	A	E	C	A	E	C	A
Approach Delay		30.9			41.0			26.9			28.5	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.7	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 30.6	Intersection LOS: C
Intersection Capacity Utilization 60.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	298	165	150	246	93	105	674	95	163	734	22
Future Volume (veh/h)	41	298	165	150	246	93	105	674	95	163	734	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	42	307	89	155	254	62	108	695	71	168	757	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	427	190	189	672	300	138	1609	717	205	1742	777
Arrive On Green	0.04	0.12	0.12	0.10	0.19	0.19	0.08	0.45	0.45	0.11	0.48	0.48
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	42	307	89	155	254	62	108	695	71	168	757	17
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.0	7.1	4.5	7.3	5.4	2.8	5.1	11.5	2.2	7.9	11.9	0.5
Cycle Q Clear(g_c), s	2.0	7.1	4.5	7.3	5.4	2.8	5.1	11.5	2.2	7.9	11.9	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	427	190	189	672	300	138	1609	717	205	1742	777
V/C Ratio(X)	0.63	0.72	0.47	0.82	0.38	0.21	0.78	0.43	0.10	0.82	0.43	0.02
Avail Cap(c_a), veh/h	125	1576	703	208	1742	777	229	1609	717	312	1742	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	37.0	35.8	38.2	31.0	30.0	39.5	16.6	14.0	37.7	14.7	11.8
Incr Delay (d2), s/veh	7.2	0.9	0.7	19.8	0.1	0.1	7.1	0.8	0.3	8.2	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.0	1.7	4.0	2.2	1.0	2.4	4.2	0.8	3.7	4.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	37.8	36.5	58.0	31.1	30.1	46.6	17.4	14.3	45.9	15.5	11.8
LnGrp LOS	D	D	D	E	C	C	D	B	B	D	B	B
Approach Vol, veh/h		438			471			874			942	
Approach Delay, s/veh		38.6			39.8			20.8			20.9	
Approach LOS		D			D			C			C	

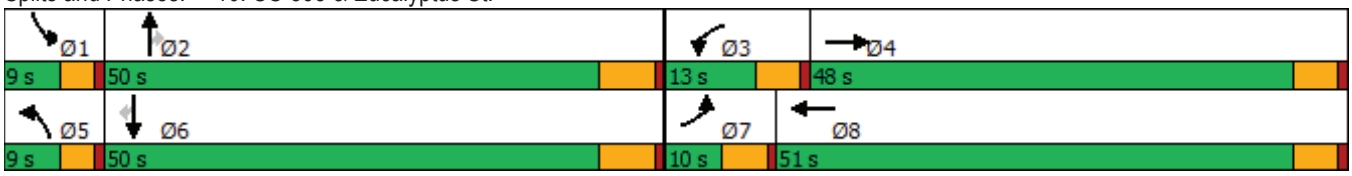
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	44.8	13.1	15.3	10.6	48.0	7.2	21.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	15.0	38.0	10.0	38.0	11.0	42.0	6.0	42.0
Max Q Clear Time (g_c+I1), s	9.9	13.5	9.3	9.1	7.1	13.9	4.0	7.4
Green Ext Time (p_c), s	0.1	2.7	0.0	1.2	0.1	2.9	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	5	75	6	7	834	58	4	1066	8
Future Volume (vph)	9	5	75	6	7	834	58	4	1066	8
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	8.7	18.2	5.2	55.4	55.4	5.2	55.4	55.4
Actuated g/C Ratio	0.06	0.18	0.11	0.22	0.06	0.67	0.67	0.06	0.67	0.67
v/c Ratio	0.09	0.06	0.43	0.07	0.07	0.37	0.06	0.04	0.47	0.01
Control Delay	46.2	16.1	47.3	11.5	46.1	13.0	1.5	46.0	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	16.1	47.3	11.5	46.1	13.0	1.5	46.0	14.4	0.0
LOS	D	B	D	B	D	B	A	D	B	A
Approach Delay		26.9		38.1		12.5			14.4	
Approach LOS		C		D		B			B	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 82.4		
Natural Cycle: 110		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.47		
Intersection Signal Delay: 14.9	Intersection LOS: B	
Intersection Capacity Utilization 50.3%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	5	12	75	6	20	7	834	58	4	1066	8
Future Volume (veh/h)	9	5	12	75	6	20	7	834	58	4	1066	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	10	5	5	81	6	11	8	897	58	4	1146	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	23	69	69	105	74	136	19	2135	952	10	2117	944
Arrive On Green	0.01	0.08	0.08	0.06	0.12	0.12	0.01	0.59	0.59	0.01	0.59	0.59
Sat Flow, veh/h	1810	872	872	1810	600	1099	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	10	0	10	81	0	17	8	897	58	4	1146	8
Grp Sat Flow(s),veh/h/ln	1810	0	1743	1810	0	1699	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.4	0.0	0.4	3.3	0.0	0.7	0.3	10.1	1.1	0.2	14.4	0.2
Cycle Q Clear(g_c), s	0.4	0.0	0.4	3.3	0.0	0.7	0.3	10.1	1.1	0.2	14.4	0.2
Prop In Lane	1.00		0.50	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	0	137	105	0	211	19	2135	952	10	2117	944
V/C Ratio(X)	0.44	0.00	0.07	0.77	0.00	0.08	0.43	0.42	0.06	0.41	0.54	0.01
Avail Cap(c_a), veh/h	121	0	999	193	0	1042	121	2135	952	121	2117	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	32.0	34.8	0.0	29.1	36.9	8.3	6.5	37.2	9.4	6.4
Incr Delay (d2), s/veh	4.9	0.0	0.2	4.5	0.0	0.2	5.8	0.6	0.1	10.2	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	1.5	0.0	0.3	0.2	2.9	0.3	0.1	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	32.2	39.3	0.0	29.2	42.7	8.9	6.6	47.4	10.4	6.5
LnGrp LOS	D	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		20			98			963			1158	
Approach Delay, s/veh		37.0			37.6			9.1			10.5	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	50.4	9.3	10.9	4.8	50.0	5.9	14.3
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.2	12.1	5.3	2.4	2.3	16.4	2.4	2.7
Green Ext Time (p_c), s	0.0	6.3	0.0	0.0	0.0	10.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	1	0	0	0	3	934	0	0	1152	0
Future Vol, veh/h	0	0	1	0	0	0	3	934	0	0	1152	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	0	0	0	3	1038	0	0	1280	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2324	2324	1280	2325	2324	1038	1280	0	0	1038	0	0
Stage 1	1280	1280	-	1044	1044	-	-	-	-	-	-	-
Stage 2	1044	1044	-	1281	1280	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	27	38	204	26	38	283	549	-	-	678	-	-
Stage 1	206	239	-	279	309	-	-	-	-	-	-	-
Stage 2	279	309	-	205	239	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	38	204	26	38	283	549	-	-	678	-	-
Mov Cap-2 Maneuver	27	38	-	26	38	-	-	-	-	-	-	-
Stage 1	203	239	-	275	305	-	-	-	-	-	-	-
Stage 2	275	305	-	204	239	-	-	-	-	-	-	-

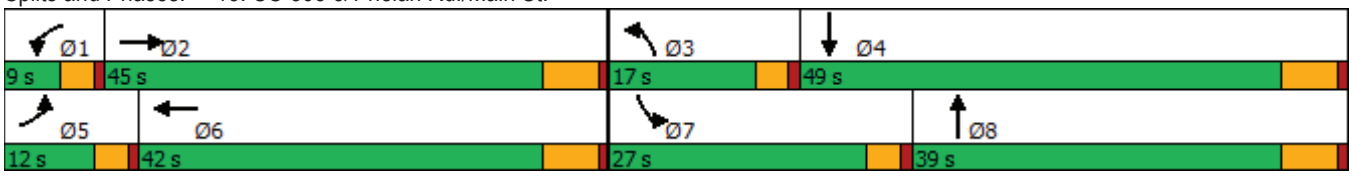
Approach	EB	WB	NB	SB
HCM Control Delay, s	22.7	0	0	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	549	-	-	204	-	678	-	-
HCM Lane V/C Ratio	0.006	-	-	0.005	-	-	-	-
HCM Control Delay (s)	11.6	0	-	22.7	0	0	-	-
HCM Lane LOS	B	A	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	646	4	316	92	661	206	909
Future Volume (vph)	47	646	4	316	92	661	206	909
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.1	27.3	5.4	22.5	9.8	24.9	15.8	34.1
Actuated g/C Ratio	0.08	0.32	0.06	0.26	0.11	0.29	0.18	0.39
v/c Ratio	0.33	0.69	0.04	0.56	0.47	0.67	0.65	0.69
Control Delay	51.5	30.3	50.5	24.4	50.2	32.6	46.4	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	30.3	50.5	24.4	50.2	32.6	46.4	27.6
LOS	D	C	D	C	D	C	D	C
Approach Delay		31.5		24.6		34.8		31.0
Approach LOS		C		C		C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.5	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 73.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	646	106	4	316	217	92	661	9	206	909	31
Future Volume (veh/h)	47	646	106	4	316	217	92	661	9	206	909	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	49	673	65	4	329	146	96	689	9	215	947	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	80	904	87	10	570	248	125	1035	14	265	1293	38
Arrive On Green	0.04	0.27	0.27	0.01	0.23	0.23	0.07	0.28	0.28	0.15	0.36	0.36
Sat Flow, veh/h	1810	3326	321	1810	2448	1065	1810	3649	48	1810	3580	106
Grp Volume(v), veh/h	49	365	373	4	241	234	96	341	357	215	477	498
Grp Sat Flow(s),veh/h/ln	1810	1805	1842	1810	1805	1708	1810	1805	1891	1810	1805	1881
Q Serve(g_s), s	1.8	12.6	12.6	0.2	8.1	8.3	3.6	11.4	11.4	7.9	15.7	15.7
Cycle Q Clear(g_c), s	1.8	12.6	12.6	0.2	8.1	8.3	3.6	11.4	11.4	7.9	15.7	15.7
Prop In Lane	1.00		0.17	1.00		0.62	1.00		0.03	1.00		0.06
Lane Grp Cap(c), veh/h	80	491	501	10	420	398	125	512	537	265	652	679
V/C Ratio(X)	0.61	0.74	0.75	0.41	0.57	0.59	0.77	0.67	0.67	0.81	0.73	0.73
Avail Cap(c_a), veh/h	212	1030	1051	132	951	900	344	871	913	609	1135	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	22.7	22.7	33.9	23.2	23.3	31.3	21.6	21.6	28.3	19.0	19.0
Incr Delay (d2), s/veh	5.5	2.3	2.2	19.5	1.2	1.4	7.1	1.8	1.7	4.4	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.8	4.9	0.1	3.1	3.0	1.6	4.3	4.5	3.3	5.6	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	25.0	24.9	53.4	24.4	24.7	38.4	23.4	23.3	32.7	20.9	20.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	C	C	C
Approach Vol, veh/h		787			479			794			1190	
Approach Delay, s/veh		25.7			24.8			25.2			23.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	24.6	8.7	30.7	7.0	21.9	14.0	25.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	2.2	14.6	5.6	17.7	3.8	10.3	9.9	13.4
Green Ext Time (p_c), s	0.0	3.9	0.1	7.0	0.0	2.4	0.3	4.2

Intersection Summary	
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	780	13	24	993
Future Vol, veh/h	5	9	780	13	24	993
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	839	14	26	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1966	427	0	0	853	0
Stage 1	846	-	-	-	-	-
Stage 2	1120	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	63	582	-	-	795	-
Stage 1	386	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	582	-	-	795	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	305	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	61	582	795	-
HCM Lane V/C Ratio	-	-	0.088	0.017	0.032	-
HCM Control Delay (s)	-	-	69.6	11.3	9.7	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	1	165	2	41	23	724	101	20	889	73
Future Volume (vph)	24	1	165	2	41	23	724	101	20	889	73
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	13.0	66.0	66.0	12.0	65.0	65.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	10.8%	55.0%	55.0%	10.0%	54.2%	54.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.4	17.4	17.4	17.4	17.4	6.1	60.8	60.8	5.8	60.6	60.6
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.06	0.64	0.64	0.06	0.64	0.64
v/c Ratio	0.10	0.24	0.73	0.01	0.13	0.22	0.34	0.10	0.20	0.42	0.07
Control Delay	33.4	9.4	54.8	32.0	3.7	50.5	9.9	2.6	50.8	10.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	9.4	54.8	32.0	3.7	50.5	9.9	2.6	50.8	10.9	3.0
LOS	C	A	D	C	A	D	A	A	D	B	A
Approach Delay		14.8		44.4			10.1			11.1	
Approach LOS		B		D			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.5	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1	81	165	2	41	23	724	101	20	889	73
Future Volume (veh/h)	24	1	81	165	2	41	23	724	101	20	889	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	26	1	51	179	2	36	25	787	98	22	966	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	325	5	272	284	326	276	46	2265	1009	42	2257	1007
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.63	0.63	0.02	0.63	0.63
Sat Flow, veh/h	1464	31	1584	1450	1900	1605	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	26	0	52	179	2	36	25	787	98	22	966	58
Grp Sat Flow(s),veh/h/ln	1464	0	1615	1450	1900	1605	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	1.4	0.0	2.6	11.5	0.1	1.8	1.3	9.9	2.3	1.1	13.1	1.3
Cycle Q Clear(g_c), s	1.5	0.0	2.6	14.2	0.1	1.8	1.3	9.9	2.3	1.1	13.1	1.3
Prop In Lane	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	277	284	326	276	46	2265	1009	42	2257	1007
V/C Ratio(X)	0.08	0.00	0.19	0.63	0.01	0.13	0.54	0.35	0.10	0.53	0.43	0.06
Avail Cap(c_a), veh/h	625	0	608	581	715	604	151	2265	1009	132	2257	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	0.0	33.9	40.0	32.8	33.6	46.1	8.5	7.1	46.2	9.2	7.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.1	3.7	0.4	0.2	3.8	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.0	4.1	0.0	0.7	0.6	3.1	0.7	0.5	4.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	34.0	40.8	32.8	33.6	49.8	8.9	7.3	49.9	9.8	7.1
LnGrp LOS	C	A	C	D	C	C	D	A	A	D	A	A
Approach Vol, veh/h		78			217			910			1046	
Approach Delay, s/veh		33.8			39.5			9.9			10.5	
Approach LOS		C			D			A			B	

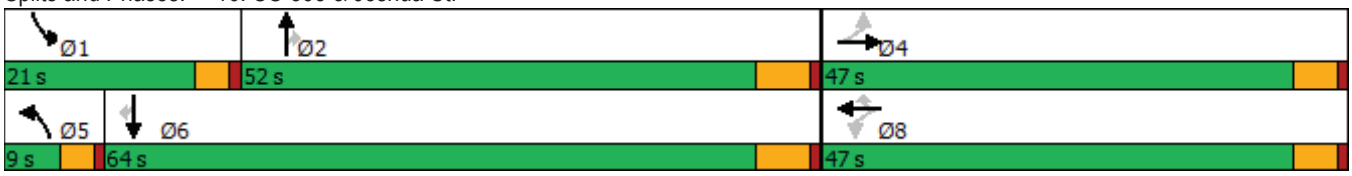
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	66.0		22.4	7.4	65.8		22.4				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	60.0		36.0	8.0	59.0		36.0				
Max Q Clear Time (g_c+I1), s	3.1	11.9		4.6	3.3	15.1		16.2				
Green Ext Time (p_c), s	0.0	5.7		0.2	0.0	7.2		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		13.8	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	26	30	92	12	103	8	718	59	101	1006	33
Future Volume (vph)	26	30	92	12	103	8	718	59	101	1006	33
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	52.0	52.0	21.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	43.3%	43.3%	17.5%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.5	16.5	16.5	16.5	16.5	5.1	50.5	50.5	10.4	63.6	63.6
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.06	0.56	0.56	0.12	0.71	0.71
v/c Ratio	0.11	0.10	0.39	0.04	0.29	0.09	0.38	0.07	0.53	0.43	0.03
Control Delay	29.5	27.4	35.4	28.1	7.6	48.4	14.2	2.1	48.2	8.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	27.4	35.4	28.1	7.6	48.4	14.2	2.1	48.2	8.7	1.9
LOS	C	C	D	C	A	D	B	A	D	A	A
Approach Delay		28.3		21.1			13.7			12.0	
Approach LOS		C		C			B			B	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 89.6		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.53		
Intersection Signal Delay: 13.9	Intersection LOS: B	
Intersection Capacity Utilization 54.5%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	30	3	92	12	103	8	718	59	101	1006	33
Future Volume (veh/h)	26	30	3	92	12	103	8	718	59	101	1006	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	33	0	100	13	58	9	780	50	110	1093	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	268	255	0	261	255	216	20	2328	1039	142	2570	1146
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.13	0.01	0.64	0.64	0.08	0.71	0.71
Sat Flow, veh/h	1423	1900	0	1475	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	28	33	0	100	13	58	9	780	50	110	1093	31
Grp Sat Flow(s),veh/h/ln	1423	1900	0	1475	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	1.5	1.3	0.0	5.4	0.5	2.7	0.4	8.2	1.0	5.0	10.5	0.5
Cycle Q Clear(g_c), s	2.0	1.3	0.0	6.7	0.5	2.7	0.4	8.2	1.0	5.0	10.5	0.5
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	255	0	261	255	216	20	2328	1039	142	2570	1146
V/C Ratio(X)	0.10	0.13	0.00	0.38	0.05	0.27	0.44	0.33	0.05	0.78	0.43	0.03
Avail Cap(c_a), veh/h	803	969	0	816	969	820	107	2328	1039	365	2570	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	32.1	0.0	35.1	31.8	32.8	41.4	6.8	5.5	38.1	5.0	3.6
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.3	0.0	0.2	10.7	0.4	0.1	6.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	0.0	1.9	0.2	1.1	0.2	2.3	0.2	2.3	2.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	32.2	0.0	35.4	31.8	33.0	52.1	7.2	5.6	44.8	5.5	3.6
LnGrp LOS	C	C	A	D	C	C	D	A	A	D	A	A
Approach Vol, veh/h		61			171			839			1234	
Approach Delay, s/veh		32.4			34.3			7.6			9.0	
Approach LOS		C			C			A			A	

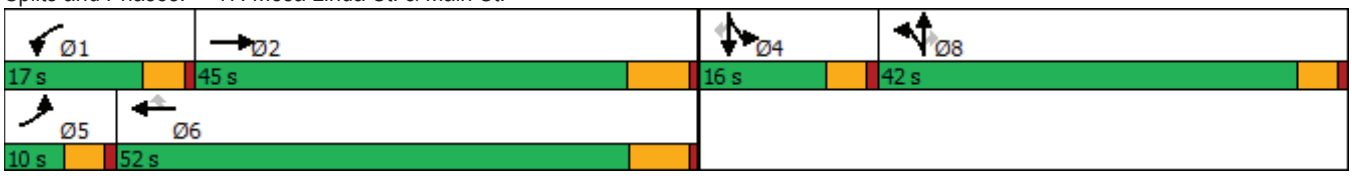
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.6	58.4		15.3	4.9	64.0		15.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	17.0	46.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	7.0	10.2		4.0	2.4	12.5		8.7				
Green Ext Time (p_c), s	0.1	11.0		0.1	0.0	18.3		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		11.0	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	856	50	514	17	2	126	2	14
Future Volume (vph)	5	856	50	514	17	2	126	2	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.3	41.7	7.9	50.6	50.6	14.2	14.2	10.6	10.6
Actuated g/C Ratio	0.06	0.47	0.09	0.57	0.57	0.16	0.16	0.12	0.12
v/c Ratio	0.06	0.44	0.42	0.22	0.02	0.01	0.39	0.28	0.05
Control Delay	48.6	20.4	51.3	12.6	0.1	31.5	8.0	45.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	20.4	51.3	12.6	0.1	31.5	8.0	45.1	0.3
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		20.5		15.6		8.3		35.3	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 18.4	Intersection LOS: B
Intersection Capacity Utilization 47.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	856	3	50	514	17	0	2	126	47	2	14
Future Volume (veh/h)	5	856	3	50	514	17	0	2	126	47	2	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	6	1007	4	59	605	12	0	2	127	55	2	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	2576	10	73	2688	835	0	204	173	148	5	136
Arrive On Green	0.01	0.51	0.51	0.05	0.55	0.55	0.00	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1619	5052	20	1619	4914	1525	0	1800	1525	1657	60	1525
Grp Volume(v), veh/h	6	653	358	59	605	12	0	2	127	57	0	2
Grp Sat Flow(s),veh/h/ln	1619	1638	1796	1619	1638	1525	0	1800	1525	1717	0	1525
Q Serve(g_s), s	0.3	10.2	10.2	3.0	5.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Cycle Q Clear(g_c), s	0.3	10.2	10.2	3.0	5.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	13	1670	916	73	2688	835	0	204	173	153	0	136
V/C Ratio(X)	0.48	0.39	0.39	0.81	0.23	0.01	0.00	0.01	0.73	0.37	0.00	0.01
Avail Cap(c_a), veh/h	104	1670	916	240	2688	835	0	804	681	234	0	208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	12.6	12.6	39.6	9.8	8.7	0.0	32.9	35.9	35.9	0.0	34.8
Incr Delay (d2), s/veh	10.0	0.7	1.3	7.7	0.2	0.0	0.0	0.0	5.9	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.2	3.6	1.3	1.6	0.1	0.0	0.0	2.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	13.2	13.8	47.4	10.0	8.7	0.0	33.0	41.8	37.4	0.0	34.8
LnGrp LOS	D	B	B	D	A	A	A	C	D	D	A	C
Approach Vol, veh/h		1017			676			129			59	
Approach Delay, s/veh		13.7			13.2			41.6			37.3	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	49.2		12.1	5.3	52.3		14.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	5.0	12.2		4.6	2.3	7.3		8.7				
Green Ext Time (p_c), s	0.0	6.1		0.1	0.0	4.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		16.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	815	36	70	526	17	31	7	48	34	6	26
Future Volume (vph)	50	815	36	70	526	17	31	7	48	34	6	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	12.0	34.7	34.7	10.1	32.8	32.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	9.2%	26.7%	26.7%	7.8%	25.2%	25.2%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	7.1	38.2	38.2	5.9	37.0	37.0	14.5	14.5	14.5	14.3	14.3	14.3
Actuated g/C Ratio	0.09	0.49	0.49	0.08	0.48	0.48	0.19	0.19	0.19	0.18	0.18	0.18
v/c Ratio	0.38	0.38	0.05	0.35	0.25	0.02	0.07	0.07	0.15	0.13	0.02	0.08
Control Delay	49.6	22.7	0.1	46.9	22.5	0.1	30.7	30.6	0.8	31.6	31.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	22.7	0.1	46.9	22.5	0.1	30.7	30.6	0.8	31.6	31.0	0.4
LOS	D	C	A	D	C	A	C	C	A	C	C	A
Approach Delay		23.3			24.7			14.1			19.3	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 77.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.38	
Intersection Signal Delay: 23.2	Intersection LOS: C
Intersection Capacity Utilization 52.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	815	36	70	526	17	31	7	48	34	6	26
Future Volume (veh/h)	50	815	36	70	526	17	31	7	48	34	6	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	56	916	33	79	591	12	41	0	34	38	7	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	79	2133	662	172	2179	676	382	0	180	138	153	130
Arrive On Green	0.05	0.43	0.43	0.06	0.44	0.44	0.12	0.00	0.12	0.09	0.09	0.00
Sat Flow, veh/h	1619	4914	1524	2956	4914	1524	3238	0	1522	1619	1800	1525
Grp Volume(v), veh/h	56	916	33	79	591	12	41	0	34	38	7	0
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1524	1619	0	1522	1619	1800	1525
Q Serve(g_s), s	2.2	8.5	0.8	1.7	5.0	0.3	0.7	0.0	1.3	1.4	0.2	0.0
Cycle Q Clear(g_c), s	2.2	8.5	0.8	1.7	5.0	0.3	0.7	0.0	1.3	1.4	0.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	2133	662	172	2179	676	382	0	180	138	153	130
V/C Ratio(X)	0.71	0.43	0.05	0.46	0.27	0.02	0.11	0.00	0.19	0.28	0.05	0.00
Avail Cap(c_a), veh/h	182	2133	662	248	2179	676	1923	0	904	912	1014	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	12.9	10.7	29.9	11.6	10.3	25.9	0.0	26.1	28.1	27.6	0.0
Incr Delay (d2), s/veh	4.3	0.6	0.1	0.7	0.3	0.0	0.1	0.0	0.5	1.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.5	0.2	0.6	1.5	0.1	0.3	0.0	0.5	0.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	13.6	10.9	30.6	11.9	10.3	26.0	0.0	26.6	29.2	27.7	0.0
LnGrp LOS	D	B	B	C	B	B	C	A	C	C	C	A
Approach Vol, veh/h		1005			682			75			45	
Approach Delay, s/veh		14.7			14.0			26.3			29.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.7		10.2	7.8	35.3		12.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.5	28.5		37.0	7.4	26.6		39.0				
Max Q Clear Time (g_c+I1), s	3.7	10.5		3.4	4.2	7.0		3.3				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	3.4		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		15.3
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	863	12	138	651	11	11	78	143	26
Future Volume (vph)	30	863	12	138	651	11	11	78	143	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.5	44.8	44.8	12.3	55.2	17.7	17.7	17.7	17.7	17.7
Actuated g/C Ratio	0.07	0.50	0.50	0.14	0.61	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.27	0.36	0.02	0.65	0.26	0.05	0.03	0.21	0.59	0.12
Control Delay	50.5	16.8	0.0	53.1	10.4	29.6	29.3	3.4	43.2	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	16.8	0.0	53.1	10.4	29.6	29.3	3.4	43.2	22.0
LOS	D	B	A	D	B	C	C	A	D	C
Approach Delay		17.7			17.0		9.0			38.5
Approach LOS		B			B		A			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	863	12	138	651	107	11	11	78	143	26	15
Future Volume (veh/h)	30	863	12	138	651	107	11	11	78	143	26	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	31	881	9	141	664	75	11	11	20	146	27	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	50	2771	859	172	2868	321	254	264	223	272	183	68
Arrive On Green	0.03	0.56	0.56	0.11	0.64	0.64	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1619	4914	1524	1619	4484	502	1315	1800	1522	1320	1253	464
Grp Volume(v), veh/h	31	881	9	141	484	255	11	11	20	146	0	37
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1619	1638	1710	1315	1800	1522	1320	0	1716
Q Serve(g_s), s	1.6	8.0	0.2	7.2	5.2	5.3	0.6	0.4	1.0	9.0	0.0	1.6
Cycle Q Clear(g_c), s	1.6	8.0	0.2	7.2	5.2	5.3	2.2	0.4	1.0	9.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	50	2771	859	172	2096	1094	254	264	223	272	0	251
V/C Ratio(X)	0.62	0.32	0.01	0.82	0.23	0.23	0.04	0.04	0.09	0.54	0.00	0.15
Avail Cap(c_a), veh/h	181	2771	859	470	2096	1094	708	886	749	728	0	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	9.7	8.0	36.8	6.4	6.4	32.3	30.8	31.0	34.9	0.0	31.3
Incr Delay (d2), s/veh	4.7	0.3	0.0	3.6	0.3	0.5	0.1	0.1	0.2	1.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.4	0.1	2.8	1.4	1.5	0.2	0.2	0.4	3.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	10.0	8.1	40.4	6.7	6.9	32.3	30.9	31.2	36.5	0.0	31.6
LnGrp LOS	D	B	A	D	A	A	C	C	C	D	A	C
Approach Vol, veh/h		921			880			42			183	
Approach Delay, s/veh		11.2			12.1			31.4			35.5	
Approach LOS		B			B			C			D	

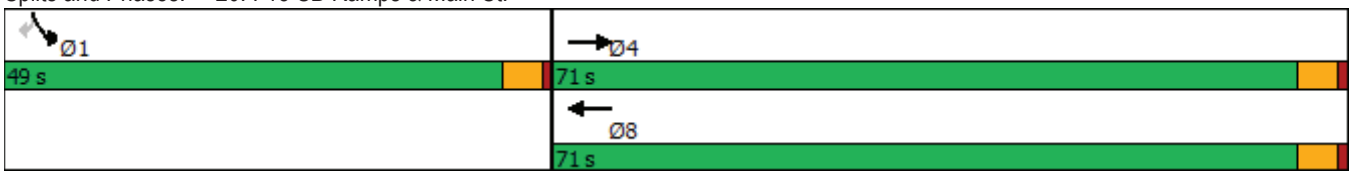
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	53.6		16.9	7.2	60.0		16.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	9.2	10.0		11.4	3.6	7.3		4.2				
Green Ext Time (p_c), s	0.1	6.0		0.7	0.0	4.7		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		14.2	
HCM 6th LOS		B	

Lane Group	EBT	WBT	SBL	SBR
Lane Configurations				
Traffic Volume (vph)	982	709	283	173
Future Volume (vph)	982	709	283	173
Turn Type	NA	NA	Prot	Perm
Protected Phases	4	8	1	
Permitted Phases				1
Detector Phase	4	8	1	1
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	9.6	22.6	9.6	9.6
Total Split (s)	71.0	71.0	49.0	49.0
Total Split (%)	59.2%	59.2%	40.8%	40.8%
Yellow Time (s)	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None
Act Effct Green (s)	14.8	14.8	8.8	8.8
Actuated g/C Ratio	0.45	0.45	0.27	0.27
v/c Ratio	0.44	0.32	0.32	0.32
Control Delay	6.9	6.3	11.3	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.9	6.3	11.3	4.3
LOS	A	A	B	A
Approach Delay	6.9	6.3		
Approach LOS	A	A		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 32.9	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 7.1	Intersection LOS: A
Intersection Capacity Utilization 34.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	982	0	0	709	0	0	0	0	283	0	173
Future Volume (veh/h)	0	982	0	0	709	0	0	0	0	283	0	173
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1034	0	0	746	0				298	0	101
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2507		0	2507					667	0	306
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.00				0.19	0.00	0.19
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1034	0	0	746	0				298	0	101
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	3.6	0.0	0.0	2.4	0.0				2.1	0.0	1.5
Cycle Q Clear(g_c), s	0.0	3.6	0.0	0.0	2.4	0.0				2.1	0.0	1.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2507		0	2507					667	0	306
V/C Ratio(X)	0.00	0.41		0.00	0.30					0.45	0.00	0.33
Avail Cap(c_a), veh/h	0	12233		0	12233					5536	0	2539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.7	0.0	0.0	4.4	0.0				10.1	0.0	9.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				0.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0				0.6	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.8	0.0	0.0	4.5	0.0				10.6	0.0	10.5
LnGrp LOS	A	A		A	A					B	A	B
Approach Vol, veh/h		1034	A		746	A					399	
Approach Delay, s/veh		4.8			4.5						10.5	
Approach LOS		A			A						B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				18.2		9.9		18.2				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				66.4		44.4		66.4				
Max Q Clear Time (g_c+I1), s				5.6		4.1		4.4				
Green Ext Time (p_c), s				8.0		1.5		5.2				

Intersection Summary												
HCM 6th Ctrl Delay			5.7									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	960	286	1191	453	78	6	378
Future Volume (vph)	960	286	1191	453	78	6	378
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	22.8	22.8	22.8	22.8	9.1	9.1	9.1
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.22	0.22	0.22
v/c Ratio	0.35	0.29	0.43	0.42	0.20	0.44	0.45
Control Delay	5.7	1.7	6.1	2.0	16.5	10.2	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	1.7	6.1	2.0	16.5	10.2	10.4
LOS	A	A	A	A	B	B	B
Approach Delay	4.7		5.0			11.4	
Approach LOS	A		A			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 41.6	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 5.8	Intersection LOS: A
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	960	286	0	1191	453	78	6	378	0	0	0
Future Volume (veh/h)	0	960	286	0	1191	453	78	6	378	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	980	0	0	1215	430	80	0	180			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	3063		0	3063	951	261	0	464			
Arrive On Green	0.00	0.59	0.00	0.00	0.59	0.59	0.14	0.00	0.14			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	980	0	0	1215	430	80	0	180			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	3.3	0.0	0.0	4.3	5.2	1.4	0.0	1.8			
Cycle Q Clear(g_c), s	0.0	3.3	0.0	0.0	4.3	5.2	1.4	0.0	1.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3063		0	3063	951	261	0	464			
V/C Ratio(X)	0.00	0.32		0.00	0.40	0.45	0.31	0.00	0.39			
Avail Cap(c_a), veh/h	0	10981		0	10981	3409	1952	0	3474			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	3.6	0.0	0.0	3.8	4.0	13.3	0.0	13.4			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.3	0.7	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.2	0.5	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.6	0.0	0.0	3.9	4.3	13.9	0.0	14.0			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		980	A		1645			260				
Approach Delay, s/veh		3.6			4.0			14.0				
Approach LOS		A			A			B				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.1				25.1		9.6				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		73.4				73.4		37.4				
Max Q Clear Time (g_c+I1), s		5.3				7.2		3.8				
Green Ext Time (p_c), s		7.4				13.3		1.0				

Intersection Summary		
HCM 6th Ctrl Delay	4.8	
HCM 6th LOS	A	

Notes

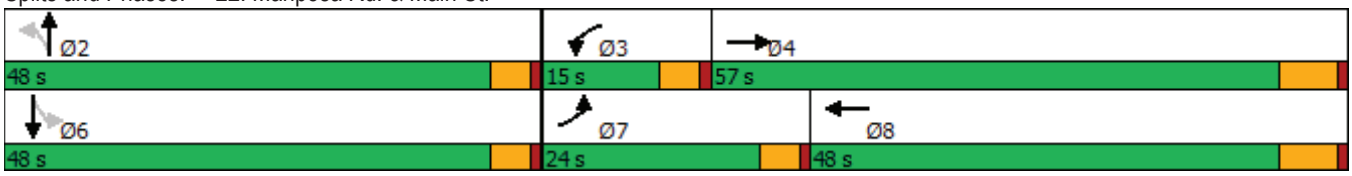
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	117	1058	43	1460	71	38	35	48
Future Volume (vph)	117	1058	43	1460	71	38	35	48
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	11.6	51.4	10.5	50.4	16.9	16.9	16.9	16.9
Actuated g/C Ratio	0.12	0.54	0.11	0.53	0.18	0.18	0.18	0.18
v/c Ratio	0.64	0.37	0.26	0.49	0.71	0.24	0.18	0.56
Control Delay	55.3	13.8	46.1	17.0	69.0	19.6	32.6	16.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	14.0	46.1	17.0	69.0	19.6	32.6	16.0
LOS	E	B	D	B	E	B	C	B
Approach Delay		17.8		17.8		43.8		18.3
Approach LOS		B		B		D		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	1058	92	43	1460	28	71	38	35	35	48	172
Future Volume (veh/h)	117	1058	92	43	1460	28	71	38	35	35	48	172
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	126	1138	86	46	1570	29	76	41	16	38	52	102
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	154	3230	243	181	3546	65	184	218	85	270	96	189
Arrive On Green	0.10	0.55	0.55	0.11	0.56	0.56	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1619	5919	445	1619	6307	116	1183	1232	481	1292	543	1065
Grp Volume(v), veh/h	126	892	332	46	1156	443	76	0	57	38	0	154
Grp Sat Flow(s),veh/h/ln	1619	1548	1720	1619	1548	1779	1183	0	1713	1292	0	1608
Q Serve(g_s), s	7.1	10.1	10.1	2.4	13.5	13.5	5.8	0.0	2.6	2.4	0.0	8.1
Cycle Q Clear(g_c), s	7.1	10.1	10.1	2.4	13.5	13.5	13.9	0.0	2.6	5.0	0.0	8.1
Prop In Lane	1.00		0.26	1.00		0.07	1.00		0.28	1.00		0.66
Lane Grp Cap(c), veh/h	154	2534	938	181	2611	1000	184	0	304	270	0	285
V/C Ratio(X)	0.82	0.35	0.35	0.25	0.44	0.44	0.41	0.00	0.19	0.14	0.00	0.54
Avail Cap(c_a), veh/h	337	2534	938	181	2611	1000	526	0	799	643	0	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.3	11.9	11.9	37.8	11.9	11.9	41.2	0.0	32.6	34.7	0.0	34.9
Incr Delay (d2), s/veh	4.0	0.4	1.0	3.4	0.1	0.3	1.5	0.0	0.3	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	3.0	3.5	1.1	3.9	4.5	1.8	0.0	1.1	0.8	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	12.3	13.0	41.2	12.0	12.2	42.7	0.0	32.9	35.0	0.0	36.4
LnGrp LOS	D	B	B	D	B	B	D	A	C	C	A	D
Approach Vol, veh/h		1350			1645			133			192	
Approach Delay, s/veh		15.5			12.9			38.5			36.2	
Approach LOS		B			B			D			D	

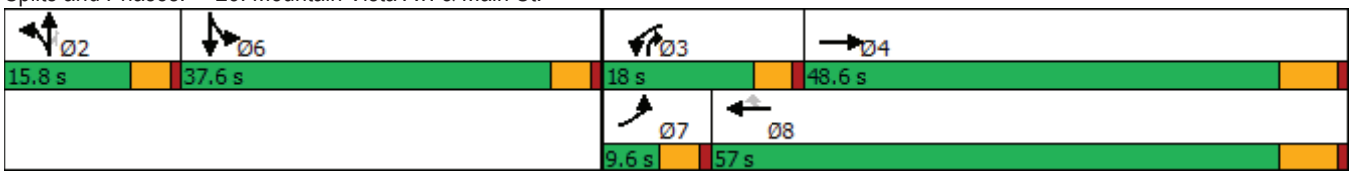
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.1	15.0	57.0		21.1	13.5	58.5				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		15.9	4.4	12.1		10.1	9.1	15.5				
Green Ext Time (p_c), s		0.6	0.0	9.0		1.1	0.1	11.4				

Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	1064	72	1506	57	16	1	29	49	2
Future Volume (vph)	16	1064	72	1506	57	16	1	29	49	2
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	54.5	8.5	63.8	63.8	10.4	10.4	11.7	13.8	13.8
Actuated g/C Ratio	0.06	0.63	0.10	0.74	0.74	0.12	0.12	0.14	0.16	0.16
v/c Ratio	0.09	0.29	0.47	0.43	0.05	0.05	0.02	0.07	0.13	0.12
Control Delay	48.3	13.8	51.2	12.1	1.1	44.1	43.2	0.3	34.7	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	13.8	51.2	12.1	1.1	44.1	43.2	0.3	34.7	27.0
LOS	D	B	D	B	A	D	D	A	C	C
Approach Delay		14.3		13.5			16.0			31.0
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.6	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1064	21	72	1506	57	16	1	29	49	2	9
Future Volume (veh/h)	16	1064	21	72	1506	57	16	1	29	49	2	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	16	1097	21	74	1553	56	16	1	10	56	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	55	3537	68	92	2947	914	180	100	343	292	162	0
Arrive On Green	0.02	0.56	0.56	0.06	0.60	0.60	0.06	0.06	0.06	0.09	0.00	0.00
Sat Flow, veh/h	2956	6302	120	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	16	808	310	74	1553	56	16	1	10	56	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1778	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	0.5	7.8	7.8	3.8	15.7	1.3	0.4	0.0	0.2	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.8	7.8	3.8	15.7	1.3	0.4	0.0	0.2	1.4	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2606	998	92	2947	914	180	100	343	292	162	0
V/C Ratio(X)	0.29	0.31	0.31	0.80	0.53	0.06	0.09	0.01	0.03	0.19	0.00	0.00
Avail Cap(c_a), veh/h	175	2606	998	256	2947	914	428	238	577	1262	701	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.0	9.9	9.9	39.5	9.9	7.0	38.0	37.8	33.5	35.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.3	0.8	5.9	0.7	0.1	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	2.7	1.6	4.4	0.4	0.2	0.0	0.1	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	10.2	10.7	45.4	10.6	7.2	38.2	37.8	33.5	36.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1134			1683			27			56	
Approach Delay, s/veh		10.8			12.0			36.4			36.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	9.3	9.4	53.7	12.2	6.2	57.0
Change Period (Y+Rc), s	4.6	4.6	6.2	4.6	4.6	6.2
Max Green Setting (Gmax), s	11.2	13.4	42.4	33.0	5.0	50.8
Max Q Clear Time (g_c+I1), s	2.4	5.8	9.8	3.4	2.5	17.7
Green Ext Time (p_c), s	0.0	0.0	7.7	0.1	0.0	13.4

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

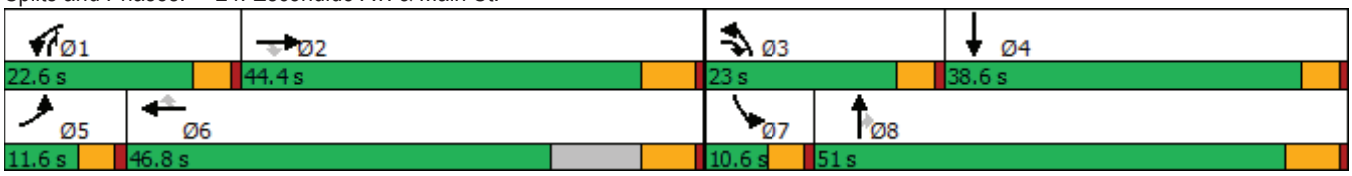
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	773	355	267	969	3	663	21	319	1	3
Future Volume (vph)	4	773	355	267	969	3	663	21	319	1	3
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	22.6	31.2	31.2	9.6	49.2	22.6	9.6	37.6
Total Split (s)	11.6	44.4	23.0	22.6	46.8	46.8	23.0	51.0	22.6	10.6	38.6
Total Split (%)	9.0%	34.5%	17.9%	17.6%	36.4%	36.4%	17.9%	39.7%	17.6%	8.2%	30.0%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	5.3	21.7	47.2	12.6	37.7	37.7	19.1	34.4	53.5	5.2	13.6
Actuated g/C Ratio	0.06	0.25	0.54	0.14	0.43	0.43	0.22	0.39	0.61	0.06	0.15
v/c Ratio	0.04	0.66	0.37	0.65	0.68	0.00	1.07	0.03	0.33	0.01	0.06
Control Delay	49.0	33.0	2.8	45.3	24.4	0.0	90.4	20.9	5.8	50.0	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	33.0	2.8	45.3	24.4	0.0	90.4	20.9	5.8	50.0	19.7
LOS	D	C	A	D	C	A	F	C	A	D	B
Approach Delay		23.6			28.8			62.0			21.6
Approach LOS		C			C			E			C

Intersection Summary	
Cycle Length: 128.6	
Actuated Cycle Length: 87.8	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 36.9	Intersection LOS: D
Intersection Capacity Utilization 75.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	773	355	267	969	3	663	21	319	1	3	12
Future Volume (veh/h)	4	773	355	267	969	3	663	21	319	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	797	252	275	999	3	684	22	167	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1226	735	353	1243	555	687	643	727	2	43	156
Arrive On Green	0.01	0.25	0.25	0.12	0.36	0.36	0.23	0.36	0.36	0.00	0.13	0.13
Sat Flow, veh/h	1619	4914	1525	2956	3420	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	797	252	275	999	3	684	22	167	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1710	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	11.5	8.1	7.2	20.8	0.1	18.3	0.6	5.1	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	11.5	8.1	7.2	20.8	0.1	18.3	0.6	5.1	0.0	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1226	735	353	1243	555	687	643	727	2	0	199
V/C Ratio(X)	0.46	0.65	0.34	0.78	0.80	0.01	1.00	0.03	0.23	0.45	0.00	0.07
Avail Cap(c_a), veh/h	143	2369	1090	672	1753	782	687	1018	1045	123	0	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.3	26.6	12.7	33.9	22.7	16.1	30.4	16.6	12.2	39.5	0.0	30.5
Incr Delay (d2), s/veh	13.8	0.6	0.3	1.4	1.9	0.0	33.3	0.0	0.2	44.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	2.7	2.4	7.5	0.0	9.5	0.3	1.7	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	27.2	13.0	35.3	24.6	16.1	63.7	16.6	12.4	84.4	0.0	30.7
LnGrp LOS	D	C	B	D	C	B	E	B	B	F	A	C
Approach Vol, veh/h		1053			1277			873			15	
Approach Delay, s/veh		23.9			26.8			52.7			34.2	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.1	26.0	23.0	16.2	5.0	35.0	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	18.0	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	9.2	13.5	20.3	2.6	2.2	22.8	2.0	7.1
Green Ext Time (p_c), s	0.3	6.1	0.0	0.0	0.0	6.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	207	793	32	86	491
Future Vol, veh/h	23	207	793	32	86	491
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	26	230	881	36	96	546

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1364	459	0	0	917	0
Stage 1	899	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	141	554	-	-	752	-
Stage 1	362	-	-	-	-	-
Stage 2	604	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	123	554	-	-	752	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	527	-	-	-	-	-

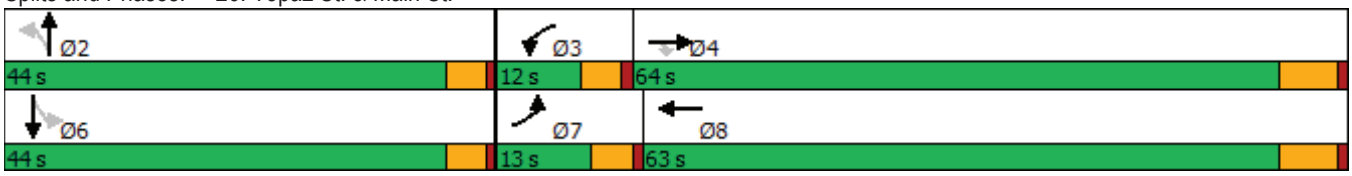
Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	249	554	752	-
HCM Lane V/C Ratio	-	-	0.103	0.415	0.127	-
HCM Control Delay (s)	-	-	21.1	16	10.5	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	2	0.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	40	961	81	32	964	165	80	95	62
Future Volume (vph)	40	961	81	32	964	165	80	95	62
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.0	35.4	35.4	8.0	41.9	20.8	20.8	20.8	20.8
Actuated g/C Ratio	0.09	0.44	0.44	0.10	0.52	0.26	0.26	0.26	0.26
v/c Ratio	0.32	0.71	0.13	0.23	0.67	0.66	0.34	0.39	0.32
Control Delay	48.8	21.5	3.9	46.8	19.1	41.3	23.1	31.9	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	21.5	3.9	46.8	19.1	41.3	23.1	31.9	19.9
LOS	D	C	A	D	B	D	C	C	B
Approach Delay		21.2			19.9		33.0		24.9
Approach LOS		C			B		C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 80.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 22.3	Intersection LOS: C
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	961	81	32	964	93	165	80	58	95	62	70
Future Volume (veh/h)	40	961	81	32	964	93	165	80	58	95	62	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	44	1068	77	36	1071	100	183	89	45	106	69	30
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	1436	627	178	1543	144	349	272	138	319	288	125
Arrive On Green	0.04	0.42	0.42	0.11	0.49	0.49	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1619	3420	1494	1619	3162	295	1243	1126	569	1201	1190	517
Grp Volume(v), veh/h	44	1068	77	36	579	592	183	0	134	106	0	99
Grp Sat Flow(s),veh/h/ln	1619	1710	1494	1619	1710	1747	1243	0	1695	1201	0	1707
Q Serve(g_s), s	1.8	17.8	2.1	1.4	17.7	17.7	9.4	0.0	4.4	5.4	0.0	3.1
Cycle Q Clear(g_c), s	1.8	17.8	2.1	1.4	17.7	17.7	12.5	0.0	4.4	9.8	0.0	3.1
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.34	1.00		0.30
Lane Grp Cap(c), veh/h	67	1436	627	178	835	852	349	0	410	319	0	413
V/C Ratio(X)	0.65	0.74	0.12	0.20	0.69	0.69	0.52	0.00	0.33	0.33	0.00	0.24
Avail Cap(c_a), veh/h	202	2932	1280	178	1441	1471	775	0	990	731	0	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	16.5	12.0	27.3	13.4	13.4	25.6	0.0	21.0	25.1	0.0	20.6
Incr Delay (d2), s/veh	3.9	0.8	0.1	2.6	1.0	1.0	1.2	0.0	0.5	0.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.7	0.6	0.6	5.3	5.4	2.8	0.0	1.7	1.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	17.3	12.0	29.9	14.4	14.4	26.8	0.0	21.5	25.7	0.0	20.9
LnGrp LOS	D	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1189			1207			317			205	
Approach Delay, s/veh		17.6			14.9			24.6			23.3	
Approach LOS		B			B			C			C	

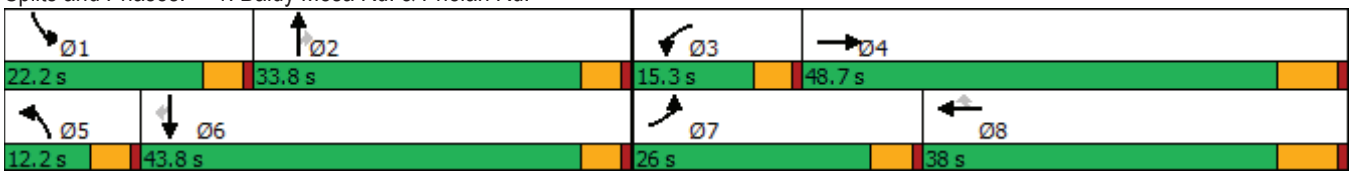
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	20.9	12.0	34.5	20.9	7.4	39.1
Change Period (Y+Rc), s	4.6	4.6	6.2	4.6	4.6	6.2
Max Green Setting (Gmax), s	39.4	7.4	57.8	39.4	8.4	56.8
Max Q Clear Time (g_c+I1), s	14.5	3.4	19.8	11.8	3.8	19.7
Green Ext Time (p_c), s	1.5	0.0	8.6	1.0	0.0	8.3

Intersection Summary	
HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	151	538	58	561	120	38	29	26	117	37	135
Future Volume (vph)	151	538	58	561	120	38	29	26	117	37	135
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	13.5	44.4	7.9	36.1	36.1	6.6	13.0	13.0	12.6	16.6	16.6
Actuated g/C Ratio	0.15	0.50	0.09	0.41	0.41	0.07	0.15	0.15	0.14	0.19	0.19
v/c Ratio	0.66	0.36	0.43	0.43	0.18	0.34	0.12	0.07	0.55	0.12	0.35
Control Delay	51.9	18.4	53.6	24.4	2.0	53.7	37.8	0.3	49.7	32.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	18.4	53.6	24.4	2.0	53.7	37.8	0.3	49.7	32.1	6.8
LOS	D	B	D	C	A	D	D	A	D	C	A
Approach Delay		25.4		23.1			33.8			27.4	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 25.2	Intersection LOS: C
Intersection Capacity Utilization 62.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	538	37	58	561	120	38	29	26	117	37	135
Future Volume (veh/h)	151	538	37	58	561	120	38	29	26	117	37	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	162	578	31	62	603	89	41	31	17	126	40	83
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	194	1613	86	98	1468	651	59	216	181	155	323	274
Arrive On Green	0.12	0.49	0.49	0.06	0.43	0.43	0.04	0.12	0.12	0.10	0.18	0.18
Sat Flow, veh/h	1619	3301	177	1619	3420	1517	1619	1800	1513	1619	1800	1525
Grp Volume(v), veh/h	162	299	310	62	603	89	41	31	17	126	40	83
Grp Sat Flow(s),veh/h/ln	1619	1710	1768	1619	1710	1517	1619	1800	1513	1619	1800	1525
Q Serve(g_s), s	8.5	9.4	9.4	3.2	10.6	3.1	2.2	1.3	0.9	6.6	1.6	4.1
Cycle Q Clear(g_c), s	8.5	9.4	9.4	3.2	10.6	3.1	2.2	1.3	0.9	6.6	1.6	4.1
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	836	864	98	1468	651	59	216	181	155	323	274
V/C Ratio(X)	0.83	0.36	0.36	0.63	0.41	0.14	0.70	0.14	0.09	0.81	0.12	0.30
Avail Cap(c_a), veh/h	401	836	864	201	1468	651	142	609	511	330	817	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	13.7	13.7	39.6	17.1	14.9	41.2	34.0	33.8	38.3	29.7	30.8
Incr Delay (d2), s/veh	3.6	1.2	1.2	2.5	0.9	0.4	5.5	0.3	0.2	3.9	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.3	3.4	1.3	3.7	1.0	1.0	0.6	0.3	2.8	0.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	14.9	14.9	42.1	17.9	15.4	46.6	34.3	34.1	42.2	29.9	31.4
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		771			754			89			249	
Approach Delay, s/veh		20.3			19.6			40.0			36.6	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	15.0	9.8	48.7	7.7	20.1	15.0	43.6
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	8.6	3.3	5.2	11.4	4.2	6.1	10.5	12.6
Green Ext Time (p_c), s	0.1	0.2	0.0	3.2	0.0	0.5	0.1	3.6

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	663	4	28	773	5	3	0	15	6	0	3
Future Vol, veh/h	4	663	4	28	773	5	3	0	15	6	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	698	4	29	814	5	3	0	16	6	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	819	0	0	702	0	0	1582	1583	698	1588	1582	814
Stage 1	-	-	-	-	-	-	706	706	-	872	872	-
Stage 2	-	-	-	-	-	-	876	877	-	716	710	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	818	-	-	905	-	-	89	110	444	88	110	381
Stage 1	-	-	-	-	-	-	430	442	-	348	371	-
Stage 2	-	-	-	-	-	-	346	369	-	424	440	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	818	-	-	905	-	-	86	106	444	82	106	381
Mov Cap-2 Maneuver	-	-	-	-	-	-	208	226	-	202	223	-
Stage 1	-	-	-	-	-	-	428	440	-	346	359	-
Stage 2	-	-	-	-	-	-	332	357	-	407	438	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	15.2	20.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	373	818	-	-	905	-	-	240
HCM Lane V/C Ratio	0.051	0.005	-	-	0.033	-	-	0.039
HCM Control Delay (s)	15.2	9.4	-	-	9.1	-	-	20.6
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	665	2	4	840	6	5
Future Vol, veh/h	665	2	4	840	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	693	2	4	875	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	695	0	1577	694
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	883	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	910	-	122	446
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	408	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	910	-	122	446
Mov Cap-2 Maneuver	-	-	-	-	259	-
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	320	-	-	910	-
HCM Lane V/C Ratio	0.036	-	-	0.005	-
HCM Control Delay (s)	16.7	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	70	38	44	105	64	847	82	214	834	86
Future Volume (vph)	50	70	38	44	105	64	847	82	214	834	86
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.2	20.2	20.2	20.2	20.2	8.2	48.0	48.0	16.8	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.08	0.48	0.48	0.17	0.59	0.59
v/c Ratio	0.67	0.19	0.10	0.17	0.79	0.46	0.51	0.10	0.74	0.41	0.09
Control Delay	75.8	34.1	0.5	34.2	42.3	58.1	22.0	4.8	55.9	14.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	34.1	0.5	34.2	42.3	58.1	22.0	4.8	55.9	14.2	3.5
LOS	E	C	A	C	D	E	C	A	E	B	A
Approach Delay		39.1			41.3		23.0			21.3	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 79.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	70	38	44	105	207	64	847	82	214	834	86
Future Volume (veh/h)	50	70	38	44	105	207	64	847	82	214	834	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	73	21	46	109	154	67	882	60	223	869	71
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	152	397	336	321	149	210	87	1787	797	260	2132	951
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.05	0.49	0.49	0.14	0.59	0.59
Sat Flow, veh/h	1196	1900	1610	1396	712	1006	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	52	73	21	46	0	263	67	882	60	223	869	71
Grp Sat Flow(s),veh/h/ln	1196	1900	1610	1396	0	1717	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.2	3.1	1.0	2.8	0.0	14.1	3.6	16.0	1.9	11.8	12.8	1.9
Cycle Q Clear(g_c), s	18.2	3.1	1.0	5.9	0.0	14.1	3.6	16.0	1.9	11.8	12.8	1.9
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	397	336	321	0	358	87	1787	797	260	2132	951
V/C Ratio(X)	0.34	0.18	0.06	0.14	0.00	0.73	0.77	0.49	0.08	0.86	0.41	0.07
Avail Cap(c_a), veh/h	353	716	607	555	0	647	184	1787	797	461	2132	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	32.0	31.2	34.4	0.0	36.3	46.2	16.6	13.0	41.1	10.8	8.6
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.0	1.1	10.2	1.0	0.2	6.1	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.4	0.4	0.9	0.0	5.8	1.8	6.0	0.6	5.4	4.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	32.1	31.2	34.5	0.0	37.4	56.4	17.6	13.2	47.2	11.4	8.8
LnGrp LOS	D	C	C	C	A	D	E	B	B	D	B	A
Approach Vol, veh/h		146			309			1009			1163	
Approach Delay, s/veh		36.7			37.0			19.9			18.1	
Approach LOS		D			D			B			B	

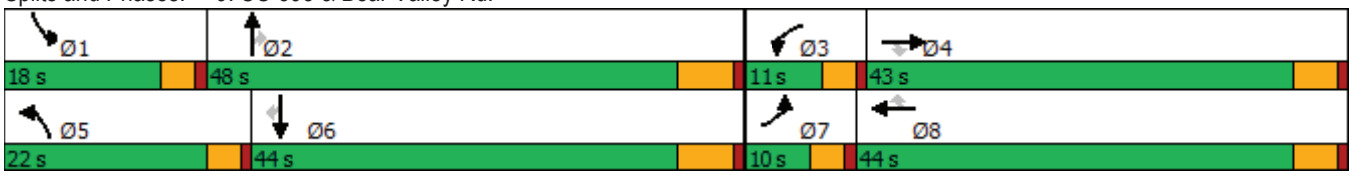
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.1	54.6		25.5	8.7	64.0		25.5				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	13.8	18.0		20.2	5.6	14.8		16.1				
Green Ext Time (p_c), s	0.3	4.6		0.3	0.0	4.9		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		22.0	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	311	133	106	306	130	176	787	202	150	734	35
Future Volume (vph)	54	311	133	106	306	130	176	787	202	150	734	35
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	11.0	44.0	44.0	22.0	48.0	48.0	18.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	9.2%	36.7%	36.7%	18.3%	40.0%	40.0%	15.0%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	16.5	16.5	7.1	19.7	19.7	14.0	42.5	42.5	12.4	40.9	40.9
Actuated g/C Ratio	0.06	0.17	0.17	0.07	0.20	0.20	0.14	0.44	0.44	0.13	0.42	0.42
v/c Ratio	0.52	0.54	0.36	0.86	0.44	0.32	0.72	0.53	0.26	0.69	0.51	0.05
Control Delay	65.2	39.8	8.2	96.3	36.4	7.5	57.4	23.6	4.1	59.1	24.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	39.8	8.2	96.3	36.4	7.5	57.4	23.6	4.1	59.1	24.7	0.1
LOS	E	D	A	F	D	A	E	C	A	E	C	A
Approach Delay		34.1			41.2			25.3			29.4	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.7	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 30.7	Intersection LOS: C
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	311	133	106	306	130	176	787	202	150	734	35
Future Volume (veh/h)	54	311	133	106	306	130	176	787	202	150	734	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	327	58	112	322	68	185	828	152	158	773	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	470	209	141	598	266	223	1703	759	193	1644	733
Arrive On Green	0.04	0.13	0.13	0.08	0.17	0.17	0.12	0.47	0.47	0.11	0.46	0.46
Sat Flow, veh/h	1810	3610	1610	1810	3610	1604	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	57	327	58	112	322	68	185	828	152	158	773	24
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1604	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	2.8	7.7	2.9	5.4	7.3	3.3	8.9	14.0	4.9	7.6	13.2	0.7
Cycle Q Clear(g_c), s	2.8	7.7	2.9	5.4	7.3	3.3	8.9	14.0	4.9	7.6	13.2	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	470	209	141	598	266	223	1703	759	193	1644	733
V/C Ratio(X)	0.74	0.70	0.28	0.79	0.54	0.26	0.83	0.49	0.20	0.82	0.47	0.03
Avail Cap(c_a), veh/h	122	1540	687	142	1581	703	366	1703	759	284	1644	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	37.1	35.0	40.3	34.0	32.4	38.1	16.1	13.7	38.9	16.8	13.4
Incr Delay (d2), s/veh	10.0	0.7	0.3	24.8	0.3	0.2	6.2	1.0	0.6	9.4	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.2	1.1	3.2	3.0	1.2	4.0	5.1	1.6	3.6	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	37.8	35.2	65.1	34.3	32.6	44.4	17.1	14.3	48.4	17.8	13.5
LnGrp LOS	D	D	D	E	C	C	D	B	B	D	B	B
Approach Vol, veh/h		442			502			1165			955	
Approach Delay, s/veh		39.3			40.9			21.1			22.7	
Approach LOS		D			D			C			C	

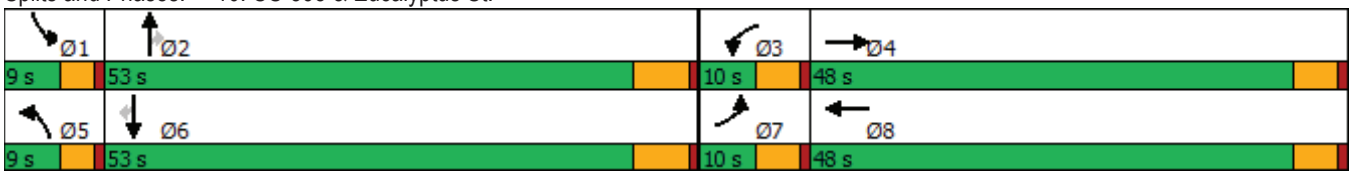
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	48.0	11.0	16.6	15.0	46.6	7.8	19.8
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	14.0	42.0	7.0	38.0	18.0	38.0	6.0	39.0
Max Q Clear Time (g_c+I1), s	9.6	16.0	7.4	9.7	10.9	15.2	4.8	9.3
Green Ext Time (p_c), s	0.1	3.4	0.0	1.2	0.2	2.9	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	6	0	44	2	9	1189	85	11	910	11
Future Volume (vph)	6	0	44	2	9	1189	85	11	910	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	7.4	15.0	5.2	63.4	63.4	5.2	63.4	63.4
Actuated g/C Ratio	0.06	0.18	0.09	0.18	0.06	0.77	0.77	0.06	0.77	0.77
v/c Ratio	0.05	0.01	0.29	0.04	0.08	0.45	0.07	0.11	0.34	0.01
Control Delay	45.8	0.0	45.8	16.0	46.2	11.6	3.3	46.5	10.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	0.0	45.8	16.0	46.2	11.6	3.3	46.5	10.3	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		30.6		40.0		11.3			10.6	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 82.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.45	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	3	44	2	9	9	1189	85	11	910	11
Future Volume (veh/h)	6	0	3	44	2	9	9	1189	85	11	910	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	6	0	0	46	2	1	9	1252	86	12	958	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	14	99	0	74	102	51	21	2259	1008	27	2271	1013
Arrive On Green	0.01	0.00	0.00	0.04	0.09	0.09	0.01	0.63	0.63	0.01	0.63	0.63
Sat Flow, veh/h	1810	1900	0	1810	1195	597	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	6	0	0	46	0	3	9	1252	86	12	958	11
Grp Sat Flow(s),veh/h/ln	1810	1900	0	1810	0	1792	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.2	0.0	0.0	1.9	0.0	0.1	0.4	14.9	1.6	0.5	10.1	0.2
Cycle Q Clear(g_c), s	0.2	0.0	0.0	1.9	0.0	0.1	0.4	14.9	1.6	0.5	10.1	0.2
Prop In Lane	1.00		0.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	14	99	0	74	0	153	21	2259	1008	27	2271	1013
V/C Ratio(X)	0.42	0.00	0.00	0.62	0.00	0.02	0.44	0.55	0.09	0.45	0.42	0.01
Avail Cap(c_a), veh/h	120	1088	0	120	0	1026	120	2259	1008	120	2271	1013
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	0.0	35.4	0.0	31.5	36.9	8.0	5.6	36.7	7.0	5.2
Incr Delay (d2), s/veh	7.3	0.0	0.0	3.1	0.0	0.1	5.3	1.0	0.2	4.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.9	0.0	0.0	0.2	3.9	0.5	0.2	3.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	0.0	0.0	38.5	0.0	31.5	42.2	9.0	5.7	41.0	7.6	5.2
LnGrp LOS	D	A	A	D	A	C	D	A	A	D	A	A
Approach Vol, veh/h		6			49			1347			981	
Approach Delay, s/veh		44.4			38.1			9.0			8.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	53.0	8.1	8.9	4.9	53.3	5.6	11.4
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.5	16.9	3.9	0.0	2.4	12.1	2.2	2.1
Green Ext Time (p_c), s	0.0	9.8	0.0	0.0	0.0	8.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	0	4	0	0	0	6	1319	0	0	871	4
Future Vol, veh/h	3	0	4	0	0	0	6	1319	0	0	871	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	4	0	0	0	6	1374	0	0	907	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2295	2295	909	2297	2297	1374	911	0	0	1374	0	0
Stage 1	909	909	-	1386	1386	-	-	-	-	-	-	-
Stage 2	1386	1386	-	911	911	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	28	39	336	28	39	180	756	-	-	506	-	-
Stage 1	332	357	-	179	212	-	-	-	-	-	-	-
Stage 2	179	212	-	331	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	27	38	336	27	38	180	756	-	-	506	-	-
Mov Cap-2 Maneuver	27	38	-	27	38	-	-	-	-	-	-	-
Stage 1	321	357	-	173	205	-	-	-	-	-	-	-
Stage 2	173	205	-	327	356	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	77.2	0	0	0
HCM LOS	F	A		

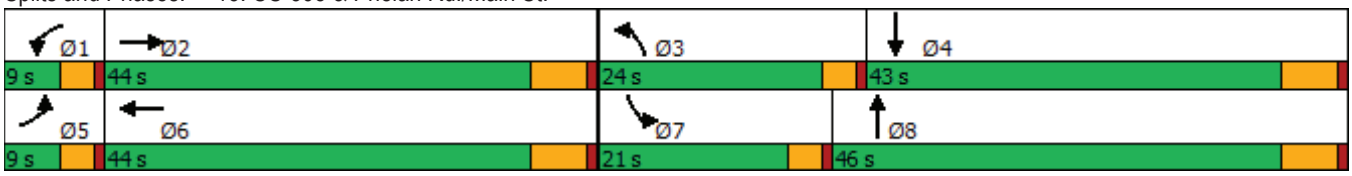
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	756	-	-	57	-	506	-	-
HCM Lane V/C Ratio	0.008	-	-	0.128	-	-	-	-
HCM Control Delay (s)	9.8	0	-	77.2	0	0	-	-
HCM Lane LOS	A	A	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	-	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	540	9	655	162	1016	187	663
Future Volume (vph)	44	540	9	655	162	1016	187	663
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.1	38.9	5.1	33.9	15.1	37.7	15.3	37.9
Actuated g/C Ratio	0.05	0.35	0.05	0.31	0.14	0.34	0.14	0.34
v/c Ratio	0.55	0.51	0.11	0.86	0.69	0.89	0.79	0.60
Control Delay	80.1	29.7	58.3	43.6	62.3	45.5	70.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	29.7	58.3	43.6	62.3	45.5	70.5	33.9
LOS	F	C	E	D	E	D	E	C
Approach Delay		33.1		43.8		47.7		41.5
Approach LOS		C		D		D		D

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 110.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 42.6 — Intersection LOS: D
Intersection Capacity Utilization 85.8% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 13: US-395 & Phelan Rd./Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	540	66	9	655	237	162	1016	26	187	663	46
Future Volume (veh/h)	44	540	66	9	655	237	162	1016	26	187	663	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	46	568	41	9	689	165	171	1069	20	197	698	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	1057	76	20	823	197	206	1260	24	231	1269	60
Arrive On Green	0.04	0.31	0.31	0.01	0.28	0.28	0.11	0.35	0.35	0.13	0.36	0.36
Sat Flow, veh/h	1810	3409	246	1810	2889	691	1810	3625	68	1810	3509	166
Grp Volume(v), veh/h	46	300	309	9	430	424	171	532	557	197	359	372
Grp Sat Flow(s),veh/h/ln	1810	1805	1850	1810	1805	1776	1810	1805	1888	1810	1805	1870
Q Serve(g_s), s	2.5	13.5	13.6	0.5	22.0	22.0	9.1	26.8	26.8	10.5	15.6	15.6
Cycle Q Clear(g_c), s	2.5	13.5	13.6	0.5	22.0	22.0	9.1	26.8	26.8	10.5	15.6	15.6
Prop In Lane	1.00		0.13	1.00		0.39	1.00		0.04	1.00		0.09
Lane Grp Cap(c), veh/h	66	560	574	20	514	506	206	627	656	231	653	676
V/C Ratio(X)	0.70	0.54	0.54	0.45	0.84	0.84	0.83	0.85	0.85	0.85	0.55	0.55
Avail Cap(c_a), veh/h	92	698	715	92	698	686	368	734	768	313	679	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	28.1	28.1	48.3	33.0	33.0	42.6	29.7	29.7	42.0	25.0	25.0
Incr Delay (d2), s/veh	9.5	0.8	0.8	11.2	6.6	6.7	6.4	8.5	8.2	14.0	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.5	5.6	0.3	9.7	9.6	4.2	11.9	12.4	5.3	6.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	28.9	28.9	59.5	39.6	39.7	49.0	38.2	37.8	55.9	26.0	26.0
LnGrp LOS	E	C	C	E	D	D	D	D	D	E	C	C
Approach Vol, veh/h		655			863			1260			928	
Approach Delay, s/veh		30.8			39.9			39.5			32.4	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	36.5	15.2	41.5	7.6	34.0	16.6	40.2
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	2.5	15.6	11.1	17.6	4.5	24.0	12.5	28.8
Green Ext Time (p_c), s	0.0	3.1	0.2	4.5	0.0	4.0	0.1	5.3

Intersection Summary	
HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1165	26	11	840
Future Vol, veh/h	7	24	1165	26	11	840
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1189	27	11	857

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2082	608	0	0	1216	0
Stage 1	1203	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	53	444	-	-	581	-
Stage 1	251	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	52	444	-	-	581	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	251	-	-	-	-	-
Stage 2	401	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	52	444	581	-
HCM Lane V/C Ratio	-	-	0.137	0.055	0.019	-
HCM Control Delay (s)	-	-	85	13.6	11.3	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	35	1	127	4	32	33	1125	147	33	751	57
Future Volume (vph)	35	1	127	4	32	33	1125	147	33	751	57
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	13.0	75.0	75.0	13.0	75.0	75.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	10.8%	62.5%	62.5%	10.8%	62.5%	62.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	14.7	14.7	6.4	69.7	69.7	6.4	69.7	69.7
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.06	0.67	0.67	0.06	0.67	0.67
v/c Ratio	0.18	0.22	0.67	0.01	0.11	0.31	0.47	0.13	0.31	0.31	0.05
Control Delay	42.1	12.7	60.5	39.0	1.0	56.8	10.3	1.9	56.8	8.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	12.7	60.5	39.0	1.0	56.8	10.3	1.9	56.8	8.7	1.6
LOS	D	B	E	D	A	E	B	A	E	A	A
Approach Delay		23.6		48.2			10.6			10.2	
Approach LOS		C		D			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.4	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.5	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1	59	127	4	32	33	1125	147	33	751	57
Future Volume (veh/h)	35	1	59	127	4	32	33	1125	147	33	751	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	1	19	130	4	27	34	1148	144	34	766	41
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	242	10	181	230	223	189	55	2468	1100	55	2468	1101
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.03	0.68	0.68	0.03	0.68	0.68
Sat Flow, veh/h	1478	81	1541	1493	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	36	0	20	130	4	27	34	1148	144	34	766	41
Grp Sat Flow(s),veh/h/ln	1478	0	1623	1493	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	2.2	0.0	1.1	8.6	0.2	1.5	1.9	14.9	3.1	1.9	8.6	0.8
Cycle Q Clear(g_c), s	2.4	0.0	1.1	9.7	0.2	1.5	1.9	14.9	3.1	1.9	8.6	0.8
Prop In Lane	1.00		0.95	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	242	0	191	230	223	189	55	2468	1100	55	2468	1101
V/C Ratio(X)	0.15	0.00	0.10	0.56	0.02	0.14	0.62	0.47	0.13	0.62	0.31	0.04
Avail Cap(c_a), veh/h	449	0	418	439	489	415	143	2468	1100	143	2468	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	39.8	44.1	39.4	40.0	48.3	7.4	5.5	48.3	6.4	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.8	0.0	0.1	4.1	0.6	0.2	4.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	3.2	0.1	0.6	0.9	4.3	0.8	0.9	2.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	0.0	39.9	44.9	39.4	40.1	52.5	8.0	5.8	52.5	6.7	5.2
LnGrp LOS	D	A	D	D	D	D	D	A	A	D	A	A
Approach Vol, veh/h		56			161			1326			841	
Approach Delay, s/veh		40.3			44.0			8.9			8.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	75.0		17.9	8.1	75.0		17.9				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	69.0		26.0	8.0	69.0		26.0				
Max Q Clear Time (g_c+I1), s	3.9	16.9		4.4	3.9	10.6		11.7				
Green Ext Time (p_c), s	0.0	9.9		0.1	0.0	5.3		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		11.9	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	47	81	19	114	25	1140	87	68	848	21
Future Volume (vph)	53	47	81	19	114	25	1140	87	68	848	21
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	46.0	46.0	46.0	46.0	46.0	10.0	59.0	59.0	15.0	64.0	64.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	8.3%	49.2%	49.2%	12.5%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.4	16.4	16.4	16.4	16.4	5.8	60.2	60.2	8.3	67.0	67.0
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.06	0.63	0.63	0.09	0.70	0.70
v/c Ratio	0.23	0.18	0.36	0.06	0.32	0.24	0.51	0.09	0.45	0.34	0.02
Control Delay	33.9	27.9	37.1	30.5	7.9	51.8	13.5	3.4	52.5	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	27.9	37.1	30.5	7.9	51.8	13.5	3.4	52.5	8.7	0.0
LOS	C	C	D	C	A	D	B	A	D	A	A
Approach Delay		30.8		21.0			13.6			11.6	
Approach LOS		C		C			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 95.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 59.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	47	10	81	19	114	25	1140	87	68	848	21
Future Volume (veh/h)	53	47	10	81	19	114	25	1140	87	68	848	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	48	7	84	20	60	26	1175	78	70	874	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	258	215	31	237	252	213	49	2444	1090	91	2528	1128
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.13	0.03	0.68	0.68	0.05	0.70	0.70
Sat Flow, veh/h	1411	1621	236	1446	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	55	0	55	84	20	60	26	1175	78	70	874	15
Grp Sat Flow(s),veh/h/ln	1411	0	1857	1446	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	3.0	0.0	2.3	4.7	0.8	2.9	1.2	13.4	1.4	3.3	8.2	0.2
Cycle Q Clear(g_c), s	3.8	0.0	2.3	7.0	0.8	2.9	1.2	13.4	1.4	3.3	8.2	0.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	0	246	237	252	213	49	2444	1090	91	2528	1128
V/C Ratio(X)	0.21	0.00	0.22	0.35	0.08	0.28	0.53	0.48	0.07	0.77	0.35	0.01
Avail Cap(c_a), veh/h	763	0	911	755	932	788	127	2444	1090	232	2528	1128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	33.3	36.3	32.6	33.5	41.1	6.6	4.7	40.2	5.1	3.9
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.3	0.0	0.3	6.6	0.7	0.1	9.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.0	1.7	0.4	1.1	0.6	3.4	0.3	1.6	1.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	33.4	36.7	32.6	33.7	47.7	7.3	4.8	49.9	5.4	3.9
LnGrp LOS	C	A	C	D	C	C	D	A	A	D	A	A
Approach Vol, veh/h		110			164			1279			959	
Approach Delay, s/veh		33.9			35.1			8.0			8.7	
Approach LOS		C			D			A			A	

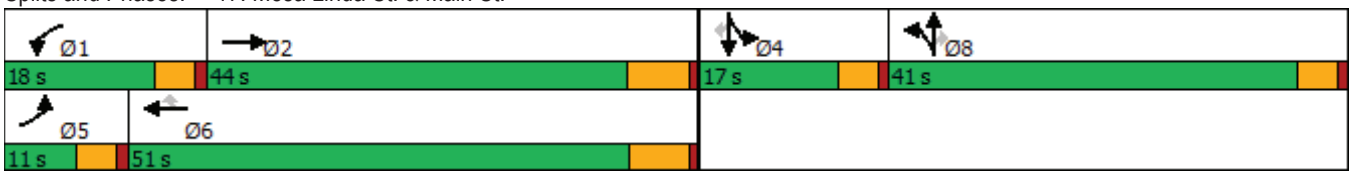
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	62.0		15.4	6.3	64.0		15.4				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	11.0	53.0		41.0	6.0	58.0		41.0				
Max Q Clear Time (g_c+I1), s	5.3	15.4		5.8	3.2	10.2		9.0				
Green Ext Time (p_c), s	0.0	19.1		0.2	0.0	13.5		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		11.1	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	733	47	892	54	7	81	0	3
Future Volume (vph)	5	733	47	892	54	7	81	0	3
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	44.0	18.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	36.7%	15.0%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	48.5	7.3	54.2	54.2	14.2	14.2	10.5	10.5
Actuated g/C Ratio	0.06	0.58	0.09	0.65	0.65	0.17	0.17	0.13	0.13
v/c Ratio	0.05	0.27	0.35	0.29	0.05	0.06	0.22	0.15	0.01
Control Delay	47.2	16.2	48.4	12.2	1.0	31.6	1.3	42.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	16.2	48.4	12.2	1.0	31.6	1.3	42.2	0.0
LOS	D	B	D	B	A	C	A	D	A
Approach Delay		16.4		13.3		6.4		38.6	
Approach LOS		B		B		A		D	

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 83.8		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.35		
Intersection Signal Delay: 14.6	Intersection LOS: B	
Intersection Capacity Utilization 47.7%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	733	6	47	892	54	10	7	81	31	0	3
Future Volume (veh/h)	5	733	6	47	892	54	10	7	81	31	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	5	764	5	49	929	48	10	7	25	32	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	11	2768	18	68	2876	893	79	56	118	113	0	100
Arrive On Green	0.01	0.55	0.55	0.04	0.59	0.59	0.08	0.08	0.08	0.07	0.00	0.07
Sat Flow, veh/h	1619	5037	33	1619	4914	1525	1029	720	1525	1714	0	1525
Grp Volume(v), veh/h	5	497	272	49	929	48	17	0	25	32	0	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1794	1619	1638	1525	1749	0	1525	1714	0	1525
Q Serve(g_s), s	0.2	6.2	6.2	2.3	7.4	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	6.2	6.2	2.3	7.4	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Prop In Lane	1.00		0.02	1.00		1.00	0.59		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	11	1800	986	68	2876	893	135	0	118	113	0	100
V/C Ratio(X)	0.47	0.28	0.28	0.72	0.32	0.05	0.13	0.00	0.21	0.28	0.00	0.01
Avail Cap(c_a), veh/h	135	1800	986	283	2876	893	831	0	725	278	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	9.2	9.2	36.2	8.1	6.8	32.9	0.0	33.1	34.0	0.0	33.4
Incr Delay (d2), s/veh	11.4	0.4	0.7	5.1	0.3	0.1	0.4	0.0	0.9	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.7	2.0	0.9	2.0	0.3	0.3	0.0	0.5	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	9.5	9.9	41.3	8.4	6.9	33.3	0.0	34.0	35.4	0.0	33.5
LnGrp LOS	D	A	A	D	A	A	C	A	C	D	A	C
Approach Vol, veh/h		774			1026			42			33	
Approach Delay, s/veh		9.9			9.9			33.7			35.3	
Approach LOS		A			A			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	48.6		9.6	5.1	51.3		10.5				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	13.4	37.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	4.3	8.2		3.4	2.2	9.4		3.2				
Green Ext Time (p_c), s	0.0	4.5		0.0	0.0	6.8		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		10.9
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	685	88	188	763	44	135	51	137	69	29	111
Future Volume (vph)	77	685	88	188	763	44	135	51	137	69	29	111
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	32.8	32.8	12.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	25.2%	25.2%	9.2%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	28.0	28.0	7.8	29.0	29.0	14.6	14.6	14.6	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.33	0.33	0.09	0.34	0.34	0.17	0.17	0.17	0.16	0.16	0.16
v/c Ratio	0.62	0.43	0.16	0.72	0.47	0.08	0.36	0.34	0.38	0.26	0.10	0.33
Control Delay	64.3	26.9	8.2	56.2	26.6	0.3	35.3	34.5	8.7	34.3	31.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	26.9	8.2	56.2	26.6	0.3	35.3	34.5	8.7	34.3	31.8	9.3
LOS	E	C	A	E	C	A	D	C	A	C	C	A
Approach Delay		28.3			31.0			23.8			20.7	
Approach LOS		C			C			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 85.5	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 56.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	685	88	188	763	44	135	51	137	69	29	111
Future Volume (veh/h)	77	685	88	188	763	44	135	51	137	69	29	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	79	699	51	192	779	33	95	112	37	70	30	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	98	1772	550	263	1912	593	250	278	234	202	224	190
Arrive On Green	0.06	0.36	0.36	0.09	0.39	0.39	0.15	0.15	0.15	0.12	0.12	0.12
Sat Flow, veh/h	1619	4914	1524	2956	4914	1523	1619	1800	1511	1619	1800	1525
Grp Volume(v), veh/h	79	699	51	192	779	33	95	112	37	70	30	23
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1523	1619	1800	1511	1619	1800	1525
Q Serve(g_s), s	3.6	7.8	1.6	4.7	8.5	1.0	3.9	4.1	1.6	2.9	1.1	1.0
Cycle Q Clear(g_c), s	3.6	7.8	1.6	4.7	8.5	1.0	3.9	4.1	1.6	2.9	1.1	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	1772	550	263	1912	593	250	278	234	202	224	190
V/C Ratio(X)	0.81	0.39	0.09	0.73	0.41	0.06	0.38	0.40	0.16	0.35	0.13	0.12
Avail Cap(c_a), veh/h	140	1772	550	297	1912	593	856	952	799	812	903	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	17.6	15.6	32.7	16.4	14.1	28.0	28.1	27.0	29.5	28.7	28.7
Incr Delay (d2), s/veh	13.1	0.7	0.3	6.2	0.6	0.2	0.9	0.9	0.3	1.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.6	0.5	1.8	2.8	0.3	1.5	1.8	0.6	1.2	0.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	18.2	15.9	38.9	17.0	14.2	28.9	29.0	27.3	30.6	29.0	29.0
LnGrp LOS	D	B	B	D	B	B	C	C	C	C	C	C
Approach Vol, veh/h		829			1004			244			123	
Approach Delay, s/veh		20.9			21.1			28.7			29.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	32.8		13.8	9.1	34.9		16.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	7.4	26.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	6.7	9.8		4.9	5.6	10.5		6.1				
Green Ext Time (p_c), s	0.0	3.9		0.4	0.0	4.5		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		22.4
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	55	902	24	215	1092	29	71	230	222	84
Future Volume (vph)	55	902	24	215	1092	29	71	230	222	84
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	16.0	42.0	42.0	34.0	60.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	13.3%	35.0%	35.0%	28.3%	50.0%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	7.9	42.5	42.5	17.8	54.9	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.08	0.42	0.42	0.18	0.55	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.44	0.44	0.03	0.76	0.50	0.11	0.17	0.44	0.79	0.28
Control Delay	58.6	23.8	0.1	57.5	16.7	30.6	31.0	6.6	55.2	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	23.8	0.1	57.5	16.7	30.6	31.0	6.6	55.2	27.9
LOS	E	C	A	E	B	C	C	A	E	C
Approach Delay		25.2			22.4		13.9			45.9
Approach LOS		C			C		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.1	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 24.9	Intersection LOS: C
Intersection Capacity Utilization 66.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	902	24	215	1092	213	29	71	230	222	84	31
Future Volume (veh/h)	55	902	24	215	1092	213	29	71	230	222	84	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	56	920	20	219	1114	141	30	72	94	227	86	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	2116	657	250	2394	303	342	468	390	340	406	52
Arrive On Green	0.04	0.43	0.43	0.15	0.54	0.54	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1619	4914	1525	1619	4416	559	1241	1800	1501	1168	1563	200
Grp Volume(v), veh/h	56	920	20	219	826	429	30	72	94	227	0	97
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1619	1638	1699	1241	1800	1501	1168	0	1763
Q Serve(g_s), s	3.4	13.0	0.8	13.1	15.3	15.3	1.9	3.1	4.9	18.5	0.0	4.3
Cycle Q Clear(g_c), s	3.4	13.0	0.8	13.1	15.3	15.3	6.2	3.1	4.9	21.5	0.0	4.3
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	70	2116	657	250	1776	921	342	468	390	340	0	458
V/C Ratio(X)	0.81	0.43	0.03	0.88	0.47	0.47	0.09	0.15	0.24	0.67	0.00	0.21
Avail Cap(c_a), veh/h	186	2116	657	480	1776	921	512	715	596	500	0	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.1	19.8	16.3	41.0	13.9	13.9	31.2	28.3	29.0	36.6	0.0	28.8
Incr Delay (d2), s/veh	7.9	0.7	0.1	3.8	0.9	1.7	0.1	0.2	0.3	2.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	4.6	0.3	5.2	5.1	5.5	0.6	1.3	1.8	5.5	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	20.4	16.4	44.9	14.8	15.6	31.3	28.5	29.3	38.9	0.0	29.0
LnGrp LOS	D	C	B	D	B	B	C	C	C	D	A	C
Approach Vol, veh/h		996			1474			196			324	
Approach Delay, s/veh		22.3			19.5			29.3			35.9	
Approach LOS		C			B			C			D	

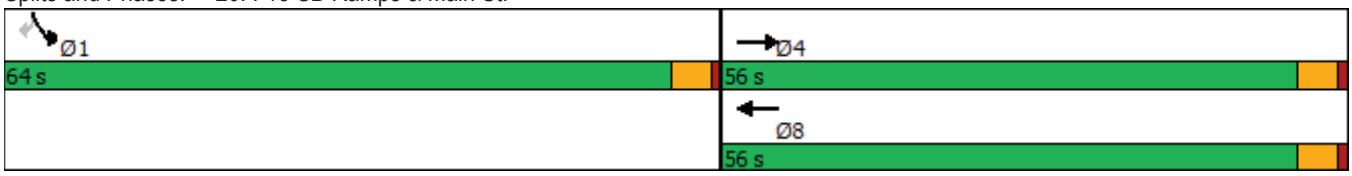
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	48.9		30.4	8.9	60.0		30.4				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	29.4	35.8		39.4	11.4	53.8		39.4				
Max Q Clear Time (g_c+I1), s	15.1	15.0		23.5	5.4	17.3		8.2				
Green Ext Time (p_c), s	0.2	5.8		1.3	0.0	9.3		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		22.9	
HCM 6th LOS		C	

Lane Group	EBT	WBT	SBL	SBR
Lane Configurations				
Traffic Volume (vph)	1225	1128	537	393
Future Volume (vph)	1225	1128	537	393
Turn Type	NA	NA	Prot	Perm
Protected Phases	4	8	1	
Permitted Phases				1
Detector Phase	4	8	1	1
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	9.6	22.6	9.6	9.6
Total Split (s)	56.0	56.0	64.0	64.0
Total Split (%)	46.7%	46.7%	53.3%	53.3%
Yellow Time (s)	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None
Act Effct Green (s)	23.4	23.4	21.4	21.4
Actuated g/C Ratio	0.43	0.43	0.39	0.39
v/c Ratio	0.57	0.52	0.40	0.62
Control Delay	13.6	13.2	13.2	17.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.6	13.2	13.2	17.8
LOS	B	B	B	B
Approach Delay	13.6	13.2		
Approach LOS	B	B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 54.6	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 13.9	Intersection LOS: B
Intersection Capacity Utilization 53.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1225	0	0	1128	0	0	0	0	537	0	393
Future Volume (veh/h)	0	1225	0	0	1128	0	0	0	0	537	0	393
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1263	0	0	1163	0				554	0	292
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2473		0	2473					1028	0	472
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1263	0	0	1163	0				554	0	292
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	6.7	0.0	0.0	6.0	0.0				5.3	0.0	6.3
Cycle Q Clear(g_c), s	0.0	6.7	0.0	0.0	6.0	0.0				5.3	0.0	6.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2473		0	2473					1028	0	472
V/C Ratio(X)	0.00	0.51		0.00	0.47					0.54	0.00	0.62
Avail Cap(c_a), veh/h	0	6672		0	6672					5218	0	2393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.2	0.0	0.0	7.1	0.0				11.9	0.0	12.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.0				0.4	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.0	0.0				1.8	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	0.0	0.0	7.2	0.0				12.3	0.0	13.5
LnGrp LOS	A	A		A	A					B	A	B
Approach Vol, veh/h		1263	A		1163	A					846	
Approach Delay, s/veh		7.4			7.2						12.7	
Approach LOS		A			A						B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				23.7		16.3		23.7				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				51.4		59.4		51.4				
Max Q Clear Time (g_c+I1), s				8.7		8.3		8.0				
Green Ext Time (p_c), s				10.3		3.4		9.2				

Intersection Summary			
HCM 6th Ctrl Delay		8.7	
HCM 6th LOS		A	

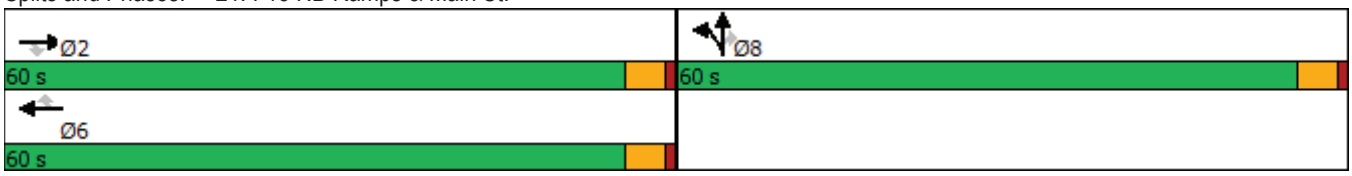
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1478	198	1307	396	179	0	799
Future Volume (vph)	1478	198	1307	396	179	0	799
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	36.8	36.8	36.8	36.8	32.2	32.2	32.2
Actuated g/C Ratio	0.47	0.47	0.47	0.47	0.41	0.41	0.41
v/c Ratio	0.63	0.24	0.56	0.42	0.25	0.65	0.65
Control Delay	18.4	3.3	17.3	3.2	17.6	24.6	24.6
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	18.4	3.3	17.3	3.3	17.6	24.6	24.6
LOS	B	A	B	A	B	C	C
Approach Delay	16.6		14.1			23.3	
Approach LOS	B		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 79.1	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1478	198	0	1307	396	179	0	799	0	0	0
Future Volume (veh/h)	0	1478	198	0	1307	396	179	0	799	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1524	0	0	1347	261	185	0	677			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2671		0	2671	829	547	0	974			
Arrive On Green	0.00	0.51	0.00	0.00	0.51	0.51	0.30	0.00	0.30			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1524	0	0	1347	261	185	0	677			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	10.2	0.0	0.0	8.6	4.7	4.0	0.0	9.4			
Cycle Q Clear(g_c), s	0.0	10.2	0.0	0.0	8.6	4.7	4.0	0.0	9.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2671		0	2671	829	547	0	974			
V/C Ratio(X)	0.00	0.57		0.00	0.50	0.31	0.34	0.00	0.69			
Avail Cap(c_a), veh/h	0	5701		0	5701	1770	1989	0	3539			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.4	0.0	0.0	8.0	7.1	13.7	0.0	15.5			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.2	0.4	0.0	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.0	0.0	1.9	1.0	1.5	0.0	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.6	0.0	0.0	8.2	7.3	14.0	0.0	16.4			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1524	A		1608			862				
Approach Delay, s/veh		8.6			8.0			15.9				
Approach LOS		A			A			B				

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	30.6				30.6		19.8					
Change Period (Y+Rc), s	4.6				4.6		4.6					
Max Green Setting (Gmax), s	55.4				55.4		55.4					
Max Q Clear Time (g_c+I1), s	12.2				10.6		11.4					
Green Ext Time (p_c), s	13.8				13.1		3.9					

Intersection Summary												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									

Notes

User approved volume balancing among the lanes for turning movement.

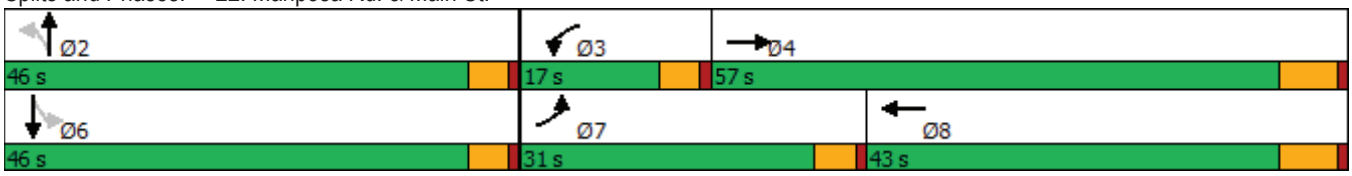
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	224	1936	84	1331	129	77	132	53
Future Volume (vph)	224	1936	84	1331	129	77	132	53
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	31.0	57.0	17.0	43.0	46.0	46.0	46.0	46.0
Total Split (%)	25.8%	47.5%	14.2%	35.8%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	18.0	51.3	12.5	45.8	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.18	0.51	0.12	0.45	0.22	0.22	0.22	0.22
v/c Ratio	0.80	0.68	0.43	0.53	0.92	0.38	0.63	0.52
Control Delay	61.1	21.5	51.5	23.3	94.8	25.8	48.5	15.8
Queue Delay	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	23.1	51.5	23.3	94.8	25.8	48.5	15.8
LOS	E	C	D	C	F	C	D	B
Approach Delay		26.8		24.8		58.2		27.5
Approach LOS		C		C		E		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 101.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 28.1 — Intersection LOS: C
Intersection Capacity Utilization 77.3% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	1936	148	84	1331	102	129	77	69	132	53	184
Future Volume (veh/h)	224	1936	148	84	1331	102	129	77	69	132	53	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	229	1976	135	86	1358	88	132	79	43	135	54	117
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	259	2959	202	196	2740	177	234	253	138	280	117	255
Arrive On Green	0.16	0.50	0.50	0.12	0.46	0.46	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1619	5963	407	1619	5987	387	1165	1090	594	1218	506	1097
Grp Volume(v), veh/h	229	1539	572	86	1053	393	132	0	122	135	0	171
Grp Sat Flow(s),veh/h/ln	1619	1548	1727	1619	1548	1730	1165	0	1684	1218	0	1603
Q Serve(g_s), s	14.2	25.6	25.6	5.0	16.3	16.3	11.2	0.0	6.1	10.6	0.0	9.4
Cycle Q Clear(g_c), s	14.2	25.6	25.6	5.0	16.3	16.3	20.6	0.0	6.1	16.7	0.0	9.4
Prop In Lane	1.00		0.24	1.00		0.22	1.00		0.35	1.00		0.68
Lane Grp Cap(c), veh/h	259	2305	857	196	2125	792	234	0	391	280	0	372
V/C Ratio(X)	0.89	0.67	0.67	0.44	0.50	0.50	0.56	0.00	0.31	0.48	0.00	0.46
Avail Cap(c_a), veh/h	418	2305	857	196	2125	792	435	0	681	490	0	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.1	19.4	19.4	41.8	19.5	19.5	42.6	0.0	32.5	39.4	0.0	33.8
Incr Delay (d2), s/veh	7.9	1.6	4.1	7.0	0.2	0.5	2.1	0.0	0.5	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	8.4	10.0	2.3	5.3	6.0	3.4	0.0	2.6	3.3	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	21.0	23.5	48.7	19.6	20.0	44.8	0.0	33.0	40.7	0.0	34.7
LnGrp LOS	D	C	C	D	B	B	D	A	C	D	A	C
Approach Vol, veh/h		2340			1532			254			306	
Approach Delay, s/veh		24.4			21.4			39.1			37.3	
Approach LOS		C			C			D			D	

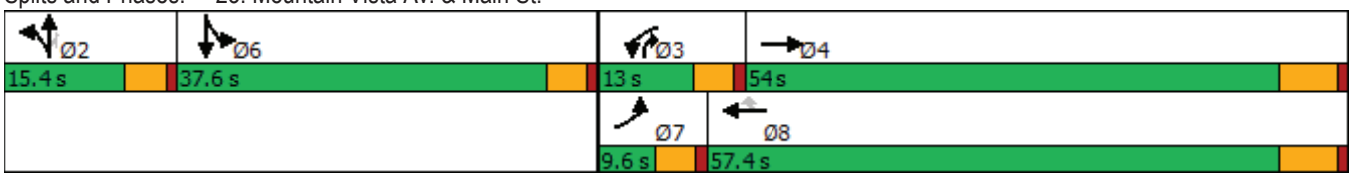
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.4	17.0	57.0		28.4	21.0	53.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		41.4	12.4	50.8		41.4	26.4	36.8				
Max Q Clear Time (g_c+I1), s		22.6	7.0	27.6		18.7	16.2	18.3				
Green Ext Time (p_c), s		1.1	0.0	14.9		1.6	0.2	8.6				

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	2040	61	1573	68	32	5	27	77	7
Future Volume (vph)	48	2040	61	1573	68	32	5	27	77	7
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	55.6	7.3	60.0	60.0	10.3	10.3	12.8	13.9	13.9
Actuated g/C Ratio	0.06	0.60	0.08	0.65	0.65	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.31	0.58	0.50	0.52	0.07	0.10	0.06	0.06	0.21	0.19
Control Delay	53.2	18.7	59.9	15.8	2.1	46.4	44.5	0.3	38.4	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	18.7	59.9	15.8	2.1	46.4	44.5	0.3	38.4	34.3
LOS	D	B	E	B	A	D	D	A	D	C
Approach Delay		19.5		16.8			26.5			36.4
Approach LOS		B		B			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.58	
Intersection Signal Delay: 18.8	Intersection LOS: B
Intersection Capacity Utilization 58.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	2040	18	61	1573	68	32	5	27	77	7	6
Future Volume (veh/h)	48	2040	18	61	1573	68	32	5	27	77	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	51	2147	17	64	1656	57	34	5	13	91	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	118	3526	28	79	2760	857	260	145	395	320	178	0
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	2956	6383	51	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	51	1562	602	64	1656	57	34	5	13	91	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1790	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	1.5	20.7	20.7	3.6	20.3	1.6	0.9	0.2	0.3	2.4	0.0	0.0
Cycle Q Clear(g_c), s	1.5	20.7	20.7	3.6	20.3	1.6	0.9	0.2	0.3	2.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	118	2565	989	79	2760	857	260	145	395	320	178	0
V/C Ratio(X)	0.43	0.61	0.61	0.81	0.60	0.07	0.13	0.03	0.03	0.28	0.00	0.00
Avail Cap(c_a), veh/h	162	2565	989	149	2760	857	384	213	511	1172	652	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.8	13.8	13.8	42.9	13.2	9.1	39.0	38.7	34.7	38.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	1.1	2.8	7.0	1.0	0.1	0.2	0.1	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.2	7.6	1.5	6.3	0.5	0.4	0.1	0.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	14.8	16.5	49.9	14.2	9.2	39.2	38.8	34.7	38.6	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		2215			1777			52			91	
Approach Delay, s/veh		16.0			15.3			38.0			38.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.9	9.1	56.6		13.6	8.2	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		2.9	5.6	22.7		4.4	3.5	22.3				
Green Ext Time (p_c), s		0.1	0.0	16.0		0.3	0.0	13.7				

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

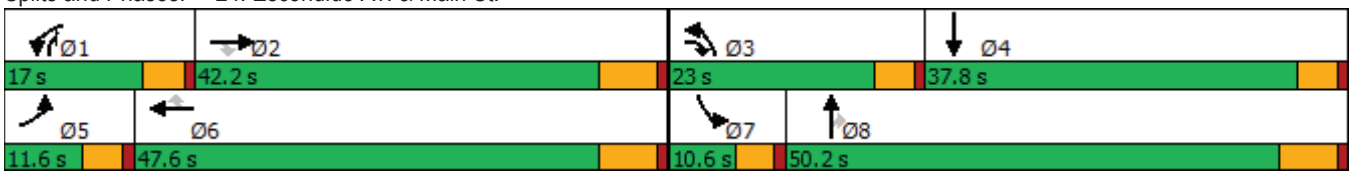
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	1389	659	408	989	10	569	50	196	55	37
Future Volume (vph)	53	1389	659	408	989	10	569	50	196	55	37
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.2	23.0	17.0	47.6	47.6	23.0	50.2	17.0	10.6	37.8
Total Split (%)	9.7%	35.2%	19.2%	14.2%	39.7%	39.7%	19.2%	41.8%	14.2%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.6	36.5	56.8	12.6	44.8	44.8	18.7	23.9	42.8	5.9	13.9
Actuated g/C Ratio	0.07	0.37	0.58	0.13	0.45	0.45	0.19	0.24	0.43	0.06	0.14
v/c Ratio	0.51	0.79	0.59	1.13	0.66	0.01	1.06	0.12	0.29	0.59	0.33
Control Delay	65.2	33.3	3.4	127.6	26.9	0.0	95.7	29.3	12.6	72.9	21.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	33.3	3.4	127.6	26.9	0.0	95.7	29.3	12.6	72.9	21.9
LOS	E	C	A	F	C	A	F	C	B	E	C
Approach Delay		24.7			55.9			71.7			41.6
Approach LOS		C			E			E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 43.7	Intersection LOS: D
Intersection Capacity Utilization 83.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1389	659	408	989	10	569	50	196	55	37	50
Future Volume (veh/h)	53	1389	659	408	989	10	569	50	196	55	37	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	55	1447	496	425	1030	8	593	52	123	57	39	49
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	68	1815	850	376	1554	679	558	429	558	71	68	85
Arrive On Green	0.04	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.04	0.09	0.09
Sat Flow, veh/h	1619	4914	1523	2956	3420	1494	2956	1800	1525	1619	725	911
Grp Volume(v), veh/h	55	1447	496	425	1030	8	593	52	123	57	0	88
Grp Sat Flow(s),veh/h/ln	1619	1638	1523	1478	1710	1494	1478	1800	1525	1619	0	1636
Q Serve(g_s), s	3.3	25.7	20.8	12.4	22.9	0.3	18.4	2.2	5.4	3.4	0.0	5.0
Cycle Q Clear(g_c), s	3.3	25.7	20.8	12.4	22.9	0.3	18.4	2.2	5.4	3.4	0.0	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.56
Lane Grp Cap(c), veh/h	68	1815	850	376	1554	679	558	429	558	71	0	152
V/C Ratio(X)	0.81	0.80	0.58	1.13	0.66	0.01	1.06	0.12	0.22	0.81	0.00	0.58
Avail Cap(c_a), veh/h	116	1815	850	376	1554	679	558	812	883	100	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	27.5	14.1	42.5	20.8	14.6	39.5	29.1	21.3	46.2	0.0	42.4
Incr Delay (d2), s/veh	8.2	3.7	2.9	86.7	2.2	0.0	55.8	0.1	0.2	18.7	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.7	7.5	8.8	8.6	0.1	11.0	1.0	2.0	1.7	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	31.2	17.0	129.2	23.0	14.6	95.4	29.2	21.5	64.9	0.0	45.8
LnGrp LOS	D	C	B	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		1998			1463			768			145	
Approach Delay, s/veh		28.3			53.8			79.1			53.3	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.3	8.7	50.5	8.8	29.4
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	27.7	20.4	7.0	5.3	24.9	5.4	7.4
Green Ext Time (p_c), s	0.0	6.1	0.0	0.5	0.0	6.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	46.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	127	546	11	237	747
Future Vol, veh/h	11	127	546	11	237	747
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	132	569	11	247	778

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1462	294	0	0	584	0
Stage 1	579	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	122	708	-	-	1001	-
Stage 1	529	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	91	705	-	-	997	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	277	-	-	-	-	-

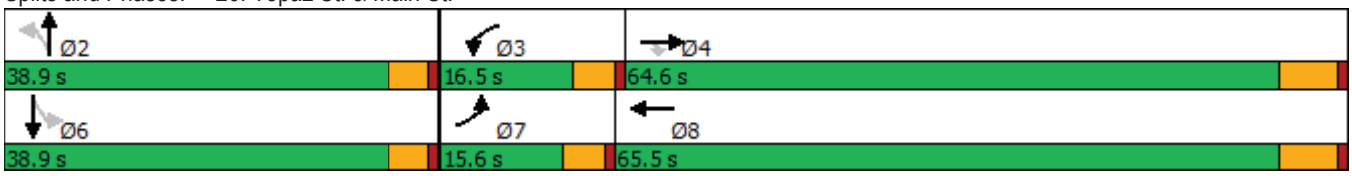
Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	2.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	202	705	997	-
HCM Lane V/C Ratio	-	-	0.057	0.188	0.248	-
HCM Control Delay (s)	-	-	23.9	11.3	9.8	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.7	1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	62	1386	216	102	1149	208	32	61	35
Future Volume (vph)	62	1386	216	102	1149	208	32	61	35
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	15.6	64.6	64.6	16.5	65.5	38.9	38.9	38.9	38.9
Total Split (%)	13.0%	53.8%	53.8%	13.8%	54.6%	32.4%	32.4%	32.4%	32.4%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.3	49.5	49.5	12.3	56.1	23.5	23.5	23.5	23.5
Actuated g/C Ratio	0.08	0.49	0.49	0.12	0.55	0.23	0.23	0.23	0.23
v/c Ratio	0.48	0.85	0.26	0.54	0.67	0.77	0.29	0.25	0.19
Control Delay	61.7	29.3	4.4	58.2	20.3	56.3	12.9	36.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	29.3	4.4	58.2	20.3	56.3	12.9	36.0	18.5
LOS	E	C	A	E	C	E	B	D	B
Approach Delay		27.3			23.2		39.9		26.2
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	1386	216	102	1149	67	208	32	94	61	35	43
Future Volume (veh/h)	62	1386	216	102	1149	67	208	32	94	61	35	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	64	1429	151	105	1185	62	214	33	66	63	36	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	80	1689	754	199	1878	98	333	120	239	289	281	101
Arrive On Green	0.05	0.49	0.49	0.12	0.57	0.57	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1619	3420	1525	1619	3306	173	1287	536	1071	1243	1258	454
Grp Volume(v), veh/h	64	1429	151	105	613	634	214	0	99	63	0	49
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1769	1287	0	1607	1243	0	1712
Q Serve(g_s), s	3.8	35.1	5.4	5.9	23.3	23.3	15.4	0.0	4.9	4.3	0.0	2.2
Cycle Q Clear(g_c), s	3.8	35.1	5.4	5.9	23.3	23.3	17.6	0.0	4.9	9.2	0.0	2.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.67	1.00		0.27
Lane Grp Cap(c), veh/h	80	1689	754	199	971	1005	333	0	359	289	0	382
V/C Ratio(X)	0.80	0.85	0.20	0.53	0.63	0.63	0.64	0.00	0.28	0.22	0.00	0.13
Avail Cap(c_a), veh/h	184	2067	922	199	1050	1086	502	0	571	453	0	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.5	21.2	13.7	39.7	14.1	14.1	37.0	0.0	31.0	34.8	0.0	30.0
Incr Delay (d2), s/veh	6.8	2.9	0.1	9.6	1.1	1.1	2.1	0.0	0.4	0.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	12.7	1.7	2.7	7.7	8.0	5.0	0.0	2.0	1.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	24.1	13.9	49.3	15.1	15.1	39.1	0.0	31.5	35.2	0.0	30.1
LnGrp LOS	D	C	B	D	B	B	D	A	C	D	A	C
Approach Vol, veh/h		1644			1352			313			112	
Approach Delay, s/veh		24.3			17.8			36.7			33.0	
Approach LOS		C			B			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.2	16.5	53.9		26.2	9.4	61.1				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		34.3	11.9	58.4		34.3	11.0	59.3				
Max Q Clear Time (g_c+I1), s		19.6	7.9	37.1		11.2	5.8	25.3				
Green Ext Time (p_c), s		1.1	0.0	10.6		0.4	0.0	8.9				

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

APPENDIX 3.3:

EXISTING (2019) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

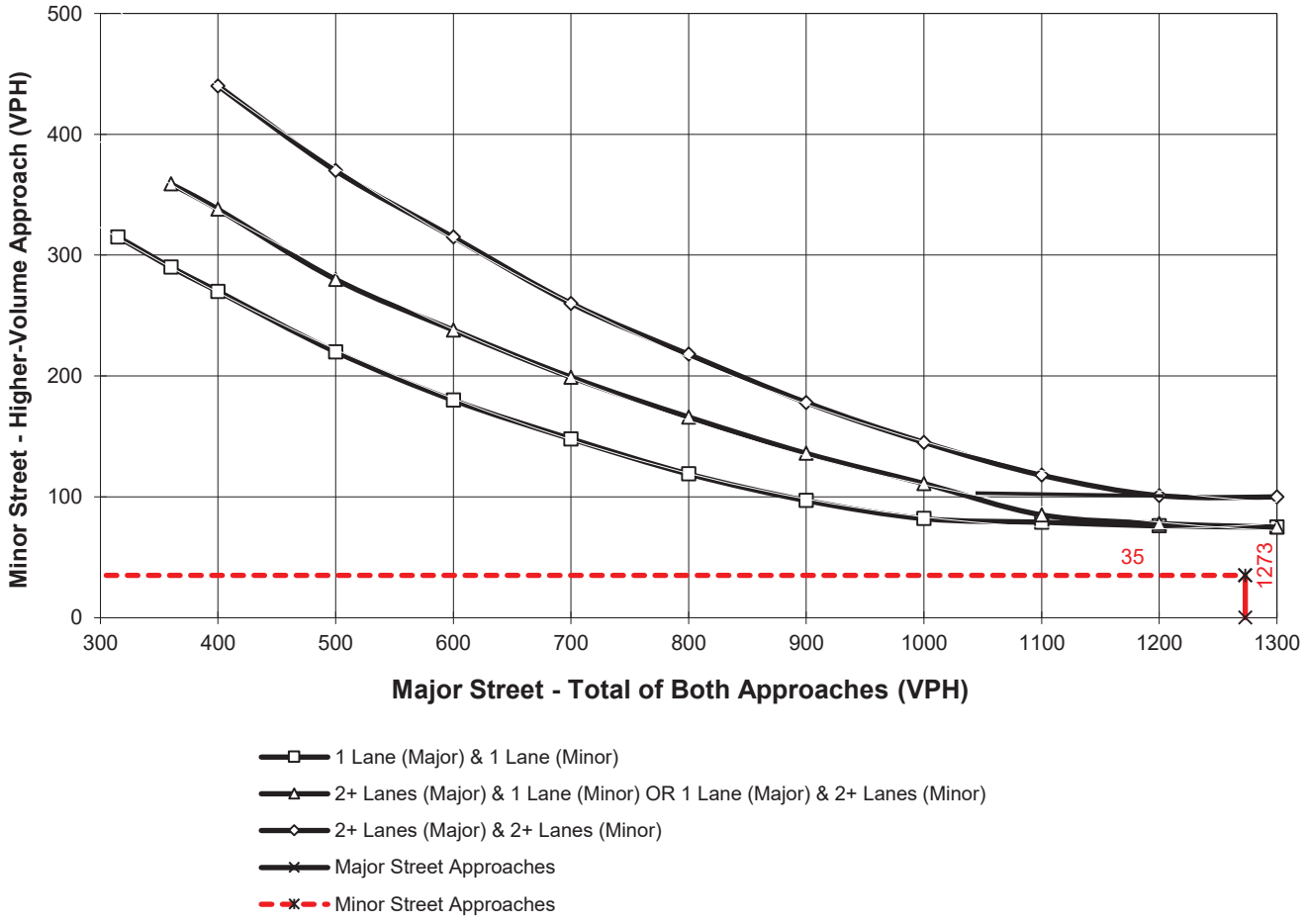
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road** — Total of Both Approaches (VPH) = **1273**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road** — High Volume Approach (VPH) = **35**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

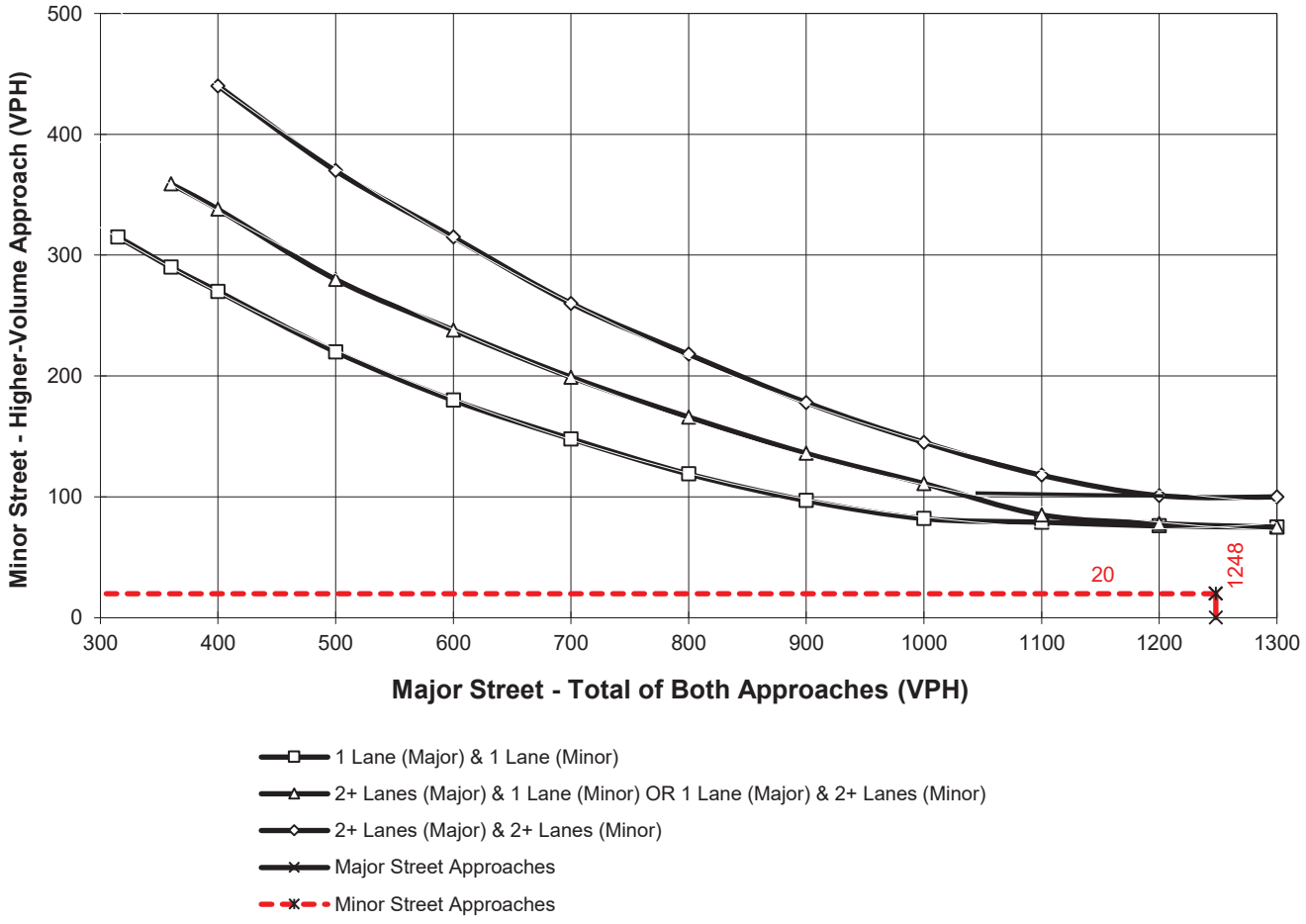
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road** Total of Both Approaches (VPH) = **1248**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street** High Volume Approach (VPH) = **20**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

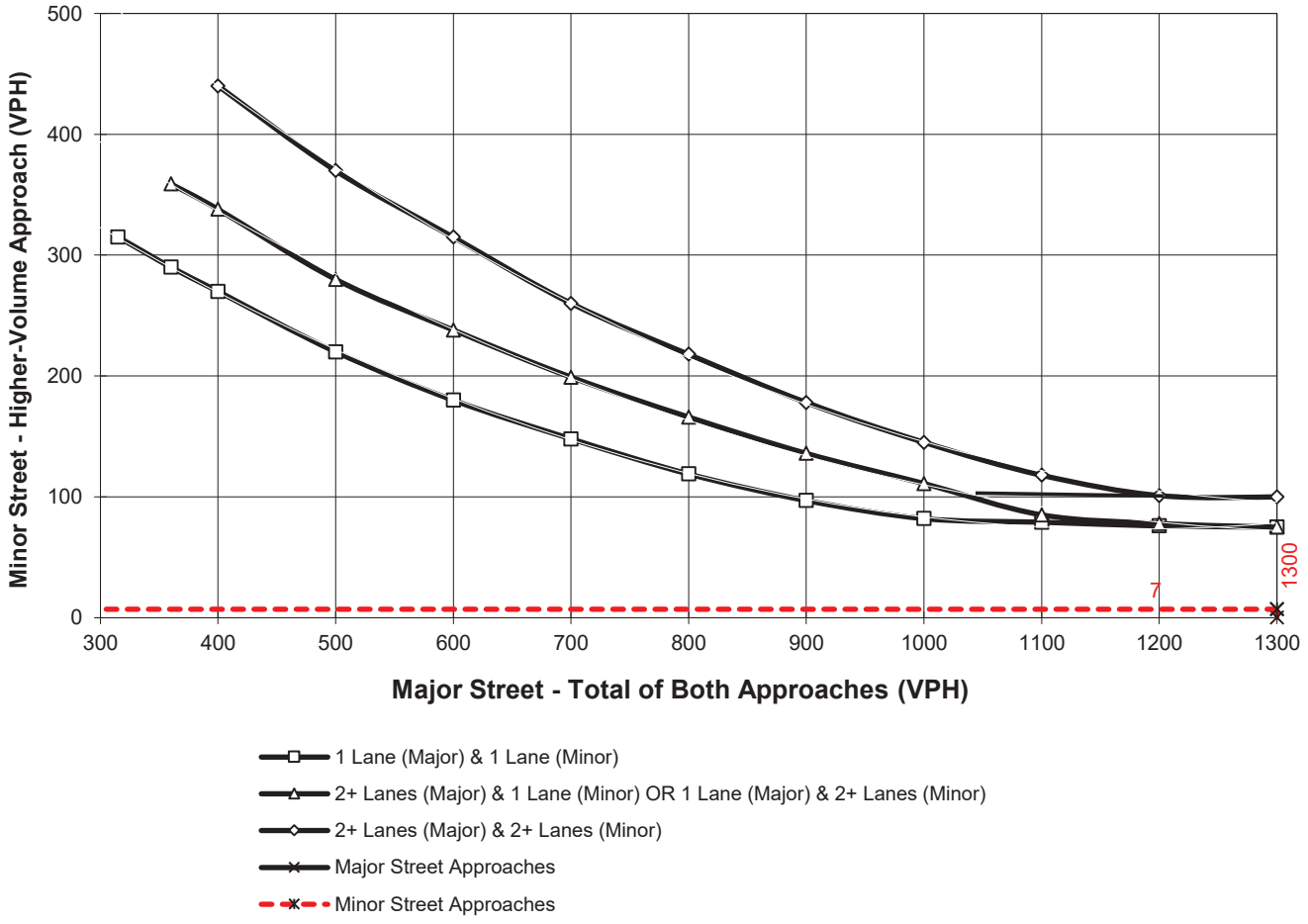
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

Major Street Name = **US Highway 395** Total of Both Approaches (VPH) = **2395**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Yucca Terrace Drive** High Volume Approach (VPH) = **7**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

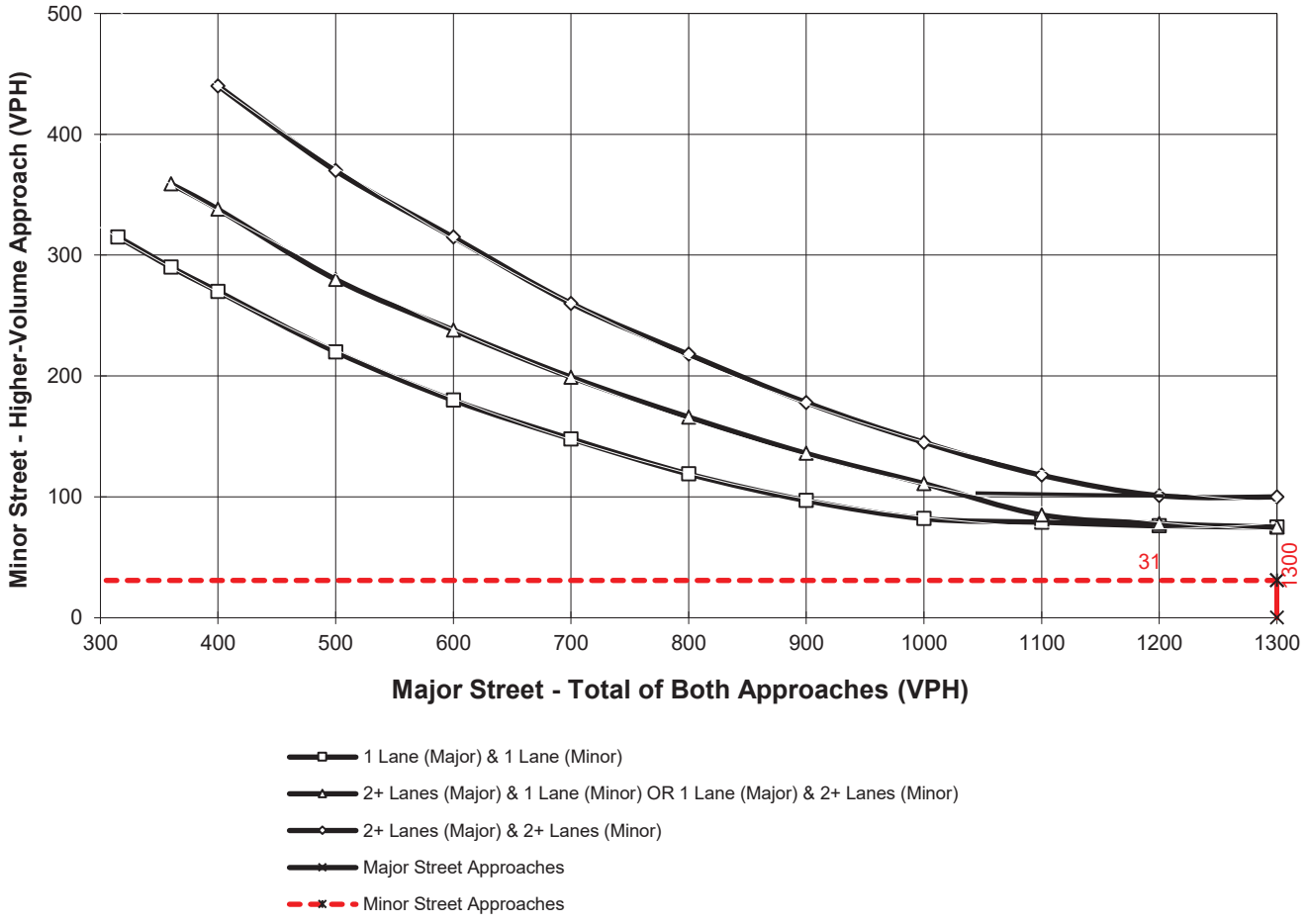
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Existing (2019) Conditions - Weekday PM Peak Hour**

Major Street Name = **US Highway 395**
Total of Both Approaches (VPH) = **2129**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Poplar Street**
High Volume Approach (VPH) = **31**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

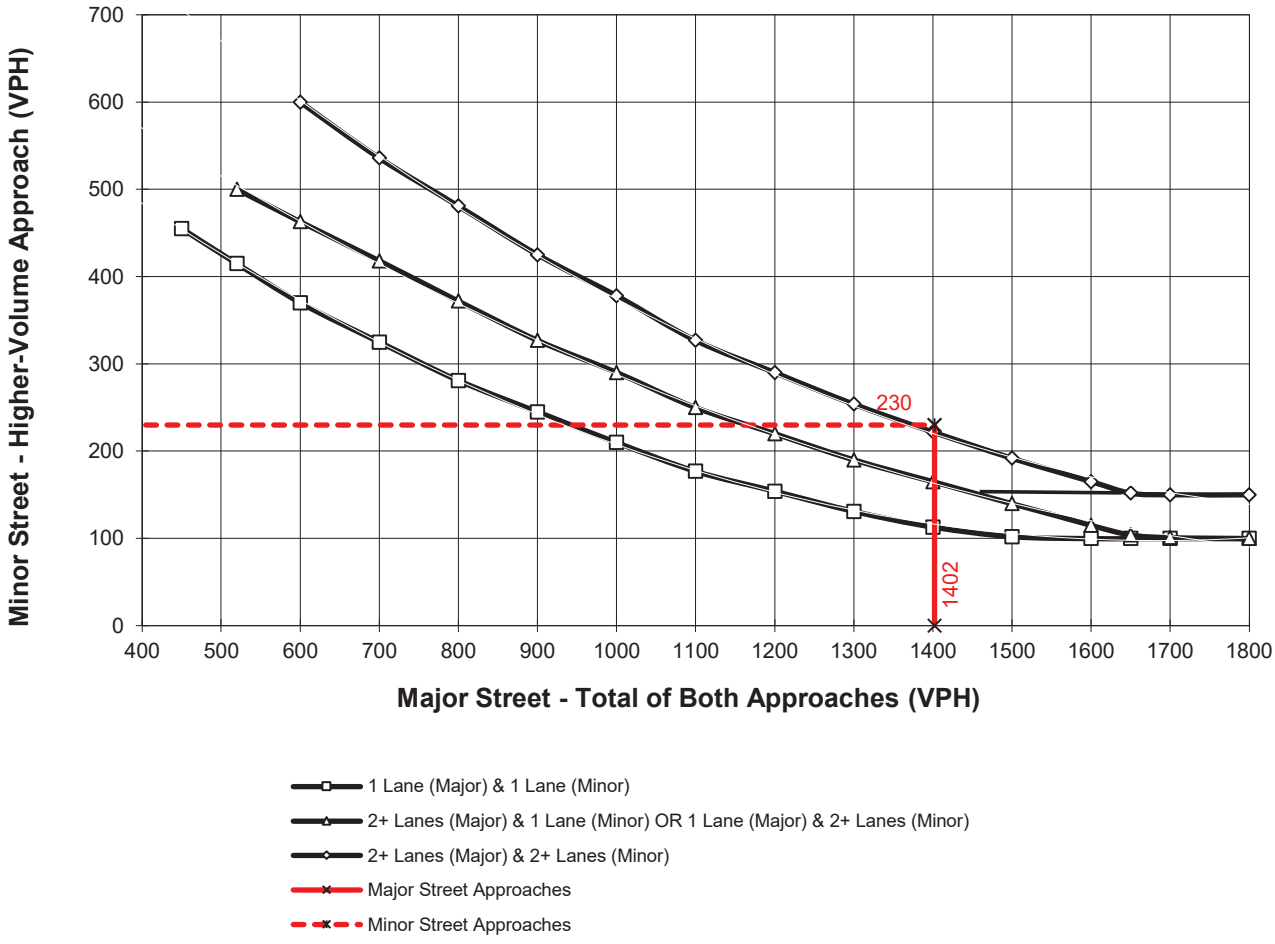
Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2019) Conditions - Weekday AM Peak Hour**

Major Street Name = **Escondido Avenue**
Total of Both Approaches (VPH) = **1402**
Number of Approach Lanes on Major Street = **2**

Minor Street Name = **Sultana Street**
High Volume Approach (VPH) = **230**
Number of Approach Lanes On Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 3.4:

EXISTING (2019) CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	133	74	70	387	39	773	47	228	857	74
v/c Ratio	0.70	0.33	0.17	0.27	0.84	0.37	0.47	0.06	0.73	0.38	0.07
Control Delay	79.8	34.6	3.7	34.8	41.4	59.9	22.5	0.7	53.9	12.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.8	34.6	3.7	34.8	41.4	59.9	22.5	0.7	53.9	12.4	3.5
Queue Length 50th (ft)	32	75	0	39	169	25	171	0	143	149	0
Queue Length 95th (ft)	80	126	20	77	278	67	327	4	240	266	24
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	143	761	707	479	747	111	1652	767	501	2227	1024
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.10	0.15	0.52	0.35	0.47	0.06	0.46	0.38	0.07

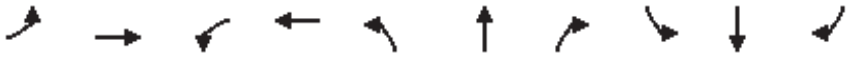
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	307	170	155	254	96	108	695	98	168	757	23
v/c Ratio	0.39	0.52	0.42	0.83	0.28	0.20	0.60	0.48	0.14	0.70	0.48	0.03
Control Delay	58.7	39.6	8.2	78.9	31.0	6.5	59.0	24.9	5.9	58.4	22.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	39.6	8.2	78.9	31.0	6.5	59.0	24.9	5.9	58.4	22.7	0.1
Queue Length 50th (ft)	25	92	0	92	71	0	62	155	0	95	161	0
Queue Length 95th (ft)	71	131	49	#266	104	34	#160	304	39	#232	317	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	112	1421	738	187	1570	759	205	1450	707	280	1570	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.23	0.83	0.16	0.13	0.53	0.48	0.14	0.60	0.48	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	18	81	28	8	897	62	4	1146	9
v/c Ratio	0.09	0.06	0.43	0.07	0.07	0.37	0.06	0.04	0.47	0.01
Control Delay	46.2	16.1	47.3	11.5	46.1	13.0	1.5	46.0	14.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	16.1	47.3	11.5	46.1	13.0	1.5	46.0	14.4	0.0
Queue Length 50th (ft)	4	2	31	2	3	65	0	2	92	0
Queue Length 95th (ft)	26	19	#138	22	23	378	10	15	523	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	114	932	203	978	114	2428	1119	114	2428	1119
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.40	0.03	0.07	0.37	0.06	0.04	0.47	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	783	4	555	96	698	215	979
v/c Ratio	0.33	0.69	0.04	0.56	0.47	0.67	0.65	0.69
Control Delay	51.5	30.3	50.5	24.4	50.2	32.6	46.4	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	30.3	50.5	24.4	50.2	32.6	46.4	27.6
Queue Length 50th (ft)	25	183	2	107	49	171	108	236
Queue Length 95th (ft)	79	341	15	190	128	324	238	428
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	178	1713	111	1591	290	1472	513	1912
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.46	0.04	0.35	0.33	0.47	0.42	0.51

Intersection Summary

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	780	13	24	993
Future Vol, veh/h	5	9	780	13	24	993
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	839	14	26	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1966	427	0	0	853	0
Stage 1	846	-	-	-	-	-
Stage 2	1120	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	63	582	-	-	795	-
Stage 1	386	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	61	582	-	-	795	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	305	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	61	582	795	-
HCM Lane V/C Ratio	-	-	0.088	0.017	0.032	-
HCM Control Delay (s)	-	-	69.6	11.3	9.7	-
HCM Lane LOS	-	-	F	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	89	179	2	45	25	787	110	22	966	79
v/c Ratio	0.10	0.24	0.73	0.01	0.13	0.22	0.34	0.10	0.20	0.42	0.07
Control Delay	33.4	9.4	54.8	32.0	3.7	50.5	9.9	2.6	50.8	10.9	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	9.4	54.8	32.0	3.7	50.5	9.9	2.6	50.8	10.9	3.0
Queue Length 50th (ft)	12	0	95	1	0	14	87	0	12	114	0
Queue Length 95th (ft)	38	40	187	8	13	45	210	25	41	275	22
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	555	679	512	733	659	154	2323	1056	135	2314	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.13	0.35	0.00	0.07	0.16	0.34	0.10	0.16	0.42	0.07

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	28	36	100	13	112	9	780	64	110	1093	36
v/c Ratio	0.11	0.10	0.39	0.04	0.29	0.09	0.38	0.07	0.53	0.43	0.03
Control Delay	29.5	27.4	35.4	28.1	7.6	48.4	14.2	2.1	48.2	8.7	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.5	27.4	35.4	28.1	7.6	48.4	14.2	2.1	48.2	8.7	1.9
Queue Length 50th (ft)	13	15	48	6	0	4	98	0	53	76	0
Queue Length 95th (ft)	35	40	96	21	39	24	296	14	138	371	10
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	698	921	684	932	839	102	2032	949	350	2562	1162
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.15	0.01	0.13	0.09	0.38	0.07	0.31	0.43	0.03

Intersection Summary



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1034	746	298	182
v/c Ratio	0.44	0.32	0.32	0.32
Control Delay	6.9	6.3	11.3	4.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.9	6.3	11.3	4.3
Queue Length 50th (ft)	38	26	20	0
Queue Length 95th (ft)	67	47	48	30
Internal Link Dist (ft)	480	822		
Turn Bay Length (ft)			1000	540
Base Capacity (vph)	5187	5187	3502	1615
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.14	0.09	0.11

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	980	292	1215	462	80	195	197
v/c Ratio	0.35	0.29	0.43	0.42	0.20	0.44	0.45
Control Delay	5.7	1.7	6.1	2.0	16.5	10.2	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.7	1.7	6.1	2.0	16.5	10.2	10.4
Queue Length 50th (ft)	35	0	47	0	15	12	12
Queue Length 95th (ft)	78	24	100	30	51	65	66
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	5187	1615	5187	1615	1584	1370	1362
Starvation Cap Reductn	0	0	156	30	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.18	0.24	0.29	0.05	0.14	0.14

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	52	73	40	46	325	67	882	85	223	869	90
v/c Ratio	0.67	0.19	0.10	0.17	0.79	0.46	0.51	0.10	0.74	0.41	0.09
Control Delay	75.8	34.1	0.5	34.2	42.3	58.1	22.0	4.8	55.9	14.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	34.1	0.5	34.2	42.3	58.1	22.0	4.8	55.9	14.2	3.5
Queue Length 50th (ft)	32	40	0	25	151	42	193	0	138	153	0
Queue Length 95th (ft)	77	78	0	55	249	99	376	31	242	292	28
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	147	713	669	506	690	183	1728	820	458	2126	988
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.10	0.06	0.09	0.47	0.37	0.51	0.10	0.49	0.41	0.09

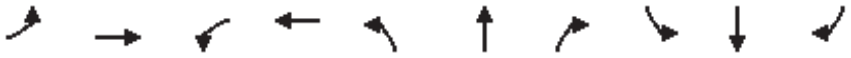
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	327	140	112	322	137	185	828	213	158	773	37
v/c Ratio	0.52	0.54	0.36	0.86	0.44	0.32	0.72	0.53	0.26	0.69	0.51	0.05
Control Delay	65.2	39.8	8.2	96.3	36.4	7.5	57.4	23.6	4.1	59.1	24.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	39.8	8.2	96.3	36.4	7.5	57.4	23.6	4.1	59.1	24.7	0.1
Queue Length 50th (ft)	34	99	0	68	96	0	106	182	0	90	169	0
Queue Length 95th (ft)	#109	139	46	#215	135	44	#228	353	52	#224	344	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	112	1421	720	130	1458	725	336	1570	823	261	1511	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.23	0.19	0.86	0.22	0.19	0.55	0.53	0.26	0.61	0.51	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	3	46	11	9	1252	89	12	958	12
v/c Ratio	0.05	0.01	0.29	0.04	0.08	0.45	0.07	0.11	0.34	0.01
Control Delay	45.8	0.0	45.8	16.0	46.2	11.6	3.3	46.5	10.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	0.0	45.8	16.0	46.2	11.6	3.3	46.5	10.3	0.0
Queue Length 50th (ft)	3	0	22	1	5	105	0	6	71	0
Queue Length 95th (ft)	19	0	#94	14	25	#570	28	30	394	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	114	951	161	914	114	2779	1266	114	2779	1266
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.29	0.01	0.08	0.45	0.07	0.11	0.34	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	46	637	9	938	171	1096	197	746
v/c Ratio	0.55	0.51	0.11	0.86	0.69	0.89	0.79	0.60
Control Delay	80.1	29.7	58.3	43.6	62.3	45.5	70.5	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.1	29.7	58.3	43.6	62.3	45.5	70.5	33.9
Queue Length 50th (ft)	36	186	7	338	128	423	148	248
Queue Length 95th (ft)	#94	272	25	424	198	#555	#263	332
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	84	1397	84	1260	337	1346	286	1304
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.46	0.11	0.74	0.51	0.81	0.69	0.57

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1165	26	11	840
Future Vol, veh/h	7	24	1165	26	11	840
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1189	27	11	857

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2082	608	0	0	1216	0
Stage 1	1203	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	53	444	-	-	581	-
Stage 1	251	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	52	444	-	-	581	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	251	-	-	-	-	-
Stage 2	401	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	52	444	581	-
HCM Lane V/C Ratio	-	-	0.137	0.055	0.019	-
HCM Control Delay (s)	-	-	85	13.6	11.3	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	36	61	130	4	33	34	1148	150	34	766	58
v/c Ratio	0.18	0.22	0.67	0.01	0.11	0.31	0.47	0.13	0.31	0.31	0.05
Control Delay	42.1	12.7	60.5	39.0	1.0	56.8	10.3	1.9	56.8	8.7	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	12.7	60.5	39.0	1.0	56.8	10.3	1.9	56.8	8.7	1.6
Queue Length 50th (ft)	22	1	86	2	0	23	196	0	23	113	0
Queue Length 95th (ft)	53	38	153	12	3	58	308	26	58	184	12
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	364	456	346	482	464	141	2434	1114	141	2434	1112
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.38	0.01	0.07	0.24	0.47	0.13	0.24	0.31	0.05

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	58	84	20	118	26	1175	90	70	874	22
v/c Ratio	0.23	0.18	0.36	0.06	0.32	0.24	0.51	0.09	0.45	0.34	0.02
Control Delay	33.9	27.9	37.1	30.5	7.9	51.8	13.5	3.4	52.5	8.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	27.9	37.1	30.5	7.9	51.8	13.5	3.4	52.5	8.7	0.0
Queue Length 50th (ft)	28	24	43	10	0	14	161	0	36	54	0
Queue Length 95th (ft)	60	55	84	28	40	51	457	29	101	283	1
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	633	834	612	851	779	115	2284	1055	212	2539	1152
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.14	0.02	0.15	0.23	0.51	0.09	0.33	0.34	0.02

Intersection Summary



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1263	1163	554	405
v/c Ratio	0.57	0.52	0.40	0.62
Control Delay	13.6	13.2	13.2	17.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.6	13.2	13.2	17.8
Queue Length 50th (ft)	100	90	60	89
Queue Length 95th (ft)	201	181	122	211
Internal Link Dist (ft)	480	822		
Turn Bay Length (ft)			1000	540
Base Capacity (vph)	4649	4649	3315	1530
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.25	0.17	0.26

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1524	204	1347	408	185	412	412
v/c Ratio	0.63	0.24	0.56	0.42	0.25	0.65	0.65
Control Delay	18.4	3.3	17.3	3.2	17.6	24.6	24.6
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	18.4	3.3	17.3	3.3	17.6	24.6	24.6
Queue Length 50th (ft)	187	0	157	0	55	150	150
Queue Length 95th (ft)	368	41	313	54	133	342	342
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	3841	1248	3841	1301	1336	1139	1139
Starvation Cap Reductn	0	0	553	142	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.16	0.41	0.35	0.14	0.36	0.36

Intersection Summary

APPENDIX 3.5:

EXISTING (2019) CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4100	7146	0.57	68.1	20.1	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.885	4100	481	7200	2100	0.57	0.23	64.6	60.5	21.2	27.2	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	3623	7146	0.51	68.2	17.7	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	4172	549	7200	1900	0.58	0.29	62.1	59.9	22.4	24.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4172	7146	0.58	68.0	20.5	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.917	4272	100	7200	2100	0.59	0.05	62.7	60.8	22.7	22.4	C

Segment 7: Basic

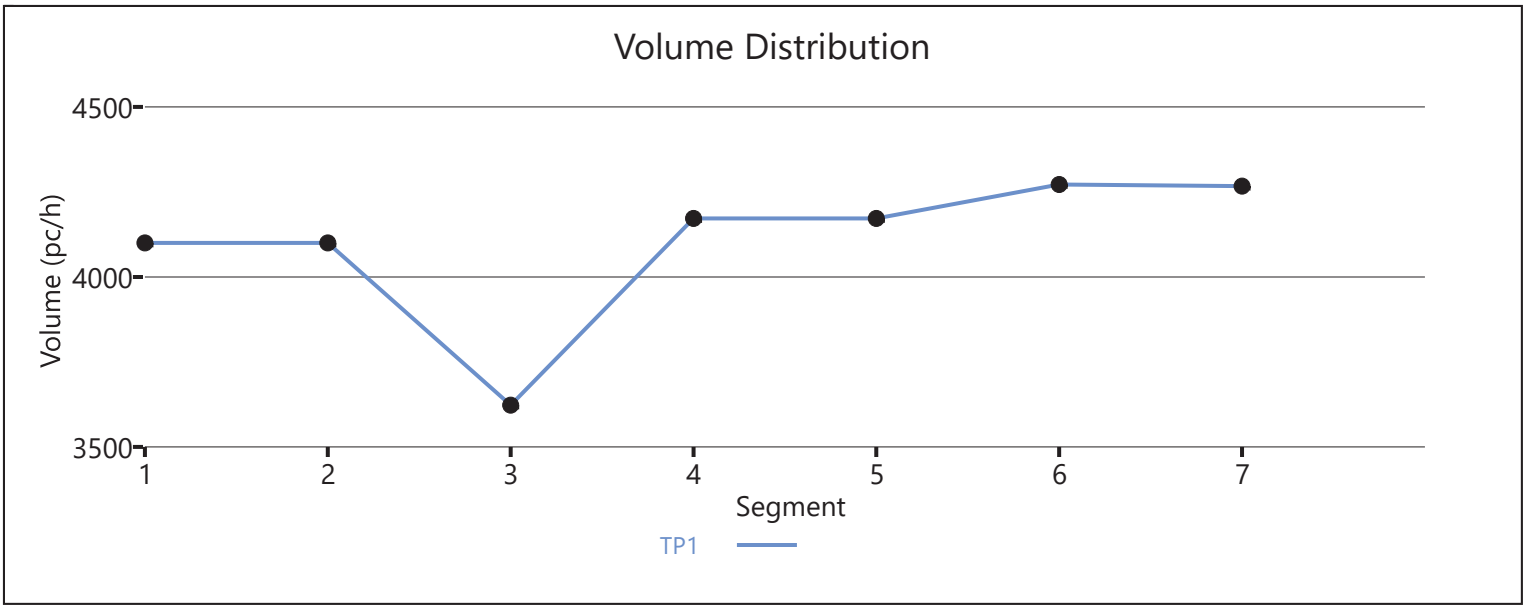
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4267	7146	0.60	67.9	20.9	C

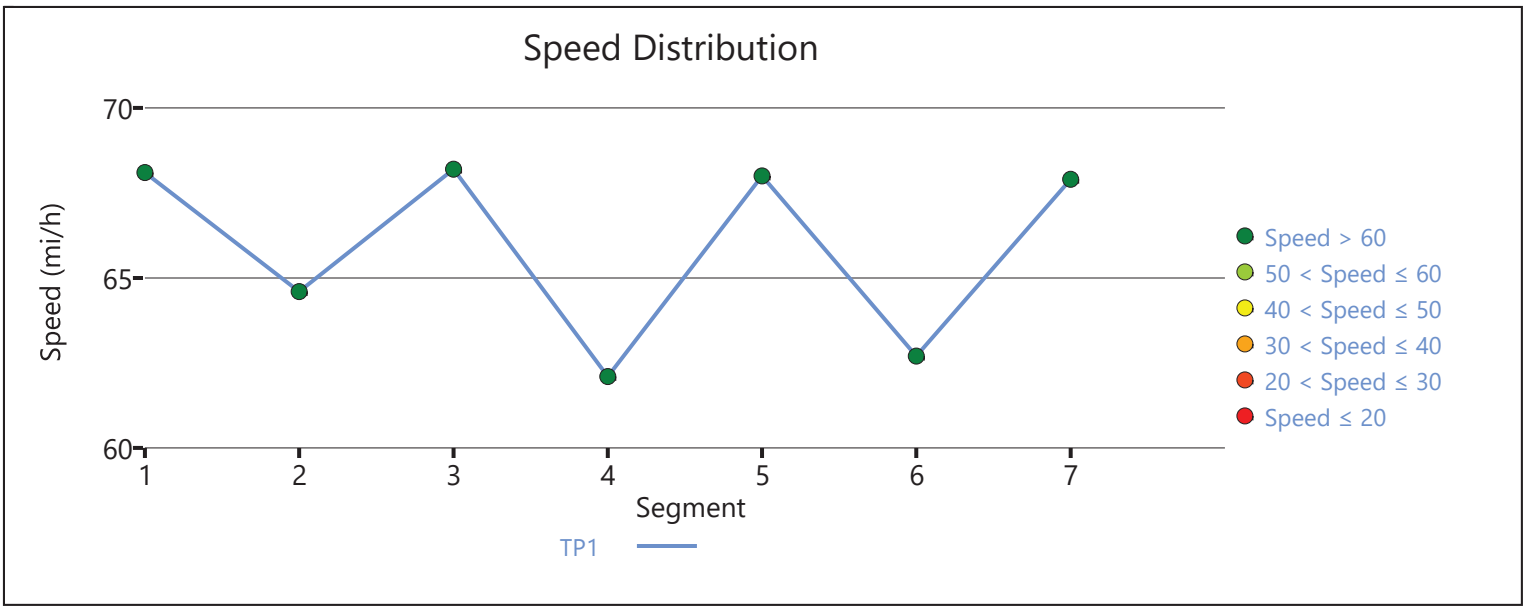
Facility Time Period Results

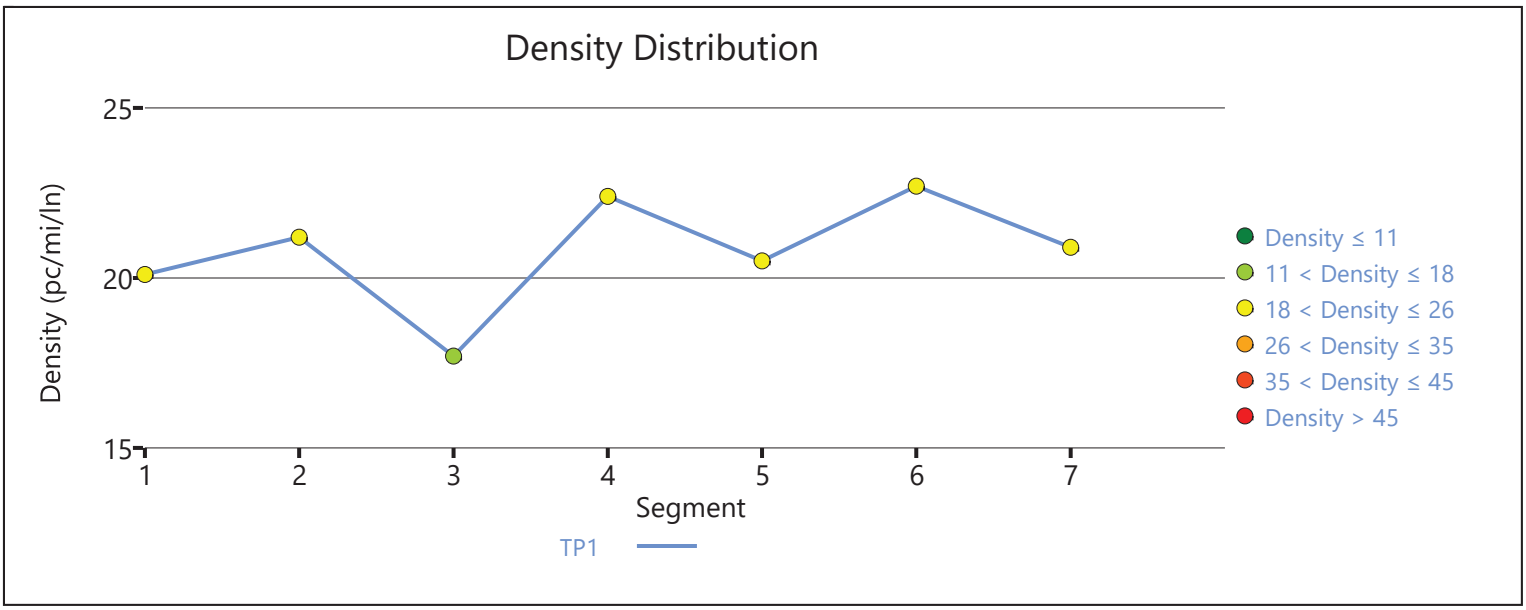
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.2	20.5	19.8	4.9	C

Facility Overall Results

Space Mean Speed, mi/h	67.2	Density, veh/mi/ln	19.8
Average Travel Time, min	4.9	Density, pc/mi/ln	20.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3514	7179	0.49	69.3	16.9	B

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.840	4666	1152	9600	2100	0.37	0.55	70.0	-	12.5	-	B

Segment 3: Basic

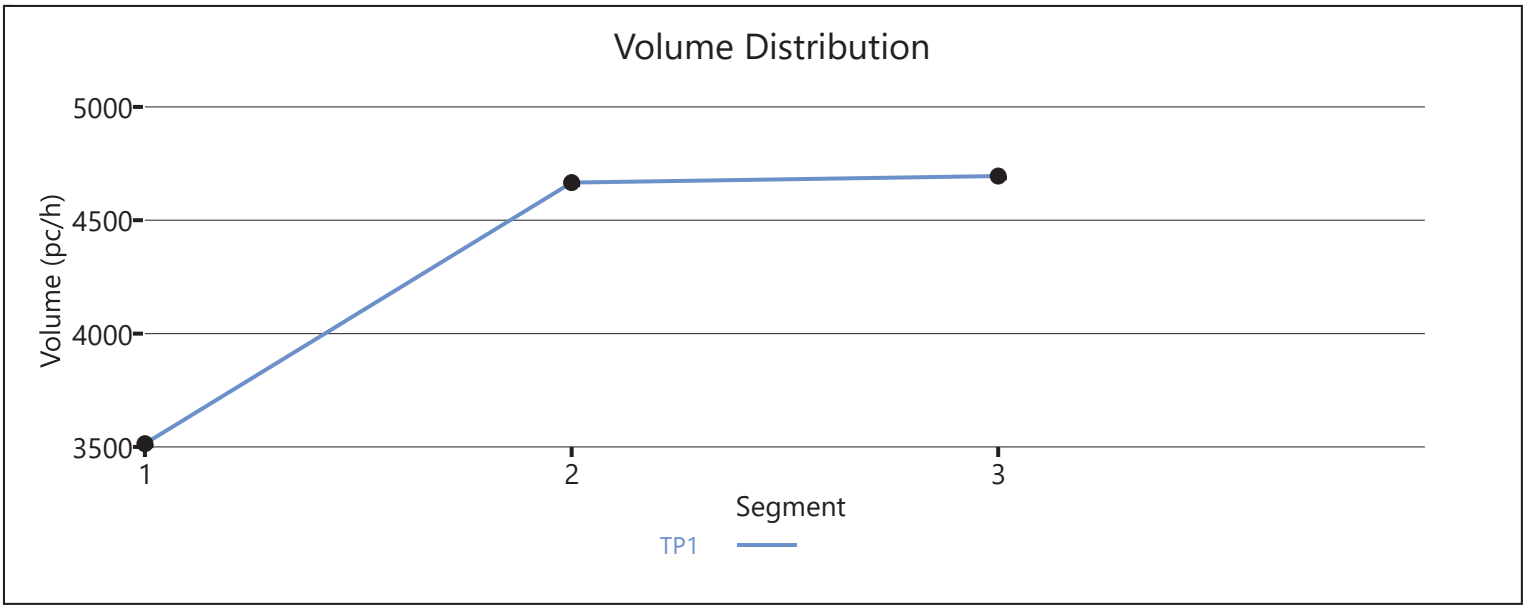
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4695	9572	0.49	69.3	16.9	B

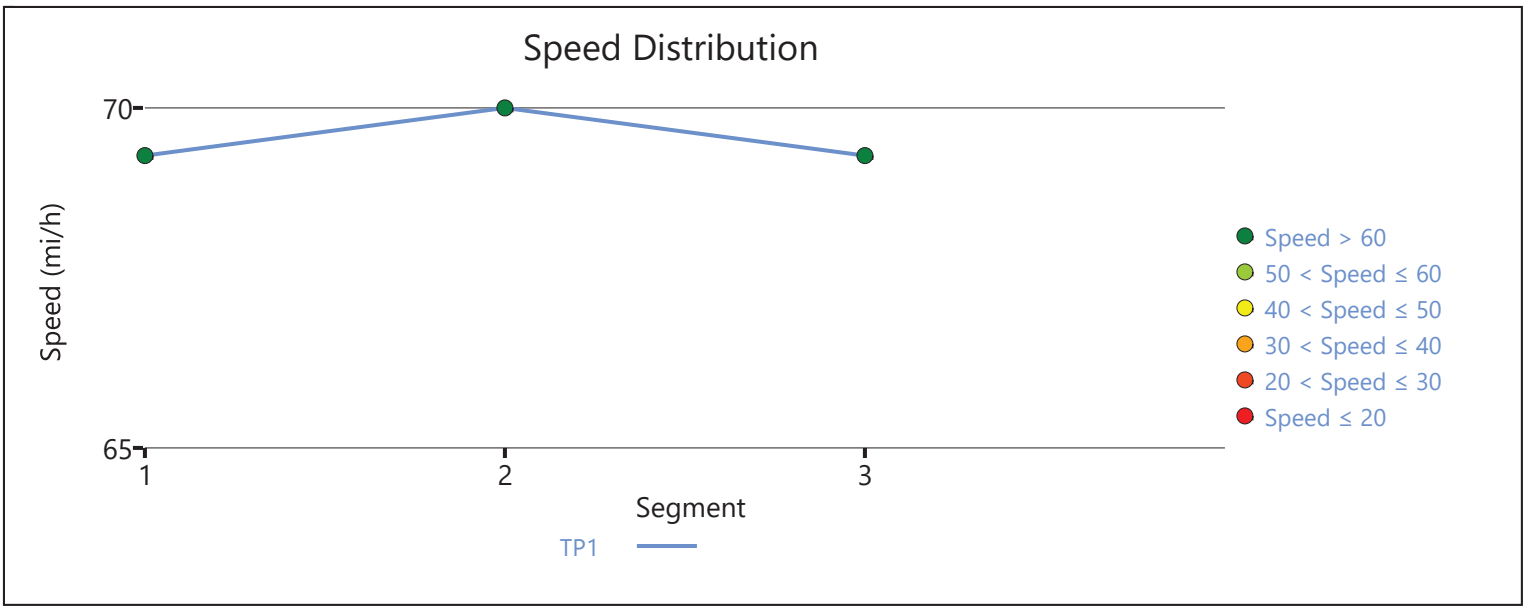
Facility Time Period Results

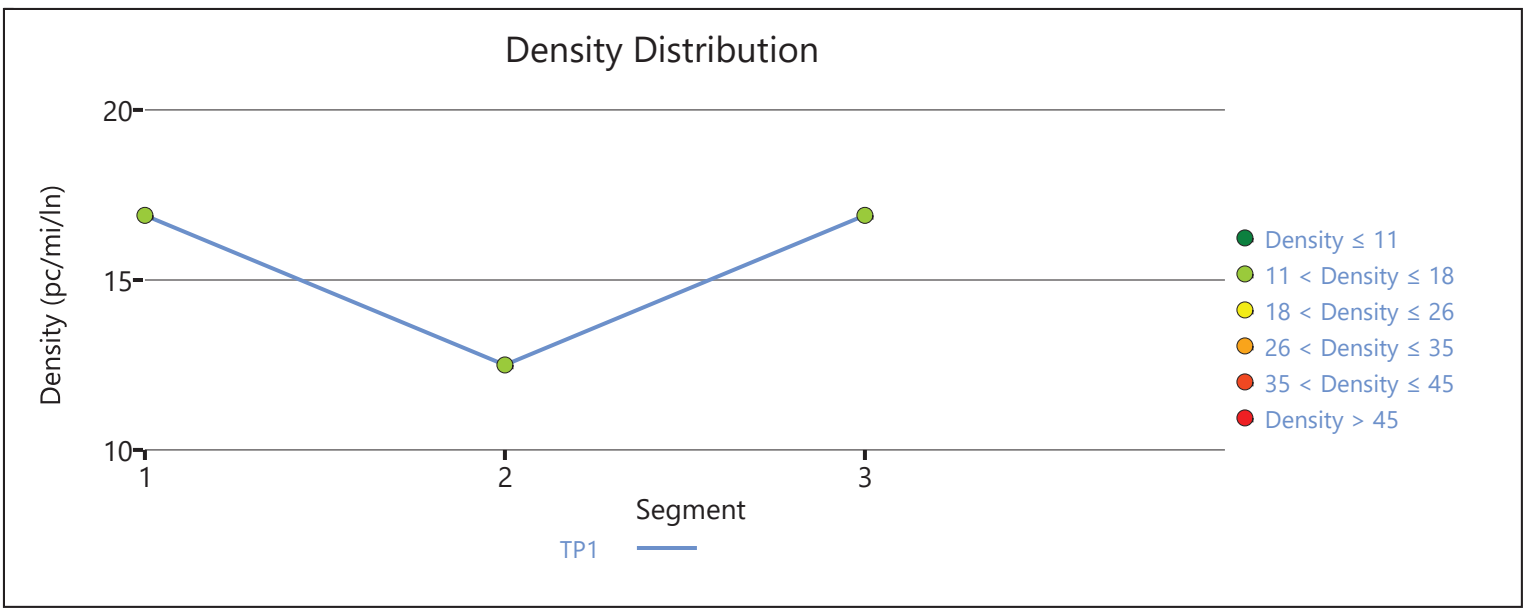
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	16.2	15.2	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	15.2
Average Travel Time, min	1.6	Density, pc/mi/ln	16.2







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3419	7146	0.48	68.2	16.7	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.909	3419	506	7200	2100	0.47	0.24	64.5	60.4	17.7	23.6	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	2918	7146	0.41	68.2	14.3	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	3228	310	7200	1900	0.45	0.16	63.2	60.9	17.0	18.2	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3252	7146	0.46	68.2	15.9	B

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	3746	494	7200	2100	0.52	0.24	62.9	60.8	19.9	21.6	C

Segment 7: Basic

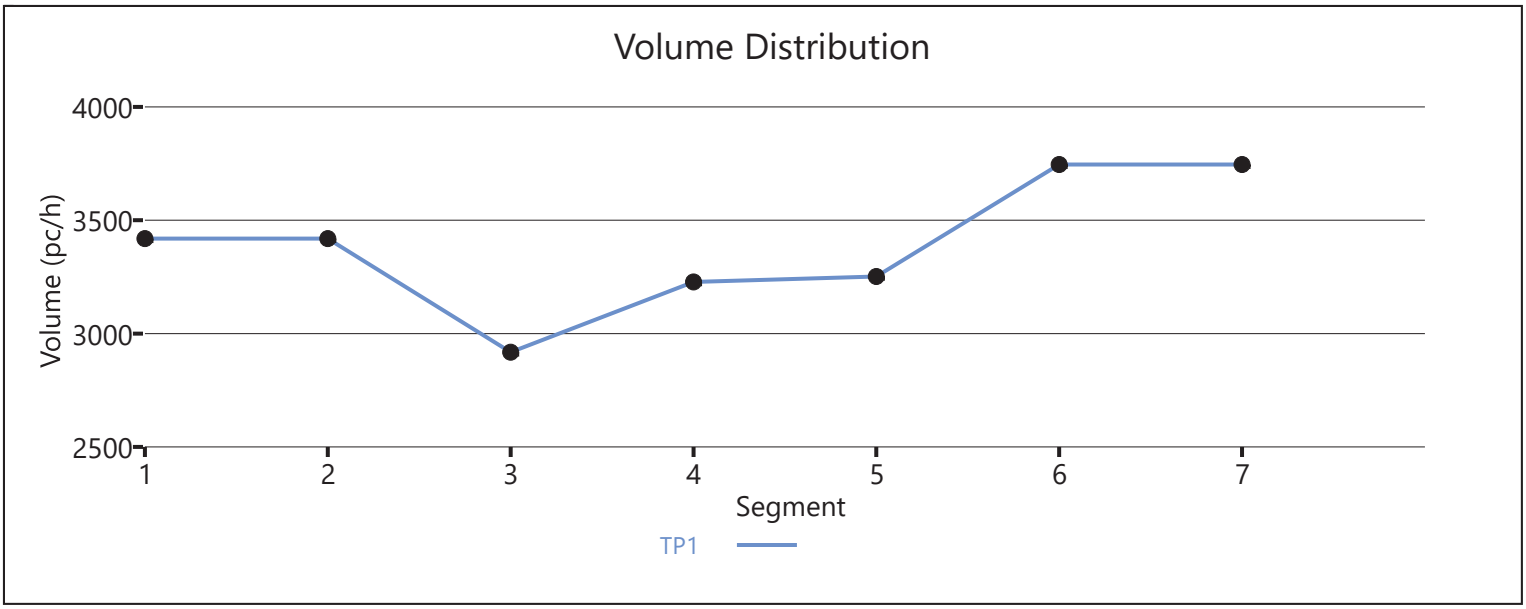
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3746	7146	0.52	68.2	18.3	C

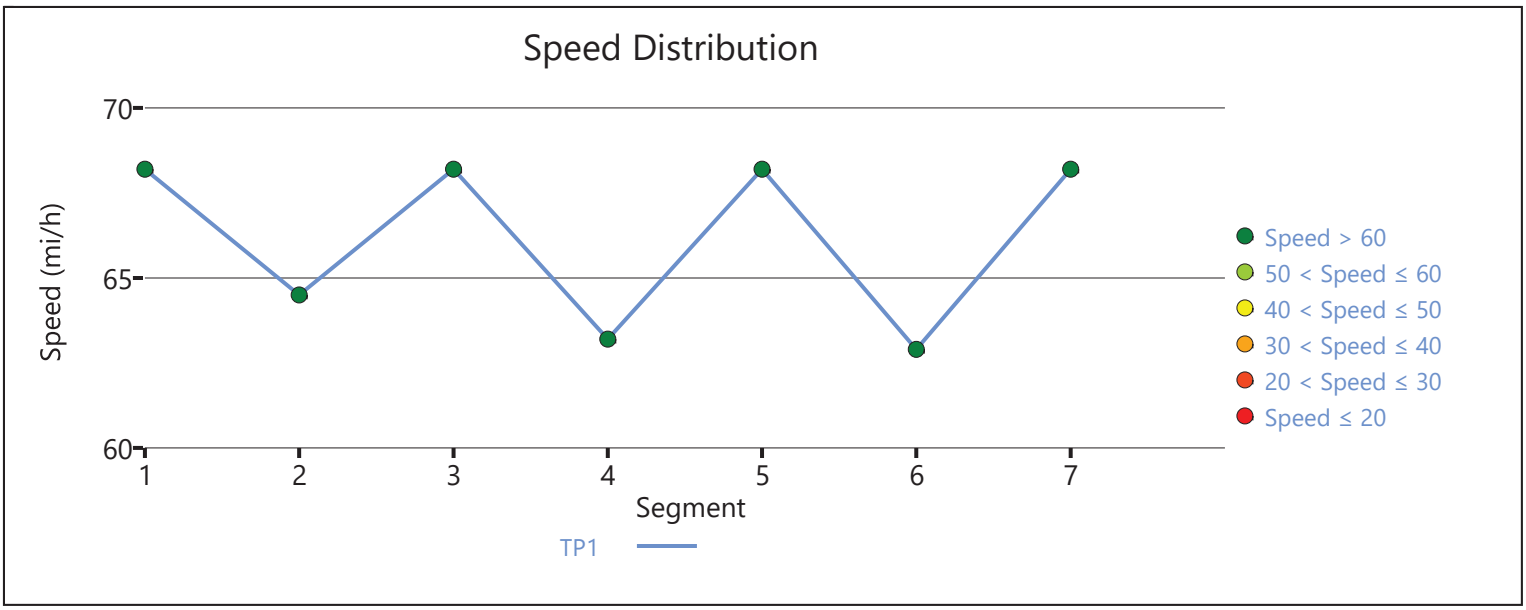
Facility Time Period Results

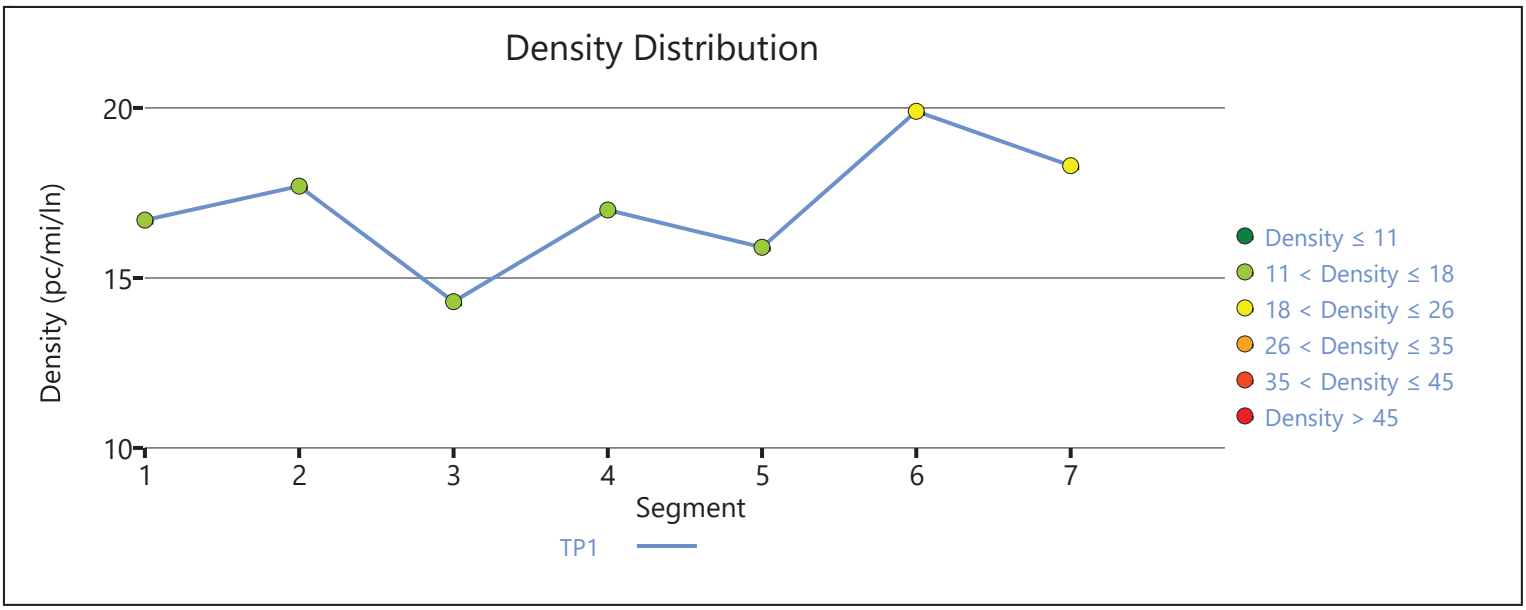
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.5	17.7	17.2	4.9	B

Facility Overall Results

Space Mean Speed, mi/h	67.5	Density, veh/mi/ln	17.2
Average Travel Time, min	4.9	Density, pc/mi/ln	17.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	3980	9572	0.42	69.3	14.4	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.813	3980	832	9600	2100	0.41	0.40	66.2	59.6	15.0	18.0	B

Segment 3: Basic

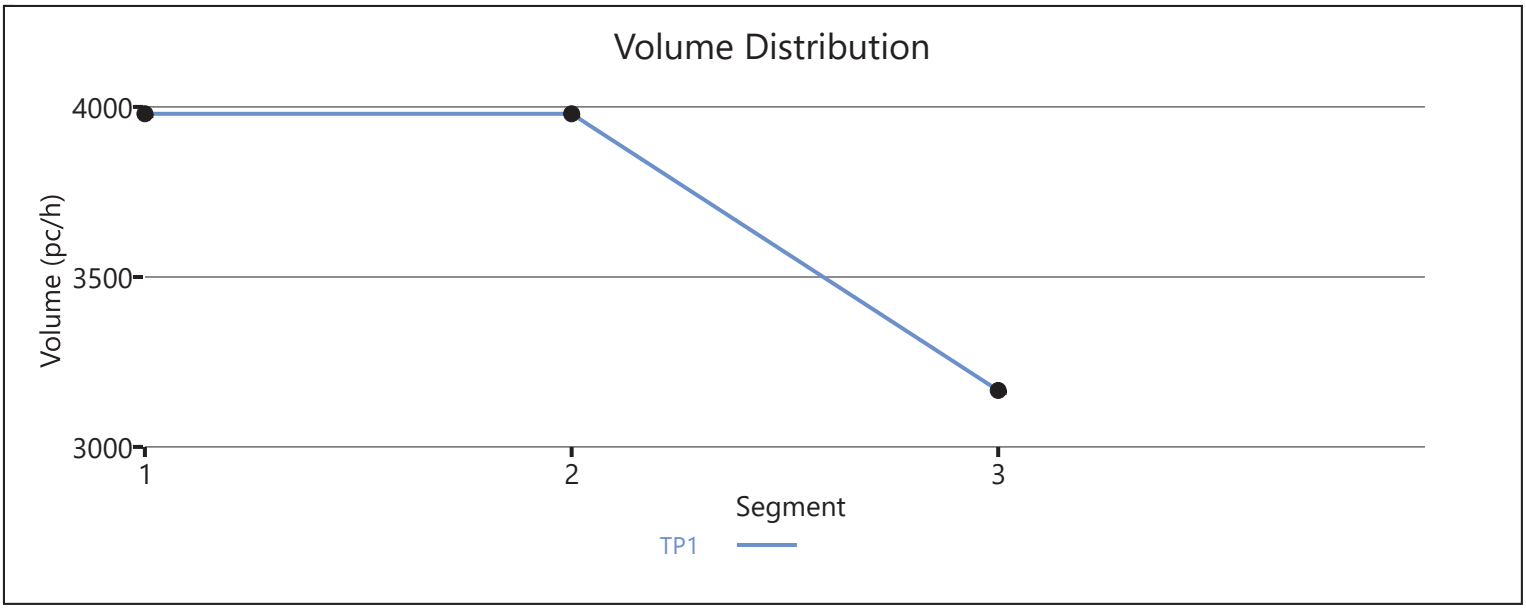
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3166	9572	0.33	69.3	11.4	B

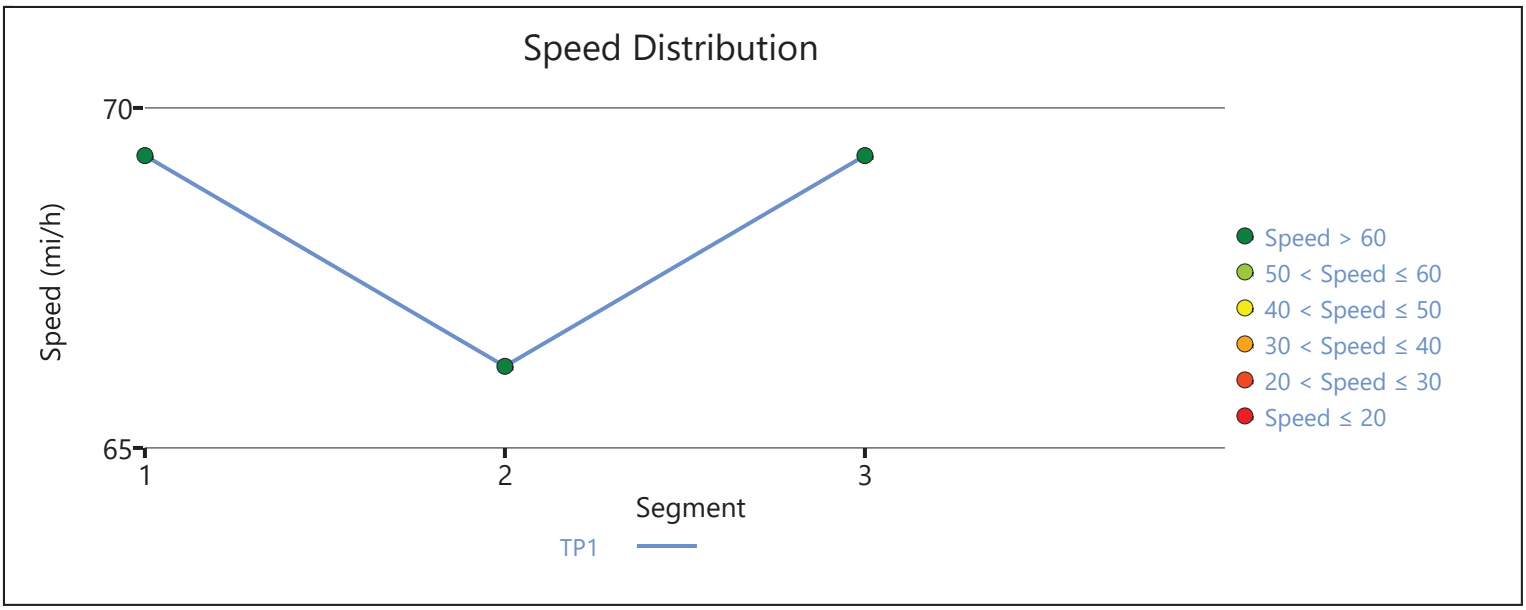
Facility Time Period Results

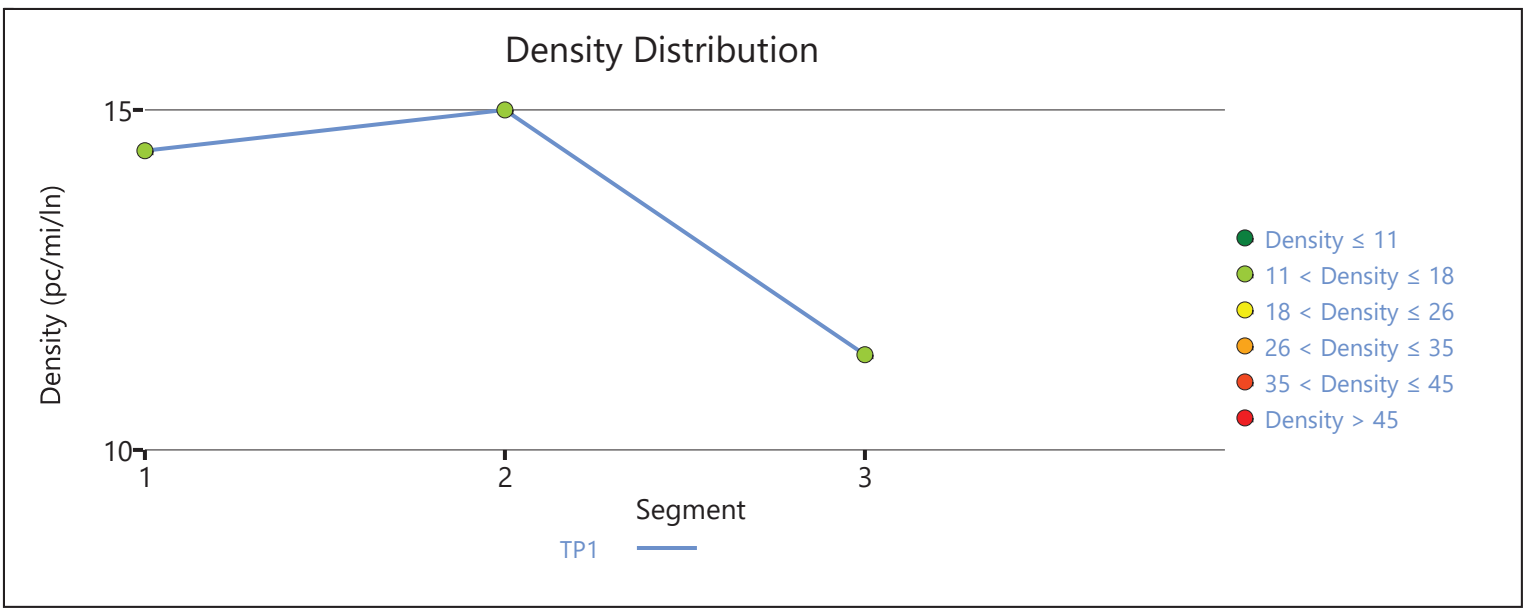
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.7	12.6	12.0	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	68.7	Density, veh/mi/ln	12.0
Average Travel Time, min	1.6	Density, pc/mi/ln	12.6







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4452	7146	0.62	67.6	22.0	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.971	4452	927	7200	2100	0.62	0.44	63.5	59.3	23.4	29.6	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3517	7146	0.49	68.2	17.2	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	3870	353	7200	1900	0.54	0.19	62.5	60.3	20.6	22.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3866	7146	0.54	68.2	18.9	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.901	3995	129	7200	2100	0.55	0.06	62.9	61.0	21.2	21.2	C

Segment 7: Basic

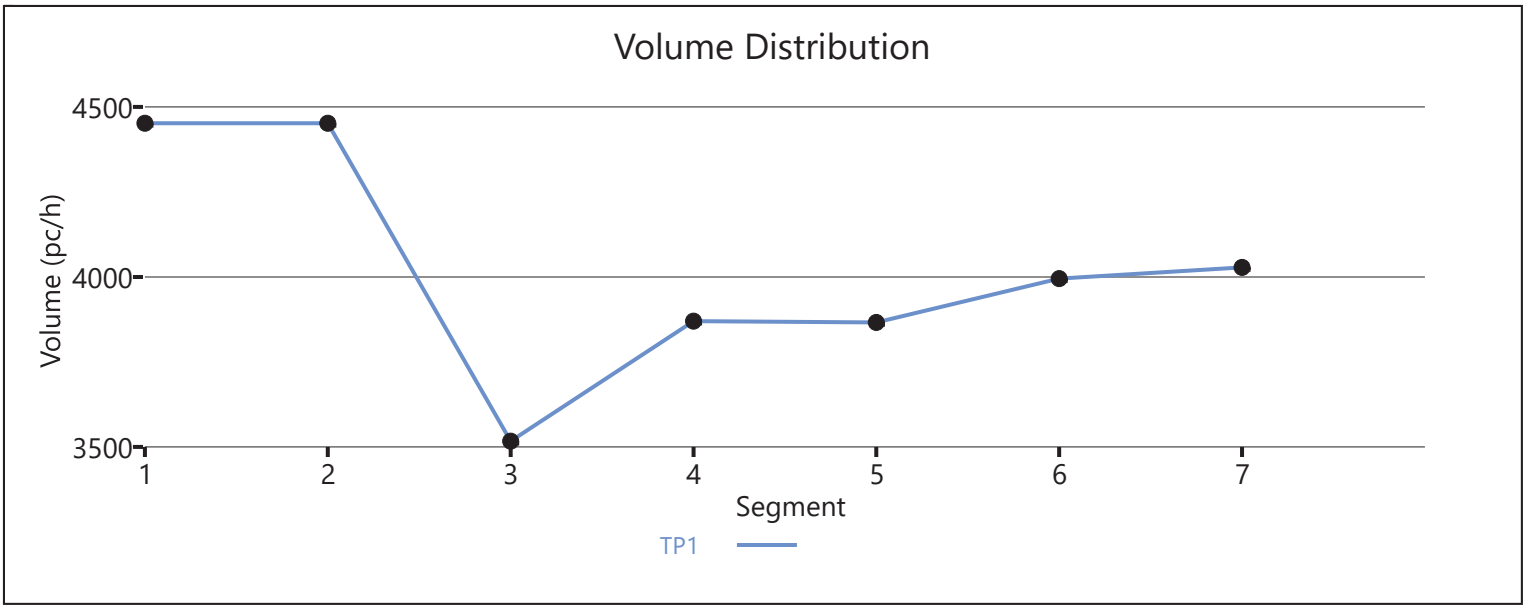
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	4028	7146	0.56	68.1	19.7	C

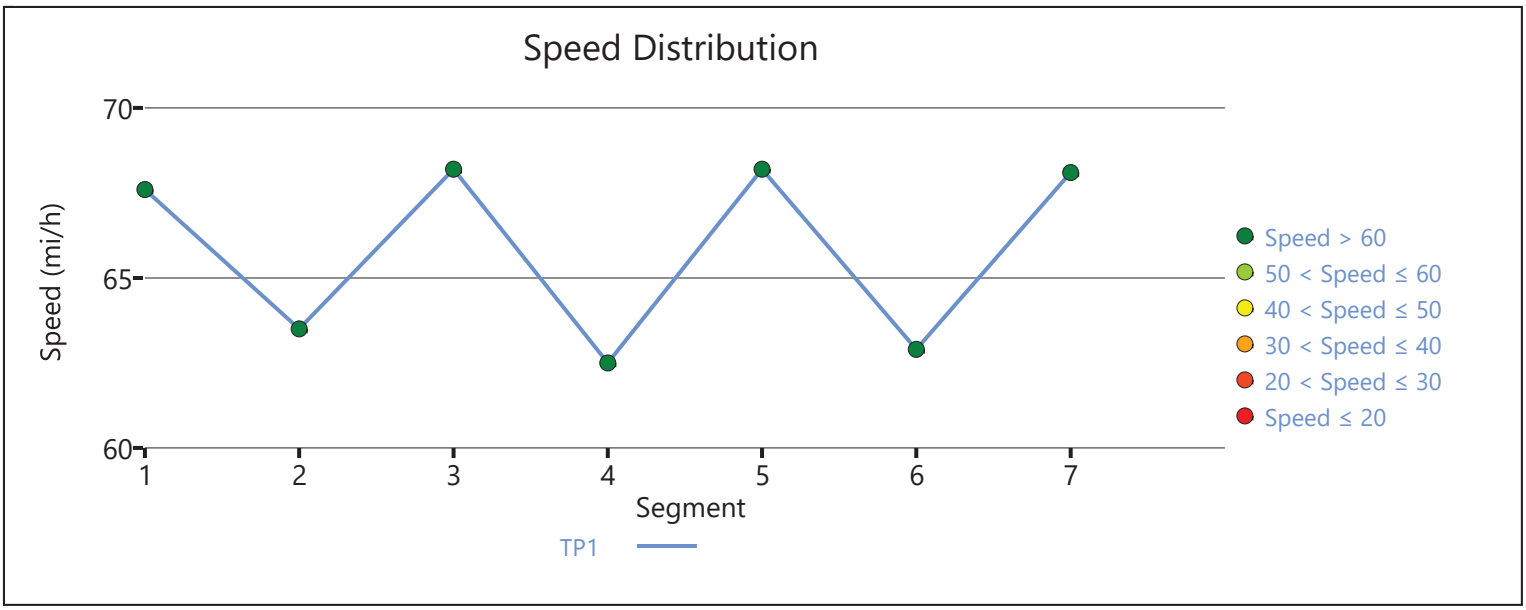
Facility Time Period Results

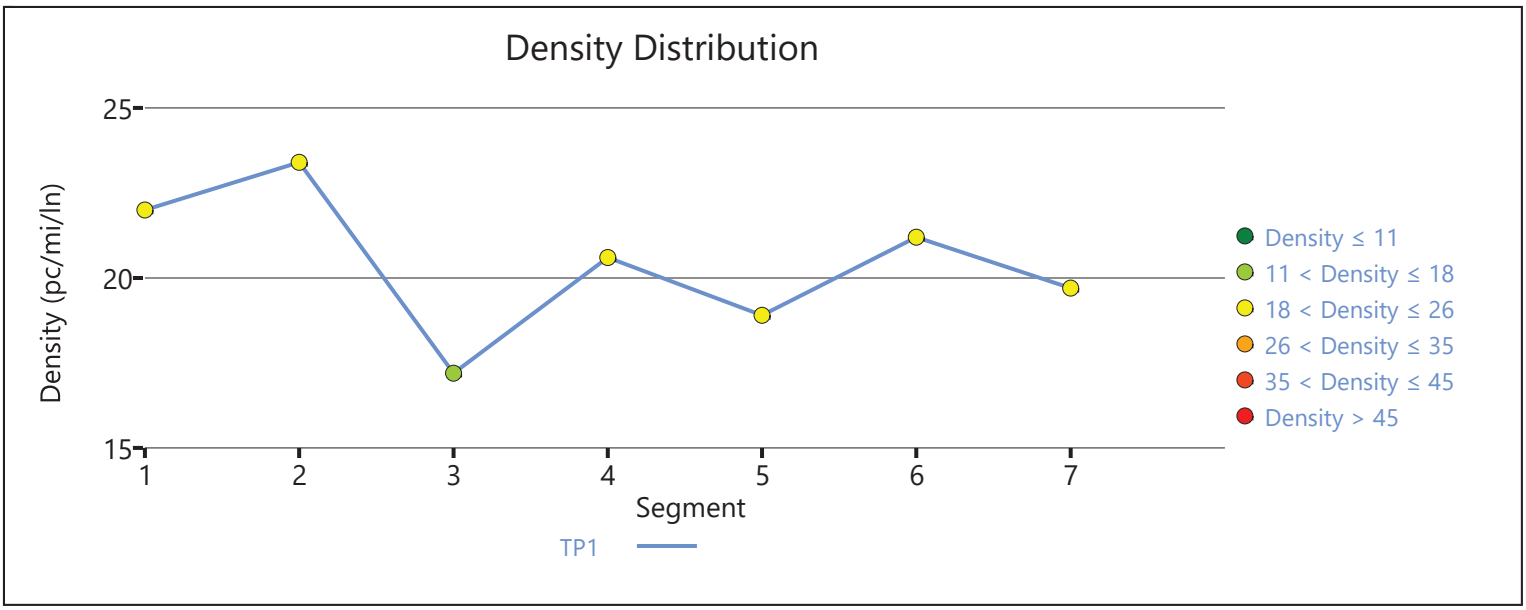
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.0	21.2	20.4	4.9	C

Facility Overall Results

Space Mean Speed, mi/h	67.0	Density, veh/mi/ln	20.4
Average Travel Time, min	4.9	Density, pc/mi/ln	21.2







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	3650	7179	0.51	69.3	17.6	B

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.826	4596	946	9600	2100	0.38	0.45	70.0	-	13.0	-	B

Segment 3: Basic

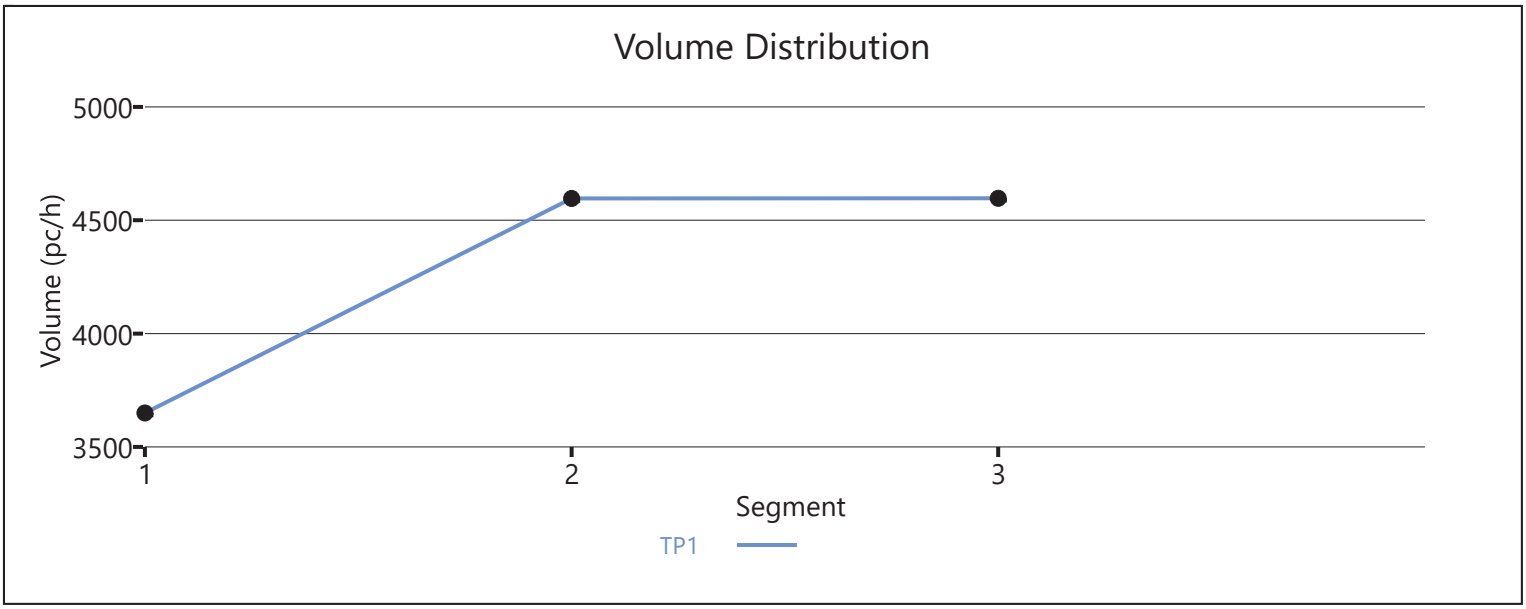
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4597	9572	0.48	69.3	16.6	B

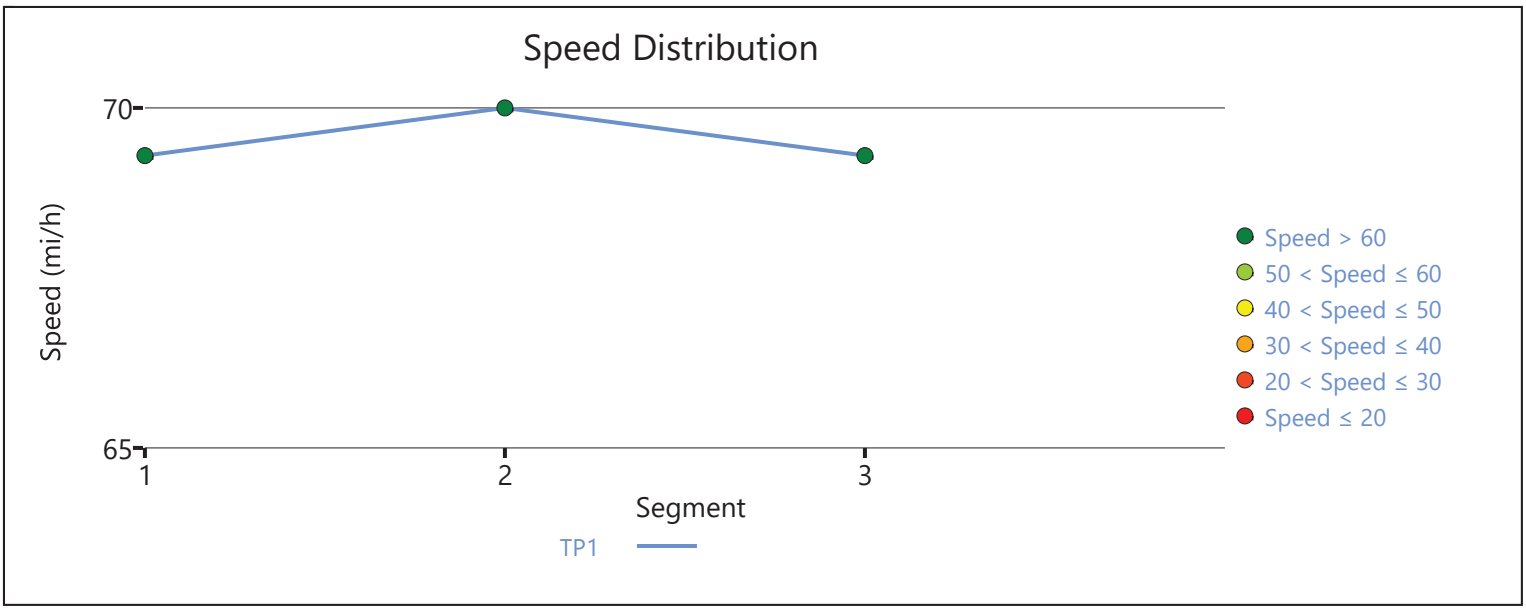
Facility Time Period Results

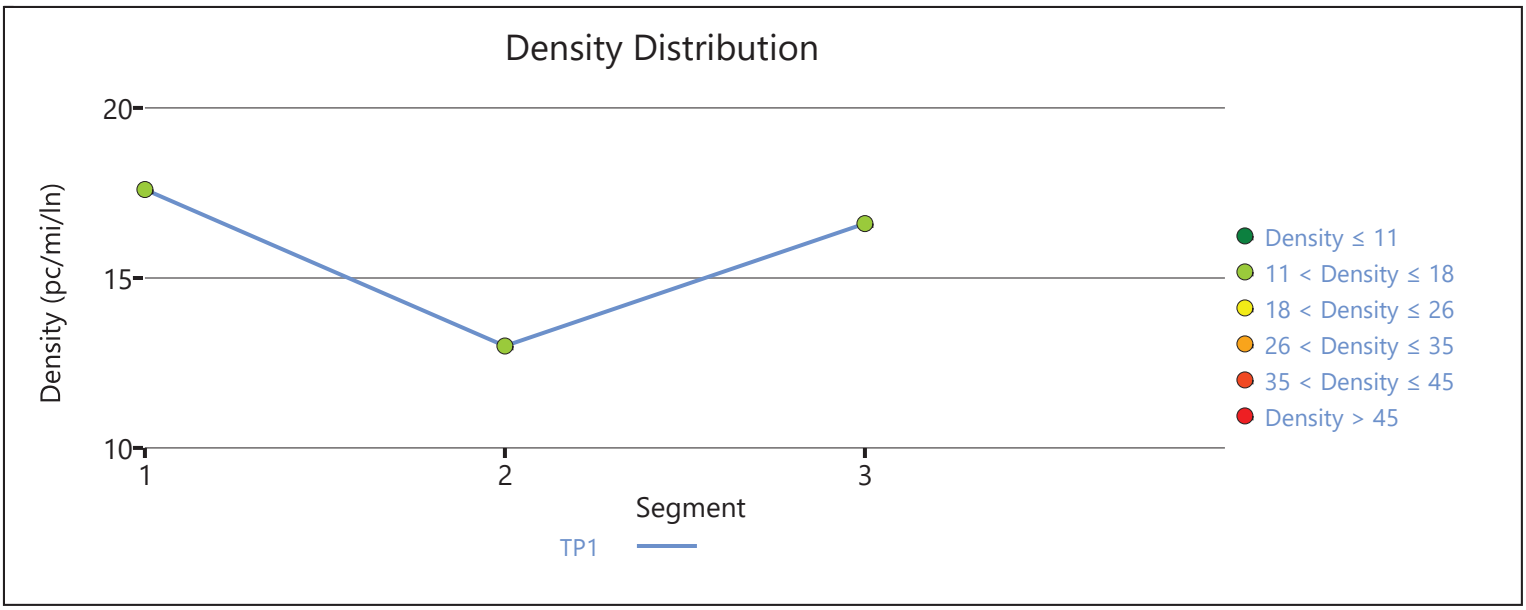
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	16.4	15.4	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	15.4
Average Travel Time, min	1.6	Density, pc/mi/ln	16.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6552	7146	0.92	57.9	37.7	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.926	6552	1096	7200	2100	0.91	0.52	63.0	58.9	34.7	38.0	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5456	7146	0.76	64.5	28.2	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	5692	236	7200	1900	0.79	0.12	60.3	58.2	31.5	29.3	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5688	7146	0.80	63.4	29.9	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	6115	427	7200	2100	0.85	0.20	59.4	57.3	34.3	32.3	D

Segment 7: Basic

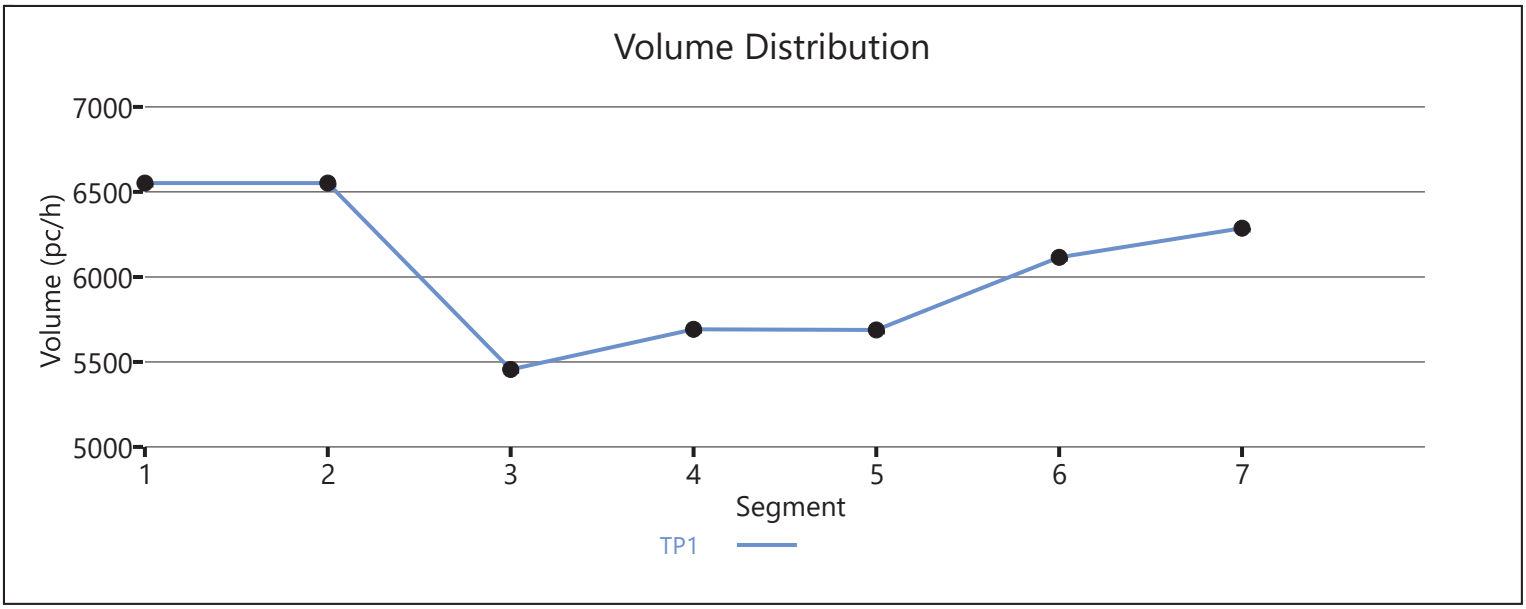
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	6287	7146	0.88	59.8	35.1	E

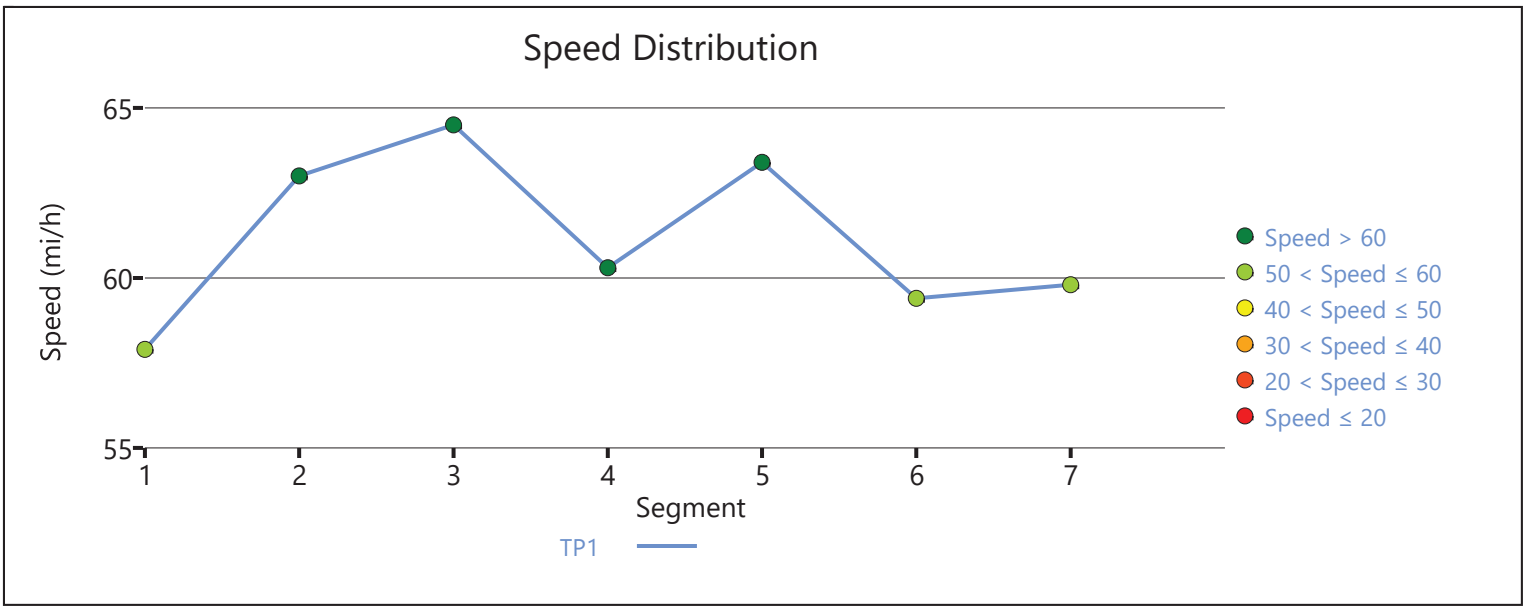
Facility Time Period Results

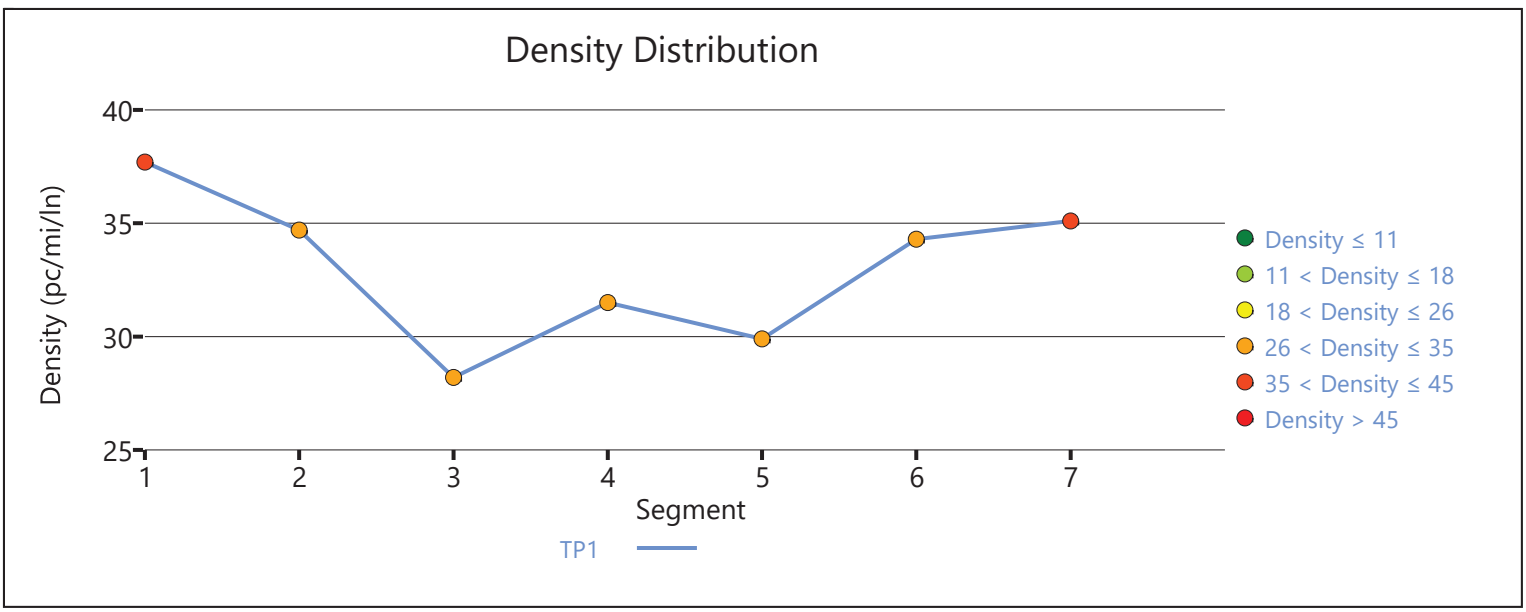
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	59.8	34.9	33.6	5.6	D

Facility Overall Results

Space Mean Speed, mi/h	59.8	Density, veh/mi/ln	33.6
Average Travel Time, min	5.6	Density, pc/mi/ln	34.9







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Existing (2019)
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6398	9572	0.67	67.7	23.6	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.885	6398	1390	9600	2100	0.67	0.66	64.7	58.2	24.7	29.7	D

Segment 3: Basic

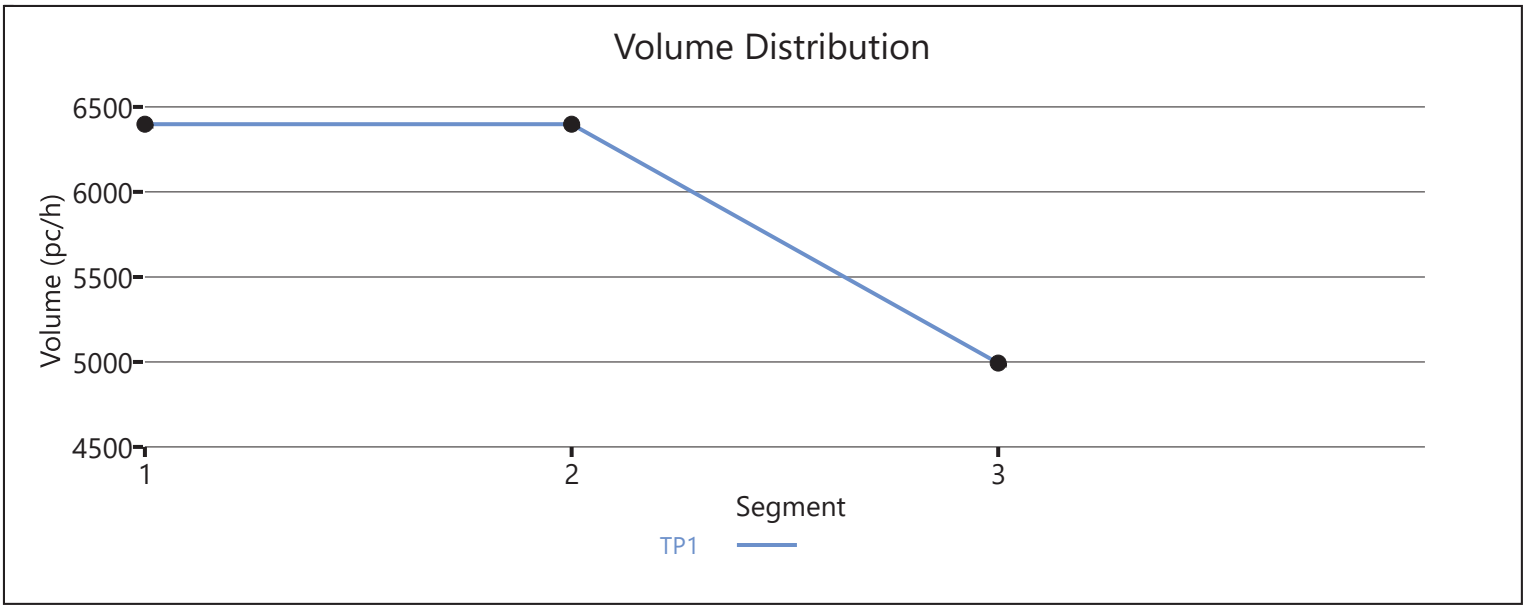
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	4993	9572	0.52	69.3	18.0	B

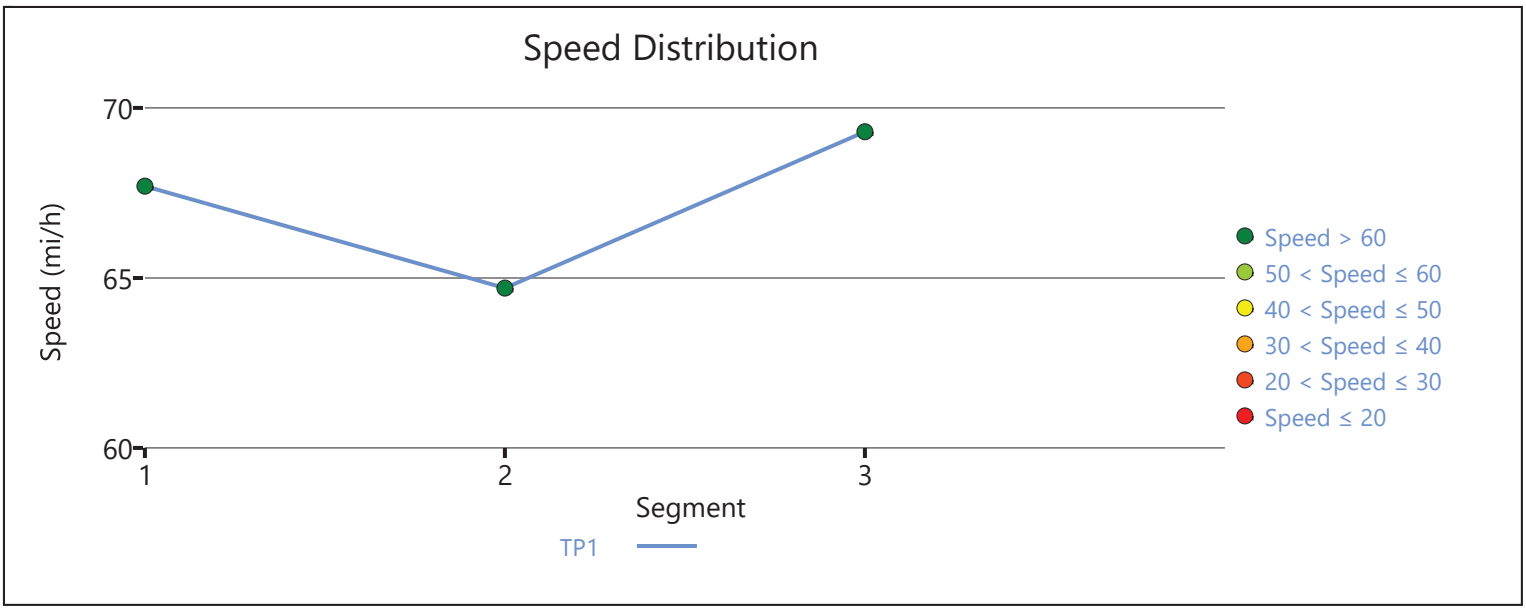
Facility Time Period Results

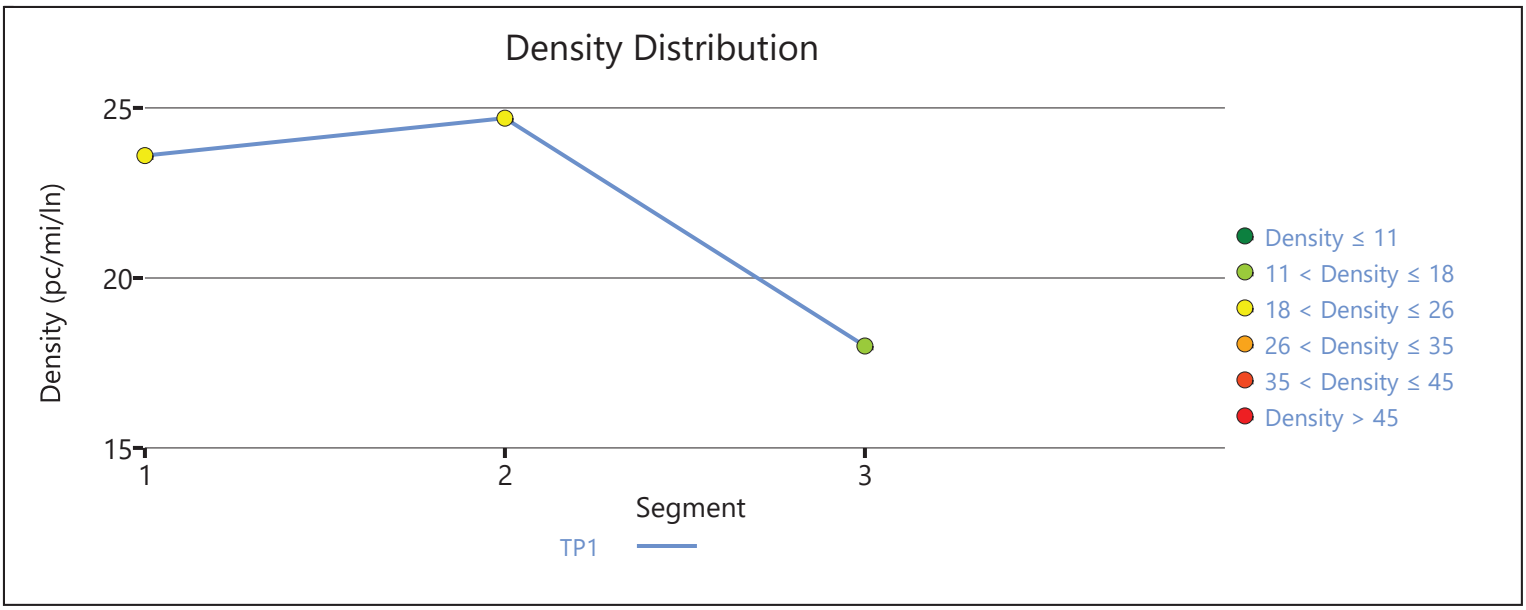
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.1	20.2	19.2	1.6	C

Facility Overall Results

Space Mean Speed, mi/h	68.1	Density, veh/mi/ln	19.2
Average Travel Time, min	1.6	Density, pc/mi/ln	20.2







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APPENDIX 3.6:

EXISTING (2019) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	1	0	0	0	3	934	0	0	1152	0
Future Vol, veh/h	0	0	1	0	0	0	3	934	0	0	1152	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	0	0	0	3	1038	0	0	1280	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1805	2324	640	1684	2324	519	1280	0	0	1038	0	0
Stage 1	1280	1280	-	1044	1044	-	-	-	-	-	-	-
Stage 2	525	1044	-	640	1280	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	51	38	423	63	38	507	549	-	-	678	-	-
Stage 1	178	239	-	249	309	-	-	-	-	-	-	-
Stage 2	509	309	-	435	239	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	50	38	423	62	38	507	549	-	-	678	-	-
Mov Cap-2 Maneuver	50	38	-	62	38	-	-	-	-	-	-	-
Stage 1	176	239	-	246	305	-	-	-	-	-	-	-
Stage 2	502	305	-	434	239	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.5	0	0.1	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	549	-	-	423	-	678	-	-
HCM Lane V/C Ratio	0.006	-	-	0.003	-	-	-	-
HCM Control Delay (s)	11.6	0.1	-	13.5	0	0	-	-
HCM Lane LOS	B	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	780	13	24	993
Future Vol, veh/h	5	9	780	13	24	993
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	839	14	26	1068

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1432	427	0	0	853	0
Stage 1	846	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	127	582	-	-	795	-
Stage 1	386	-	-	-	-	-
Stage 2	525	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	123	582	-	-	795	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	508	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	255	582	795	-
HCM Lane V/C Ratio	-	-	0.021	0.017	0.032	-
HCM Control Delay (s)	-	-	19.4	11.3	9.7	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	4	0	0	0	6	1319	0	0	871	4
Future Vol, veh/h	3	0	4	0	0	0	6	1319	0	0	871	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	4	0	0	0	6	1374	0	0	907	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1608	2295	456	1840	2297	687	911	0	0	1374	0	0
Stage 1	909	909	-	1386	1386	-	-	-	-	-	-	-
Stage 2	699	1386	-	454	911	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	71	39	557	48	39	394	756	-	-	506	-	-
Stage 1	300	357	-	153	212	-	-	-	-	-	-	-
Stage 2	401	212	-	560	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	38	557	46	38	394	756	-	-	506	-	-
Mov Cap-2 Maneuver	69	38	-	46	38	-	-	-	-	-	-	-
Stage 1	290	357	-	148	205	-	-	-	-	-	-	-
Stage 2	387	205	-	556	356	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.5	0	0.2	0
HCM LOS	D	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	756	-	-	138	-	506	-	-
HCM Lane V/C Ratio	0.008	-	-	0.053	-	-	-	-
HCM Control Delay (s)	9.8	0.2	-	32.5	0	0	-	-
HCM Lane LOS	A	A	-	D	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1165	26	11	840
Future Vol, veh/h	7	24	1165	26	11	840
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1189	27	11	857

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1654	608	0	0	1216	0
Stage 1	1203	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	91	444	-	-	581	-
Stage 1	251	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	89	444	-	-	581	-
Mov Cap-2 Maneuver	194	-	-	-	-	-
Stage 1	251	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	194	444	581	-
HCM Lane V/C Ratio	-	-	0.037	0.055	0.019	-
HCM Control Delay (s)	-	-	24.3	13.6	11.3	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

APPENDIX 4.1:

POST PROCESSING WORKSHEETS

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: Baldy Mesa Rd. & Phelan Rd.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	36	32	-4	-11%	38	26	-12	-31%
	Through	72	71	-1	-1%	29	38	9	31%
	Right	52	57	6	11%	26	27	1	4%
	NB Total	160	160	1	0%	93	91	-2	-2%
SOUTH BOUND	Left	182	240	59	32%	117	129	12	10%
	Through	49	52	4	7%	37	35	-2	-5%
	Right	185	198	13	7%	135	98	-37	-27%
	SB Total	415	490	75	18%	289	262	-27	-9%
EAST BOUND	Left	155	121	-34	-22%	151	181	31	20%
	Through	554	483	-71	-13%	538	514	-24	-4%
	Right	23	16	-7	-30%	37	30	-7	-19%
	EB Total	731	620	-111	-15%	725	725	0	0%
WEST BOUND	Left	12	12	1	4%	58	65	8	13%
	Through	335	340	6	2%	561	496	-65	-12%
	Right	142	158	17	12%	120	201	82	68%
	WB Total	488	510	23	5%	738	762	24	3%
TOTAL ENTERING VOLUME		1,793	1,780	-13	-1%	1,844	1,840	-4	0%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	490	262			
North Leg	Outbound	350	420			
North Leg	**TOTAL**	**840**	**682**	**20%**	**17%**	**4,117**
South Leg	Inbound	160	91			
South Leg	Outbound	80	130			
South Leg	**TOTAL**	**240**	**221**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	510	762			
East Leg	Outbound	780	670			
East Leg	**TOTAL**	**1,290**	**1,432**	**9%**	**10%**	**14,189**
West Leg	Inbound	620	725			
West Leg	Outbound	570	620			
West Leg	**TOTAL**	**1,190**	**1,345**	**10%**	**11%**	**12,080**
OVERALL TOTAL		***3,560***	***3,680***	**12%**	***12%***	***30,386***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: US Highway 395 & Luna Rd.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	36	63	28	77%	64	119	55	86%
	Through	711	1,126	416	58%	847	1,867	1,020	120%
	Right	43	60	17	40%	82	123	42	51%
	NB Total	789	1,249	460	58%	993	2,109	1,117	112%
SOUTH BOUND	Left	210	289	79	38%	214	240	26	12%
	Through	788	1,755	968	123%	834	1,439	605	73%
	Right	68	118	50	74%	86	119	33	38%
	SB Total	1,066	2,162	1,097	103%	1,134	1,798	664	59%
EAST BOUND	Left	49	63	15	30%	50	102	52	104%
	Through	122	141	20	16%	70	97	28	40%
	Right	68	127	60	88%	38	82	44	116%
	EB Total	238	331	94	39%	158	281	124	78%
WEST BOUND	Left	64	98	34	53%	44	69	26	59%
	Through	92	109	18	19%	105	132	28	26%
	Right	264	281	18	7%	207	311	105	51%
	WB Total	419	488	69	16%	355	512	158	44%
TOTAL ENTERING VOLUME		2,511	4,230	1719	68%	2,639	4,700	2062	78%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,162	1,798			
North Leg	Outbound	1,470	2,280			
North Leg	**TOTAL**	**3,632**	**4,078**	**6%**	**7%**	**57,258**
South Leg	Inbound	1,249	2,109			
South Leg	Outbound	1,980	1,590			
South Leg	**TOTAL**	**3,229**	**3,699**	**6%**	**7%**	**55,402**
East Leg	Inbound	488	512			
East Leg	Outbound	490	460			
East Leg	**TOTAL**	**978**	**972**	**15%**	**14%**	**6,717**
West Leg	Inbound	331	281			
West Leg	Outbound	290	370			
West Leg	**TOTAL**	**621**	**651**	**19%**	**20%**	**3,330**
OVERALL TOTAL		***8,460***	***9,400***	***7%***	***8%***	***122,707***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: US Highway 395 & Bear Valley Rd.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	105	146	41	39%	176	406	231	131%
	Through	674	1,043	370	55%	787	1,751	965	123%
	Right	95	116	22	23%	202	260	58	29%
	NB Total	873	1,305	432	49%	1,164	2,417	1,253	108%
SOUTH BOUND	Left	163	310	148	91%	150	229	79	53%
	Through	734	1,726	992	135%	734	1,327	594	81%
	Right	22	47	25	114%	35	95	61	175%
	SB Total	919	2,083	1,165	127%	918	1,651	733	80%
EAST BOUND	Left	41	80	40	98%	54	111	58	107%
	Through	298	464	166	56%	311	371	60	19%
	Right	165	317	152	92%	133	188	55	41%
	EB Total	504	861	358	71%	498	670	173	35%
WEST BOUND	Left	150	217	68	45%	106	116	11	10%
	Through	246	327	82	33%	306	510	204	67%
	Right	93	138	46	49%	130	209	79	61%
	WB Total	488	682	195	40%	542	835	294	54%
TOTAL ENTERING VOLUME		2,783	4,931	2148.5	77%	3,121	5,573	2452	79%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,083	1,651			
North Leg	Outbound	1,261	2,071			
North Leg	**TOTAL**	**3,344**	**3,722**	**6%**	**7%**	**57,130**
South Leg	Inbound	1,305	2,417			
South Leg	Outbound	2,260	1,631			
South Leg	**TOTAL**	**3,565**	**4,048**	**6%**	**7%**	**58,992**
East Leg	Inbound	682	835			
East Leg	Outbound	890	860			
East Leg	**TOTAL**	**1,572**	**1,695**	**8%**	**8%**	**20,088**
West Leg	Inbound	861	670			
West Leg	Outbound	520	1,011			
West Leg	**TOTAL**	**1,381**	**1,681**	**7%**	**9%**	**19,210**
OVERALL TOTAL		***9,862***	***11,146***	**6%**	***7%***	***155,420***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: US Highway 395 & Eucalyptus St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	7	5	-2	-23%	9	9	1	6%
	Through	834	1,186	353	42%	1,189	2,451	1,262	106%
	Right	58	76	19	32%	85	117	32	38%
	NB Total	898	1,267	370	41%	1,283	2,577	1,295	101%
SOUTH BOUND	Left	4	9	5	125%	11	13	2	18%
	Through	1,066	2,254	1,189	112%	910	1,510	601	66%
	Right	8	10	2	25%	11	10	-1	-9%
	SB Total	1,078	2,273	1,196	111%	932	1,533	602	65%
EAST BOUND	Left	9	11	2	22%	6	7	2	27%
	Through	5	6	1	20%	0	0	0	#DIV/0!
	Right	12	13	1	8%	3	3	0	0%
	EB Total	26	30	4	15%	9	10	2	18%
WEST BOUND	Left	75	105	31	41%	44	57	13	30%
	Through	6	5	-1	-17%	2	1	-1	-50%
	Right	20	30	11	54%	9	12	3	33%
	WB Total	100	140	40	40%	55	70	15	27%
TOTAL ENTERING VOLUME		2,101	3,710	1609	77%	2,278	4,190	1913	84%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,273	1,533			
North Leg	Outbound	1,227	2,470			
North Leg	**TOTAL**	**3,500**	**4,003**	**6%**	**7%**	**55,279**
South Leg	Inbound	1,267	2,577			
South Leg	Outbound	2,372	1,570			
South Leg	**TOTAL**	**3,639**	**4,147**	**6%**	**7%**	**58,413**
East Leg	Inbound	140	70			
East Leg	Outbound	91	130			
East Leg	**TOTAL**	**231**	**200**	**11%**	**10%**	**2,067**
West Leg	Inbound	30	10			
West Leg	Outbound	20	20			
West Leg	**TOTAL**	**50**	**30**	**#DIV/0!**	**#DIV/0!**	**-**
OVERALL TOTAL		***7,420***	***8,380***	**6%**	***7%***	***115,759***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: US Highway 395 & Phelan Rd./Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	92	76	-16	-17%	162	278	117	72%
	Through	708	927	220	31%	1,086	2,369	1,284	118%
	Right	9	14	5	56%	26	92	67	261%
	NB Total	808	1,017	209	26%	1,273	2,739	1,467	115%
SOUTH BOUND	Left	206	242	37	18%	187	382	195	104%
	Through	940	2,268	1,329	141%	777	1,263	486	63%
	Right	31	20	-11	-35%	46	45	-1	-2%
	SB Total	1,176	2,530	1,354	115%	1,010	1,690	680	67%
EAST BOUND	Left	47	38	-9	-19%	45	30	-15	-33%
	Through	652	614	-38	-6%	557	624	67	12%
	Right	106	203	98	92%	68	60	-8	-11%
	EB Total	804	855	51	6%	669	714	45	7%
WEST BOUND	Left	4	18	14	350%	9	14	5	56%
	Through	318	385	68	21%	655	599	-56	-8%
	Right	217	416	199	92%	255	295	41	16%
	WB Total	539	819	281	52%	918	908	-10	-1%
TOTAL ENTERING VOLUME		3,327	5,221	1894.5	57%	3,870	6,051	2182	56%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,530	1,690			
North Leg	Outbound	1,381	2,694			
North Leg	**TOTAL**	**3,911**	**4,384**	**7%**	**8%**	**57,983**
South Leg	Inbound	1,017	2,739			
South Leg	Outbound	2,489	1,337			
South Leg	**TOTAL**	**3,506**	**4,076**	**6%**	**7%**	**58,171**
East Leg	Inbound	819	908			
East Leg	Outbound	870	1,098			
East Leg	**TOTAL**	**1,689**	**2,006**	**9%**	**11%**	**18,326**
West Leg	Inbound	855	714			
West Leg	Outbound	481	922			
West Leg	**TOTAL**	**1,336**	**1,636**	**8%**	**10%**	**17,079**
OVERALL TOTAL		***10,442***	***12,102***	**7%**	***8%***	***151,559***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 1278
Scenario: Horizon Year (2040) Analyst: CP
Date: 1/14/20

LOCATION: UD-395 & Poplar St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	3	448	445	14833%	3	2,308	2,305	76833%
	Right	1	68	67	6700%	1	188	187	18700%
	NB Total	4	516	512	12800%	4	2,496	2,492	62300%
SOUTH BOUND	Left	1	982	981	98100%	1	512	511	51100%
	Through	3	1,828	1,825	60833%	3	749	746	24867%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	4	2,810	2,806	70150%	4	1,261	1,257	31425%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
WEST BOUND	Left	1	122	121	12100%	1	91	90	9000%
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	1	432	431	43100%	1	762	761	76100%
	WB Total	2	554	552	27600%	2	853	851	42550%
TOTAL ENTERING VOLUME		10	3,880	3870	38700%	10	4,610	4600	46000%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	2,810	1,261			
North Leg	Outbound	880	3,070			
North Leg	**TOTAL**	**3,690**	**4,331**	**6%**	**8%**	**57,363**
South Leg	Inbound	516	2,496			
South Leg	Outbound	1,950	840			
South Leg	**TOTAL**	**2,466**	**3,336**	**7%**	**9%**	**35,235**
East Leg	Inbound	554	853			
East Leg	Outbound	1,050	700			
East Leg	**TOTAL**	**1,604**	**1,553**	**6%**	**6%**	**26,678**
West Leg	Inbound	0	0			
West Leg	Outbound	0	0			
West Leg	**TOTAL**	**0**	**0**	**#DIV/0!**	**#DIV/0!**	**-**
OVERALL TOTAL		***7,760***	***9,220***	***7%***	***8%***	***119,276***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[14_US 395 & Poplar - SEMI.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: US Highway 395 & Three Flags Rd.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	23	14	-9	-39%	33	21	-12	-36%
	Through	747	744	-3	0%	1,209	2,058	850	70%
	Right	101	116	16	15%	147	181	34	23%
	NB Total	871	874	4	0%	1,389	2,260	872	63%
SOUTH BOUND	Left	20	44	24	120%	33	68	35	106%
	Through	937	1,688	752	80%	760	709	-51	-7%
	Right	73	85	12	16%	57	61	4	7%
	SB Total	1,030	1,817	788	76%	850	838	-12	-1%
EAST BOUND	Left	24	26	2	8%	35	57	23	65%
	Through	1	1	0	0%	1	1	0	0%
	Right	81	83	2	2%	59	32	-27	-45%
	EB Total	106	110	4	4%	94	90	-4	-4%
WEST BOUND	Left	165	166	2	1%	127	229	102	80%
	Through	2	1	-1	-33%	4	8	4	100%
	Right	41	43	2	5%	32	175	143	447%
	WB Total	207	210	3	1%	163	412	249	153%
TOTAL ENTERING VOLUME		2,213	3,011	798	36%	2,496	3,600	1105	44%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,817	838			
North Leg	Outbound	813	2,290			
North Leg	**TOTAL**	**2,630**	**3,128**	**7%**	**9%**	**35,434**
South Leg	Inbound	874	2,260			
South Leg	Outbound	1,937	970			
South Leg	**TOTAL**	**2,811**	**3,230**	**8%**	**9%**	**34,268**
East Leg	Inbound	210	412			
East Leg	Outbound	161	250			
East Leg	**TOTAL**	**371**	**662**	**13%**	**24%**	**2,787**
West Leg	Inbound	110	90			
West Leg	Outbound	100	90			
West Leg	**TOTAL**	**210**	**180**	**#DIV/0!**	**#DIV/0!**	**-**
OVERALL TOTAL		***6,022***	***7,200***	***8%***	***10%***	***72,489***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[15_US-395_Three Flags.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: US-395 & Joshua St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	8	9	2	20%	25	15	-10	-39%
	Through	742	765	23	3%	1,222	1,552	330	27%
	Right	59	24	-35	-59%	87	32	-55	-63%
	NB Total	808	798	-10	-1%	1,333	1,599	266	20%
SOUTH BOUND	Left	101	207	107	106%	68	123	56	82%
	Through	1,049	1,457	409	39%	857	824	-33	-4%
	Right	33	187	154	467%	21	66	45	214%
	SB Total	1,182	1,851	669	57%	946	1,013	68	7%
EAST BOUND	Left	26	62	37	143%	53	175	123	233%
	Through	30	29	-1	-3%	47	45	-2	-3%
	Right	3	2	-1	-33%	10	5	-5	-50%
	EB Total	59	93	35	59%	109	225	116	106%
WEST BOUND	Left	92	38	-54	-58%	81	51	-30	-37%
	Through	12	20	9	74%	19	39	20	105%
	Right	103	160	57	55%	114	473	359	315%
	WB Total	206	218	12	6%	214	563	349	163%
TOTAL ENTERING VOLUME		2,255	2,960	705.5	31%	2,602	3,400	799	31%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	1,851	1,013			
North Leg	Outbound	987	2,200			
North Leg	**TOTAL**	**2,838**	**3,213**	**8%**	**9%**	**33,880**
South Leg	Inbound	798	1,599			
South Leg	Outbound	1,497	880			
South Leg	**TOTAL**	**2,295**	**2,479**	**11%**	**11%**	**21,642**
East Leg	Inbound	218	563			
East Leg	Outbound	260	200			
East Leg	**TOTAL**	**478**	**763**	**5%**	**8%**	**9,904**
West Leg	Inbound	93	225			
West Leg	Outbound	216	120			
West Leg	**TOTAL**	**309**	**345**	**3%**	**4%**	**9,451**
OVERALL TOTAL		***5,920***	***6,800***	***8%***	***9%***	***74,877***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[16_US-395_Joshua.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 1278
Scenario: Horizon Year (2040) Analyst: CP
Date: 1/14/20

LOCATION: Cataba Rd. & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
SOUTH BOUND	Left	1	0	-1	-100%	1	0	-1	-100%
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	1	0	-1	-100%	1	0	-1	-100%
	SB Total	2	0	-2	-100%	2	0	-2	-100%
EAST BOUND	Left	1	0	-1	-100%	1	32	31	3100%
	Through	3	310	307	10233%	3	981	978	32600%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	4	310	306	7650%	4	1,013	1,009	25225%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	3	890	887	29567%	3	398	395	13167%
	Right	1	0	-1	-100%	1	8	7	700%
	WB Total	4	890	886	22150%	4	406	402	10050%
TOTAL ENTERING VOLUME		10	1,200	1190	11900%	10	1,419	1409	14090%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	0	0			
North Leg	Outbound	0	40			
North Leg	**TOTAL**	**0**	**40**	**0%**	**27%**	**149**
South Leg	Inbound	0	0			
South Leg	Outbound	0	0			
South Leg	**TOTAL**	**0**	**0**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	890	406			
East Leg	Outbound	310	981			
East Leg	**TOTAL**	**1,200**	**1,387**	**7%**	**8%**	**18,020**
West Leg	Inbound	310	1,013			
West Leg	Outbound	890	398			
West Leg	**TOTAL**	**1,200**	**1,411**	**7%**	**8%**	**18,165**
OVERALL TOTAL		***2,400***	***2,838***	***7%***	***8%***	***36,334***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[18_US 395 & Cataba - SEMI.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: Key Point Av./I-15 SB On-Ramp & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	11	6	-5	-43%	29	11	-18	-62%
	Through	11	12	1	9%	71	88	17	24%
	Right	78	86	8	10%	230	235	5	2%
	NB Total	100	104	5	5%	330	334	4	1%
SOUTH BOUND	Left	143	522	379	265%	222	483	261	118%
	Through	26	34	8	31%	84	81	-3	-4%
	Right	15	26	12	79%	31	24	-7	-21%
	SB Total	184	582	399	217%	337	588	252	75%
EAST BOUND	Left	30	22	-8	-25%	55	85	31	56%
	Through	863	632	-231	-27%	902	1,162	260	29%
	Right	12	3	-9	-75%	24	14	-10	-42%
	EB Total	904	657	-247	-27%	981	1,261	281	29%
WEST BOUND	Left	138	143	6	4%	215	225	11	5%
	Through	651	929	278	43%	1,092	925	-167	-15%
	Right	107	316	209	195%	213	607	395	186%
	WB Total	896	1,388	493	55%	1,519	1,757	239	16%
TOTAL ENTERING VOLUME		2,083	2,731	648.5	31%	3,166	3,940	775	24%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	582	588			
North Leg	Outbound	350	780			
North Leg	**TOTAL**	**932**	**1,368**	**6%**	**9%**	**14,701**
South Leg	Inbound	104	334			
South Leg	Outbound	180	320			
South Leg	**TOTAL**	**284**	**654**	**6%**	**14%**	**4,707**
East Leg	Inbound	1,388	1,757			
East Leg	Outbound	1,240	1,880			
East Leg	**TOTAL**	**2,628**	**3,637**	**8%**	**11%**	**32,628**
West Leg	Inbound	657	1,261			
West Leg	Outbound	961	960			
West Leg	**TOTAL**	**1,618**	**2,221**	**9%**	**12%**	**18,016**
OVERALL TOTAL		***5,462***	***7,880***	***8%***	***11%***	***70,052***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[19_Key Point & Main.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: I-15 SB Ramps & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	NB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
SOUTH BOUND	Left	307	333	26	8%	540	607	67	12%
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	173	228	56	32%	393	413	21	5%
	SB Total	480	561	82	17%	933	1,020	88	9%
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	982	1,137	155	16%	1,225	1,753	529	43%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	EB Total	982	1,137	155	16%	1,225	1,753	529	43%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	709	1,142	433	61%	1,128	1,377	250	22%
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	WB Total	709	1,142	433	61%	1,128	1,377	250	22%
TOTAL ENTERING VOLUME		2,171	2,840	669.5	31%	3,285	4,150	866	26%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	561	1,020			
North Leg	Outbound	0	0			
North Leg	**TOTAL**	**561**	**1,020**	**9%**	**17%**	**6,039**
South Leg	Inbound	0	0			
South Leg	Outbound	0	0			
South Leg	**TOTAL**	**0**	**0**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	1,142	1,377			
East Leg	Outbound	1,470	2,360			
East Leg	**TOTAL**	**2,612**	**3,737**	**8%**	**12%**	**32,137**
West Leg	Inbound	1,137	1,753			
West Leg	Outbound	1,370	1,790			
West Leg	**TOTAL**	**2,507**	**3,543**	**8%**	**11%**	**32,628**
OVERALL TOTAL		***5,680***	***8,300***	**8%**	***12%***	***70,804***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[20_I-15 SB Ramps & Main.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: I-15 NB Ramps & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	78	123	46	59%	179	217	38	21%
	Through	6	8	3	45%	0	0	0	#DIV/0!
	Right	387	402	15	4%	831	706	-125	-15%
	NB Total	470	533	63	13%	1,010	923	-87	-9%
SOUTH BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Right	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	SB Total	0	0	0	#DIV/0!	0	0	0	#DIV/0!
EAST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	998	1,202	204	20%	1,544	2,109	565	37%
	Right	291	291	0	0%	221	220	-1	0%
	EB Total	1,289	1,493	204	16%	1,765	2,329	565	32%
WEST BOUND	Left	0	0	0	#DIV/0!	0	0	0	#DIV/0!
	Through	1,191	1,621	430	36%	1,307	1,527	221	17%
	Right	453	554	102	22%	396	541	145	37%
	WB Total	1,644	2,175	532	32%	1,703	2,068	366	21%
TOTAL ENTERING VOLUME		3,403	4,201	798.5	23%	4,477	5,320	844	19%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	0	0			
North Leg	Outbound	562	541			
North Leg	**TOTAL**	**562**	**541**	**9%**	**9%**	**5,983**
South Leg	Inbound	533	923			
South Leg	Outbound	291	220			
South Leg	**TOTAL**	**824**	**1,143**	**7%**	**10%**	**11,734**
East Leg	Inbound	2,175	2,068			
East Leg	Outbound	1,604	2,815			
East Leg	**TOTAL**	**3,779**	**4,883**	**8%**	**10%**	**46,819**
West Leg	Inbound	1,493	2,329			
West Leg	Outbound	1,744	1,744			
West Leg	**TOTAL**	**3,237**	**4,073**	**8%**	**11%**	**38,459**
OVERALL TOTAL		***8,402***	***10,640***	***8%***	***10%***	***102,995***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[21_I-15 NB Ramps & Main.xls]Output (3)

Project:	Hesperia Commerce Center II (JN:12778)	Job #:	12778
Scenario:	Horizon Year (2040) Without Project	Analyst:	CP
		Date:	11/20/18

LOCATION: Mariposa Rd. & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	71	105	35	49%	129	204	76	59%
	Through	38	55	17	45%	77	114	38	49%
	Right	35	40	6	16%	69	95	27	39%
	NB Total	143	200	57	40%	274	413	140	51%
SOUTH BOUND	Left	35	33	-2	-6%	132	153	22	16%
	Through	48	58	10	21%	53	78	26	49%
	Right	172	209	38	22%	184	244	60	33%
	SB Total	255	300	46	18%	368	475	107	29%
EAST BOUND	Left	127	173	46	36%	231	287	57	25%
	Through	1,159	1,273	114	10%	1,992	2,312	321	16%
	Right	99	139	40	40%	153	226	74	48%
	EB Total	1,385	1,585	200	14%	2,375	2,825	451	19%
WEST BOUND	Left	43	56	13	30%	84	107	23	27%
	Through	1,460	1,903	443	30%	1,331	1,512	182	14%
	Right	28	35	7	25%	102	109	7	7%
	WB Total	1,531	1,994	463	30%	1,517	1,728	212	14%
TOTAL ENTERING VOLUME		3,314	4,079	765.5	23%	4,533	5,441	909	20%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	300	475			
North Leg	Outbound	263	510			
North Leg	**TOTAL**	**563**	**985**	**5%**	**8%**	**11,833**
South Leg	Inbound	200	413			
South Leg	Outbound	253	411			
South Leg	**TOTAL**	**453**	**824**	**4%**	**7%**	**12,036**
East Leg	Inbound	1,994	1,728			
East Leg	Outbound	1,346	2,560			
East Leg	**TOTAL**	**3,340**	**4,288**	**9%**	**11%**	**38,737**
West Leg	Inbound	1,585	2,825			
West Leg	Outbound	2,217	1,960			
West Leg	**TOTAL**	**3,802**	**4,785**	**8%**	**10%**	**46,819**
OVERALL TOTAL		***8,158***	***10,882***	***7%***	***10%***	***109,425***

U:\UcJobs_12600-13000_12700\12778\Post Processing\[22_Mariposa & Main.xls]Output (3)

Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 11/20/18

LOCATION: Escondido Av. & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	663	754	91	14%	593	647	54	9%
	Through	21	22	1	5%	50	48	-2	-4%
	Right	319	325	6	2%	196	235	40	20%
	NB Total	1,003	1,101	98	10%	839	930	92	11%
SOUTH BOUND	Left	1	1	0	0%	55	57	3	5%
	Through	3	3	0	0%	37	33	-4	-11%
	Right	12	16	4	33%	52	50	-2	-4%
	SB Total	16	20	4	25%	144	140	-4	-2%
EAST BOUND	Left	4	5	1	25%	53	52	-1	-1%
	Through	773	857	84	11%	1,389	1,732	344	25%
	Right	355	347	-8	-2%	659	697	38	6%
	EB Total	1,132	1,209	78	7%	2,100	2,481	381	18%
WEST BOUND	Left	267	291	24	9%	408	422	14	3%
	Through	969	1,336	368	38%	1,063	1,177	114	11%
	Right	3	4	1	33%	10	10	0	0%
	WB Total	1,239	1,631	393	32%	1,481	1,609	128	9%
TOTAL ENTERING VOLUME		3,389	3,961	572	17%	4,563	5,160	597	13%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	20	140			
North Leg	Outbound	31	110			
North Leg	**TOTAL**	**51**	**250**	**#DIV/0!**	**#DIV/0!**	**-**
South Leg	Inbound	1,101	930			
South Leg	Outbound	641	1,152			
South Leg	**TOTAL**	**1,742**	**2,082**	**17%**	**20%**	**10,441**
East Leg	Inbound	1,631	1,609			
East Leg	Outbound	1,183	2,024			
East Leg	**TOTAL**	**2,814**	**3,633**	**9%**	**11%**	**32,305**
West Leg	Inbound	1,209	2,481			
West Leg	Outbound	2,106	1,874			
West Leg	**TOTAL**	**3,315**	**4,355**	**9%**	**11%**	**38,180**
OVERALL TOTAL		***7,922***	***10,320***	**10%**	***13%***	***80,926***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Analyst: CP
Date: 1/14/20

LOCATION: Escondido Av. & Sultana St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	1	45	44	4400%	1	19	18	1800%
	Through	2	426	424	21200%	2	299	297	14850%
	Right	1	13	12	1200%	1	23	22	2200%
	NB Total	4	484	480	12000%	4	341	337	8425%
SOUTH BOUND	Left	1	15	14	1400%	1	45	44	4400%
	Through	2	188	186	9300%	2	396	394	19700%
	Right	1	52	51	5100%	1	37	36	3600%
	SB Total	4	255	251	6275%	4	478	474	11850%
EAST BOUND	Left	1	21	20	2000%	1	81	80	8000%
	Through	1	1	0	0%	1	13	12	1200%
	Right	1	8	7	700%	1	56	55	5500%
	EB Total	3	30	27	900%	3	150	147	4900%
WEST BOUND	Left	1	24	23	2300%	1	23	22	2200%
	Through	1	13	12	1200%	1	4	3	300%
	Right	1	63	62	6200%	1	33	32	3200%
	WB Total	3	100	97	3233%	3	60	57	1900%
TOTAL ENTERING VOLUME		14	869	855	6107%	14	1,029	1015	7250%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	255	478			
North Leg	Outbound	510	413			
North Leg	**TOTAL**	**765**	**891**	**7%**	**9%**	**10,441**
South Leg	Inbound	484	341			
South Leg	Outbound	220	475			
South Leg	**TOTAL**	**704**	**816**	**7%**	**8%**	**9,829**
East Leg	Inbound	100	60			
East Leg	Outbound	29	81			
East Leg	**TOTAL**	**129**	**141**	**7%**	**8%**	**1,854**
West Leg	Inbound	30	150			
West Leg	Outbound	110	60			
West Leg	**TOTAL**	**140**	**210**	**7%**	**10%**	**2,066**
OVERALL TOTAL		***1,738***	***2,058***	***7%***	***9%***	***24,190***

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Project: Hesperia Commerce Center II (JN:12778) Job #: 12778
Scenario: Horizon Year (2040) Without Project Analyst: CP
Date: 1/24/20

LOCATION: Topaz Av. & Main St.
FORECAST YEAR: 2040

INDIVIDUAL TURN VOLUME GROWTH REVIEW

		AM PEAK HOUR INPUT DATA				PM PEAK HOUR INPUT DATA			
APPROACH	TURNING MOVEMENT	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE	EXISTING COUNT	FUTURE VOLUME	DIFF-ERENCE	% CHANGE
NORTH BOUND	Left	165	175	10	6%	208	211	3	1%
	Through	80	85	5	6%	32	34	2	6%
	Right	58	41	-17	-29%	94	85	-9	-9%
	NB Total	303	301	-2	0%	334	330	-4	-1%
SOUTH BOUND	Left	95	95	1	1%	61	75	14	23%
	Through	62	60	-2	-2%	35	37	2	6%
	Right	70	104	34	49%	43	58	15	35%
	SB Total	226	259	33	15%	139	170	31	22%
EAST BOUND	Left	40	60	20	50%	62	88	26	42%
	Through	961	984	24	2%	1,386	1,690	305	22%
	Right	81	81	0	0%	216	226	10	5%
	EB Total	1,082	1,125	44	4%	1,664	2,004	341	20%
WEST BOUND	Left	32	29	-3	-9%	102	87	-15	-15%
	Through	964	1,301	338	35%	1,149	1,261	113	10%
	Right	93	125	33	35%	67	77	10	15%
	WB Total	1,088	1,455	367	34%	1,318	1,425	108	8%
TOTAL ENTERING VOLUME		2,698	3,140	442	16%	3,454	3,929	476	14%

FORECAST PEAK HOUR TO ADT COMPARISON

		VOLUMES		PERCENT OF ADT		
		AM	PM	AM	PM	ADT
North Leg	Inbound	259	170			
North Leg	Outbound	270	199			
North Leg	**TOTAL**	**529**	**369**	**16%**	**11%**	**3,350**
South Leg	Inbound	301	330			
South Leg	Outbound	170	350			
South Leg	**TOTAL**	**471**	**680**	**#DIV/0!**	**#DIV/0!**	**-**
East Leg	Inbound	1,455	1,425			
East Leg	Outbound	1,120	1,850			
East Leg	**TOTAL**	**2,575**	**3,275**	**9%**	**11%**	**29,467**
West Leg	Inbound	1,125	2,004			
West Leg	Outbound	1,580	1,530			
West Leg	**TOTAL**	**2,705**	**3,534**	**8%**	**11%**	**32,730**
OVERALL TOTAL		***6,280***	***7,858***	**10%**	***12%***	***65,547***

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APPENDIX 5.1:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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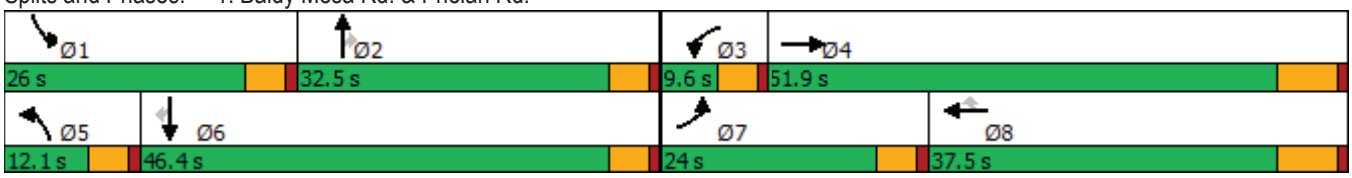
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	155	588	15	341	146	36	72	69	208	49	185
Future Volume (vph)	155	588	15	341	146	36	72	69	208	49	185
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	14.8	47.8	5.1	31.8	31.8	6.5	13.3	13.3	18.6	29.8	29.8
Actuated g/C Ratio	0.15	0.48	0.05	0.32	0.32	0.07	0.13	0.13	0.19	0.30	0.30
v/c Ratio	0.75	0.43	0.21	0.36	0.28	0.40	0.35	0.21	0.80	0.11	0.35
Control Delay	61.3	19.9	56.7	29.2	5.3	59.5	44.2	1.3	60.1	28.1	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.3	19.9	56.7	29.2	5.3	59.5	44.2	1.3	60.1	28.1	5.6
LOS	E	B	E	C	A	E	D	A	E	C	A
Approach Delay		28.2		23.0			30.7			33.8	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 28.4	Intersection LOS: C
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	588	23	15	341	146	36	72	69	208	49	185
Future Volume (veh/h)	155	588	23	15	341	146	36	72	69	208	49	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	180	684	17	17	397	114	42	84	52	242	57	108
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	210	1595	40	83	1333	594	57	185	157	273	426	361
Arrive On Green	0.13	0.47	0.47	0.05	0.39	0.39	0.03	0.10	0.10	0.17	0.24	0.24
Sat Flow, veh/h	1619	3410	85	1619	3420	1525	1619	1800	1525	1619	1800	1525
Grp Volume(v), veh/h	180	343	358	17	397	114	42	84	52	242	57	108
Grp Sat Flow(s),veh/h/ln	1619	1710	1785	1619	1710	1525	1619	1800	1525	1619	1800	1525
Q Serve(g_s), s	10.6	13.0	13.0	1.0	7.8	4.8	2.5	4.3	3.1	14.2	2.4	5.6
Cycle Q Clear(g_c), s	10.6	13.0	13.0	1.0	7.8	4.8	2.5	4.3	3.1	14.2	2.4	5.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	210	800	835	83	1333	594	57	185	157	273	426	361
V/C Ratio(X)	0.86	0.43	0.43	0.20	0.30	0.19	0.74	0.45	0.33	0.89	0.13	0.30
Avail Cap(c_a), veh/h	324	800	835	83	1333	594	125	518	439	357	775	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	17.2	17.2	44.1	20.4	19.5	46.4	40.9	40.4	39.5	29.2	30.4
Incr Delay (d2), s/veh	8.4	1.7	1.6	0.4	0.6	0.7	7.0	1.7	1.2	16.1	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.8	5.0	0.4	2.9	1.6	1.1	2.0	1.1	6.8	1.1	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	18.9	18.8	44.6	21.0	20.2	53.4	42.7	41.6	55.6	29.4	30.9
LnGrp LOS	D	B	B	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		881			528			178			407	
Approach Delay, s/veh		25.1			21.6			44.9			45.4	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.9	14.6	9.6	51.9	8.0	27.5	17.2	44.3
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	16.2	6.3	3.0	15.0	4.5	7.6	12.6	9.8
Green Ext Time (p_c), s	0.2	0.6	0.0	3.8	0.0	0.7	0.1	2.5

Intersection Summary	
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	891	6	5	458	1	16	0	19	15	0	9
Future Vol, veh/h	3	891	6	5	458	1	16	0	19	15	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	1036	7	6	533	1	19	0	22	17	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	534	0	0	1043	0	0	1593	1588	1036	1602	1594	533
Stage 1	-	-	-	-	-	-	1042	1042	-	545	545	-
Stage 2	-	-	-	-	-	-	551	546	-	1057	1049	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1044	-	-	675	-	-	87	109	284	86	108	551
Stage 1	-	-	-	-	-	-	280	309	-	526	522	-
Stage 2	-	-	-	-	-	-	522	521	-	275	307	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1044	-	-	675	-	-	85	108	284	79	107	551
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	221	-	183	217	-
Stage 1	-	-	-	-	-	-	279	308	-	524	517	-
Stage 2	-	-	-	-	-	-	508	516	-	253	306	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	23.2	21.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	238	1044	-	-	675	-	-	244
HCM Lane V/C Ratio	0.171	0.003	-	-	0.009	-	-	0.114
HCM Control Delay (s)	23.2	8.5	-	-	10.4	-	-	21.7
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	884	10	3	452	14	6
Future Vol, veh/h	884	10	3	452	14	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1016	11	3	520	16	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1027	0	1548	1022
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	526	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	684	-	127	289
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	597	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	684	-	126	289
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	350	-
Stage 2	-	-	-	-	595	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	20
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	263	-	-	684	-
HCM Lane V/C Ratio	0.087	-	-	0.005	-
HCM Control Delay (s)	20	-	-	10.3	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	↰	
Traffic Vol, veh/h	0	890	447	400	12	7
Future Vol, veh/h	0	890	447	400	12	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	967	486	435	13	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1453	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	967	-
Critical Hdwy	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	145	585
Stage 1	0	-	-	-	623	-
Stage 2	0	-	-	-	372	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	145	585
Mov Cap-2 Maneuver	-	-	-	-	273	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	372	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	340
HCM Lane V/C Ratio	-	-	-	0.061
HCM Control Delay (s)	-	-	-	16.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	161	3	0	42
Future Vol, veh/h	1	0	161	3	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	175	3	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	354	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	648	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	579	1090
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1090	-	-	1635	-
HCM Lane V/C Ratio	0.042	-	-	0.107	-
HCM Control Delay (s)	8.4	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	0	271	164	0	50
Future Vol, veh/h	43	0	271	164	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	47	0	295	178	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	815	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	768	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1573	-	350	1028
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1573	-	284	1028
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	374	-

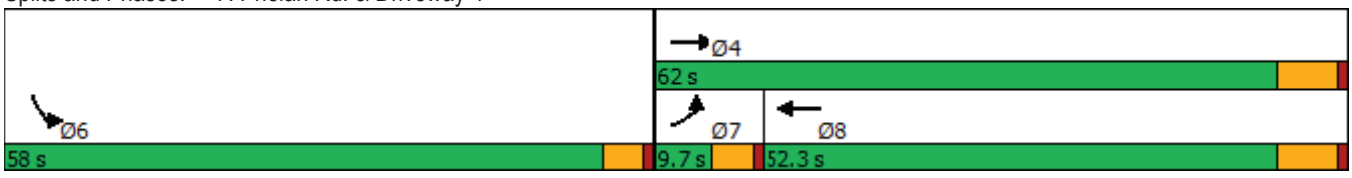
Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1028	-	-	1573	-
HCM Lane V/C Ratio	0.053	-	-	0.187	-
HCM Control Delay (s)	8.7	-	-	7.8	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	86	816	840	112
Future Volume (vph)	86	816	840	112
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	9.7	62.0	52.3	58.0
Total Split (%)	8.1%	51.7%	43.6%	48.3%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	5.1	55.7	46.0	13.1
Actuated g/C Ratio	0.06	0.70	0.58	0.16
v/c Ratio	0.90	0.37	0.77	0.49
Control Delay	108.3	6.0	16.7	35.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	108.3	6.0	16.7	35.5
LOS	F	A	B	D
Approach Delay		15.7	16.7	35.5
Approach LOS		B	B	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 79.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	86	816	840	440	112	7
Future Volume (veh/h)	86	816	840	440	112	7
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1700	1800	1700	1800	1700	1800
Adj Flow Rate, veh/h	93	887	913	478	122	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	109	2498	1243	640	185	12
Arrive On Green	0.07	0.73	0.60	0.60	0.12	0.12
Sat Flow, veh/h	1619	3510	2147	1062	1497	98
Grp Volume(v), veh/h	93	887	712	679	131	0
Grp Sat Flow(s),veh/h/ln	1619	1710	1615	1509	1607	0
Q Serve(g_s), s	4.3	7.2	23.8	24.7	5.9	0.0
Cycle Q Clear(g_c), s	4.3	7.2	23.8	24.7	5.9	0.0
Prop In Lane	1.00			0.70	0.93	0.06
Lane Grp Cap(c), veh/h	109	2498	974	910	198	0
V/C Ratio(X)	0.86	0.36	0.73	0.75	0.66	0.00
Avail Cap(c_a), veh/h	109	2498	974	910	1130	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.1	3.7	10.7	10.9	31.8	0.0
Incr Delay (d2), s/veh	43.3	0.4	4.8	5.6	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	1.1	6.9	6.8	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	78.3	4.1	15.5	16.5	35.5	0.0
LnGrp LOS	E	A	B	B	D	A
Approach Vol, veh/h		980	1391		131	
Approach Delay, s/veh		11.2	16.0		35.5	
Approach LOS		B	B		D	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			62.0		14.0	9.7	52.3
Change Period (Y+Rc), s			6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s			55.5		53.4	5.1	45.8
Max Q Clear Time (g_c+I1), s			9.2		7.9	6.3	26.7
Green Ext Time (p_c), s			6.2		0.4	0.0	8.6

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	49	122	68	73	92	36	718	44	210	830	68
Future Volume (vph)	49	122	68	73	92	36	718	44	210	830	68
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	21.3	21.3	21.3	21.3	21.3	5.8	45.4	45.4	17.2	61.1	61.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.06	0.46	0.46	0.17	0.62	0.62
v/c Ratio	0.70	0.33	0.17	0.31	0.84	0.37	0.47	0.06	0.73	0.41	0.07
Control Delay	79.8	34.6	3.7	35.6	41.4	59.9	22.6	0.8	53.9	12.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.8	34.6	3.7	35.6	41.4	59.9	22.6	0.8	53.9	12.7	3.5
LOS	E	C	A	D	D	E	C	A	D	B	A
Approach Delay		35.0			40.5		23.1			19.9	
Approach LOS		D			D		C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 78.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	122	68	73	92	264	36	718	44	210	830	68
Future Volume (veh/h)	49	122	68	73	92	264	36	718	44	210	830	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	53	133	41	79	100	221	39	780	32	228	902	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	148	468	397	315	130	286	59	1675	745	263	2083	929
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.03	0.46	0.46	0.15	0.58	0.58
Sat Flow, veh/h	1134	1900	1610	1298	526	1162	1810	3610	1605	1810	3610	1610
Grp Volume(v), veh/h	53	133	41	79	0	321	39	780	32	228	902	56
Grp Sat Flow(s),veh/h/ln	1134	1900	1610	1298	0	1688	1810	1805	1605	1810	1805	1610
Q Serve(g_s), s	4.7	5.9	2.0	5.5	0.0	18.4	2.2	15.4	1.1	12.8	14.7	1.6
Cycle Q Clear(g_c), s	23.2	5.9	2.0	11.4	0.0	18.4	2.2	15.4	1.1	12.8	14.7	1.6
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	468	397	315	0	416	59	1675	745	263	2083	929
V/C Ratio(X)	0.36	0.28	0.10	0.25	0.00	0.77	0.66	0.47	0.04	0.87	0.43	0.06
Avail Cap(c_a), veh/h	294	712	604	482	0	633	104	1675	745	470	2083	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	31.8	30.3	36.4	0.0	36.5	49.8	19.1	15.2	43.5	12.4	9.6
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.2	0.0	1.4	9.1	0.9	0.1	6.4	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.6	0.8	1.7	0.0	7.5	1.1	5.9	0.4	5.9	5.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	31.9	30.3	36.5	0.0	37.8	58.9	20.0	15.4	49.9	13.1	9.8
LnGrp LOS	D	C	C	D	A	D	E	B	B	D	B	A
Approach Vol, veh/h		227			400			851			1186	
Approach Delay, s/veh		35.3			37.6			21.6			20.0	
Approach LOS		D			D			C			B	

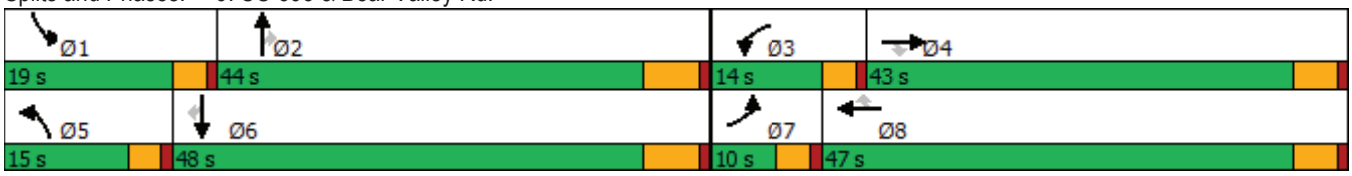
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.1	54.3		30.6	7.4	66.0		30.6				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	14.8	17.4		25.2	4.2	16.7		20.4				
Green Ext Time (p_c), s	0.3	3.8		0.5	0.0	5.1		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		24.5	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	298	165	184	246	93	105	683	101	163	785	22
Future Volume (vph)	41	298	165	184	246	93	105	683	101	163	785	22
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	14.0	47.0	47.0	15.0	44.0	44.0	19.0	48.0	48.0
Total Split (%)	8.3%	35.8%	35.8%	11.7%	39.2%	39.2%	12.5%	36.7%	36.7%	15.8%	40.0%	40.0%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.9	16.1	16.1	10.1	24.5	24.5	9.7	39.2	39.2	13.0	42.5	42.5
Actuated g/C Ratio	0.06	0.16	0.16	0.10	0.25	0.25	0.10	0.40	0.40	0.13	0.44	0.44
v/c Ratio	0.39	0.52	0.42	1.02	0.28	0.20	0.60	0.49	0.15	0.70	0.52	0.03
Control Delay	58.7	39.6	8.2	116.7	31.0	6.5	59.0	25.0	5.8	58.4	23.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	39.6	8.2	116.7	31.0	6.5	59.0	25.0	5.8	58.4	23.3	0.1
LOS	E	D	A	F	C	A	E	C	A	E	C	A
Approach Delay		30.9			56.8			26.8			28.6	
Approach LOS		C			E			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.7	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 33.6	Intersection LOS: C
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	298	165	184	246	93	105	683	101	163	785	22
Future Volume (veh/h)	41	298	165	184	246	93	105	683	101	163	785	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	42	307	89	190	254	62	108	704	77	168	809	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	426	190	205	704	314	138	1588	708	205	1721	768
Arrive On Green	0.04	0.12	0.12	0.11	0.19	0.19	0.08	0.44	0.44	0.11	0.48	0.48
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	42	307	89	190	254	62	108	704	77	168	809	17
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.0	7.2	4.5	9.2	5.4	2.8	5.2	12.0	2.5	8.0	13.3	0.5
Cycle Q Clear(g_c), s	2.0	7.2	4.5	9.2	5.4	2.8	5.2	12.0	2.5	8.0	13.3	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	426	190	205	704	314	138	1588	708	205	1721	768
V/C Ratio(X)	0.64	0.72	0.47	0.92	0.36	0.20	0.78	0.44	0.11	0.82	0.47	0.02
Avail Cap(c_a), veh/h	123	1557	695	205	1721	768	226	1588	708	308	1721	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	37.5	36.3	38.7	30.7	29.7	40.0	17.2	14.5	38.2	15.5	12.2
Incr Delay (d2), s/veh	7.3	0.9	0.7	42.0	0.1	0.1	7.1	0.9	0.3	8.6	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.0	1.7	6.2	2.2	1.0	2.4	4.4	0.8	3.8	4.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.2	38.3	36.9	80.7	30.8	29.8	47.1	18.1	14.8	46.8	16.5	12.2
LnGrp LOS	D	D	D	F	C	C	D	B	B	D	B	B
Approach Vol, veh/h		438			506			889			994	
Approach Delay, s/veh		39.1			49.4			21.3			21.5	
Approach LOS		D			D			C			C	

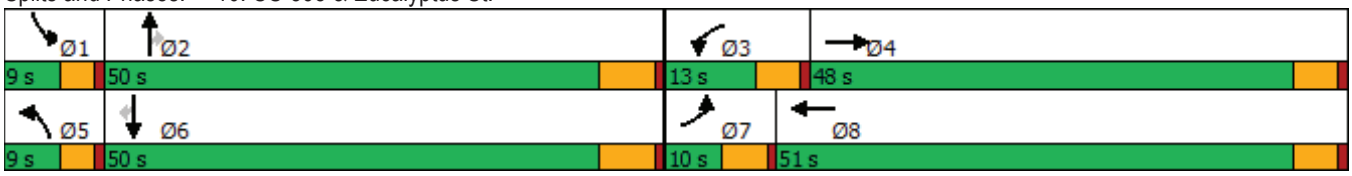
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	44.7	14.0	15.4	10.7	48.0	7.2	22.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	15.0	38.0	10.0	38.0	11.0	42.0	6.0	42.0
Max Q Clear Time (g_c+I1), s	10.0	14.0	11.2	9.2	7.2	15.3	4.0	7.4
Green Ext Time (p_c), s	0.1	2.7	0.0	1.2	0.1	3.1	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	5	92	6	8	848	61	4	1151	8
Future Volume (vph)	9	5	92	6	8	848	61	4	1151	8
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.7	18.3	5.2	52.1	52.1	5.2	52.1	52.1
Actuated g/C Ratio	0.06	0.18	0.11	0.22	0.06	0.62	0.62	0.06	0.62	0.62
v/c Ratio	0.09	0.09	0.48	0.07	0.08	0.41	0.06	0.04	0.56	0.01
Control Delay	46.1	13.3	47.6	11.4	46.0	13.6	1.9	45.8	15.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	13.3	47.6	11.4	46.0	13.6	1.9	45.8	15.7	0.0
LOS	D	B	D	B	D	B	A	D	B	A
Approach Delay		22.0		39.6		13.1			15.7	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 84.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 16.0	Intersection LOS: B
Intersection Capacity Utilization 53.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	5	21	92	6	20	8	848	61	4	1151	8
Future Volume (veh/h)	9	5	21	92	6	20	8	848	61	4	1151	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	10	5	15	99	6	11	9	912	62	4	1238	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	23	37	110	127	87	160	21	2084	929	10	2062	920
Arrive On Green	0.01	0.09	0.09	0.07	0.15	0.15	0.01	0.58	0.58	0.01	0.57	0.57
Sat Flow, veh/h	1810	419	1256	1810	600	1100	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	10	0	20	99	0	17	9	912	62	4	1238	8
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1810	0	1699	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.4	0.0	0.9	4.1	0.0	0.7	0.4	11.0	1.3	0.2	17.2	0.2
Cycle Q Clear(g_c), s	0.4	0.0	0.9	4.1	0.0	0.7	0.4	11.0	1.3	0.2	17.2	0.2
Prop In Lane	1.00		0.75	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	0	146	127	0	247	21	2084	929	10	2062	920
V/C Ratio(X)	0.44	0.00	0.14	0.78	0.00	0.07	0.44	0.44	0.07	0.42	0.60	0.01
Avail Cap(c_a), veh/h	117	0	934	188	0	1015	117	2084	929	117	2062	920
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	0.0	32.5	35.2	0.0	28.4	37.8	9.2	7.2	38.2	10.8	7.1
Incr Delay (d2), s/veh	5.0	0.0	0.4	6.0	0.0	0.1	5.3	0.7	0.1	10.2	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	1.9	0.0	0.3	0.2	3.3	0.4	0.1	6.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	32.9	41.3	0.0	28.5	43.2	9.9	7.3	48.4	12.1	7.1
LnGrp LOS	D	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		30			116			983			1250	
Approach Delay, s/veh		36.2			39.4			10.0			12.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	50.5	10.4	11.7	4.9	50.0	6.0	16.2
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.2	13.0	6.1	2.9	2.4	19.2	2.4	2.7
Green Ext Time (p_c), s	0.0	6.4	0.0	0.1	0.0	10.9	0.0	0.1

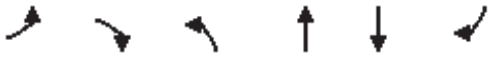
Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	324	969	1175
Future Volume (vph)	19	74	324	969	1175
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	16.5	23.5
Total Split (s)	22.6	22.6	23.0	97.4	74.4
Total Split (%)	18.8%	18.8%	19.2%	81.2%	62.0%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	11.5	11.5	18.5	92.8	68.2
Actuated g/C Ratio	0.10	0.10	0.17	0.84	0.62
v/c Ratio	0.11	0.34	1.20	0.68	1.23
Control Delay	47.2	14.2	157.4	7.9	135.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	14.2	157.4	7.9	135.8
LOS	D	B	F	A	F
Approach Delay	20.9			45.3	135.8
Approach LOS	C			D	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.7	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 88.0	Intersection LOS: F
Intersection Capacity Utilization 107.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	324	969	1175	111
Future Volume (veh/h)	19	74	324	969	1175	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	60	360	1077	1306	123
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	149	133	299	1553	1044	98
Arrive On Green	0.08	0.08	0.17	0.82	0.61	0.61
Sat Flow, veh/h	1810	1610	1810	1900	1710	161
Grp Volume(v), veh/h	21	60	360	1077	0	1429
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1871
Q Serve(g_s), s	1.2	3.9	18.4	26.5	0.0	67.9
Cycle Q Clear(g_c), s	1.2	3.9	18.4	26.5	0.0	67.9
Prop In Lane	1.00	1.00	1.00			0.09
Lane Grp Cap(c), veh/h	149	133	299	1553	0	1143
V/C Ratio(X)	0.14	0.45	1.20	0.69	0.00	1.25
Avail Cap(c_a), veh/h	293	261	299	1553	0	1143
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.3	48.6	46.4	4.3	0.0	21.6
Incr Delay (d2), s/veh	0.4	2.4	118.4	2.6	0.0	120.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	17.7	5.1	0.0	61.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.8	51.0	164.8	6.8	0.0	141.8
LnGrp LOS	D	D	F	A	A	F
Approach Vol, veh/h	81			1437	1429	
Approach Delay, s/veh	50.1			46.4	141.8	
Approach LOS	D			D	F	

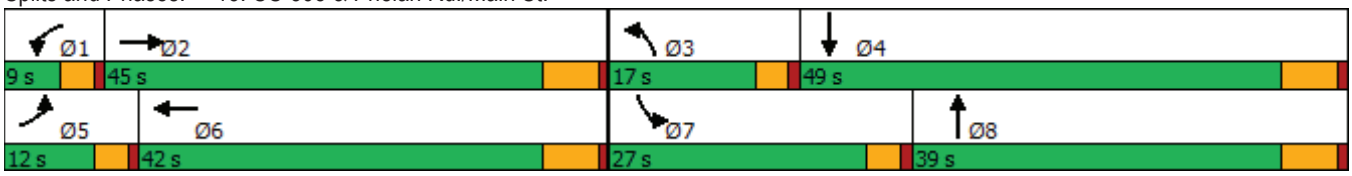
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.4		13.8	23.0	74.4
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		90.9		18.0	18.4	67.9
Max Q Clear Time (g_c+I1), s		28.5		5.9	20.4	69.9
Green Ext Time (p_c), s		10.5		0.1	0.0	0.0

Intersection Summary						
HCM 6th Ctrl Delay			92.8			
HCM 6th LOS			F			

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	761	4	1072	178	794	264	955
Future Volume (vph)	47	761	4	1072	178	794	264	955
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.1	43.6	5.1	36.4	13.1	31.4	20.3	38.6
Actuated g/C Ratio	0.06	0.39	0.05	0.32	0.12	0.28	0.18	0.34
v/c Ratio	0.43	0.67	0.05	1.39	0.89	0.84	0.85	0.84
Control Delay	65.9	32.3	56.8	210.1	90.1	48.0	69.6	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	32.3	56.8	210.1	90.1	48.0	69.6	41.6
LOS	E	C	E	F	F	D	E	D
Approach Delay		34.0		209.7		55.6		47.5
Approach LOS		C		F		E		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 113.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 99.4	Intersection LOS: F
Intersection Capacity Utilization 94.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	761	121	4	1072	452	178	794	9	264	955	31
Future Volume (veh/h)	47	761	121	4	1072	452	178	794	9	264	955	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	49	793	81	4	1117	391	185	827	9	275	995	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	64	1202	123	9	878	302	214	1011	11	307	1175	33
Arrive On Green	0.04	0.36	0.36	0.01	0.33	0.33	0.12	0.28	0.28	0.17	0.33	0.33
Sat Flow, veh/h	1810	3307	338	1810	2636	906	1810	3658	40	1810	3586	101
Grp Volume(v), veh/h	49	433	441	4	759	749	185	408	428	275	501	522
Grp Sat Flow(s),veh/h/ln	1810	1805	1839	1810	1805	1737	1810	1805	1893	1810	1805	1882
Q Serve(g_s), s	2.9	21.7	21.7	0.2	36.0	36.0	10.8	22.8	22.8	16.1	27.9	27.9
Cycle Q Clear(g_c), s	2.9	21.7	21.7	0.2	36.0	36.0	10.8	22.8	22.8	16.1	27.9	27.9
Prop In Lane	1.00		0.18	1.00		0.52	1.00		0.02	1.00		0.05
Lane Grp Cap(c), veh/h	64	656	669	9	601	579	214	499	523	307	591	617
V/C Ratio(X)	0.76	0.66	0.66	0.42	1.26	1.30	0.86	0.82	0.82	0.90	0.85	0.85
Avail Cap(c_a), veh/h	134	656	669	84	601	579	218	551	578	385	718	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	28.8	28.8	53.6	36.0	36.0	46.8	36.5	36.5	43.9	33.8	33.8
Incr Delay (d2), s/veh	12.7	2.4	2.4	20.6	130.7	145.3	27.4	9.0	8.6	18.8	8.3	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	9.0	9.2	0.2	36.3	37.2	6.3	10.6	11.0	8.4	12.6	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	31.2	31.2	74.2	166.7	181.3	74.1	45.5	45.1	62.7	42.1	41.8
LnGrp LOS	E	C	C	E	F	F	E	D	D	E	D	D
Approach Vol, veh/h		923			1512			1021			1298	
Approach Delay, s/veh		33.0			173.7			50.5			46.3	
Approach LOS		C			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.6	45.3	16.8	41.4	7.9	42.0	22.3	35.9
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	2.2	23.7	12.8	29.9	4.9	38.0	18.1	24.8
Green Ext Time (p_c), s	0.0	4.2	0.0	5.5	0.0	0.0	0.3	3.3

Intersection Summary	
HCM 6th Ctrl Delay	85.1
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	971	13	24	1054
Future Vol, veh/h	5	9	971	13	24	1054
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	1044	14	26	1133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2236	529	0	0	1058	0
Stage 1	1051	-	-	-	-	-
Stage 2	1185	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	42	499	-	-	666	-
Stage 1	302	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	499	-	-	666	-
Mov Cap-2 Maneuver	40	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	282	-	-	-	-	-

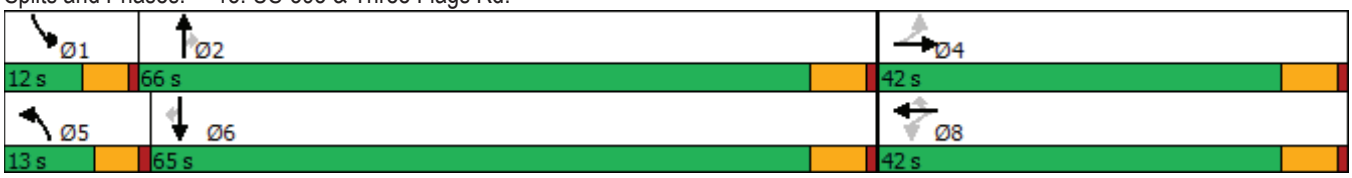
Approach	WB	NB	SB
HCM Control Delay, s	46.7	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	40	499	666	-
HCM Lane V/C Ratio	-	-	0.134	0.019	0.039	-
HCM Control Delay (s)	-	-	108.5	12.4	10.6	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	24	1	165	2	41	23	918	101	20	966	73
Future Volume (vph)	24	1	165	2	41	23	918	101	20	966	73
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	13.0	66.0	66.0	12.0	65.0	65.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	10.8%	55.0%	55.0%	10.0%	54.2%	54.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.4	17.4	17.4	17.4	17.4	6.1	60.8	60.8	5.8	60.6	60.6
Actuated g/C Ratio	0.18	0.18	0.18	0.18	0.18	0.06	0.64	0.64	0.06	0.64	0.64
v/c Ratio	0.10	0.24	0.73	0.01	0.13	0.22	0.43	0.10	0.20	0.45	0.07
Control Delay	33.4	9.4	54.8	32.0	3.7	50.5	10.8	2.6	50.8	11.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	9.4	54.8	32.0	3.7	50.5	10.8	2.6	50.8	11.3	3.0
LOS	C	A	D	C	A	D	B	A	D	B	A
Approach Delay		14.8		44.4			10.9			11.5	
Approach LOS		B		D			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.5	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 57.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	1	81	165	2	41	23	918	101	20	966	73
Future Volume (veh/h)	24	1	81	165	2	41	23	918	101	20	966	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	26	1	51	179	2	36	25	998	98	22	1050	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	325	5	272	284	326	276	46	2265	1009	42	2257	1007
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.03	0.63	0.63	0.02	0.63	0.63
Sat Flow, veh/h	1464	31	1584	1450	1900	1605	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	26	0	52	179	2	36	25	998	98	22	1050	58
Grp Sat Flow(s),veh/h/ln	1464	0	1615	1450	1900	1605	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	1.4	0.0	2.6	11.5	0.1	1.8	1.3	13.6	2.3	1.1	14.7	1.3
Cycle Q Clear(g_c), s	1.5	0.0	2.6	14.2	0.1	1.8	1.3	13.6	2.3	1.1	14.7	1.3
Prop In Lane	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	325	0	277	284	326	276	46	2265	1009	42	2257	1007
V/C Ratio(X)	0.08	0.00	0.19	0.63	0.01	0.13	0.54	0.44	0.10	0.53	0.47	0.06
Avail Cap(c_a), veh/h	625	0	608	581	715	604	151	2265	1009	132	2257	1007
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	0.0	33.9	40.0	32.8	33.6	46.1	9.2	7.1	46.2	9.5	7.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.1	3.7	0.6	0.2	3.8	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.0	4.1	0.0	0.7	0.6	4.3	0.7	0.5	4.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.5	0.0	34.0	40.8	32.8	33.6	49.8	9.8	7.3	49.9	10.2	7.1
LnGrp LOS	C	A	C	D	C	C	D	A	A	D	B	A
Approach Vol, veh/h		78			217			1121			1130	
Approach Delay, s/veh		33.8			39.5			10.5			10.8	
Approach LOS		C			D			B			B	

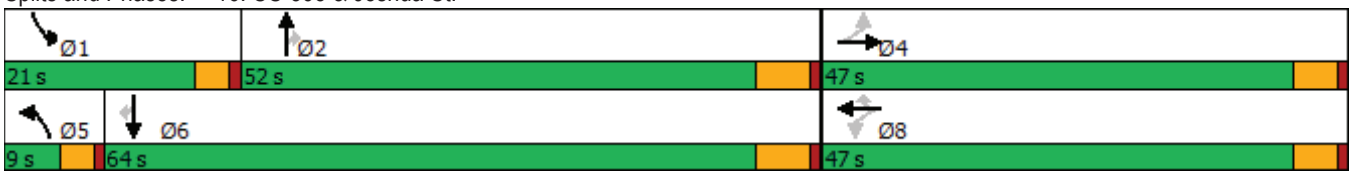
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	66.0		22.4	7.4	65.8		22.4				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	60.0		36.0	8.0	59.0		36.0				
Max Q Clear Time (g_c+I1), s	3.1	15.6		4.6	3.3	16.7		16.2				
Green Ext Time (p_c), s	0.0	7.7		0.2	0.0	8.1		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		13.8	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	26	30	92	12	137	8	879	59	107	1073	33
Future Volume (vph)	26	30	92	12	137	8	879	59	107	1073	33
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	52.0	52.0	21.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	43.3%	43.3%	17.5%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.5	16.5	16.5	16.5	16.5	5.1	49.5	49.5	10.6	62.8	62.8
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.06	0.56	0.56	0.12	0.71	0.71
v/c Ratio	0.11	0.10	0.39	0.04	0.36	0.09	0.47	0.07	0.54	0.46	0.03
Control Delay	29.6	27.4	35.3	28.2	7.3	48.4	15.5	2.2	48.4	9.1	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	27.4	35.3	28.2	7.3	48.4	15.5	2.2	48.4	9.1	1.9
LOS	C	C	D	C	A	D	B	A	D	A	A
Approach Delay		28.3		19.1			15.0			12.3	
Approach LOS		C		B			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 56.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	30	3	92	12	137	8	879	59	107	1073	33
Future Volume (veh/h)	26	30	3	92	12	137	8	879	59	107	1073	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	28	33	0	100	13	95	9	955	50	116	1166	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	262	256	0	261	256	216	20	2313	1032	149	2569	1146
Arrive On Green	0.13	0.13	0.00	0.13	0.13	0.13	0.01	0.64	0.64	0.08	0.71	0.71
Sat Flow, veh/h	1376	1900	0	1475	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	28	33	0	100	13	95	9	955	50	116	1166	31
Grp Sat Flow(s),veh/h/ln	1376	1900	0	1475	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	1.5	1.3	0.0	5.4	0.5	4.6	0.4	10.9	1.0	5.3	11.6	0.5
Cycle Q Clear(g_c), s	2.0	1.3	0.0	6.7	0.5	4.6	0.4	10.9	1.0	5.3	11.6	0.5
Prop In Lane	1.00		0.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	262	256	0	261	256	216	20	2313	1032	149	2569	1146
V/C Ratio(X)	0.11	0.13	0.00	0.38	0.05	0.44	0.44	0.41	0.05	0.78	0.45	0.03
Avail Cap(c_a), veh/h	779	969	0	815	969	819	107	2313	1032	365	2569	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	32.1	0.0	35.1	31.8	33.5	41.4	7.4	5.6	37.9	5.2	3.6
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.3	0.0	0.5	10.7	0.5	0.1	6.5	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.6	0.0	1.9	0.2	1.8	0.2	3.0	0.3	2.4	2.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	32.2	0.0	35.4	31.8	34.1	52.1	7.9	5.7	44.4	5.8	3.6
LnGrp LOS	C	C	A	D	C	C	D	A	A	D	A	A
Approach Vol, veh/h		61			208			1014			1313	
Approach Delay, s/veh		32.4			34.6			8.2			9.1	
Approach LOS		C			C			A			A	

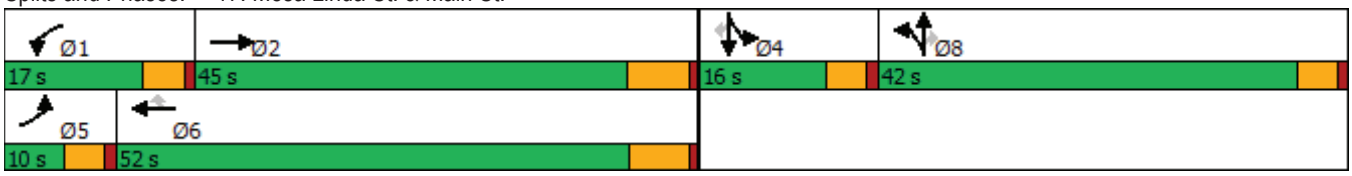
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	58.0		15.3	5.0	64.0		15.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	17.0	46.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	7.3	12.9		4.0	2.4	13.6		8.7				
Green Ext Time (p_c), s	0.1	13.7		0.1	0.0	19.9		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		11.4	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	1023	50	1503	17	2	126	2	14
Future Volume (vph)	5	1023	50	1503	17	2	126	2	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.3	41.7	7.9	50.6	50.6	14.2	14.2	10.6	10.6
Actuated g/C Ratio	0.06	0.47	0.09	0.57	0.57	0.16	0.16	0.12	0.12
v/c Ratio	0.06	0.52	0.42	0.63	0.02	0.01	0.39	0.28	0.05
Control Delay	48.6	21.6	51.3	17.7	0.1	31.5	8.0	45.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	21.6	51.3	17.7	0.1	31.5	8.0	45.1	0.3
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		21.7		18.6		8.3		35.3	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.9	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1023	3	50	1503	17	0	2	126	47	2	14
Future Volume (veh/h)	5	1023	3	50	1503	17	0	2	126	47	2	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	6	1204	4	59	1768	12	0	2	127	55	2	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	2578	9	73	2688	835	0	204	173	148	5	136
Arrive On Green	0.01	0.51	0.51	0.05	0.55	0.55	0.00	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1619	5056	17	1619	4914	1525	0	1800	1525	1657	60	1525
Grp Volume(v), veh/h	6	780	428	59	1768	12	0	2	127	57	0	2
Grp Sat Flow(s),veh/h/ln	1619	1638	1797	1619	1638	1525	0	1800	1525	1717	0	1525
Q Serve(g_s), s	0.3	12.8	12.8	3.0	21.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Cycle Q Clear(g_c), s	0.3	12.8	12.8	3.0	21.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	13	1670	916	73	2688	835	0	204	173	153	0	136
V/C Ratio(X)	0.48	0.47	0.47	0.81	0.66	0.01	0.00	0.01	0.73	0.37	0.00	0.01
Avail Cap(c_a), veh/h	104	1670	916	240	2688	835	0	804	681	234	0	208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	13.2	13.2	39.6	13.4	8.7	0.0	32.9	35.9	35.9	0.0	34.8
Incr Delay (d2), s/veh	10.0	0.9	1.7	7.7	1.3	0.0	0.0	0.0	5.9	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.0	4.6	1.3	6.5	0.1	0.0	0.0	2.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	14.1	14.9	47.4	14.7	8.7	0.0	33.0	41.8	37.4	0.0	34.8
LnGrp LOS	D	B	B	D	B	A	A	C	D	D	A	C
Approach Vol, veh/h		1214			1839			129			59	
Approach Delay, s/veh		14.6			15.7			41.6			37.3	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	49.2		12.1	5.3	52.3		14.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	5.0	14.8		4.6	2.3	23.3		8.7				
Green Ext Time (p_c), s	0.0	7.4		0.1	0.0	12.8		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		16.7
HCM 6th LOS		B

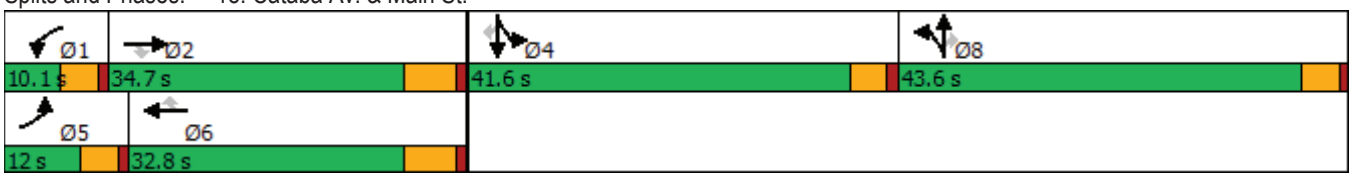
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	982	36	70	1515	17	31	7	48	34	6	26
Future Volume (vph)	50	982	36	70	1515	17	31	7	48	34	6	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	12.0	34.7	34.7	10.1	32.8	32.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	9.2%	26.7%	26.7%	7.8%	25.2%	25.2%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	7.1	38.2	38.2	5.9	37.0	37.0	14.5	14.5	14.5	14.3	14.3	14.3
Actuated g/C Ratio	0.09	0.49	0.49	0.08	0.48	0.48	0.19	0.19	0.19	0.18	0.18	0.18
v/c Ratio	0.38	0.45	0.05	0.35	0.72	0.02	0.07	0.07	0.15	0.13	0.02	0.08
Control Delay	49.6	23.4	0.1	46.9	27.9	0.1	30.7	30.6	0.8	31.6	31.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	23.4	0.1	46.9	27.9	0.1	30.7	30.6	0.8	31.6	31.0	0.4
LOS	D	C	A	D	C	A	C	C	A	C	C	A
Approach Delay		23.8			28.4			14.1			19.3	
Approach LOS		C			C			B			B	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 77.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	982	36	70	1515	17	31	7	48	34	6	26
Future Volume (veh/h)	50	982	36	70	1515	17	31	7	48	34	6	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	56	1103	33	79	1702	12	41	0	34	38	7	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	79	2133	662	172	2179	676	382	0	180	138	153	130
Arrive On Green	0.05	0.43	0.43	0.06	0.44	0.44	0.12	0.00	0.12	0.09	0.09	0.00
Sat Flow, veh/h	1619	4914	1524	2956	4914	1524	3238	0	1522	1619	1800	1525
Grp Volume(v), veh/h	56	1103	33	79	1702	12	41	0	34	38	7	0
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1524	1619	0	1522	1619	1800	1525
Q Serve(g_s), s	2.2	10.8	0.8	1.7	19.4	0.3	0.7	0.0	1.3	1.4	0.2	0.0
Cycle Q Clear(g_c), s	2.2	10.8	0.8	1.7	19.4	0.3	0.7	0.0	1.3	1.4	0.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	2133	662	172	2179	676	382	0	180	138	153	130
V/C Ratio(X)	0.71	0.52	0.05	0.46	0.78	0.02	0.11	0.00	0.19	0.28	0.05	0.00
Avail Cap(c_a), veh/h	182	2133	662	248	2179	676	1923	0	904	912	1014	860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	13.6	10.7	29.9	15.6	10.3	25.9	0.0	26.1	28.1	27.6	0.0
Incr Delay (d2), s/veh	4.3	0.9	0.1	0.7	2.9	0.0	0.1	0.0	0.5	1.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.2	0.2	0.6	6.1	0.1	0.3	0.0	0.5	0.6	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	14.5	10.9	30.6	18.4	10.3	26.0	0.0	26.6	29.2	27.7	0.0
LnGrp LOS	D	B	B	C	B	B	C	A	C	C	C	A
Approach Vol, veh/h		1192			1793			75			45	
Approach Delay, s/veh		15.3			18.9			26.3			29.0	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	34.7		10.2	7.8	35.3		12.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.5	28.5		37.0	7.4	26.6		39.0				
Max Q Clear Time (g_c+I1), s	3.7	12.8		3.4	4.2	21.4		3.3				
Green Ext Time (p_c), s	0.0	6.2		0.1	0.0	4.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		17.9	
HCM 6th LOS		B	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	1030	12	138	1640	11	11	78	143	26
Future Volume (vph)	30	1030	12	138	1640	11	11	78	143	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.5	44.8	44.8	12.3	55.2	17.7	17.7	17.7	17.7	17.7
Actuated g/C Ratio	0.07	0.50	0.50	0.14	0.61	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.27	0.43	0.02	0.65	0.60	0.05	0.03	0.21	0.59	0.12
Control Delay	50.5	17.6	0.0	53.1	14.8	29.6	29.3	3.4	43.2	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	50.5	17.6	0.0	53.1	15.0	29.6	29.3	3.4	43.2	22.0
LOS	D	B	A	D	B	C	C	A	D	C
Approach Delay		18.3			17.8		9.0			38.5
Approach LOS		B			B		A			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 18.9	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	1030	12	138	1640	107	11	11	78	143	26	15
Future Volume (veh/h)	30	1030	12	138	1640	107	11	11	78	143	26	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	31	1051	9	141	1673	75	11	11	20	146	27	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	50	2771	859	172	3084	138	254	264	223	272	183	68
Arrive On Green	0.03	0.56	0.56	0.11	0.64	0.64	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1619	4914	1524	1619	4821	216	1315	1800	1522	1320	1253	464
Grp Volume(v), veh/h	31	1051	9	141	1137	611	11	11	20	146	0	37
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1619	1638	1761	1315	1800	1522	1320	0	1716
Q Serve(g_s), s	1.6	10.0	0.2	7.2	16.1	16.1	0.6	0.4	1.0	9.0	0.0	1.6
Cycle Q Clear(g_c), s	1.6	10.0	0.2	7.2	16.1	16.1	2.2	0.4	1.0	9.4	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.12	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	50	2771	859	172	2096	1127	254	264	223	272	0	251
V/C Ratio(X)	0.62	0.38	0.01	0.82	0.54	0.54	0.04	0.04	0.09	0.54	0.00	0.15
Avail Cap(c_a), veh/h	181	2771	859	470	2096	1127	708	886	749	728	0	845
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	10.2	8.0	36.8	8.4	8.4	32.3	30.8	31.0	34.9	0.0	31.3
Incr Delay (d2), s/veh	4.7	0.4	0.0	3.6	1.0	1.9	0.1	0.1	0.2	1.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.0	0.1	2.8	4.3	4.9	0.2	0.2	0.4	3.0	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	10.6	8.1	40.4	9.4	10.2	32.3	30.9	31.2	36.5	0.0	31.6
LnGrp LOS	D	B	A	D	A	B	C	C	C	D	A	C
Approach Vol, veh/h		1091			1889			42			183	
Approach Delay, s/veh		11.5			12.0			31.4			35.5	
Approach LOS		B			B			C			D	

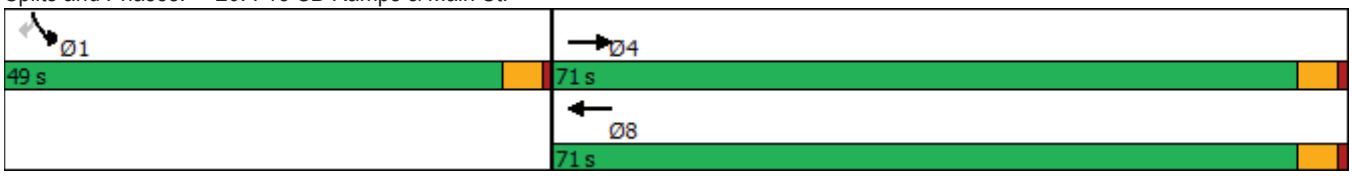
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	53.6		16.9	7.2	60.0		16.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	9.2	12.0		11.4	3.6	18.1		4.2				
Green Ext Time (p_c), s	0.1	7.3		0.7	0.0	14.9		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									

Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1071	78	1259	307	612
Future Volume (vph)	1071	78	1259	307	612
Turn Type	NA	Free	NA	Prot	Perm
Protected Phases	4		8	1	
Permitted Phases		Free			1
Detector Phase	4		8	1	1
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	9.6		22.6	9.6	9.6
Total Split (s)	71.0		71.0	49.0	49.0
Total Split (%)	59.2%		59.2%	40.8%	40.8%
Yellow Time (s)	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6		4.6	4.6	4.6
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None		None	None	None
Act Effct Green (s)	29.9	83.4	29.9	44.3	44.3
Actuated g/C Ratio	0.36	1.00	0.36	0.53	0.53
v/c Ratio	0.61	0.05	0.71	0.17	0.73
Control Delay	23.3	0.1	25.3	11.2	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	0.1	25.3	11.2	21.4
LOS	C	A	C	B	C
Approach Delay	21.7		25.3		
Approach LOS	C		C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.4	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1071	78	0	1259	0	0	0	0	307	0	612
Future Volume (veh/h)	0	1071	78	0	1259	0	0	0	0	307	0	612
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1127	0	0	1325	0				323	0	563
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2222		0	2222					1449	0	665
Arrive On Green	0.00	0.43	0.00	0.00	0.43	0.00				0.41	0.00	0.41
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1127	0	0	1325	0				323	0	563
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	9.2	0.0	0.0	11.4	0.0				3.4	0.0	18.3
Cycle Q Clear(g_c), s	0.0	9.2	0.0	0.0	11.4	0.0				3.4	0.0	18.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2222		0	2222					1449	0	665
V/C Ratio(X)	0.00	0.51		0.00	0.60					0.22	0.00	0.85
Avail Cap(c_a), veh/h	0	5948		0	5948					2692	0	1235
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.1	0.0	0.0	12.7	0.0				11.0	0.0	15.4
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.3	0.0				0.1	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	0.0	0.0	3.2	0.0				1.2	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.3	0.0	0.0	13.0	0.0				11.1	0.0	18.5
LnGrp LOS	A	B		A	B					B	A	B
Approach Vol, veh/h		1127	A		1325	A					886	
Approach Delay, s/veh		12.3			13.0						15.8	
Approach LOS		B			B						B	

Timer - Assigned Phs		4		6		8						
Phs Duration (G+Y+Rc), s		29.4		28.5		29.4						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		66.4		44.4		66.4						
Max Q Clear Time (g_c+I1), s		11.2		20.3		13.4						
Green Ext Time (p_c), s		9.0		3.6		11.4						

Intersection Summary												
HCM 6th Ctrl Delay		13.5										
HCM 6th LOS		B										

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1013	365	1277	453	542	6	387
Future Volume (vph)	1013	365	1277	453	542	6	387
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	33.3	33.3	33.3	33.3	34.7	34.7	34.7
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.45	0.45	0.45
v/c Ratio	0.46	0.41	0.58	0.48	0.68	0.26	0.27
Control Delay	16.3	3.0	17.9	3.2	23.8	7.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	3.0	17.9	3.3	23.8	7.9	8.0
LOS	B	A	B	A	C	A	A
Approach Delay	12.8		14.0			17.1	
Approach LOS	B		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 77.3	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 14.3	Intersection LOS: B
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1013	365	0	1277	453	542	6	387	0	0	0
Future Volume (veh/h)	0	1013	365	0	1277	453	542	6	387	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1034	0	0	1303	430	553	0	189			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2482		0	2482	770	654	0	1165			
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.48	0.36	0.00	0.36			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1034	0	0	1303	430	553	0	189			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	7.5	0.0	0.0	10.1	10.9	16.2	0.0	2.3			
Cycle Q Clear(g_c), s	0.0	7.5	0.0	0.0	10.1	10.9	16.2	0.0	2.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2482		0	2482	770	654	0	1165			
V/C Ratio(X)	0.00	0.42		0.00	0.53	0.56	0.84	0.00	0.16			
Avail Cap(c_a), veh/h	0	6616		0	6616	2054	1176	0	2093			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	9.8	0.0	0.0	10.5	10.7	16.9	0.0	12.5			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.6	3.1	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.0	0.0	2.7	2.8	6.6	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.9	0.0	0.0	10.6	11.3	20.0	0.0	12.5			
LnGrp LOS	A	A		A	B	B	B	A	B			
Approach Vol, veh/h		1034	A		1733			742				
Approach Delay, s/veh		9.9			10.8			18.1				
Approach LOS		A			B			B				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		32.1				32.1		25.4				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		73.4				73.4		37.4				
Max Q Clear Time (g_c+I1), s		9.5				12.9		18.2				
Green Ext Time (p_c), s		8.0				14.6		2.6				

Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									

Notes

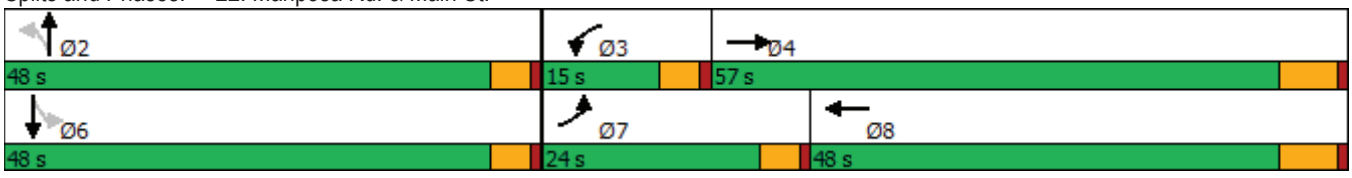
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	127	1174	43	1546	71	38	35	48
Future Volume (vph)	127	1174	43	1546	71	38	35	48
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	12.1	51.4	10.5	49.8	16.9	16.9	16.9	16.9
Actuated g/C Ratio	0.13	0.54	0.11	0.53	0.18	0.18	0.18	0.18
v/c Ratio	0.66	0.41	0.26	0.52	0.71	0.24	0.18	0.56
Control Delay	55.8	14.2	46.1	17.8	68.8	19.6	32.6	16.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	14.4	46.1	17.8	68.8	19.6	32.6	16.0
LOS	E	B	D	B	E	B	C	B
Approach Delay		18.2		18.6		43.7		18.3
Approach LOS		B		B		D		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	1174	99	43	1546	28	71	38	35	35	48	172
Future Volume (veh/h)	127	1174	99	43	1546	28	71	38	35	35	48	172
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	137	1262	93	46	1662	29	76	41	16	38	52	102
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	166	3236	238	181	3504	61	184	218	85	270	96	189
Arrive On Green	0.10	0.55	0.55	0.11	0.55	0.55	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1619	5930	436	1619	6314	110	1183	1232	481	1292	543	1065
Grp Volume(v), veh/h	137	987	368	46	1222	469	76	0	57	38	0	154
Grp Sat Flow(s),veh/h/ln	1619	1548	1722	1619	1548	1780	1183	0	1713	1292	0	1608
Q Serve(g_s), s	7.7	11.4	11.5	2.4	14.8	14.8	5.8	0.0	2.6	2.4	0.0	8.1
Cycle Q Clear(g_c), s	7.7	11.4	11.5	2.4	14.8	14.8	13.9	0.0	2.6	5.0	0.0	8.1
Prop In Lane	1.00		0.25	1.00		0.06	1.00		0.28	1.00		0.66
Lane Grp Cap(c), veh/h	166	2534	939	181	2577	988	184	0	304	270	0	285
V/C Ratio(X)	0.83	0.39	0.39	0.25	0.47	0.47	0.41	0.00	0.19	0.14	0.00	0.54
Avail Cap(c_a), veh/h	337	2534	939	181	2577	988	526	0	799	643	0	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.0	12.2	12.2	37.8	12.5	12.5	41.2	0.0	32.6	34.7	0.0	34.9
Incr Delay (d2), s/veh	3.9	0.5	1.2	3.4	0.1	0.4	1.5	0.0	0.3	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.4	4.0	1.1	4.3	5.0	1.8	0.0	1.1	0.8	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	12.7	13.4	41.2	12.7	12.9	42.7	0.0	32.9	35.0	0.0	36.4
LnGrp LOS	D	B	B	D	B	B	D	A	C	C	A	D
Approach Vol, veh/h		1492			1737			133			192	
Approach Delay, s/veh		15.8			13.5			38.5			36.2	
Approach LOS		B			B			D			D	

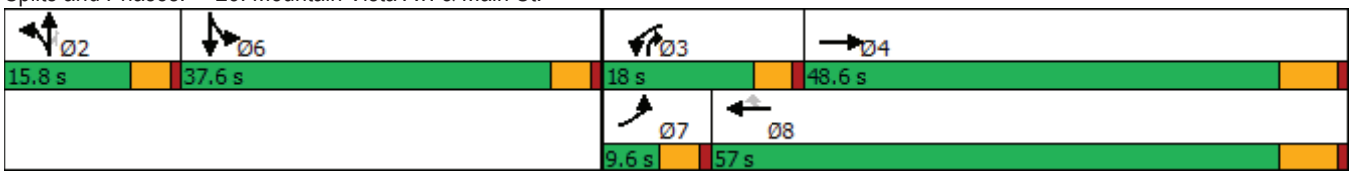
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		21.1	15.0	57.0		21.1	14.1	57.9				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		15.9	4.4	13.5		10.1	9.7	16.8				
Green Ext Time (p_c), s		0.6	0.0	10.3		1.1	0.1	12.0				

Intersection Summary												
HCM 6th Ctrl Delay			16.6									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	1079	72	1601	57	16	1	29	49	2
Future Volume (vph)	16	1079	72	1601	57	16	1	29	49	2
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	54.5	8.5	63.8	63.8	10.4	10.4	11.7	13.8	13.8
Actuated g/C Ratio	0.06	0.63	0.10	0.74	0.74	0.12	0.12	0.14	0.16	0.16
v/c Ratio	0.09	0.29	0.47	0.46	0.05	0.05	0.02	0.07	0.13	0.12
Control Delay	48.3	13.8	51.2	12.5	1.1	44.1	43.2	0.3	34.7	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	13.8	51.2	12.5	1.1	44.1	43.2	0.3	34.7	27.0
LOS	D	B	D	B	A	D	D	A	C	C
Approach Delay		14.3		13.8			16.0			31.0
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.6	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 58.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1079	21	72	1601	57	16	1	29	49	2	9
Future Volume (veh/h)	16	1079	21	72	1601	57	16	1	29	49	2	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	16	1112	21	74	1651	56	16	1	10	56	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	55	3538	67	92	2947	914	180	100	343	292	162	0
Arrive On Green	0.02	0.56	0.56	0.06	0.60	0.60	0.06	0.06	0.06	0.09	0.00	0.00
Sat Flow, veh/h	2956	6304	119	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	16	819	314	74	1651	56	16	1	10	56	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1778	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	0.5	8.0	8.0	3.8	17.2	1.3	0.4	0.0	0.2	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	8.0	8.0	3.8	17.2	1.3	0.4	0.0	0.2	1.4	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2606	998	92	2947	914	180	100	343	292	162	0
V/C Ratio(X)	0.29	0.31	0.31	0.80	0.56	0.06	0.09	0.01	0.03	0.19	0.00	0.00
Avail Cap(c_a), veh/h	175	2606	998	256	2947	914	428	238	577	1262	701	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.0	9.9	9.9	39.5	10.2	7.0	38.0	37.8	33.5	35.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.3	0.8	5.9	0.8	0.1	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.2	2.7	1.6	4.9	0.4	0.2	0.0	0.1	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	10.2	10.7	45.4	11.0	7.2	38.2	37.8	33.5	36.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1149			1781			27			56	
Approach Delay, s/veh		10.8			12.3			36.4			36.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.3	9.4	53.7		12.2	6.2	57.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		11.2	13.4	42.4		33.0	5.0	50.8				
Max Q Clear Time (g_c+I1), s		2.4	5.8	10.0		3.4	2.5	19.2				
Green Ext Time (p_c), s		0.0	0.0	7.8		0.1	0.0	14.3				

Intersection Summary		
HCM 6th Ctrl Delay		12.4
HCM 6th LOS		B

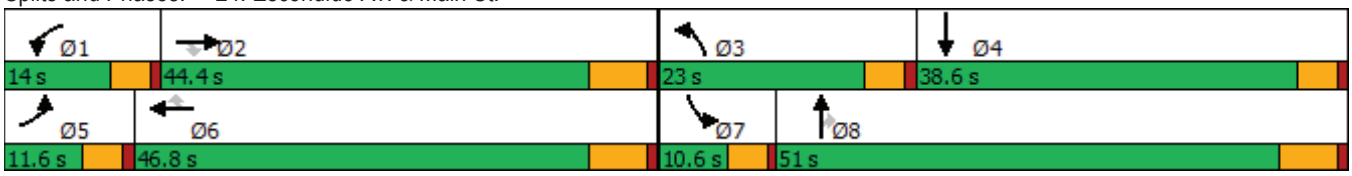
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	782	361	267	1020	3	697	21	319	1	3
Future Volume (vph)	4	782	361	267	1020	3	697	21	319	1	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	44.4	44.4	14.0	46.8	46.8	23.0	51.0	51.0	10.6	38.6
Total Split (%)	9.7%	37.0%	37.0%	11.7%	39.0%	39.0%	19.2%	42.5%	42.5%	8.8%	32.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	5.3	22.9	22.9	9.7	35.8	35.8	18.9	34.3	34.3	5.1	13.6
Actuated g/C Ratio	0.06	0.27	0.27	0.11	0.42	0.42	0.22	0.40	0.40	0.06	0.16
v/c Ratio	0.04	0.61	0.55	0.83	0.74	0.00	1.10	0.03	0.42	0.01	0.06
Control Delay	46.5	29.9	6.3	60.8	26.4	0.0	101.3	19.0	5.3	47.0	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	29.9	6.3	60.8	26.4	0.0	101.3	19.0	5.3	47.0	18.4
LOS	D	C	A	E	C	A	F	B	A	D	B
Approach Delay		22.5			33.5			70.1			20.2
Approach LOS		C			C			E			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 78.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	782	361	267	1020	3	697	21	319	1	3	12
Future Volume (veh/h)	4	782	361	267	1020	3	697	21	319	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	806	258	275	1052	3	719	22	167	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1312	407	341	1289	575	672	629	533	2	42	153
Arrive On Green	0.01	0.27	0.27	0.12	0.38	0.38	0.23	0.35	0.35	0.00	0.12	0.12
Sat Flow, veh/h	1619	4914	1525	2956	3420	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	806	258	275	1052	3	719	22	167	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1710	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	11.6	12.1	7.3	22.4	0.1	18.4	0.7	6.5	0.0	0.0	0.6
Cycle Q Clear(g_c), s	0.2	11.6	12.1	7.3	22.4	0.1	18.4	0.7	6.5	0.0	0.0	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1312	407	341	1289	575	672	629	533	2	0	195
V/C Ratio(X)	0.46	0.61	0.63	0.81	0.82	0.01	1.07	0.03	0.31	0.45	0.00	0.07
Avail Cap(c_a), veh/h	140	2319	720	343	1716	765	672	996	844	120	0	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	26.0	26.2	34.9	22.7	15.7	31.3	17.3	19.2	40.4	0.0	31.4
Incr Delay (d2), s/veh	13.8	0.5	1.6	12.3	2.4	0.0	54.9	0.0	0.3	44.9	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	4.5	3.0	8.2	0.0	11.5	0.3	2.3	0.0	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	26.5	27.8	47.2	25.1	15.7	86.2	17.4	19.6	85.3	0.0	31.5
LnGrp LOS	D	C	C	D	C	B	F	B	B	F	A	C
Approach Vol, veh/h		1068			1330			908			15	
Approach Delay, s/veh		26.9			29.6			72.2			35.1	
Approach LOS		C			C			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	27.8	23.0	16.2	5.0	36.7	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	9.3	14.1	20.4	2.6	2.2	24.4	2.0	8.5
Green Ext Time (p_c), s	0.0	6.1	0.0	0.0	0.0	6.1	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	224	810	32	89	494
Future Vol, veh/h	23	224	810	32	89	494
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	26	249	900	36	99	549

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1391	468	0	0	936	0
Stage 1	918	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	136	547	-	-	740	-
Stage 1	354	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	118	547	-	-	740	-
Mov Cap-2 Maneuver	243	-	-	-	-	-
Stage 1	354	-	-	-	-	-
Stage 2	519	-	-	-	-	-

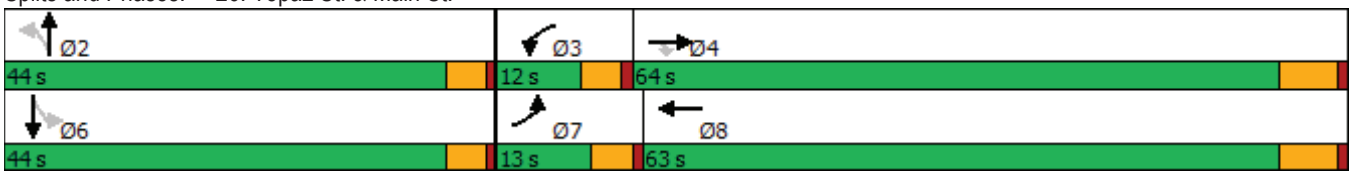
Approach	WB	NB	SB
HCM Control Delay, s	17.4	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	243	547	740	-
HCM Lane V/C Ratio	-	-	0.105	0.455	0.134	-
HCM Control Delay (s)	-	-	21.5	17	10.6	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	2.4	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	41	965	84	32	990	182	80	95	62
Future Volume (vph)	41	965	84	32	990	182	80	95	62
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.1	37.1	37.1	8.0	43.6	23.2	23.2	23.2	23.2
Actuated g/C Ratio	0.08	0.44	0.44	0.09	0.51	0.27	0.27	0.27	0.27
v/c Ratio	0.34	0.72	0.13	0.24	0.69	0.70	0.32	0.37	0.32
Control Delay	52.2	22.8	4.0	49.7	20.9	44.1	22.8	31.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	22.8	4.0	49.7	20.9	44.1	22.8	31.3	19.2
LOS	D	C	A	D	C	D	C	C	B
Approach Delay		22.5			21.7		34.9		24.1
Approach LOS		C			C		C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 84.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 23.8	Intersection LOS: C
Intersection Capacity Utilization 70.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	965	84	32	990	93	182	80	58	95	62	79
Future Volume (veh/h)	41	965	84	32	990	93	182	80	58	95	62	79
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	46	1072	80	36	1100	100	202	89	45	106	69	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	68	1424	622	170	1519	138	360	293	148	338	278	161
Arrive On Green	0.04	0.42	0.42	0.10	0.48	0.48	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1619	3420	1494	1619	3170	288	1232	1126	569	1202	1069	620
Grp Volume(v), veh/h	46	1072	80	36	593	607	202	0	134	106	0	109
Grp Sat Flow(s),veh/h/ln	1619	1710	1494	1619	1710	1748	1232	0	1695	1202	0	1688
Q Serve(g_s), s	2.0	18.8	2.3	1.4	19.5	19.5	10.9	0.0	4.5	5.5	0.0	3.6
Cycle Q Clear(g_c), s	2.0	18.8	2.3	1.4	19.5	19.5	14.5	0.0	4.5	10.0	0.0	3.6
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.34	1.00		0.37
Lane Grp Cap(c), veh/h	68	1424	622	170	820	838	360	0	441	338	0	439
V/C Ratio(X)	0.67	0.75	0.13	0.21	0.72	0.72	0.56	0.00	0.30	0.31	0.00	0.25
Avail Cap(c_a), veh/h	193	2804	1224	170	1378	1408	728	0	947	697	0	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	17.5	12.7	28.9	14.6	14.6	26.4	0.0	21.0	25.0	0.0	20.6
Incr Delay (d2), s/veh	4.3	0.8	0.1	2.8	1.2	1.2	1.4	0.0	0.4	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.1	0.7	0.6	6.1	6.3	3.2	0.0	1.8	1.6	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	18.3	12.8	31.7	15.9	15.9	27.7	0.0	21.3	25.5	0.0	20.9
LnGrp LOS	D	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1198			1236			336			215	
Approach Delay, s/veh		18.7			16.3			25.2			23.2	
Approach LOS		B			B			C			C	

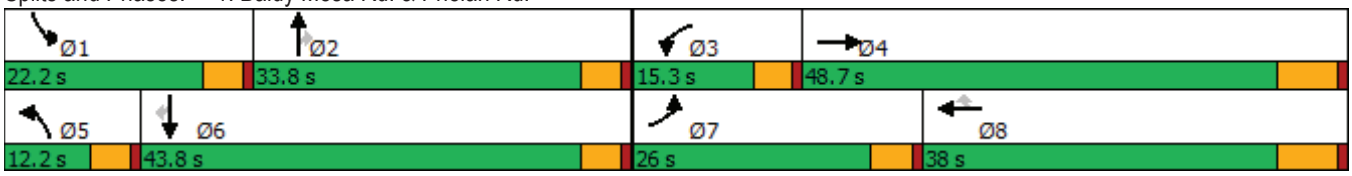
Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	22.9	12.0	35.6	22.9	7.6	40.0
Change Period (Y+Rc), s	4.6	4.6	6.2	4.6	4.6	6.2
Max Green Setting (Gmax), s	39.4	7.4	57.8	39.4	8.4	56.8
Max Q Clear Time (g_c+I1), s	16.5	3.4	20.8	12.0	4.0	21.5
Green Ext Time (p_c), s	1.5	0.0	8.6	1.0	0.0	8.5

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	151	545	75	595	145	38	29	30	123	37	135
Future Volume (vph)	151	545	75	595	145	38	29	30	123	37	135
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	13.6	44.2	8.6	36.3	36.3	6.6	13.1	13.1	12.8	19.9	19.9
Actuated g/C Ratio	0.15	0.48	0.09	0.39	0.39	0.07	0.14	0.14	0.14	0.21	0.21
v/c Ratio	0.69	0.39	0.54	0.48	0.23	0.36	0.12	0.08	0.59	0.10	0.32
Control Delay	55.2	20.1	58.9	26.2	3.9	55.6	38.8	0.4	53.0	31.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	20.1	58.9	26.2	3.9	55.6	38.8	0.4	53.0	31.6	6.2
LOS	E	C	E	C	A	E	D	A	D	C	A
Approach Delay		27.3		25.2			33.6			28.9	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.7	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 62.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	545	37	75	595	145	38	29	30	123	37	135
Future Volume (veh/h)	151	545	37	75	595	145	38	29	30	123	37	135
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	162	586	31	81	640	116	41	31	21	132	40	83
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	194	1585	84	116	1477	655	58	212	178	161	327	277
Arrive On Green	0.12	0.48	0.48	0.07	0.43	0.43	0.04	0.12	0.12	0.10	0.18	0.18
Sat Flow, veh/h	1619	3304	175	1619	3420	1517	1619	1800	1512	1619	1800	1525
Grp Volume(v), veh/h	162	303	314	81	640	116	41	31	21	132	40	83
Grp Sat Flow(s),veh/h/ln	1619	1710	1769	1619	1710	1517	1619	1800	1512	1619	1800	1525
Q Serve(g_s), s	8.6	9.9	9.9	4.3	11.5	4.1	2.2	1.4	1.1	7.0	1.6	4.1
Cycle Q Clear(g_c), s	8.6	9.9	9.9	4.3	11.5	4.1	2.2	1.4	1.1	7.0	1.6	4.1
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	820	848	116	1477	655	58	212	178	161	327	277
V/C Ratio(X)	0.84	0.37	0.37	0.70	0.43	0.18	0.70	0.15	0.12	0.82	0.12	0.30
Avail Cap(c_a), veh/h	394	820	848	197	1477	655	140	598	502	324	802	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	14.5	14.5	39.9	17.5	15.4	41.9	34.8	34.7	38.8	30.1	31.2
Incr Delay (d2), s/veh	3.6	1.3	1.2	2.8	0.9	0.6	5.7	0.3	0.3	3.8	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.5	3.6	1.7	4.1	1.3	1.0	0.6	0.4	2.9	0.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	15.7	15.7	42.7	18.4	16.0	47.6	35.1	35.0	42.6	30.3	31.8
LnGrp LOS	D	B	B	D	B	B	D	D	C	D	C	C
Approach Vol, veh/h		779			837			93			255	
Approach Delay, s/veh		21.1			20.4			40.6			37.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.4	15.0	10.9	48.7	7.8	20.6	15.1	44.5
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	9.0	3.4	6.3	11.9	4.2	6.1	10.6	13.5
Green Ext Time (p_c), s	0.1	0.2	0.0	3.3	0.0	0.5	0.1	3.8

Intersection Summary	
HCM 6th Ctrl Delay	23.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	680	4	28	849	13	3	0	15	8	0	3
Future Vol, veh/h	4	680	4	28	849	13	3	0	15	8	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	716	4	29	894	14	3	0	16	8	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	908	0	0	720	0	0	1685	1690	716	1686	1680	894
Stage 1	-	-	-	-	-	-	724	724	-	952	952	-
Stage 2	-	-	-	-	-	-	961	966	-	734	728	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	758	-	-	891	-	-	75	94	434	75	96	343
Stage 1	-	-	-	-	-	-	420	433	-	314	341	-
Stage 2	-	-	-	-	-	-	311	336	-	415	432	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	758	-	-	891	-	-	72	90	434	70	92	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	189	208	-	186	207	-
Stage 1	-	-	-	-	-	-	418	431	-	312	330	-
Stage 2	-	-	-	-	-	-	298	325	-	398	430	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	15.6	22.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	357	758	-	-	891	-	-	213
HCM Lane V/C Ratio	0.053	0.006	-	-	0.033	-	-	0.054
HCM Control Delay (s)	15.6	9.8	-	-	9.2	-	-	22.9
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	683	2	4	942	6	5
Future Vol, veh/h	683	2	4	942	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	711	2	4	981	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	713	0	1701	712
Stage 1	-	-	-	-	712	-
Stage 2	-	-	-	-	989	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	896	-	102	436
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	363	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	896	-	102	436
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	362	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	297	-	-	896	-
HCM Lane V/C Ratio	0.039	-	-	0.005	-
HCM Control Delay (s)	17.6	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	↰	↱
Traffic Vol, veh/h	0	687	904	82	65	42
Future Vol, veh/h	0	687	904	82	65	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	0
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	747	983	89	71	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1730	983
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	747	-
Critical Hdwy	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	98	305
Stage 1	0	-	-	-	366	-
Stage 2	0	-	-	-	472	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	98	305
Mov Cap-2 Maneuver	-	-	-	-	289	-
Stage 1	-	-	-	-	366	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.4
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	-	-	289	305
HCM Lane V/C Ratio	-	-	-	0.244	0.15
HCM Control Delay (s)	-	-	-	21.4	18.9
HCM Lane LOS	-	-	-	C	C
HCM 95th %tile Q(veh)	-	-	-	0.9	0.5

Intersection	
Int Delay, s/veh	8.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	7	0	32	12	0	236
Future Vol, veh/h	7	0	32	12	0	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	0	35	13	0	257

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	8	0	91	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1625	-	914	1080
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1625	-	894	1080
Mov Cap-2 Maneuver	-	-	-	-	894	-
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1080	-	-	1625	-
HCM Lane V/C Ratio	0.238	-	-	0.021	-
HCM Control Delay (s)	9.4	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	243	0	54	44	0	280
Future Vol, veh/h	243	0	54	44	0	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	264	0	59	48	0	304

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	264	0	430	264
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1312	-	586	780
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1312	-	560	780
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	829	-

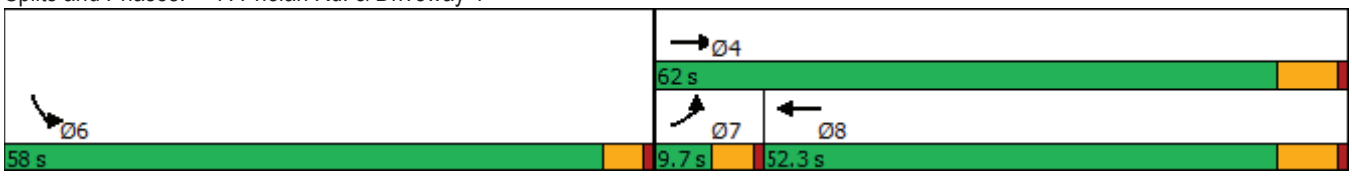
Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	780	-	-	1312	-
HCM Lane V/C Ratio	0.39	-	-	0.045	-
HCM Control Delay (s)	12.5	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	18	734	944	631
Future Volume (vph)	18	734	944	631
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	9.7	62.0	52.3	58.0
Total Split (%)	8.1%	51.7%	43.6%	48.3%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	5.1	55.5	51.6	53.4
Actuated g/C Ratio	0.04	0.46	0.43	0.44
v/c Ratio	0.29	0.50	0.82	1.02
Control Delay	67.1	24.0	36.5	71.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	67.1	24.0	36.5	71.7
LOS	E	C	D	E
Approach Delay		25.1	36.5	71.7
Approach LOS		C	D	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 42.6	Intersection LOS: D
Intersection Capacity Utilization 83.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	734	944	88	631	42
Future Volume (veh/h)	18	734	944	88	631	42
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1700	1800	1700	1800	1700	1800
Adj Flow Rate, veh/h	20	798	1026	96	686	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	33	1582	1206	113	669	45
Arrive On Green	0.02	0.46	0.40	0.40	0.44	0.44
Sat Flow, veh/h	1619	3510	3070	279	1504	101
Grp Volume(v), veh/h	20	798	555	567	733	0
Grp Sat Flow(s),veh/h/ln	1619	1710	1615	1650	1607	0
Q Serve(g_s), s	1.5	19.6	37.4	37.5	53.4	0.0
Cycle Q Clear(g_c), s	1.5	19.6	37.4	37.5	53.4	0.0
Prop In Lane	1.00			0.17	0.94	0.06
Lane Grp Cap(c), veh/h	33	1582	652	666	715	0
V/C Ratio(X)	0.61	0.50	0.85	0.85	1.03	0.00
Avail Cap(c_a), veh/h	69	1582	652	666	715	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.3	22.6	32.5	32.5	33.3	0.0
Incr Delay (d2), s/veh	6.6	1.2	13.1	12.9	40.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.5	15.8	16.1	28.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.9	23.8	45.6	45.4	73.5	0.0
LnGrp LOS	E	C	D	D	F	A
Approach Vol, veh/h		818	1122		733	
Approach Delay, s/veh		24.8	45.5		73.5	
Approach LOS		C	D		E	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	62.0	58.0	7.0	55.0
Change Period (Y+Rc), s	6.5	4.6	4.6	6.5
Max Green Setting (Gmax), s	55.5	53.4	5.1	45.8
Max Q Clear Time (g_c+I1), s	21.6	55.4	3.5	39.5
Green Ext Time (p_c), s	5.2	0.0	0.0	3.2

Intersection Summary	
HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	70	38	46	105	64	887	90	214	842	86
Future Volume (vph)	50	70	38	46	105	64	887	90	214	842	86
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.2	20.2	20.2	20.2	20.2	8.2	48.0	48.0	16.8	59.1	59.1
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.08	0.48	0.48	0.17	0.59	0.59
v/c Ratio	0.67	0.19	0.10	0.18	0.79	0.46	0.53	0.11	0.74	0.41	0.09
Control Delay	75.8	34.1	0.5	34.3	42.3	58.1	22.5	5.2	55.9	14.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	34.1	0.5	34.3	42.3	58.1	22.5	5.2	55.9	14.3	3.5
LOS	E	C	A	C	D	E	C	A	E	B	A
Approach Delay		39.1			41.3		23.2			21.3	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	70	38	46	105	207	64	887	90	214	842	86
Future Volume (veh/h)	50	70	38	46	105	207	64	887	90	214	842	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	73	21	48	109	154	67	924	69	223	877	71
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	152	397	336	321	149	210	87	1787	797	260	2132	951
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.05	0.49	0.49	0.14	0.59	0.59
Sat Flow, veh/h	1196	1900	1610	1396	712	1006	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	52	73	21	48	0	263	67	924	69	223	877	71
Grp Sat Flow(s),veh/h/ln	1196	1900	1610	1396	0	1717	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.2	3.1	1.0	2.9	0.0	14.1	3.6	17.1	2.2	11.8	12.9	1.9
Cycle Q Clear(g_c), s	18.2	3.1	1.0	6.0	0.0	14.1	3.6	17.1	2.2	11.8	12.9	1.9
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	152	397	336	321	0	358	87	1787	797	260	2132	951
V/C Ratio(X)	0.34	0.18	0.06	0.15	0.00	0.73	0.77	0.52	0.09	0.86	0.41	0.07
Avail Cap(c_a), veh/h	353	716	607	555	0	647	184	1787	797	461	2132	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.8	32.0	31.2	34.4	0.0	36.3	46.2	16.8	13.1	41.1	10.9	8.6
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.0	1.1	10.2	1.1	0.2	6.1	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.4	0.4	1.0	0.0	5.8	1.8	6.3	0.8	5.4	4.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	32.1	31.2	34.5	0.0	37.4	56.4	17.9	13.3	47.2	11.5	8.8
LnGrp LOS	D	C	C	C	A	D	E	B	B	D	B	A
Approach Vol, veh/h		146			311			1060			1171	
Approach Delay, s/veh		36.7			37.0			20.0			18.1	
Approach LOS		D			D			C			B	

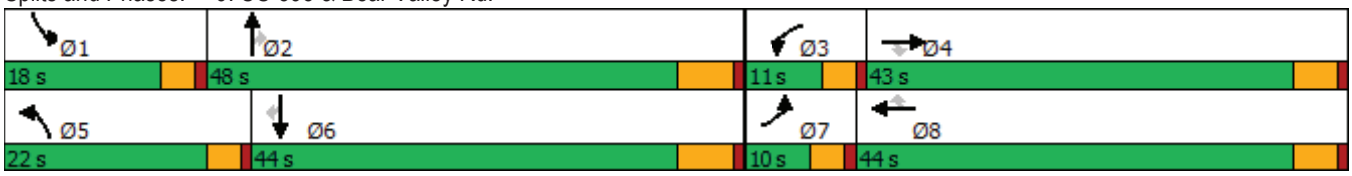
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.1	54.6		25.5	8.7	64.0		25.5				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	13.8	19.1		20.2	5.6	14.9		16.1				
Green Ext Time (p_c), s	0.3	4.9		0.3	0.0	4.9		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		22.1	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	311	133	113	306	130	176	835	236	150	744	35
Future Volume (vph)	54	311	133	113	306	130	176	835	236	150	744	35
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	11.0	44.0	44.0	22.0	48.0	48.0	18.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	9.2%	36.7%	36.7%	18.3%	40.0%	40.0%	15.0%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	16.5	16.5	7.1	19.7	19.7	14.0	42.5	42.5	12.4	40.9	40.9
Actuated g/C Ratio	0.06	0.17	0.17	0.07	0.20	0.20	0.14	0.44	0.44	0.13	0.42	0.42
v/c Ratio	0.52	0.54	0.36	0.92	0.44	0.32	0.72	0.56	0.29	0.69	0.52	0.05
Control Delay	65.2	39.8	8.2	106.7	36.4	7.5	57.4	24.1	4.1	59.1	24.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	39.8	8.2	106.7	36.4	7.5	57.4	24.1	4.1	59.1	24.8	0.1
LOS	E	D	A	F	D	A	E	C	A	E	C	A
Approach Delay		34.1			44.0			25.0			29.4	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.7	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 30.9	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	311	133	113	306	130	176	835	236	150	744	35
Future Volume (veh/h)	54	311	133	113	306	130	176	835	236	150	744	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	327	58	119	322	68	185	879	187	158	783	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	469	209	142	600	267	223	1701	759	193	1643	732
Arrive On Green	0.04	0.13	0.13	0.08	0.17	0.17	0.12	0.47	0.47	0.11	0.46	0.46
Sat Flow, veh/h	1810	3610	1610	1810	3610	1604	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	57	327	58	119	322	68	185	879	187	158	783	24
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1604	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	2.8	7.7	2.9	5.8	7.3	3.3	8.9	15.2	6.2	7.6	13.4	0.7
Cycle Q Clear(g_c), s	2.8	7.7	2.9	5.8	7.3	3.3	8.9	15.2	6.2	7.6	13.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	469	209	142	600	267	223	1701	759	193	1643	732
V/C Ratio(X)	0.74	0.70	0.28	0.84	0.54	0.26	0.83	0.52	0.25	0.82	0.48	0.03
Avail Cap(c_a), veh/h	122	1539	687	142	1580	702	366	1701	759	284	1643	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	37.1	35.0	40.5	34.0	32.3	38.2	16.5	14.1	38.9	16.9	13.4
Incr Delay (d2), s/veh	10.0	0.7	0.3	32.7	0.3	0.2	6.2	1.1	0.8	9.5	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.2	1.1	3.7	3.0	1.2	4.0	5.5	2.1	3.6	5.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	37.8	35.2	73.2	34.3	32.5	44.4	17.6	14.9	48.4	17.9	13.5
LnGrp LOS	D	D	D	E	C	C	D	B	B	D	B	B
Approach Vol, veh/h		442			509			1251			965	
Approach Delay, s/veh		39.3			43.2			21.1			22.8	
Approach LOS		D			D			C			C	

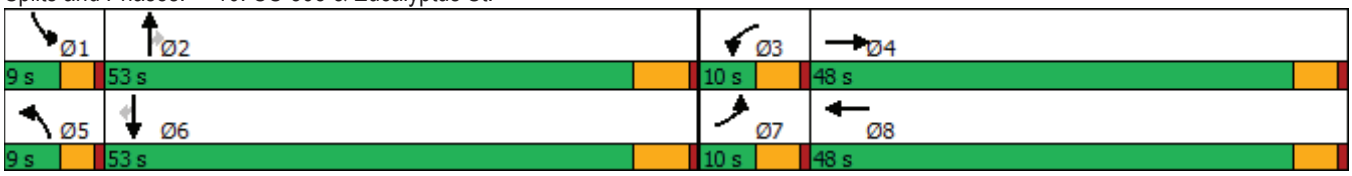
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	48.0	11.0	16.6	15.0	46.6	7.8	19.8
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	14.0	42.0	7.0	38.0	18.0	38.0	6.0	39.0
Max Q Clear Time (g_c+I1), s	9.6	17.2	7.8	9.7	10.9	15.4	4.8	9.3
Green Ext Time (p_c), s	0.1	3.7	0.0	1.2	0.2	3.0	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	6	0	48	2	17	1271	102	11	927	11
Future Volume (vph)	6	0	48	2	17	1271	102	11	927	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	8.5	15.0	5.2	60.4	60.4	5.2	60.4	60.4
Actuated g/C Ratio	0.06	0.18	0.10	0.18	0.06	0.72	0.72	0.06	0.72	0.72
v/c Ratio	0.05	0.01	0.28	0.04	0.16	0.52	0.09	0.11	0.38	0.01
Control Delay	45.5	0.0	44.8	15.8	47.1	13.0	3.7	46.2	11.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	0.0	44.8	15.8	47.1	13.0	3.7	46.2	11.1	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		24.8		39.6		12.7			11.3	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 84.4	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 12.9	Intersection LOS: B
Intersection Capacity Utilization 53.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	5	48	2	9	17	1271	102	11	927	11
Future Volume (veh/h)	6	0	5	48	2	9	17	1271	102	11	927	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	6	0	2	51	2	1	18	1338	104	12	976	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	14	0	90	78	109	54	38	2251	1004	27	2229	994
Arrive On Green	0.01	0.00	0.06	0.04	0.09	0.09	0.02	0.62	0.62	0.01	0.62	0.62
Sat Flow, veh/h	1810	0	1610	1810	1195	597	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	6	0	2	51	0	3	18	1338	104	12	976	11
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1792	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.3	0.0	0.1	2.1	0.0	0.1	0.7	16.9	2.0	0.5	10.8	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.1	2.1	0.0	0.1	0.7	16.9	2.0	0.5	10.8	0.2
Prop In Lane	1.00		1.00	1.00		0.33	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	14	0	90	78	0	163	38	2251	1004	27	2229	994
V/C Ratio(X)	0.42	0.00	0.02	0.65	0.00	0.02	0.48	0.59	0.10	0.45	0.44	0.01
Avail Cap(c_a), veh/h	119	0	910	119	0	1013	119	2251	1004	119	2229	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	34.0	35.8	0.0	31.5	36.9	8.6	5.8	37.2	7.6	5.6
Incr Delay (d2), s/veh	7.3	0.0	0.1	3.4	0.0	0.0	3.5	1.2	0.2	4.4	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	1.0	0.0	0.0	0.3	4.6	0.6	0.3	3.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	0.0	34.1	39.2	0.0	31.5	40.3	9.7	6.0	41.6	8.3	5.6
LnGrp LOS	D	A	C	D	A	C	D	A	A	D	A	A
Approach Vol, veh/h		8			54			1460			999	
Approach Delay, s/veh		42.2			38.8			9.8			8.6	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	53.5	8.3	9.2	5.6	53.0	5.6	11.9
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.5	18.9	4.1	2.1	2.7	12.8	2.3	2.1
Green Ext Time (p_c), s	0.0	10.6	0.0	0.0	0.0	9.0	0.0	0.0

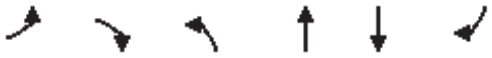
Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	110	413	71	1377	1006
Future Volume (vph)	110	413	71	1377	1006
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	29.0	29.0	15.0	91.0	76.0
Total Split (%)	24.2%	24.2%	12.5%	75.8%	63.3%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	20.2	20.2	8.5	84.7	73.7
Actuated g/C Ratio	0.17	0.17	0.07	0.73	0.64
v/c Ratio	0.37	0.92	0.56	1.03	0.89
Control Delay	45.2	47.3	69.1	51.5	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	47.3	69.1	51.5	32.0
LOS	D	D	E	D	C
Approach Delay	46.9			52.4	32.0
Approach LOS	D			D	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 44.4	Intersection LOS: D
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	413	71	1377	1006	27
Future Volume (veh/h)	110	413	71	1377	1006	27
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	115	356	74	1434	1048	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	368	327	95	1338	1130	30
Arrive On Green	0.20	0.20	0.05	1.00	0.92	0.61
Sat Flow, veh/h	1810	1610	1810	1900	1842	49
Grp Volume(v), veh/h	115	356	74	1434	0	1076
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1891
Q Serve(g_s), s	6.5	24.4	4.8	84.5	0.0	38.9
Cycle Q Clear(g_c), s	6.5	24.4	4.8	84.5	0.0	38.9
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	368	327	95	1338	0	1160
V/C Ratio(X)	0.31	1.09	0.78	1.07	0.00	0.93
Avail Cap(c_a), veh/h	368	327	157	1338	0	1160
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	47.8	56.2	0.0	0.0	3.7
Incr Delay (d2), s/veh	0.5	75.1	5.2	46.3	0.0	13.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.4	2.3	17.2	0.0	7.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	122.9	61.3	46.3	0.0	17.7
LnGrp LOS	D	F	E	F	A	B
Approach Vol, veh/h	471			1508	1076	
Approach Delay, s/veh	103.0			47.1	17.7	
Approach LOS	F			D	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.0		29.0	10.9	80.1
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		84.5		24.4	10.4	69.5
Max Q Clear Time (g_c+I1), s		86.5		26.4	6.8	40.9
Green Ext Time (p_c), s		0.0		0.0	0.0	9.1

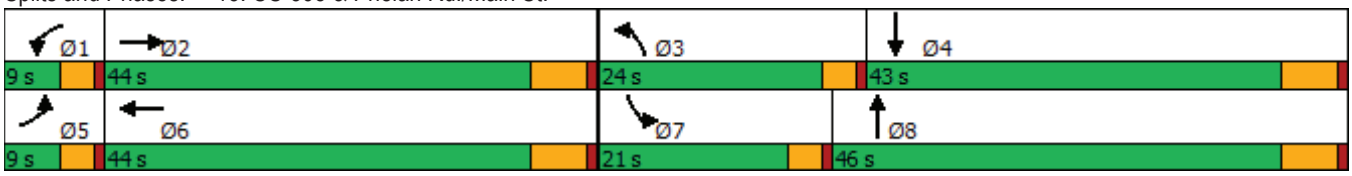
Intersection Summary		
HCM 6th Ctrl Delay		45.3
HCM 6th LOS		D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	45	1169	9	807	180	1104	512	861
Future Volume (vph)	45	1169	9	807	180	1104	512	861
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	43.4	5.0	38.0	16.4	40.0	17.0	40.7
Actuated g/C Ratio	0.04	0.37	0.04	0.32	0.14	0.34	0.14	0.34
v/c Ratio	0.62	1.07	0.12	1.02	0.76	0.97	2.08	0.77
Control Delay	89.3	80.5	58.9	69.6	68.0	59.5	525.4	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	80.5	58.9	69.6	68.0	59.5	525.4	40.8
LOS	F	F	E	E	E	E	F	D
Approach Delay		80.8		69.5		60.6		215.7
Approach LOS		F		E		E		F

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 118.2
Natural Cycle: 120
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 2.08
Intersection Signal Delay: 110.1 — Intersection LOS: F
Intersection Capacity Utilization 110.4% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1169	152	9	807	299	180	1104	26	512	861	46
Future Volume (veh/h)	45	1169	152	9	807	299	180	1104	26	512	861	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1231	132	9	849	231	189	1162	20	539	906	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	61	1119	120	20	892	243	218	1219	21	260	1274	46
Arrive On Green	0.03	0.34	0.34	0.01	0.32	0.32	0.12	0.34	0.34	0.14	0.36	0.36
Sat Flow, veh/h	1810	3282	351	1810	2805	763	1810	3631	62	1810	3552	129
Grp Volume(v), veh/h	47	675	688	9	546	534	189	578	604	539	460	479
Grp Sat Flow(s),veh/h/ln	1810	1805	1828	1810	1805	1763	1810	1805	1889	1810	1805	1877
Q Serve(g_s), s	3.0	40.3	40.3	0.6	35.0	35.1	12.1	37.0	37.0	17.0	26.0	26.0
Cycle Q Clear(g_c), s	3.0	40.3	40.3	0.6	35.0	35.1	12.1	37.0	37.0	17.0	26.0	26.0
Prop In Lane	1.00		0.19	1.00		0.43	1.00		0.03	1.00		0.07
Lane Grp Cap(c), veh/h	61	615	623	20	574	561	218	606	634	260	647	673
V/C Ratio(X)	0.77	1.10	1.10	0.46	0.95	0.95	0.87	0.95	0.95	2.07	0.71	0.71
Avail Cap(c_a), veh/h	76	615	623	76	580	566	306	610	638	260	647	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	39.0	39.0	58.2	39.4	39.5	51.1	38.4	38.4	50.7	32.7	32.7
Incr Delay (d2), s/veh	28.0	65.8	67.9	11.9	25.6	26.2	15.2	25.3	24.6	496.0	3.8	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	27.7	28.4	0.3	18.5	18.2	6.2	19.4	20.2	43.1	11.2	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.8	104.8	106.9	70.1	65.1	65.7	66.3	63.7	63.1	546.7	36.5	36.3
LnGrp LOS	F	F	F	E	E	E	E	E	E	F	D	D
Approach Vol, veh/h		1410			1089			1371			1478	
Approach Delay, s/veh		105.2			65.4			63.8			222.5	
Approach LOS		F			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	46.3	18.3	48.4	8.0	43.6	21.0	45.7
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	2.6	42.3	14.1	28.0	5.0	37.1	19.0	39.0
Green Ext Time (p_c), s	0.0	0.0	0.2	4.0	0.0	0.6	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	118.9
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1286	26	11	1011
Future Vol, veh/h	7	24	1286	26	11	1011
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1312	27	11	1032

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2380	670	0	0	1339	0
Stage 1	1326	-	-	-	-	-
Stage 2	1054	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	34	404	-	-	521	-
Stage 1	216	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	404	-	-	521	-
Mov Cap-2 Maneuver	33	-	-	-	-	-
Stage 1	216	-	-	-	-	-
Stage 2	331	-	-	-	-	-

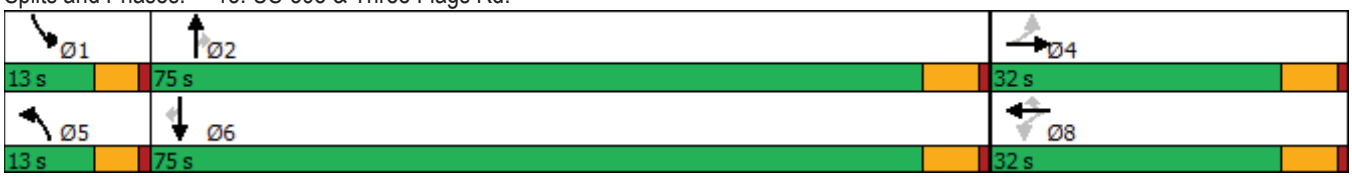
Approach	WB	NB	SB
HCM Control Delay, s	43.3	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	33	404	521	-
HCM Lane V/C Ratio	-	-	0.216	0.061	0.022	-
HCM Control Delay (s)	-	-	142	14.5	12.1	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.2	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	35	1	127	4	32	33	1246	147	33	928	57
Future Volume (vph)	35	1	127	4	32	33	1246	147	33	928	57
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	13.0	75.0	75.0	13.0	75.0	75.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	10.8%	62.5%	62.5%	10.8%	62.5%	62.5%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	14.7	14.7	14.7	14.7	14.7	6.4	69.7	69.7	6.4	69.7	69.7
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.06	0.67	0.67	0.06	0.67	0.67
v/c Ratio	0.18	0.22	0.67	0.01	0.11	0.31	0.52	0.13	0.31	0.39	0.05
Control Delay	42.1	12.7	60.5	39.0	1.0	56.8	11.0	1.9	56.8	9.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	12.7	60.5	39.0	1.0	56.8	11.0	1.9	56.8	9.4	1.6
LOS	D	B	E	D	A	E	B	A	E	A	A
Approach Delay		23.6		48.2			11.1			10.5	
Approach LOS		C		D			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 66.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	1	59	127	4	32	33	1246	147	33	928	57
Future Volume (veh/h)	35	1	59	127	4	32	33	1246	147	33	928	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	1	19	130	4	27	34	1271	144	34	947	41
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	242	10	181	230	223	189	55	2468	1100	55	2468	1101
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.03	0.68	0.68	0.03	0.68	0.68
Sat Flow, veh/h	1478	81	1541	1493	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	36	0	20	130	4	27	34	1271	144	34	947	41
Grp Sat Flow(s),veh/h/ln	1478	0	1623	1493	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	2.2	0.0	1.1	8.6	0.2	1.5	1.9	17.4	3.1	1.9	11.4	0.8
Cycle Q Clear(g_c), s	2.4	0.0	1.1	9.7	0.2	1.5	1.9	17.4	3.1	1.9	11.4	0.8
Prop In Lane	1.00		0.95	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	242	0	191	230	223	189	55	2468	1100	55	2468	1101
V/C Ratio(X)	0.15	0.00	0.10	0.56	0.02	0.14	0.62	0.52	0.13	0.62	0.38	0.04
Avail Cap(c_a), veh/h	449	0	418	439	489	415	143	2468	1100	143	2468	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	0.0	39.8	44.1	39.4	40.0	48.3	7.8	5.5	48.3	6.8	5.2
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.8	0.0	0.1	4.1	0.8	0.2	4.1	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	3.2	0.1	0.6	0.9	5.0	0.8	0.9	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	0.0	39.9	44.9	39.4	40.1	52.5	8.6	5.8	52.5	7.3	5.2
LnGrp LOS	D	A	D	D	D	D	D	A	A	D	A	A
Approach Vol, veh/h		56			161			1449			1022	
Approach Delay, s/veh		40.3			44.0			9.3			8.7	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	75.0		17.9	8.1	75.0		17.9				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	8.0	69.0		26.0	8.0	69.0		26.0				
Max Q Clear Time (g_c+I1), s	3.9	19.4		4.4	3.9	13.4		11.7				
Green Ext Time (p_c), s	0.0	11.5		0.1	0.0	7.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		11.8	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	47	81	19	121	25	1251	87	102	992	21
Future Volume (vph)	53	47	81	19	121	25	1251	87	102	992	21
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	46.0	46.0	46.0	46.0	46.0	10.0	59.0	59.0	15.0	64.0	64.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	8.3%	49.2%	49.2%	12.5%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.4	16.4	16.4	16.4	16.4	5.8	56.6	56.6	9.5	66.5	66.5
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.06	0.60	0.60	0.10	0.70	0.70
v/c Ratio	0.23	0.18	0.36	0.06	0.33	0.24	0.60	0.09	0.58	0.40	0.02
Control Delay	34.2	28.1	37.3	30.7	7.9	52.0	15.7	3.4	56.1	9.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	28.1	37.3	30.7	7.9	52.0	15.7	3.4	56.1	9.3	0.0
LOS	C	C	D	C	A	D	B	A	E	A	A
Approach Delay		31.1		20.7			15.6			13.4	
Approach LOS		C		C			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 15.7	Intersection LOS: B
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	47	10	81	19	121	25	1251	87	102	992	21
Future Volume (veh/h)	53	47	10	81	19	121	25	1251	87	102	992	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	48	7	84	20	67	26	1290	78	105	1023	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	257	215	31	238	252	213	49	2357	1051	134	2528	1128
Arrive On Green	0.13	0.13	0.12	0.13	0.13	0.13	0.03	0.65	0.65	0.07	0.70	0.70
Sat Flow, veh/h	1402	1621	236	1446	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	55	0	55	84	20	67	26	1290	78	105	1023	15
Grp Sat Flow(s),veh/h/ln	1402	0	1857	1446	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	3.1	0.0	2.3	4.7	0.8	3.2	1.2	16.5	1.5	4.9	10.2	0.2
Cycle Q Clear(g_c), s	3.9	0.0	2.3	7.0	0.8	3.2	1.2	16.5	1.5	4.9	10.2	0.2
Prop In Lane	1.00		0.13	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	257	0	246	238	252	213	49	2357	1051	134	2528	1128
V/C Ratio(X)	0.21	0.00	0.22	0.35	0.08	0.31	0.53	0.55	0.07	0.78	0.40	0.01
Avail Cap(c_a), veh/h	759	0	911	755	931	788	127	2357	1051	232	2528	1128
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	33.3	36.3	32.6	33.6	41.1	8.0	5.4	39.0	5.4	3.9
Incr Delay (d2), s/veh	0.2	0.0	0.2	0.3	0.0	0.3	6.6	0.9	0.1	7.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	1.0	1.7	0.4	1.3	0.6	4.6	0.4	2.3	2.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	0.0	33.4	36.7	32.6	33.9	47.7	8.9	5.6	46.1	5.8	3.9
LnGrp LOS	C	A	C	D	C	C	D	A	A	D	A	A
Approach Vol, veh/h		110			171			1394			1143	
Approach Delay, s/veh		33.9			35.1			9.5			9.5	
Approach LOS		C			D			A			A	

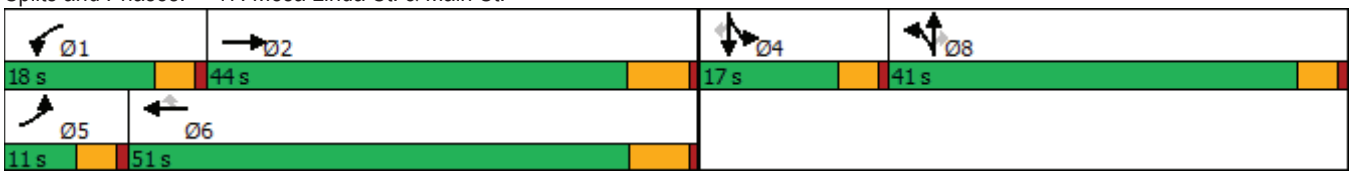
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	59.9		15.4	6.3	64.0		15.4				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	11.0	53.0		41.0	6.0	58.0		41.0				
Max Q Clear Time (g_c+I1), s	6.9	18.5		5.9	3.2	12.2		9.0				
Green Ext Time (p_c), s	0.1	20.3		0.2	0.0	16.6		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		12.0	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	1696	47	1102	54	7	81	0	3
Future Volume (vph)	5	1696	47	1102	54	7	81	0	3
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	44.0	18.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	36.7%	15.0%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	48.5	7.3	54.2	54.2	14.2	14.2	10.5	10.5
Actuated g/C Ratio	0.06	0.58	0.09	0.65	0.65	0.17	0.17	0.13	0.13
v/c Ratio	0.05	0.62	0.35	0.36	0.05	0.06	0.22	0.15	0.01
Control Delay	47.2	21.3	48.4	12.9	1.0	31.6	1.3	42.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	21.3	48.4	12.9	1.0	31.6	1.3	42.2	0.0
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		21.4		13.7		6.4		38.6	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.8	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1696	6	47	1102	54	10	7	81	31	0	3
Future Volume (veh/h)	5	1696	6	47	1102	54	10	7	81	31	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	5	1767	5	49	1148	48	10	7	25	32	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	11	2780	8	68	2876	893	79	56	118	113	0	100
Arrive On Green	0.01	0.55	0.55	0.04	0.59	0.59	0.08	0.08	0.08	0.07	0.00	0.07
Sat Flow, veh/h	1619	5059	14	1619	4914	1525	1029	720	1525	1714	0	1525
Grp Volume(v), veh/h	5	1144	628	49	1148	48	17	0	25	32	0	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1797	1619	1638	1525	1749	0	1525	1714	0	1525
Q Serve(g_s), s	0.2	18.5	18.5	2.3	9.7	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	18.5	18.5	2.3	9.7	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.59		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	11	1800	988	68	2876	893	135	0	118	113	0	100
V/C Ratio(X)	0.47	0.64	0.64	0.72	0.40	0.05	0.13	0.00	0.21	0.28	0.00	0.01
Avail Cap(c_a), veh/h	135	1800	988	283	2876	893	831	0	725	278	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	11.9	11.9	36.2	8.6	6.8	32.9	0.0	33.1	34.0	0.0	33.4
Incr Delay (d2), s/veh	11.4	1.7	3.1	5.1	0.4	0.1	0.4	0.0	0.9	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.3	6.2	0.9	2.6	0.3	0.3	0.0	0.5	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	13.7	15.1	41.3	9.0	6.9	33.3	0.0	34.0	35.4	0.0	33.5
LnGrp LOS	D	B	B	D	A	A	C	A	C	D	A	C
Approach Vol, veh/h		1777			1245			42			33	
Approach Delay, s/veh		14.3			10.2			33.7			35.3	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	48.6		9.6	5.1	51.3		10.5				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	13.4	37.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	4.3	20.5		3.4	2.2	11.7		3.2				
Green Ext Time (p_c), s	0.0	10.0		0.0	0.0	8.8		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		13.1	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	1622	88	188	959	44	135	51	137	69	29	111
Future Volume (vph)	77	1622	88	188	959	44	135	51	137	69	29	111
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	32.8	32.8	12.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	25.2%	25.2%	9.2%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	28.0	28.0	7.8	29.0	29.0	14.6	14.6	14.6	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.33	0.33	0.09	0.34	0.34	0.17	0.17	0.17	0.16	0.16	0.16
v/c Ratio	0.62	1.03	0.16	0.72	0.59	0.08	0.36	0.34	0.38	0.26	0.10	0.33
Control Delay	64.3	60.1	8.2	56.2	28.1	0.3	35.3	34.5	8.7	34.3	31.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.3	60.1	8.2	56.2	28.1	0.3	35.3	34.5	8.7	34.3	31.8	9.3
LOS	E	E	A	E	C	A	D	C	A	C	C	A
Approach Delay		57.8			31.5			23.8			20.7	
Approach LOS		E			C			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 85.5	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 43.5	Intersection LOS: D
Intersection Capacity Utilization 67.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	1622	88	188	959	44	135	51	137	69	29	111
Future Volume (veh/h)	77	1622	88	188	959	44	135	51	137	69	29	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	79	1655	51	192	979	33	95	112	37	70	30	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	98	1772	550	263	1912	593	250	278	234	202	224	190
Arrive On Green	0.06	0.36	0.36	0.09	0.39	0.39	0.15	0.15	0.15	0.12	0.12	0.12
Sat Flow, veh/h	1619	4914	1524	2956	4914	1523	1619	1800	1511	1619	1800	1525
Grp Volume(v), veh/h	79	1655	51	192	979	33	95	112	37	70	30	23
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1523	1619	1800	1511	1619	1800	1525
Q Serve(g_s), s	3.6	24.0	1.6	4.7	11.2	1.0	3.9	4.1	1.6	2.9	1.1	1.0
Cycle Q Clear(g_c), s	3.6	24.0	1.6	4.7	11.2	1.0	3.9	4.1	1.6	2.9	1.1	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	1772	550	263	1912	593	250	278	234	202	224	190
V/C Ratio(X)	0.81	0.93	0.09	0.73	0.51	0.06	0.38	0.40	0.16	0.35	0.13	0.12
Avail Cap(c_a), veh/h	140	1772	550	297	1912	593	856	952	799	812	903	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	22.7	15.6	32.7	17.2	14.1	28.0	28.1	27.0	29.5	28.7	28.7
Incr Delay (d2), s/veh	13.1	10.6	0.3	6.2	1.0	0.2	0.9	0.9	0.3	1.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	9.3	0.5	1.8	3.7	0.3	1.5	1.8	0.6	1.2	0.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	33.3	15.9	38.9	18.2	14.2	28.9	29.0	27.3	30.6	29.0	29.0
LnGrp LOS	D	C	B	D	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1785			1204			244			123	
Approach Delay, s/veh		33.5			21.4			28.7			29.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.2	32.8		13.8	9.1	34.9		16.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	7.4	26.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	6.7	26.0		4.9	5.6	13.2		6.1				
Green Ext Time (p_c), s	0.0	0.5		0.4	0.0	5.3		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		28.7
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	55	1839	24	215	1288	29	71	230	222	84
Future Volume (vph)	55	1839	24	215	1288	29	71	230	222	84
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	16.0	42.0	42.0	34.0	60.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	13.3%	35.0%	35.0%	28.3%	50.0%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	7.9	42.5	42.5	17.8	54.9	24.0	24.0	24.0	24.0	24.0
Actuated g/C Ratio	0.08	0.42	0.42	0.18	0.55	0.24	0.24	0.24	0.24	0.24
v/c Ratio	0.44	0.90	0.03	0.76	0.58	0.11	0.17	0.44	0.79	0.28
Control Delay	58.6	36.2	0.1	57.5	18.1	30.6	31.0	6.6	55.2	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	36.2	0.1	57.5	18.3	30.6	31.0	6.6	55.2	27.9
LOS	E	D	A	E	B	C	C	A	E	C
Approach Delay		36.4			23.2		13.9			45.9
Approach LOS		D			C		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.1	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 30.1	Intersection LOS: C
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1839	24	215	1288	213	29	71	230	222	84	31
Future Volume (veh/h)	55	1839	24	215	1288	213	29	71	230	222	84	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	56	1877	20	219	1314	141	30	72	94	227	86	11
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	2116	657	250	2442	262	342	468	390	340	406	52
Arrive On Green	0.04	0.43	0.43	0.15	0.54	0.54	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1619	4914	1525	1619	4505	483	1241	1800	1501	1168	1563	200
Grp Volume(v), veh/h	56	1877	20	219	956	499	30	72	94	227	0	97
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1619	1638	1712	1241	1800	1501	1168	0	1763
Q Serve(g_s), s	3.4	34.9	0.8	13.1	18.7	18.7	1.9	3.1	4.9	18.5	0.0	4.3
Cycle Q Clear(g_c), s	3.4	34.9	0.8	13.1	18.7	18.7	6.2	3.1	4.9	21.5	0.0	4.3
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	70	2116	657	250	1776	928	342	468	390	340	0	458
V/C Ratio(X)	0.81	0.89	0.03	0.88	0.54	0.54	0.09	0.15	0.24	0.67	0.00	0.21
Avail Cap(c_a), veh/h	186	2116	657	480	1776	928	512	715	596	500	0	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.1	26.0	16.3	41.0	14.7	14.7	31.2	28.3	29.0	36.6	0.0	28.8
Incr Delay (d2), s/veh	7.9	6.0	0.1	3.8	1.2	2.2	0.1	0.2	0.3	2.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	13.2	0.3	5.2	6.2	6.8	0.6	1.3	1.8	5.5	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	32.0	16.4	44.9	15.9	16.9	31.3	28.5	29.3	38.9	0.0	29.0
LnGrp LOS	D	C	B	D	B	B	C	C	C	D	A	C
Approach Vol, veh/h		1953			1674			196			324	
Approach Delay, s/veh		32.5			20.0			29.3			35.9	
Approach LOS		C			B			C			D	

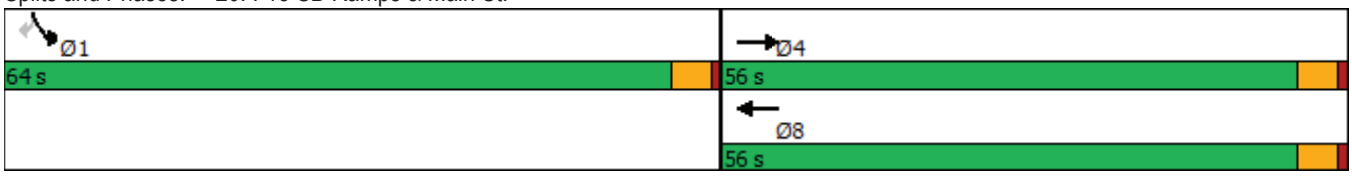
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.9	48.9		30.4	8.9	60.0		30.4				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	29.4	35.8		39.4	11.4	53.8		39.4				
Max Q Clear Time (g_c+I1), s	15.1	36.9		23.5	5.4	20.7		8.2				
Green Ext Time (p_c), s	0.2	0.0		1.3	0.0	11.2		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		27.6	
HCM 6th LOS		C	

Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	1724	438	1237	540	480
Future Volume (vph)	1724	438	1237	540	480
Turn Type	NA	Free	NA	Prot	Perm
Protected Phases	4		8	1	
Permitted Phases		Free			1
Detector Phase	4		8	1	1
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	9.6		22.6	9.6	9.6
Total Split (s)	56.0		56.0	64.0	64.0
Total Split (%)	46.7%		46.7%	53.3%	53.3%
Yellow Time (s)	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6		4.6	4.6	4.6
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None		None	None	None
Act Effct Green (s)	39.9	83.2	39.9	33.6	33.6
Actuated g/C Ratio	0.48	1.00	0.48	0.40	0.40
v/c Ratio	0.72	0.28	0.51	0.39	0.75
Control Delay	20.0	0.4	16.6	19.0	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	0.4	16.6	19.0	29.1
LOS	B	A	B	B	C
Approach Delay	16.0		16.6		
Approach LOS	B		B		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.2	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1724	438	0	1237	0	0	0	0	540	0	480
Future Volume (veh/h)	0	1724	438	0	1237	0	0	0	0	540	0	480
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1777	0	0	1275	0				557	0	382
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2791		0	2791					1092	0	501
Arrive On Green	0.00	0.54	0.00	0.00	0.54	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1777	0	0	1275	0				557	0	382
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	14.7	0.0	0.0	9.2	0.0				7.9	0.0	13.1
Cycle Q Clear(g_c), s	0.0	14.7	0.0	0.0	9.2	0.0				7.9	0.0	13.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2791		0	2791					1092	0	501
V/C Ratio(X)	0.00	0.64		0.00	0.46					0.51	0.00	0.76
Avail Cap(c_a), veh/h	0	4367		0	4367					3416	0	1567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.9	0.0	0.0	8.6	0.0				17.2	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.0				0.4	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	0.0	0.0	2.3	0.0				3.0	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.1	0.0	0.0	8.8	0.0				17.6	0.0	21.4
LnGrp LOS	A	B		A	A					B	A	C
Approach Vol, veh/h		1777	A		1275	A					939	
Approach Delay, s/veh		10.1			8.8						19.1	
Approach LOS		B			A						B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		37.4		23.6		37.4
Change Period (Y+Rc), s		4.6		4.6		4.6
Max Green Setting (Gmax), s		51.4		59.4		51.4
Max Q Clear Time (g_c+I1), s		16.7		15.1		11.2
Green Ext Time (p_c), s		16.2		3.9		10.4

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

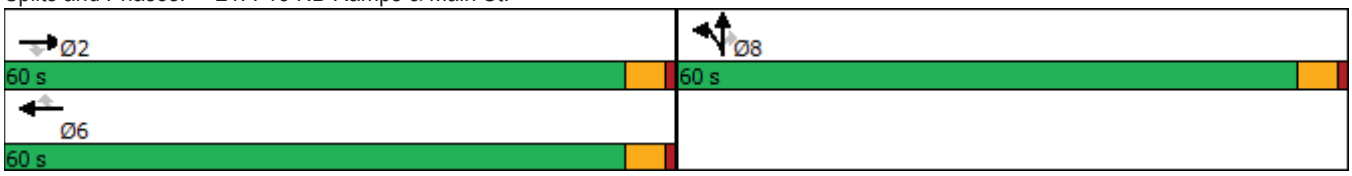
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1628	636	1325	396	270	0	831
Future Volume (vph)	1628	636	1325	396	270	0	831
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	47.8	47.8	47.8	47.8	37.0	37.0	37.0
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.39	0.39	0.39
v/c Ratio	0.64	0.58	0.52	0.40	0.39	0.70	0.70
Control Delay	19.7	3.7	17.7	3.0	23.0	30.8	30.7
Queue Delay	0.0	0.0	0.2	0.3	0.0	0.0	0.0
Total Delay	19.7	3.7	18.0	3.3	23.0	30.8	30.7
LOS	B	A	B	A	C	C	C
Approach Delay	15.2		14.6			28.9	
Approach LOS	B		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.6	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 73.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1628	636	0	1325	396	270	0	831	0	0	0
Future Volume (veh/h)	0	1628	636	0	1325	396	270	0	831	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1678	0	0	1366	261	278	0	710			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2759		0	2759	857	558	0	993			
Arrive On Green	0.00	0.53	0.00	0.00	0.53	0.53	0.31	0.00	0.31			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1678	0	0	1366	261	278	0	710			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	12.9	0.0	0.0	9.6	5.2	7.2	0.0	11.3			
Cycle Q Clear(g_c), s	0.0	12.9	0.0	0.0	9.6	5.2	7.2	0.0	11.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2759		0	2759	857	558	0	993			
V/C Ratio(X)	0.00	0.61		0.00	0.50	0.30	0.50	0.00	0.72			
Avail Cap(c_a), veh/h	0	4991		0	4991	1549	1741	0	3099			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	9.3	0.0	0.0	8.6	7.5	16.3	0.0	17.7			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.1	0.2	0.7	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.1	0.0	0.0	2.3	1.2	2.9	0.0	4.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.5	0.0	0.0	8.7	7.7	17.0	0.0	18.6			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1678	A		1627			988				
Approach Delay, s/veh		9.5			8.5			18.2				
Approach LOS		A			A			B				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		35.2				35.2		22.3				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		55.4				55.4		55.4				
Max Q Clear Time (g_c+I1), s		14.9				11.6		13.3				
Green Ext Time (p_c), s		15.7				13.3		4.5				

Intersection Summary												
HCM 6th Ctrl Delay			11.1									
HCM 6th LOS			B									

Notes

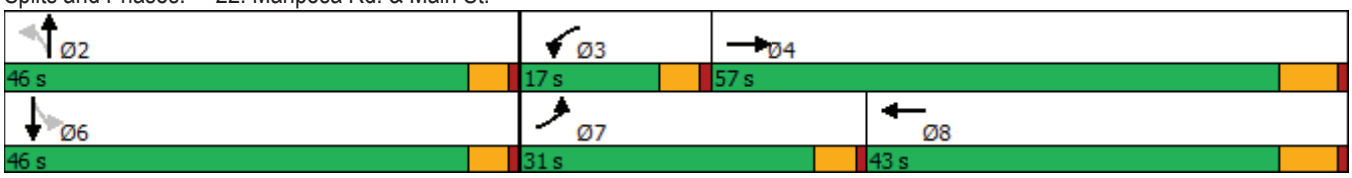
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	231	2076	84	1349	129	77	132	53
Future Volume (vph)	231	2076	84	1349	129	77	132	53
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	31.0	57.0	17.0	43.0	46.0	46.0	46.0	46.0
Total Split (%)	25.8%	47.5%	14.2%	35.8%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	18.2	51.3	12.5	45.5	21.8	21.8	21.8	21.8
Actuated g/C Ratio	0.18	0.51	0.12	0.45	0.22	0.22	0.22	0.22
v/c Ratio	0.81	0.73	0.43	0.54	0.92	0.38	0.63	0.52
Control Delay	61.8	22.6	51.5	23.6	94.8	25.8	48.5	15.8
Queue Delay	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	25.9	51.5	23.6	94.8	25.8	48.5	15.8
LOS	E	C	D	C	F	C	D	B
Approach Delay		29.3		25.1		58.2		27.5
Approach LOS		C		C		E		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 29.5	Intersection LOS: C
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	2076	153	84	1349	102	129	77	69	132	53	184
Future Volume (veh/h)	231	2076	153	84	1349	102	129	77	69	132	53	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	236	2118	140	86	1377	88	132	79	43	135	54	117
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	266	2967	196	196	2717	173	234	253	138	280	117	255
Arrive On Green	0.16	0.50	0.50	0.12	0.45	0.45	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1619	5978	395	1619	5993	382	1165	1090	594	1218	506	1097
Grp Volume(v), veh/h	236	1645	613	86	1067	398	132	0	122	135	0	171
Grp Sat Flow(s),veh/h/ln	1619	1548	1729	1619	1548	1731	1165	0	1684	1218	0	1603
Q Serve(g_s), s	14.6	28.3	28.3	5.0	16.7	16.7	11.2	0.0	6.1	10.6	0.0	9.4
Cycle Q Clear(g_c), s	14.6	28.3	28.3	5.0	16.7	16.7	20.6	0.0	6.1	16.7	0.0	9.4
Prop In Lane	1.00		0.23	1.00		0.22	1.00		0.35	1.00		0.68
Lane Grp Cap(c), veh/h	266	2305	858	196	2105	785	234	0	391	280	0	372
V/C Ratio(X)	0.89	0.71	0.71	0.44	0.51	0.51	0.56	0.00	0.31	0.48	0.00	0.46
Avail Cap(c_a), veh/h	418	2305	858	196	2105	785	435	0	681	490	0	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.9	20.1	20.1	41.8	19.9	19.9	42.6	0.0	32.5	39.4	0.0	33.8
Incr Delay (d2), s/veh	9.1	1.9	5.1	7.0	0.2	0.5	2.1	0.0	0.5	1.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	9.4	11.2	2.3	5.5	6.2	3.4	0.0	2.6	3.3	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	22.0	25.2	48.7	20.1	20.4	44.8	0.0	33.0	40.7	0.0	34.7
LnGrp LOS	D	C	C	D	C	C	D	A	C	D	A	C
Approach Vol, veh/h		2494			1551			254			306	
Approach Delay, s/veh		25.5			21.7			39.1			37.3	
Approach LOS		C			C			D			D	

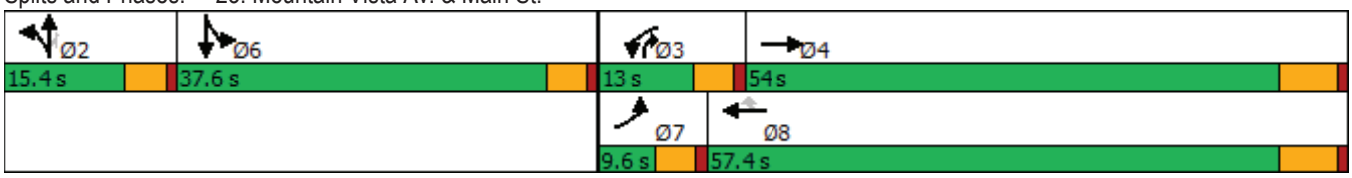
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.4	17.0	57.0		28.4	21.4	52.6				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		41.4	12.4	50.8		41.4	26.4	36.8				
Max Q Clear Time (g_c+I1), s		22.6	7.0	30.3		18.7	16.6	18.7				
Green Ext Time (p_c), s		1.1	0.0	14.5		1.6	0.2	8.6				

Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	2124	61	1598	68	32	5	27	77	7
Future Volume (vph)	48	2124	61	1598	68	32	5	27	77	7
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	55.6	7.3	60.0	60.0	10.3	10.3	12.8	13.9	13.9
Actuated g/C Ratio	0.06	0.60	0.08	0.65	0.65	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.31	0.61	0.50	0.53	0.07	0.10	0.06	0.06	0.21	0.19
Control Delay	53.2	19.2	59.9	15.9	2.1	46.4	44.5	0.3	38.4	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	19.2	59.9	15.9	2.1	46.4	44.5	0.3	38.4	34.3
LOS	D	B	E	B	A	D	D	A	D	C
Approach Delay		20.0		16.9			26.5			36.4
Approach LOS		B		B			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	2124	18	61	1598	68	32	5	27	77	7	6
Future Volume (veh/h)	48	2124	18	61	1598	68	32	5	27	77	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	51	2236	17	64	1682	57	34	5	13	91	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	118	3527	27	79	2760	857	260	145	395	320	178	0
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	2956	6385	49	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	51	1626	627	64	1682	57	34	5	13	91	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1790	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	1.5	22.0	22.0	3.6	20.8	1.6	0.9	0.2	0.3	2.4	0.0	0.0
Cycle Q Clear(g_c), s	1.5	22.0	22.0	3.6	20.8	1.6	0.9	0.2	0.3	2.4	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	118	2565	989	79	2760	857	260	145	395	320	178	0
V/C Ratio(X)	0.43	0.63	0.63	0.81	0.61	0.07	0.13	0.03	0.03	0.28	0.00	0.00
Avail Cap(c_a), veh/h	162	2565	989	149	2760	857	384	213	511	1172	652	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.8	14.0	14.1	42.9	13.3	9.1	39.0	38.7	34.7	38.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	1.2	3.1	7.0	1.0	0.1	0.2	0.1	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	6.6	8.1	1.5	6.5	0.5	0.4	0.1	0.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.7	15.3	17.1	49.9	14.3	9.2	39.2	38.8	34.7	38.6	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		2304			1803			52			91	
Approach Delay, s/veh		16.4			15.4			38.0			38.6	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.9	9.1	56.6		13.6	8.2	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		2.9	5.6	24.0		4.4	3.5	22.8				
Green Ext Time (p_c), s		0.1	0.0	16.1		0.3	0.0	13.9				

Intersection Summary	
HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

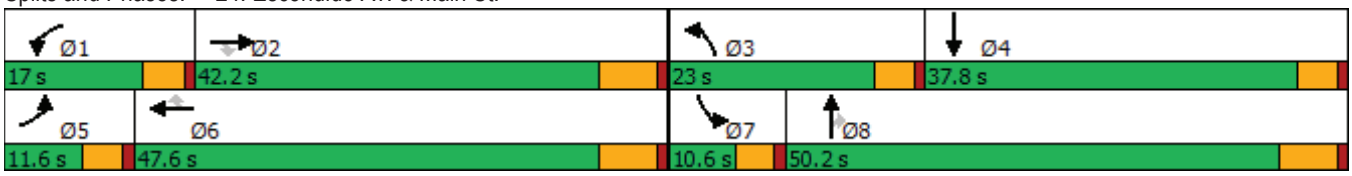
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	53	1439	693	408	1074	10	600	50	196	55	37
Future Volume (vph)	53	1439	693	408	1074	10	600	50	196	55	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	42.2	42.2	17.0	47.6	47.6	23.0	50.2	50.2	10.6	37.8
Total Split (%)	9.7%	35.2%	35.2%	14.2%	39.7%	39.7%	19.2%	41.8%	41.8%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.6	36.5	36.5	12.6	44.8	44.8	18.7	23.9	23.9	5.9	13.9
Actuated g/C Ratio	0.07	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.06	0.14
v/c Ratio	0.51	0.82	0.76	1.13	0.72	0.01	1.12	0.12	0.39	0.59	0.33
Control Delay	65.2	34.4	11.2	127.6	28.4	0.0	113.8	29.3	6.5	72.9	21.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	34.4	11.2	127.6	28.4	0.0	113.8	29.3	6.5	72.9	21.7
LOS	E	C	B	F	C	A	F	C	A	E	C
Approach Delay		27.8			55.4			84.0			41.1
Approach LOS		C			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 47.2	Intersection LOS: D
Intersection Capacity Utilization 84.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1439	693	408	1074	10	600	50	196	55	37	52
Future Volume (veh/h)	53	1439	693	408	1074	10	600	50	196	55	37	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	55	1499	532	425	1119	8	625	52	123	57	39	51
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	68	1814	562	376	1554	678	558	430	364	71	66	87
Arrive On Green	0.04	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.04	0.09	0.09
Sat Flow, veh/h	1619	4914	1523	2956	3420	1494	2956	1800	1525	1619	708	926
Grp Volume(v), veh/h	55	1499	532	425	1119	8	625	52	123	57	0	90
Grp Sat Flow(s),veh/h/ln	1619	1638	1523	1478	1710	1494	1478	1800	1525	1619	0	1633
Q Serve(g_s), s	3.3	27.0	33.0	12.4	25.9	0.3	18.4	2.2	6.5	3.4	0.0	5.2
Cycle Q Clear(g_c), s	3.3	27.0	33.0	12.4	25.9	0.3	18.4	2.2	6.5	3.4	0.0	5.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	68	1814	562	376	1554	678	558	430	364	71	0	153
V/C Ratio(X)	0.81	0.83	0.95	1.13	0.72	0.01	1.12	0.12	0.34	0.81	0.00	0.59
Avail Cap(c_a), veh/h	116	1814	562	376	1554	678	558	812	688	100	0	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	27.9	29.8	42.6	21.6	14.6	39.6	29.1	30.7	46.2	0.0	42.4
Incr Delay (d2), s/veh	8.2	4.5	26.8	86.9	2.9	0.0	75.8	0.1	0.5	18.7	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	10.3	16.0	8.8	9.8	0.1	12.5	1.0	2.5	1.7	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	32.4	56.6	129.4	24.5	14.6	115.3	29.2	31.3	65.0	0.0	46.0
LnGrp LOS	D	C	E	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		2086			1552			800			147	
Approach Delay, s/veh		39.2			53.2			96.8			53.3	
Approach LOS		D			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.3	8.7	50.5	8.9	29.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	35.0	20.4	7.2	5.3	27.9	5.4	8.5
Green Ext Time (p_c), s	0.0	0.8	0.0	0.5	0.0	5.9	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	131	550	11	254	764
Future Vol, veh/h	11	131	550	11	254	764
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	136	573	11	265	796

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1511	296	0	0	588	0
Stage 1	583	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	113	706	-	-	997	-
Stage 1	527	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	82	703	-	-	993	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	525	-	-	-	-	-
Stage 2	257	-	-	-	-	-

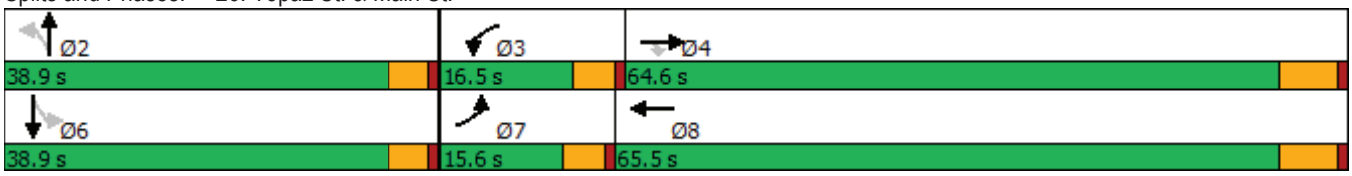
Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	2.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	189	703	993	-
HCM Lane V/C Ratio	-	-	0.061	0.194	0.266	-
HCM Control Delay (s)	-	-	25.3	11.4	9.9	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.7	1.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	70	1411	233	102	1155	212	32	61	35
Future Volume (vph)	70	1411	233	102	1155	212	32	61	35
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	15.6	64.6	64.6	16.5	65.5	38.9	38.9	38.9	38.9
Total Split (%)	13.0%	53.8%	53.8%	13.8%	54.6%	32.4%	32.4%	32.4%	32.4%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.6	51.0	51.0	12.2	57.2	24.1	24.1	24.1	24.1
Actuated g/C Ratio	0.08	0.49	0.49	0.12	0.55	0.23	0.23	0.23	0.23
v/c Ratio	0.53	0.86	0.28	0.55	0.67	0.78	0.29	0.25	0.20
Control Delay	64.4	29.9	4.6	59.6	20.7	58.3	12.9	36.4	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	29.9	4.6	59.6	20.7	58.3	12.9	36.4	18.2
LOS	E	C	A	E	C	E	B	D	B
Approach Delay		27.9			23.7		41.4		26.1
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 90.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1411	233	102	1155	67	212	32	94	61	35	45
Future Volume (veh/h)	70	1411	233	102	1155	67	212	32	94	61	35	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	72	1455	168	105	1191	62	219	33	66	63	36	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	90	1701	759	195	1859	97	333	121	243	291	272	114
Arrive On Green	0.06	0.50	0.50	0.12	0.56	0.56	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1619	3420	1525	1619	3307	172	1285	536	1071	1243	1202	501
Grp Volume(v), veh/h	72	1455	168	105	615	638	219	0	99	63	0	51
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1769	1285	0	1607	1243	0	1703
Q Serve(g_s), s	4.4	36.8	6.2	6.0	24.4	24.4	16.2	0.0	5.0	4.4	0.0	2.4
Cycle Q Clear(g_c), s	4.4	36.8	6.2	6.0	24.4	24.4	18.6	0.0	5.0	9.4	0.0	2.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.67	1.00		0.29
Lane Grp Cap(c), veh/h	90	1701	759	195	961	995	333	0	364	291	0	386
V/C Ratio(X)	0.80	0.86	0.22	0.54	0.64	0.64	0.66	0.00	0.27	0.22	0.00	0.13
Avail Cap(c_a), veh/h	180	2018	900	195	1024	1060	487	0	557	441	0	590
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	21.7	14.0	41.0	14.8	14.8	37.9	0.0	31.5	35.4	0.0	30.5
Incr Delay (d2), s/veh	6.1	3.3	0.1	10.3	1.2	1.2	2.2	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	13.5	1.9	2.8	8.3	8.6	5.3	0.0	2.0	1.4	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	25.1	14.2	51.3	16.1	16.0	40.1	0.0	31.9	35.8	0.0	30.7
LnGrp LOS	D	C	B	D	B	B	D	A	C	D	A	C
Approach Vol, veh/h		1695			1358			318			114	
Approach Delay, s/veh		25.2			18.8			37.6			33.5	
Approach LOS		C			B			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		27.0	16.5	55.4		27.0	10.1	61.9				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		34.3	11.9	58.4		34.3	11.0	59.3				
Max Q Clear Time (g_c+I1), s		20.6	8.0	38.8		11.4	6.4	26.4				
Green Ext Time (p_c), s		1.1	0.0	10.4		0.4	0.0	8.9				

Intersection Summary	
HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

APPENDIX 5.2:

E+P CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

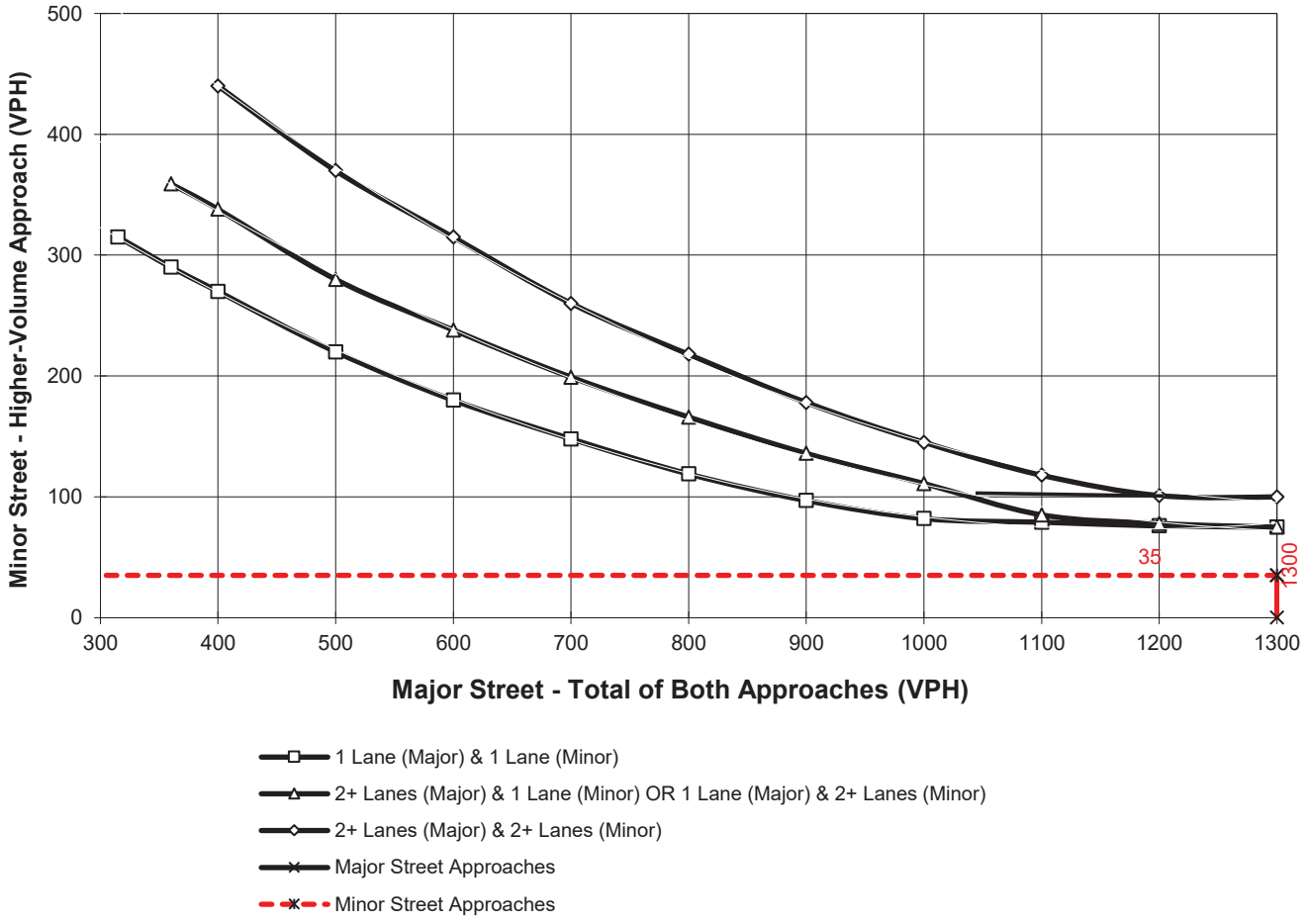
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1363**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road**
High Volume Approach (VPH) = **35**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

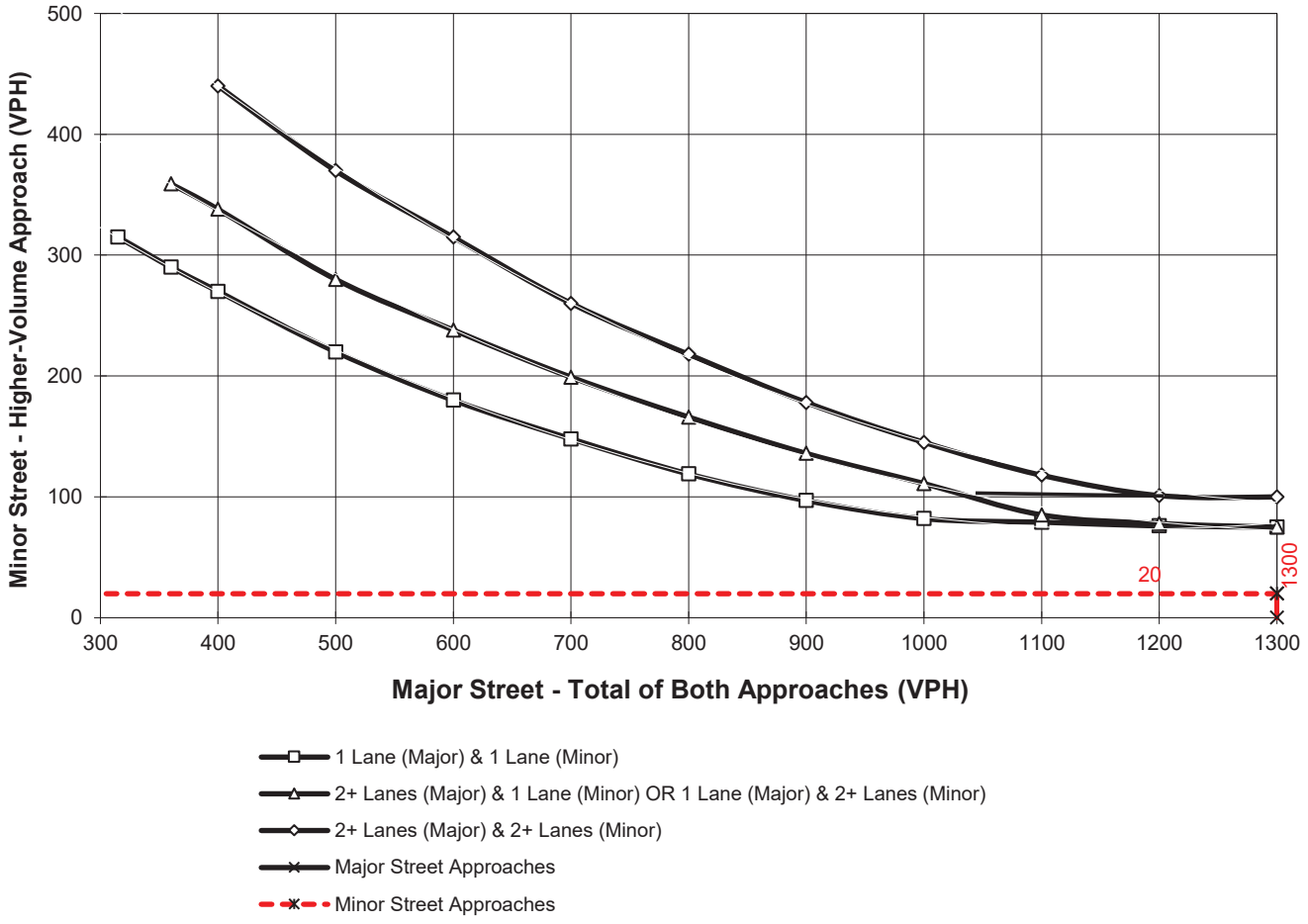
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1349**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street**
High Volume Approach (VPH) = **20**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST ___ CO ___ RTE ___ PM ___

TRAFFIC CONDITIONS **E+P**

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **Phelan Road** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 1** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **18,465** vpd Minor Street Future ADT = **1,424** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN RURAL **XX**

CONDITION A - Minimum Vehicular Volume

Satisfied Not Satisfied **XX**

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **18,465**	*1* **1,424**	8,000	5,600 *	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied Not Satisfied

XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **18,465**	*1* **1,424**	12,000	8,400 *	1,200	850 *
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied Not Satisfied

XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** **85%** **B** **100%**

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CH	DATE	01/23/20
Jurisdiction: City of Hesperia				CHK CH	DATE	01/23/20
Major Street: Yucca Terrace Dr.				Critical Approach Speed (Major)		45 mph
Minor Street: Driveway 2				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,339** vpd Minor Street Future ADT = **1,136** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street: 1 **1,339** / Minor Street: 1 **1,136**	8,000	5,600	2,400	1,680
Major Street: 2 + / Minor Street: 1	9,600	6,720	2,400	1,680
Major Street: 2 + / Minor Street: 2 +	9,600	6,720	3,200	2,240
Major Street: 1 / Minor Street: 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach				
Major Street: 1 **1,339** / Minor Street: 1 **1,136**	12,000	8,400	1,200	850 *
Major Street: 2 + / Minor Street: 1	14,400	10,080	1,200	850
Major Street: 2 + / Minor Street: 2 +	14,400	10,080	1,600	1,120
Major Street: 1 / Minor Street: 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 24% B: 16%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CH	DATE	01/23/20
Jurisdiction: **City of Hesperia**				CHK CH	DATE	01/23/20
Major Street: **Yucca Terrace Drive**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 2**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **3,963** vpd Minor Street Future ADT = **1,488** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,963**	*1* **1,488**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **3,963**	*1* **1,488**	12,000	8,400	1,200	850 *
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A / B				
	71% / 47%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CH	DATE	01/23/20
Jurisdiction: City of Hesperia				CHK CH	DATE	01/23/20
Major Street: Phelan Road				Critical Approach Speed (Major)		45 mph
Minor Street: Driveway 4				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **22,015** vpd Minor Street Future ADT = **3,079** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied	Urban	Rural	Urban	Rural
XX					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street				
1	*1*	8,000	5,600	2,400	1,680
2 + **22,015**	*1* **3,079**	9,600	6,720 *	2,400	1,680 *
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied	Urban	Rural	Urban	Rural
XX					
Number of lanes for moving traffic on each approach					
Major Street	Minor Street				
1	*1*	12,000	8,400	1,200	850
2 + **22,015**	*1* **3,079**	14,400	10,080 *	1,200	850 *
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
XX					
No one condition satisfied, but following conditions fulfilled 80% of more …..	A / B	2 CONDITIONS 80%		2 CONDITIONS 80%	
	100% / 100%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

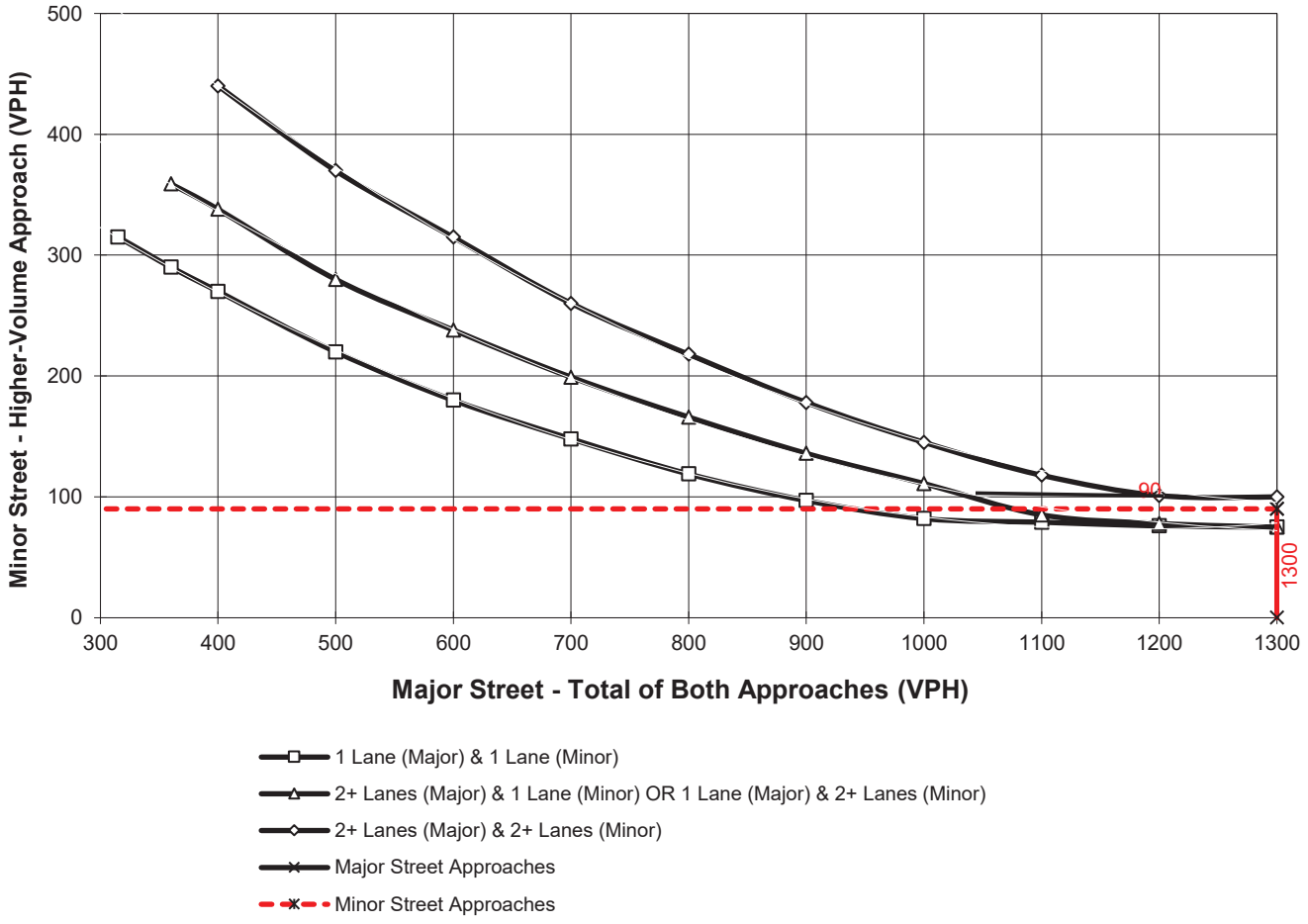
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **US Highway 395**
Total of Both Approaches (VPH) = **2582**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Yucca Terrace Drive**
High Volume Approach (VPH) = **90**
Number of Approach Lanes Minor Street = **1**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		E+P
				CALC CH	DATE	01/23/20
Jurisdiction: **City of Hesperia**				CHK CH	DATE	01/23/20
Major Street: **US Highway 395**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 5**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **30,190** vpd Minor Street Future ADT = **449** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN RURAL **XX**

CONDITION A - Minimum Vehicular Volume

Satisfied Not Satisfied **XX**

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	8,000	5,600	2,400	1,680
2 + **30,190**	1 **449**	9,600	6,720 *	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied Not Satisfied **XX**

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1	1	12,000	8,400	1,200	850
2 + **30,190**	1 **449**	14,400	10,080 *	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied Not Satisfied **XX**

No one condition satisfied, but following conditions fulfilled 80% of more ….. **A** **27%** **B** **53%**

2 CONDITIONS 80% 2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

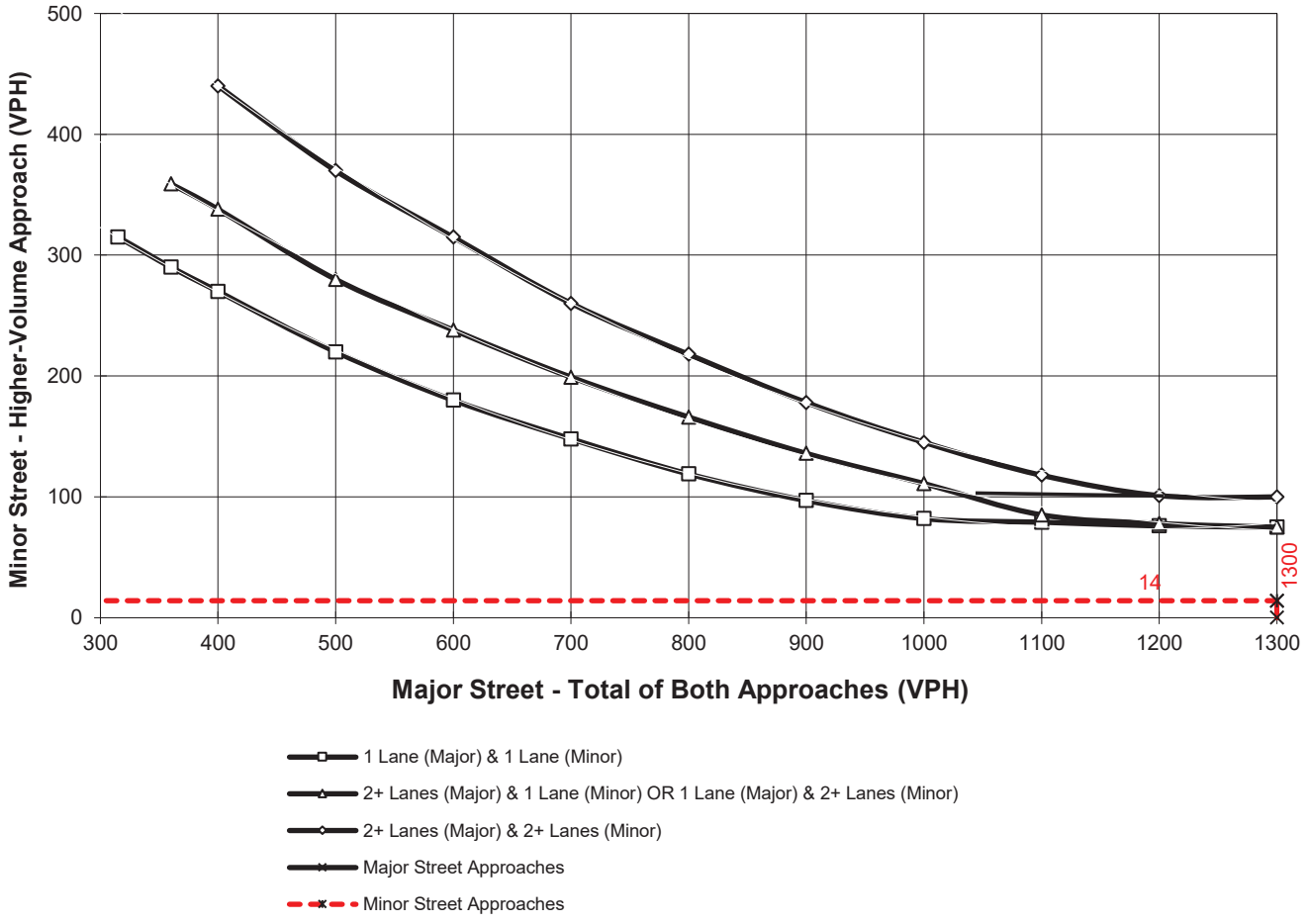
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **E+P Conditions - Weekday PM Peak Hour**

Major Street Name = **US Highway 395**
Total of Both Approaches (VPH) = **2062**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Poplar Street**
High Volume Approach (VPH) = **14**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.3:

E+P CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	133	74	79	387	39	780	48	228	902	74
v/c Ratio	0.70	0.33	0.17	0.31	0.84	0.37	0.47	0.06	0.73	0.41	0.07
Control Delay	79.8	34.6	3.7	35.6	41.4	59.9	22.6	0.8	53.9	12.7	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.8	34.6	3.7	35.6	41.4	59.9	22.6	0.8	53.9	12.7	3.5
Queue Length 50th (ft)	32	75	0	44	169	25	173	0	143	159	0
Queue Length 95th (ft)	80	126	20	85	278	67	331	5	240	284	24
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	143	761	707	479	747	111	1652	767	501	2227	1024
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.17	0.10	0.16	0.52	0.35	0.47	0.06	0.46	0.41	0.07

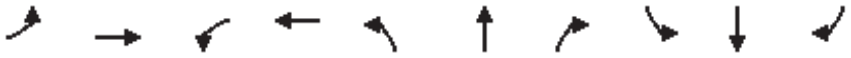
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	42	307	170	190	254	96	108	704	104	168	809	23
v/c Ratio	0.39	0.52	0.42	1.02	0.28	0.20	0.60	0.49	0.15	0.70	0.52	0.03
Control Delay	58.7	39.6	8.2	116.7	31.0	6.5	59.0	25.0	5.8	58.4	23.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	39.6	8.2	116.7	31.0	6.5	59.0	25.0	5.8	58.4	23.3	0.1
Queue Length 50th (ft)	25	92	0	115	71	0	62	157	0	95	175	0
Queue Length 95th (ft)	71	131	49	#335	104	34	#160	308	40	#232	343	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	112	1421	738	187	1570	759	205	1450	710	280	1570	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.22	0.23	1.02	0.16	0.13	0.53	0.49	0.15	0.60	0.52	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	28	99	28	9	912	66	4	1238	9
v/c Ratio	0.09	0.09	0.48	0.07	0.08	0.41	0.06	0.04	0.56	0.01
Control Delay	46.1	13.3	47.6	11.4	46.0	13.6	1.9	45.8	15.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	13.3	47.6	11.4	46.0	13.6	1.9	45.8	15.7	0.0
Queue Length 50th (ft)	4	2	37	2	4	66	0	2	103	0
Queue Length 95th (ft)	26	23	#177	22	25	387	12	15	#626	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	110	891	206	948	110	2226	1034	110	2226	1034
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.48	0.03	0.08	0.41	0.06	0.04	0.56	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	919	4	1588	185	836	275	1027
v/c Ratio	0.43	0.67	0.05	1.39	0.89	0.84	0.85	0.84
Control Delay	65.9	32.3	56.8	210.1	90.1	48.0	69.6	41.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	32.3	56.8	210.1	90.1	48.0	69.6	41.6
Queue Length 50th (ft)	37	293	3	~882	145	322	205	372
Queue Length 95th (ft)	79	415	15	#1023	#289	402	#337	457
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	129	1394	80	1146	209	1062	370	1381
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.66	0.05	1.39	0.89	0.79	0.74	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	971	13	24	1054
Future Vol, veh/h	5	9	971	13	24	1054
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	1044	14	26	1133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2236	529	0	0	1058	0
Stage 1	1051	-	-	-	-	-
Stage 2	1185	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	42	499	-	-	666	-
Stage 1	302	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	499	-	-	666	-
Mov Cap-2 Maneuver	40	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	282	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.7	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	40	499	666	-
HCM Lane V/C Ratio	-	-	0.134	0.019	0.039	-
HCM Control Delay (s)	-	-	108.5	12.4	10.6	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	26	89	179	2	45	25	998	110	22	1050	79
v/c Ratio	0.10	0.24	0.73	0.01	0.13	0.22	0.43	0.10	0.20	0.45	0.07
Control Delay	33.4	9.4	54.8	32.0	3.7	50.5	10.8	2.6	50.8	11.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	9.4	54.8	32.0	3.7	50.5	10.8	2.6	50.8	11.3	3.0
Queue Length 50th (ft)	12	0	95	1	0	14	120	0	12	128	0
Queue Length 95th (ft)	38	40	187	8	13	45	282	25	41	308	22
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	555	679	512	733	659	154	2323	1056	135	2314	1063
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.13	0.35	0.00	0.07	0.16	0.43	0.10	0.16	0.45	0.07

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	28	36	100	13	149	9	955	64	116	1166	36
v/c Ratio	0.11	0.10	0.39	0.04	0.36	0.09	0.47	0.07	0.54	0.46	0.03
Control Delay	29.6	27.4	35.3	28.2	7.3	48.4	15.5	2.2	48.4	9.1	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	27.4	35.3	28.2	7.3	48.4	15.5	2.2	48.4	9.1	1.9
Queue Length 50th (ft)	13	15	48	6	0	4	129	0	56	84	0
Queue Length 95th (ft)	35	40	96	21	44	24	382	14	143	407	10
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	705	931	691	942	865	104	2011	939	353	2553	1158
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.04	0.14	0.01	0.17	0.09	0.47	0.07	0.33	0.46	0.03

Intersection Summary



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1127	82	1325	323	644
v/c Ratio	0.61	0.05	0.71	0.17	0.73
Control Delay	23.3	0.1	25.3	11.2	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	0.1	25.3	11.2	21.4
Queue Length 50th (ft)	172	0	213	41	225
Queue Length 95th (ft)	216	0	263	77	#454
Internal Link Dist (ft)	480		822		
Turn Bay Length (ft)		250		1000	540
Base Capacity (vph)	4148	1615	4148	1872	884
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.05	0.32	0.17	0.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1034	372	1303	462	553	200	201
v/c Ratio	0.46	0.41	0.58	0.48	0.68	0.26	0.27
Control Delay	16.3	3.0	17.9	3.2	23.8	7.9	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	3.0	17.9	3.3	23.8	7.9	8.0
Queue Length 50th (ft)	132	0	178	0	200	23	23
Queue Length 95th (ft)	166	44	219	48	402	80	81
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	4767	1514	4767	1521	891	820	816
Starvation Cap Reductn	0	0	429	96	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.25	0.30	0.32	0.62	0.24	0.25

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	52	73	40	48	325	67	924	94	223	877	90
v/c Ratio	0.67	0.19	0.10	0.18	0.79	0.46	0.53	0.11	0.74	0.41	0.09
Control Delay	75.8	34.1	0.5	34.3	42.3	58.1	22.5	5.2	55.9	14.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	34.1	0.5	34.3	42.3	58.1	22.5	5.2	55.9	14.3	3.5
Queue Length 50th (ft)	32	40	0	26	151	42	205	0	138	155	0
Queue Length 95th (ft)	77	78	0	57	249	99	398	36	242	294	28
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	147	713	669	506	690	183	1728	822	458	2126	988
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.10	0.06	0.09	0.47	0.37	0.53	0.11	0.49	0.41	0.09

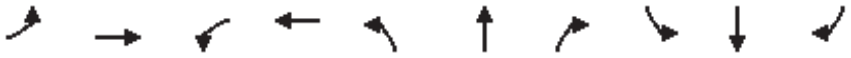
Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	57	327	140	119	322	137	185	879	248	158	783	37
v/c Ratio	0.52	0.54	0.36	0.92	0.44	0.32	0.72	0.56	0.29	0.69	0.52	0.05
Control Delay	65.2	39.8	8.2	106.7	36.4	7.5	57.4	24.1	4.1	59.1	24.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.2	39.8	8.2	106.7	36.4	7.5	57.4	24.1	4.1	59.1	24.8	0.1
Queue Length 50th (ft)	34	99	0	72	96	0	106	197	0	90	172	0
Queue Length 95th (ft)	#109	139	46	#229	135	44	#228	379	55	#224	348	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	112	1421	720	130	1458	725	336	1570	842	261	1511	720
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.23	0.19	0.92	0.22	0.19	0.55	0.56	0.29	0.61	0.52	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	5	51	11	18	1338	107	12	976	12
v/c Ratio	0.05	0.01	0.28	0.04	0.16	0.52	0.09	0.11	0.38	0.01
Control Delay	45.5	0.0	44.8	15.8	47.1	13.0	3.7	46.2	11.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	0.0	44.8	15.8	47.1	13.0	3.7	46.2	11.1	0.0
Queue Length 50th (ft)	3	0	23	1	9	116	0	6	73	0
Queue Length 95th (ft)	19	0	#107	14	39	#673	36	30	403	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	111	924	180	887	111	2585	1187	111	2585	1185
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.28	0.01	0.16	0.52	0.09	0.11	0.38	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	1391	9	1164	189	1189	539	954
v/c Ratio	0.62	1.07	0.12	1.02	0.76	0.97	2.08	0.77
Control Delay	89.3	80.5	58.9	69.6	68.0	59.5	525.4	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	80.5	58.9	69.6	68.0	59.5	525.4	40.8
Queue Length 50th (ft)	37	556	7	~495	142	480	~663	351
Queue Length 95th (ft)	#97	#842	25	#633	218	#637	#879	#451
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	76	1305	76	1145	305	1220	259	1235
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	1.07	0.12	1.02	0.62	0.97	2.08	0.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1286	26	11	1011
Future Vol, veh/h	7	24	1286	26	11	1011
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1312	27	11	1032

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2380	670	0	0	1339	0
Stage 1	1326	-	-	-	-	-
Stage 2	1054	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	34	404	-	-	521	-
Stage 1	216	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	404	-	-	521	-
Mov Cap-2 Maneuver	33	-	-	-	-	-
Stage 1	216	-	-	-	-	-
Stage 2	331	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.3	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	33	404	521	-
HCM Lane V/C Ratio	-	-	0.216	0.061	0.022	-
HCM Control Delay (s)	-	-	142	14.5	12.1	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0.2	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	36	61	130	4	33	34	1271	150	34	947	58
v/c Ratio	0.18	0.22	0.67	0.01	0.11	0.31	0.52	0.13	0.31	0.39	0.05
Control Delay	42.1	12.7	60.5	39.0	1.0	56.8	11.0	1.9	56.8	9.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	12.7	60.5	39.0	1.0	56.8	11.0	1.9	56.8	9.4	1.6
Queue Length 50th (ft)	22	1	86	2	0	23	228	0	23	149	0
Queue Length 95th (ft)	53	38	153	12	3	58	358	26	58	238	12
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	364	456	346	482	464	141	2434	1114	141	2434	1112
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.13	0.38	0.01	0.07	0.24	0.52	0.13	0.24	0.39	0.05

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	58	84	20	125	26	1290	90	105	1023	22
v/c Ratio	0.23	0.18	0.36	0.06	0.33	0.24	0.60	0.09	0.58	0.40	0.02
Control Delay	34.2	28.1	37.3	30.7	7.9	52.0	15.7	3.4	56.1	9.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	28.1	37.3	30.7	7.9	52.0	15.7	3.4	56.1	9.3	0.0
Queue Length 50th (ft)	28	24	44	10	0	14	199	0	56	68	0
Queue Length 95th (ft)	60	55	84	28	41	51	524	29	#152	346	1
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	636	838	614	855	786	115	2157	1001	212	2535	1151
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.07	0.14	0.02	0.16	0.23	0.60	0.09	0.50	0.40	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	1777	452	1275	557	495
v/c Ratio	0.72	0.28	0.51	0.39	0.75
Control Delay	20.0	0.4	16.6	19.0	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	0.4	16.6	19.0	29.1
Queue Length 50th (ft)	257	0	161	103	207
Queue Length 95th (ft)	423	0	271	171	383
Internal Link Dist (ft)	480		822		
Turn Bay Length (ft)		250		1000	540
Base Capacity (vph)	3406	1615	3406	2599	1203
Starvation Cap Reductn	132	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.28	0.37	0.21	0.41

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1678	656	1366	408	278	429	428
v/c Ratio	0.64	0.58	0.52	0.40	0.39	0.70	0.70
Control Delay	19.7	3.7	17.7	3.0	23.0	30.8	30.7
Queue Delay	0.0	0.0	0.2	0.3	0.0	0.0	0.0
Total Delay	19.7	3.7	18.0	3.3	23.0	30.8	30.7
Queue Length 50th (ft)	257	1	192	0	128	235	234
Queue Length 95th (ft)	425	64	323	54	199	360	358
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	3224	1251	3224	1158	1121	959	959
Starvation Cap Reductn	0	0	941	271	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.52	0.60	0.46	0.25	0.45	0.45

Intersection Summary

APPENDIX 5.4:

E+P CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.943	4514	7146	0.63	67.5	22.3	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.943	0.826	4514	895	7200	2100	0.63	0.43	63.6	59.4	23.7	29.8	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	3623	7146	0.51	68.2	17.7	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	4172	549	7200	1900	0.58	0.29	62.1	59.9	22.4	24.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4172	7146	0.58	68.0	20.5	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.847	4344	172	7200	2100	0.60	0.08	62.6	60.7	23.1	22.9	C

Segment 7: Basic

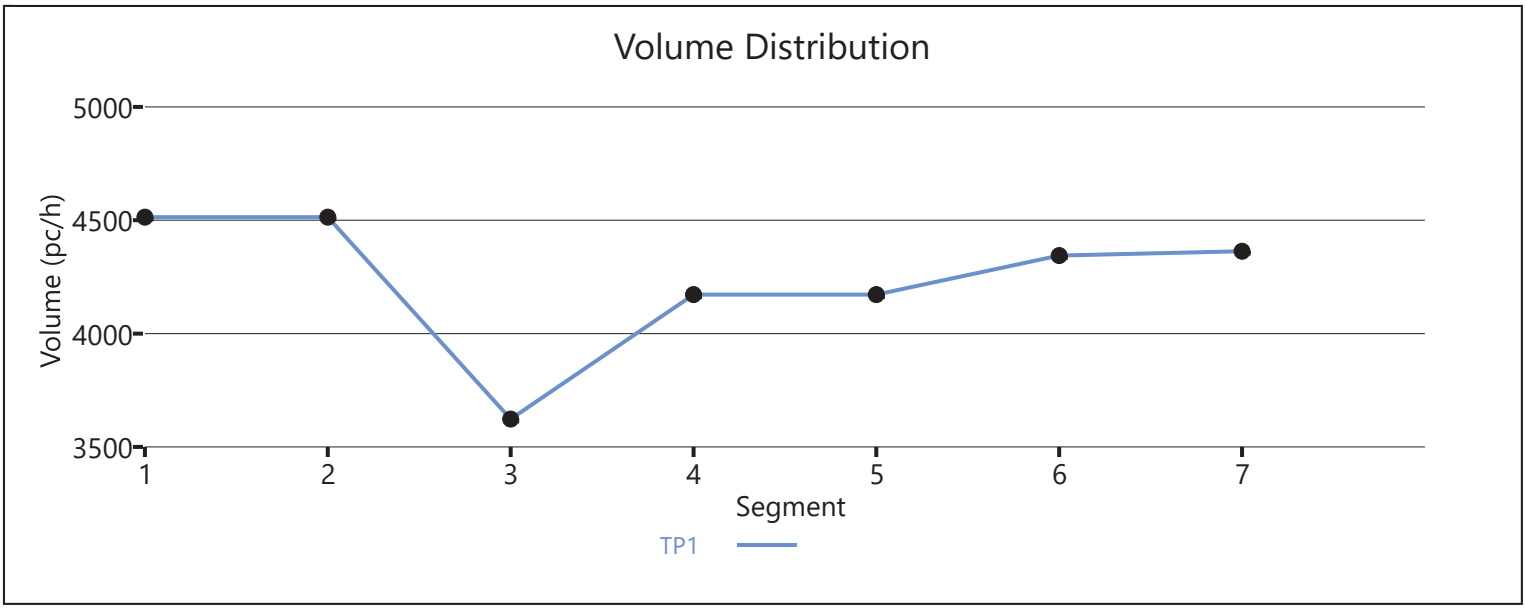
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4363	7146	0.61	67.8	21.4	C

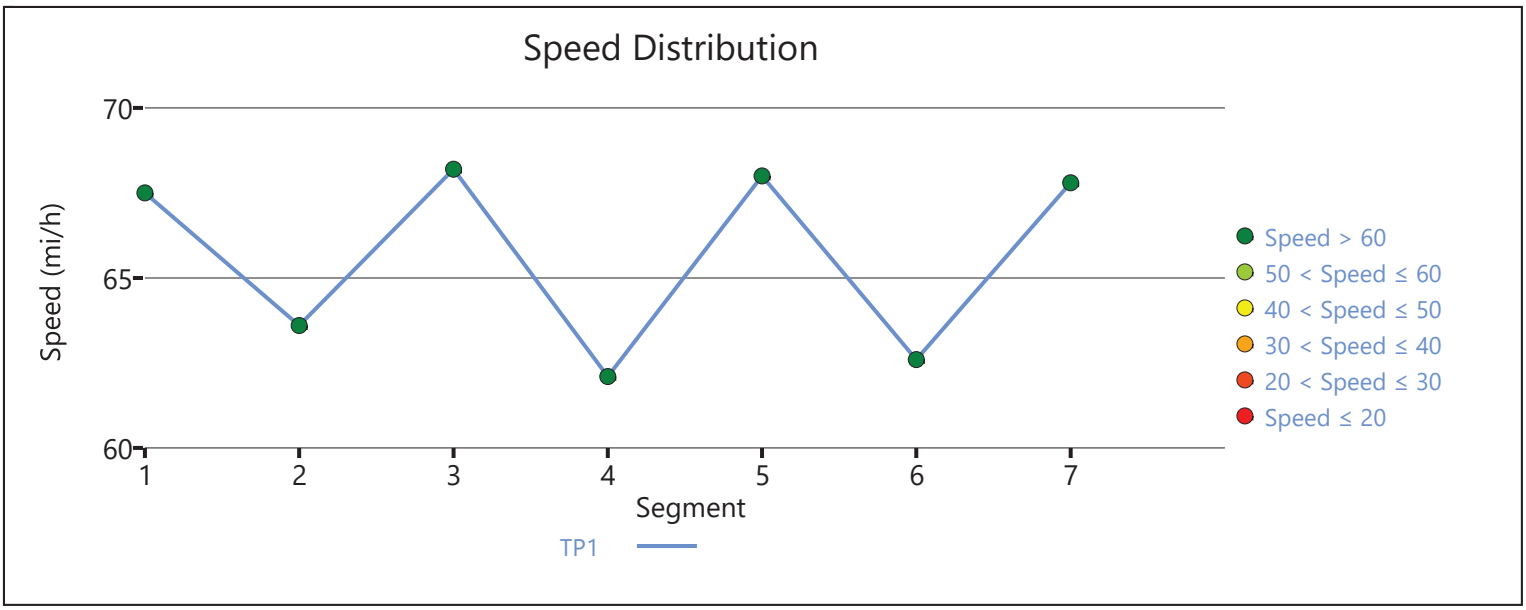
Facility Time Period Results

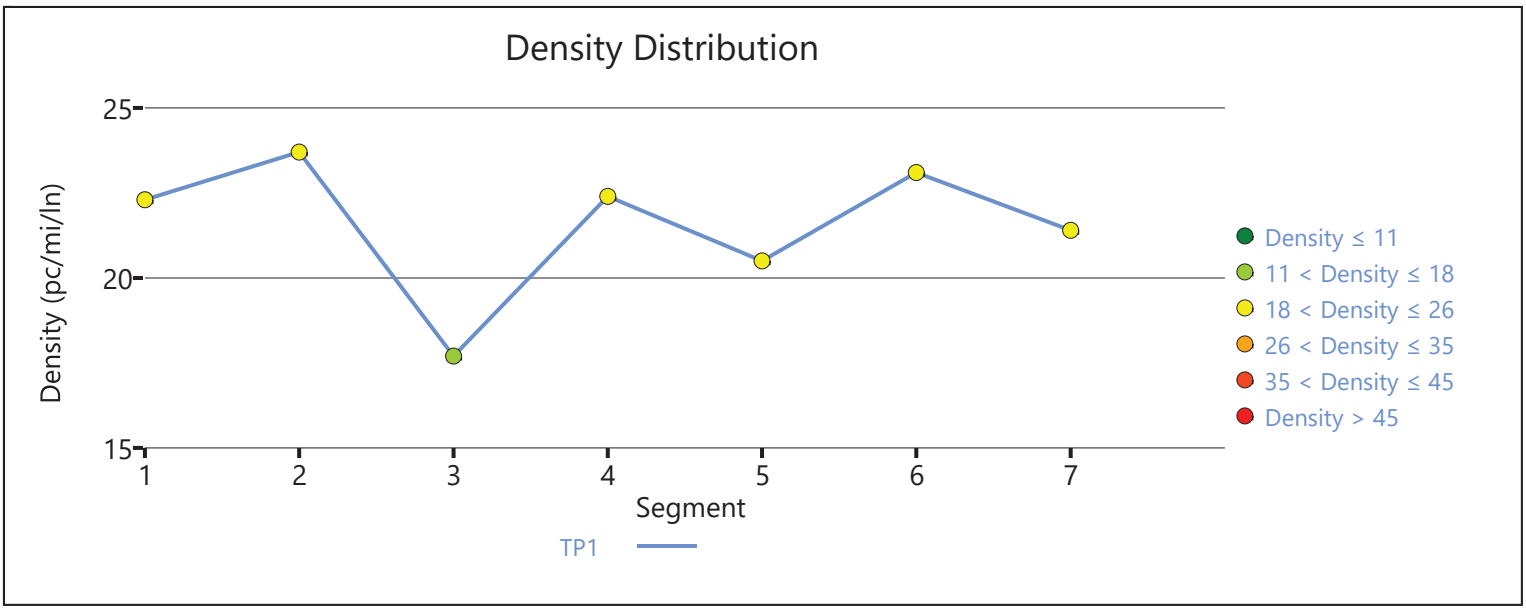
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.8	22.0	20.9	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	66.8	Density, veh/mi/ln	20.9
Average Travel Time, min	5.0	Density, pc/mi/ln	22.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	3613	7179	0.50	69.3	17.4	B

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.840	4796	1183	9600	2100	0.38	0.56	70.0	-	12.9	-	B

Segment 3: Basic

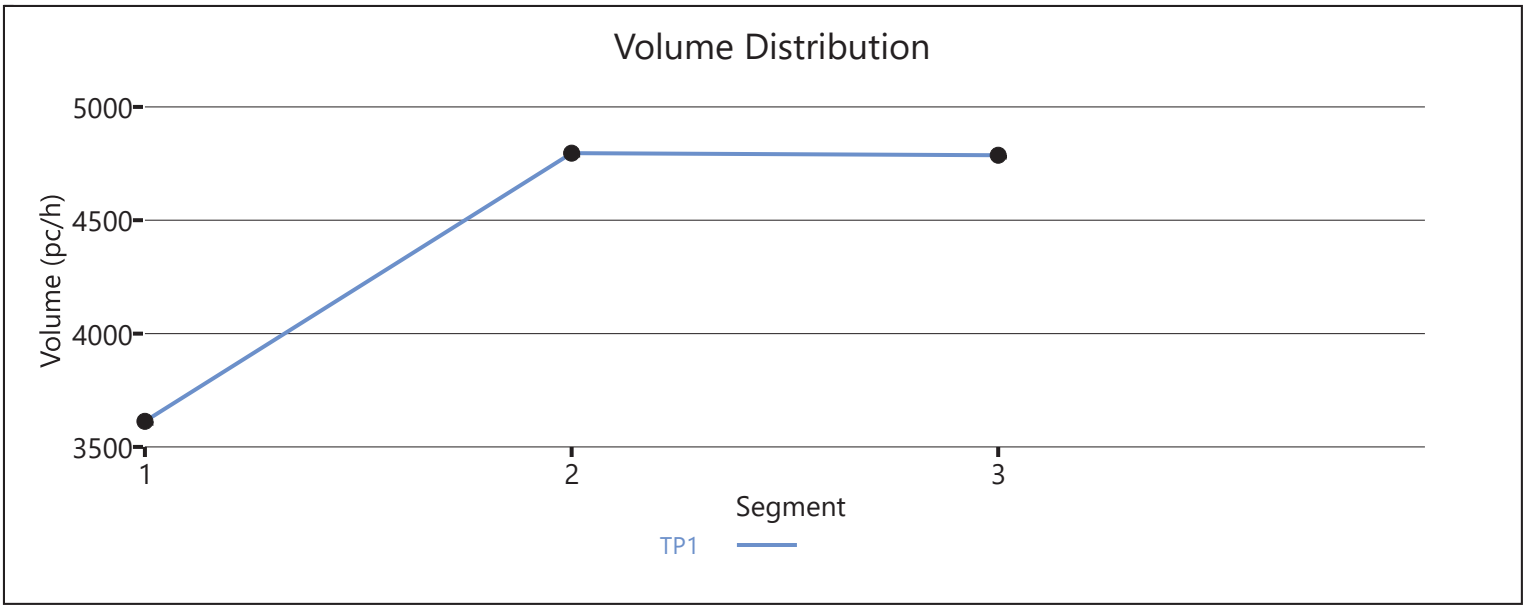
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4787	9572	0.50	69.3	17.3	B

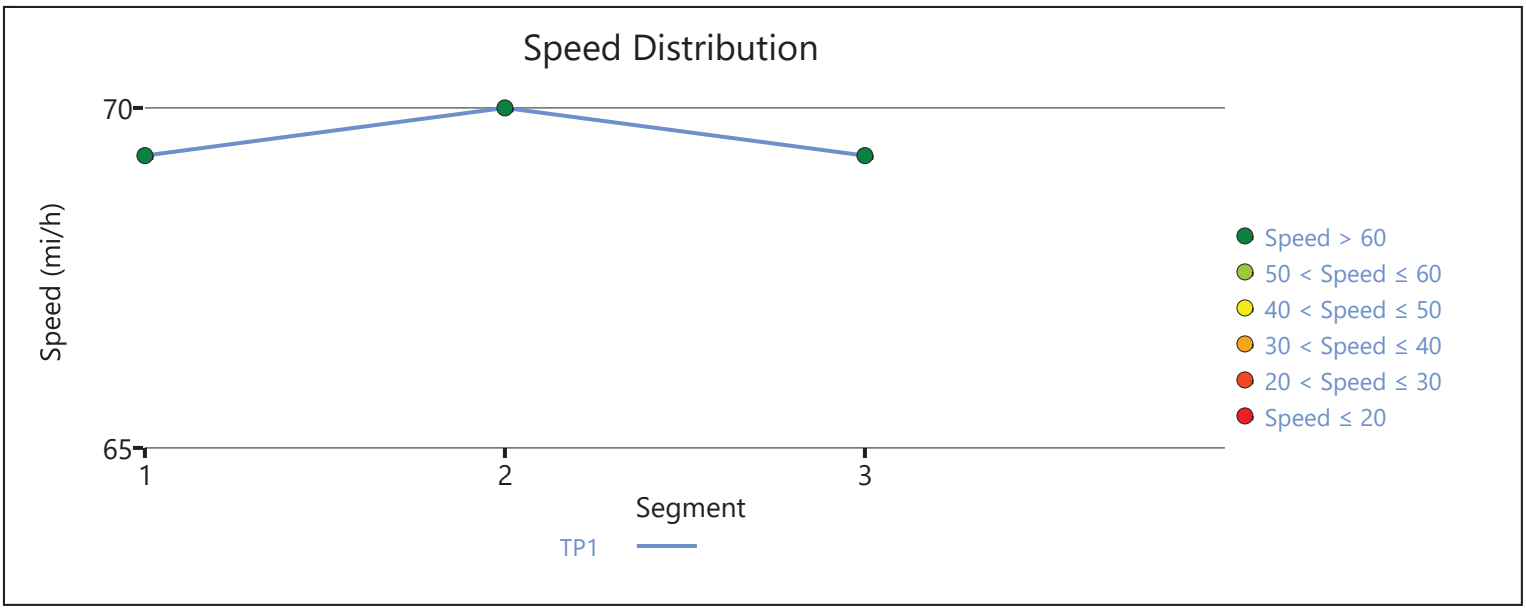
Facility Time Period Results

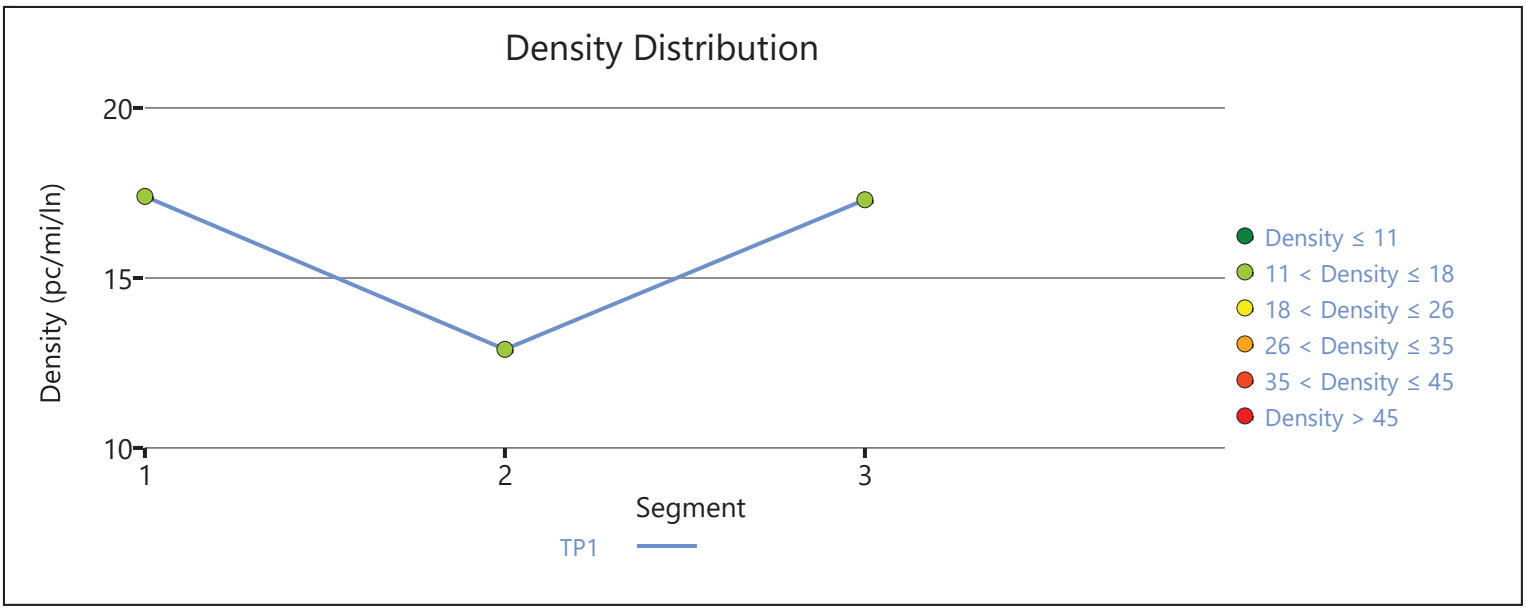
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	16.6	15.6	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	15.6
Average Travel Time, min	1.6	Density, pc/mi/ln	16.6







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	3894	7146	0.54	68.2	19.0	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.833	3894	975	7200	2100	0.54	0.46	63.3	59.2	20.5	26.9	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	2918	7146	0.41	68.2	14.3	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.926	3302	384	7200	1900	0.46	0.20	63.1	60.8	17.4	18.7	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3311	7146	0.46	68.2	16.2	B

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	3805	494	7200	2100	0.53	0.24	62.8	60.8	20.2	21.9	C

Segment 7: Basic

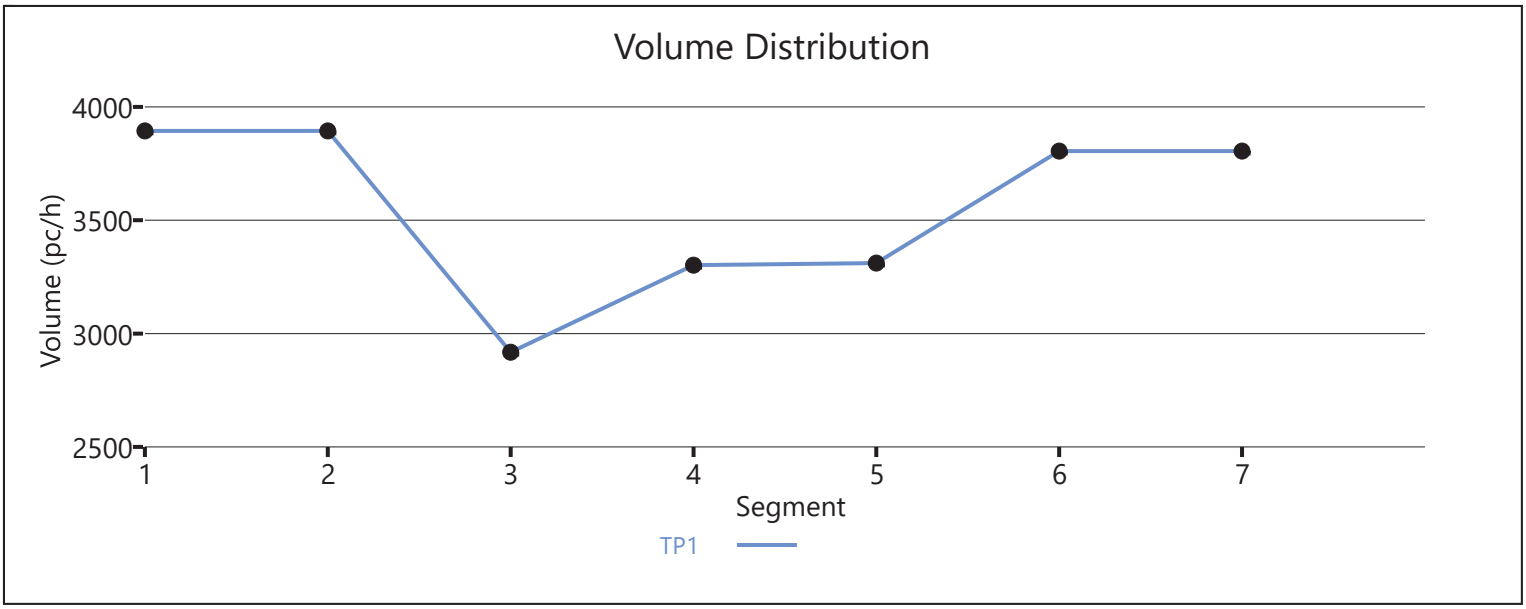
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3805	7146	0.53	68.2	18.6	C

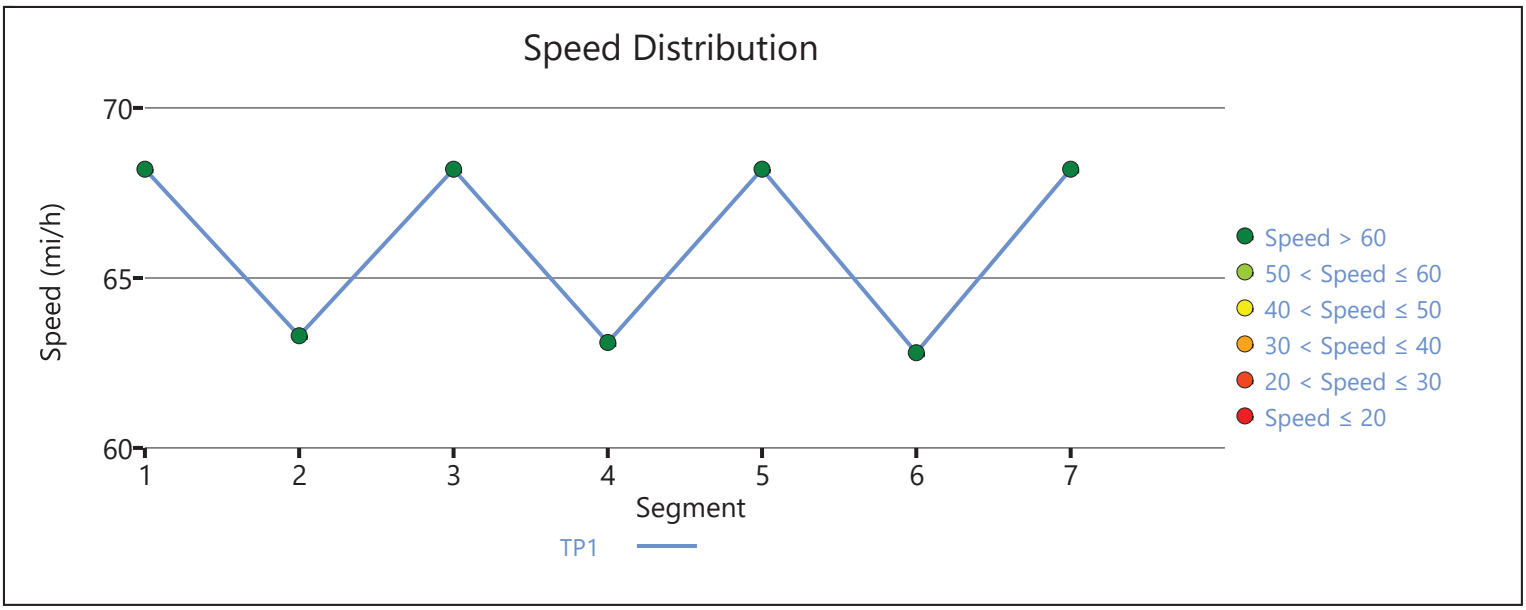
Facility Time Period Results

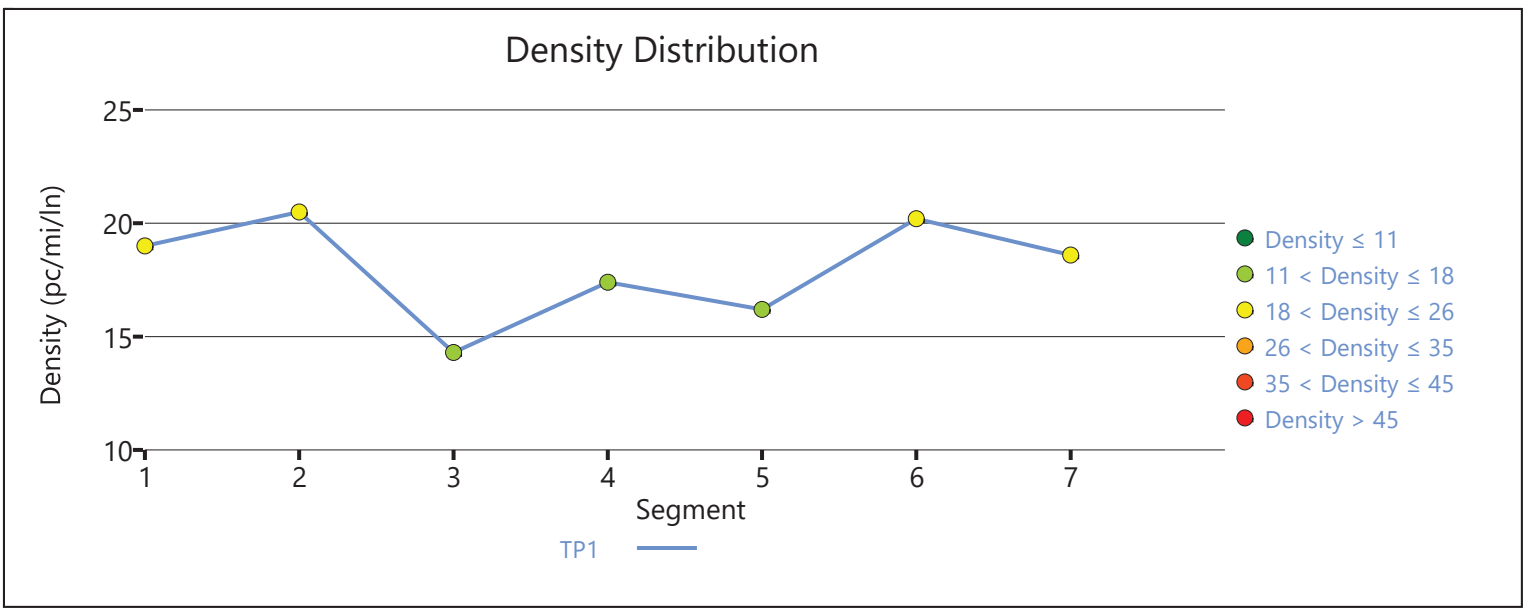
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.4	18.5	17.9	4.9	C

Facility Overall Results

Space Mean Speed, mi/h	67.4	Density, veh/mi/ln	17.9
Average Travel Time, min	4.9	Density, pc/mi/ln	18.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.917	4605	9572	0.48	69.3	16.6	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.917	0.840	4605	982	9600	2100	0.48	0.47	65.9	59.2	17.5	21.0	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	3634	9572	0.38	69.3	13.1	B

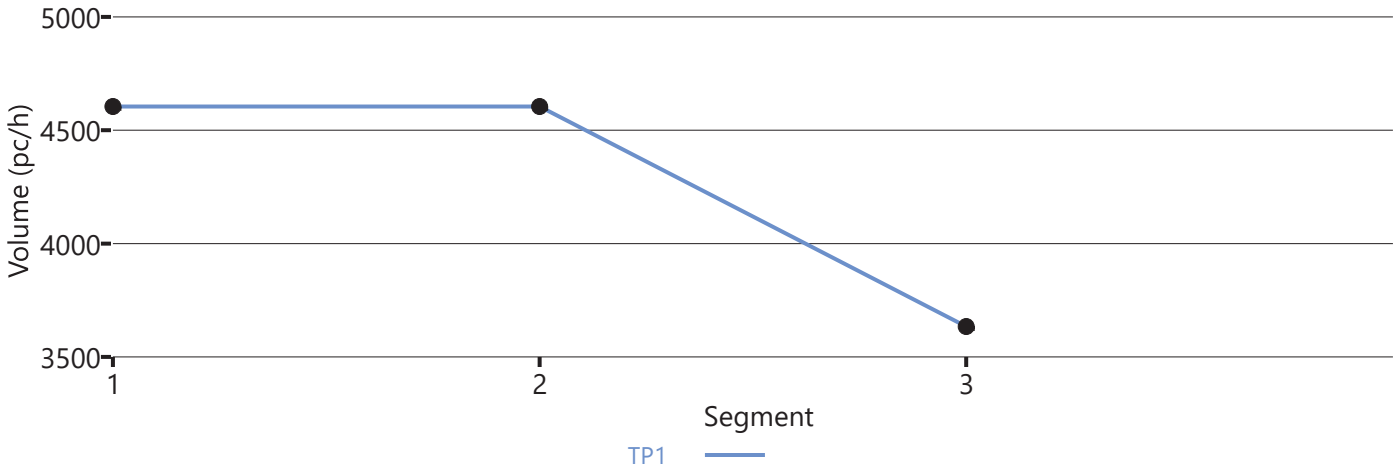
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.7	14.5	13.4	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	68.7	Density, veh/mi/ln	13.4
Average Travel Time, min	1.6	Density, pc/mi/ln	14.5

Volume Distribution



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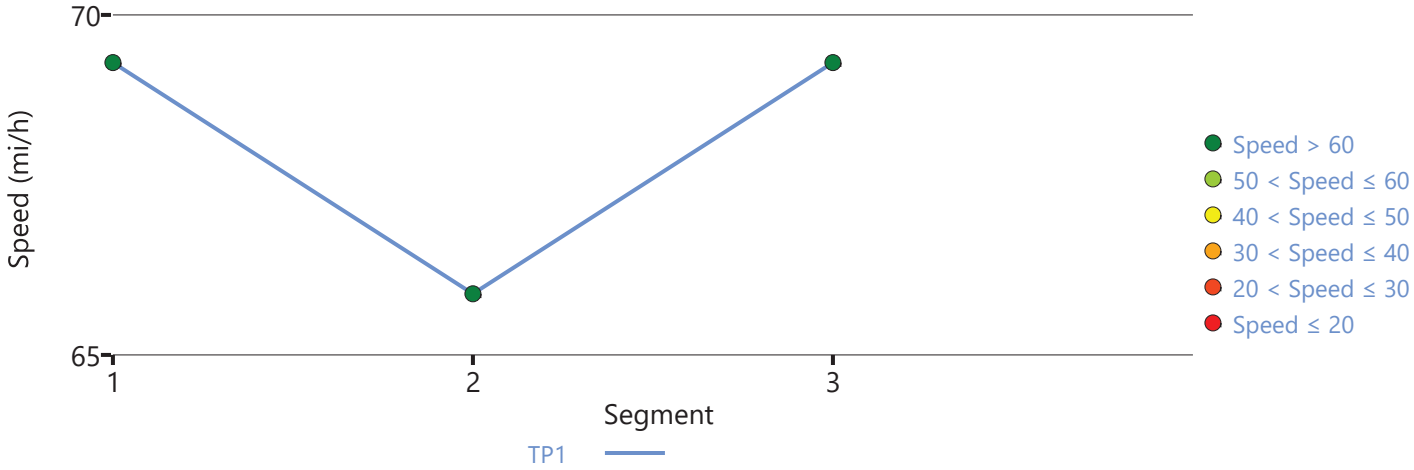

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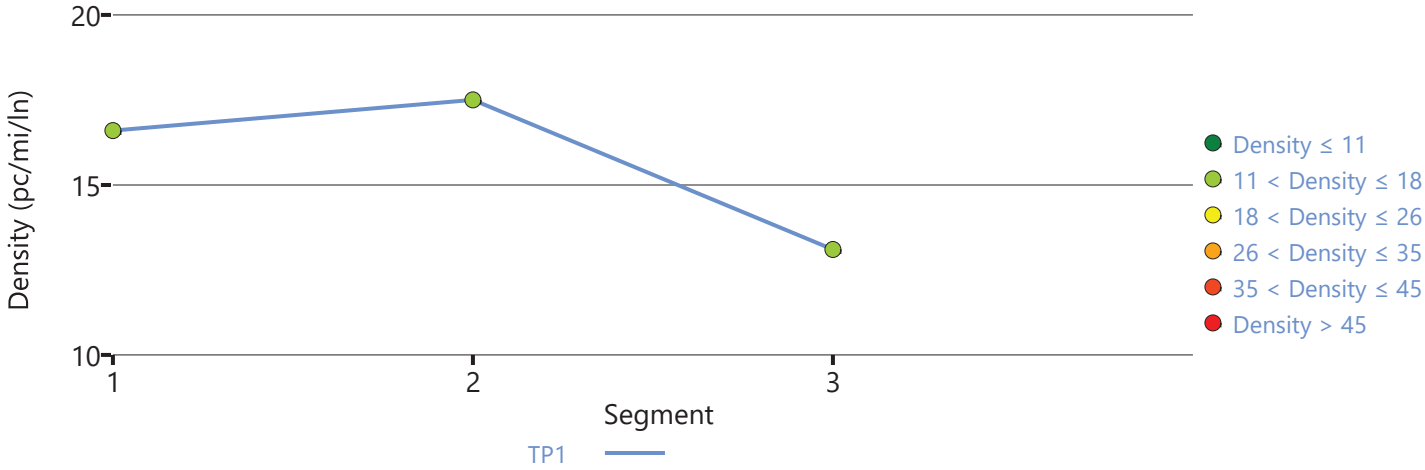

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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4518	7146	0.63	67.5	22.3	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	4518	1012	7200	2100	0.63	0.48	63.3	59.1	23.8	30.1	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3517	7146	0.49	68.2	17.2	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	3870	353	7200	1900	0.54	0.19	62.5	60.3	20.6	22.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3866	7146	0.54	68.2	18.9	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.794	4401	535	7200	2100	0.61	0.25	62.3	60.4	23.5	24.2	C

Segment 7: Basic

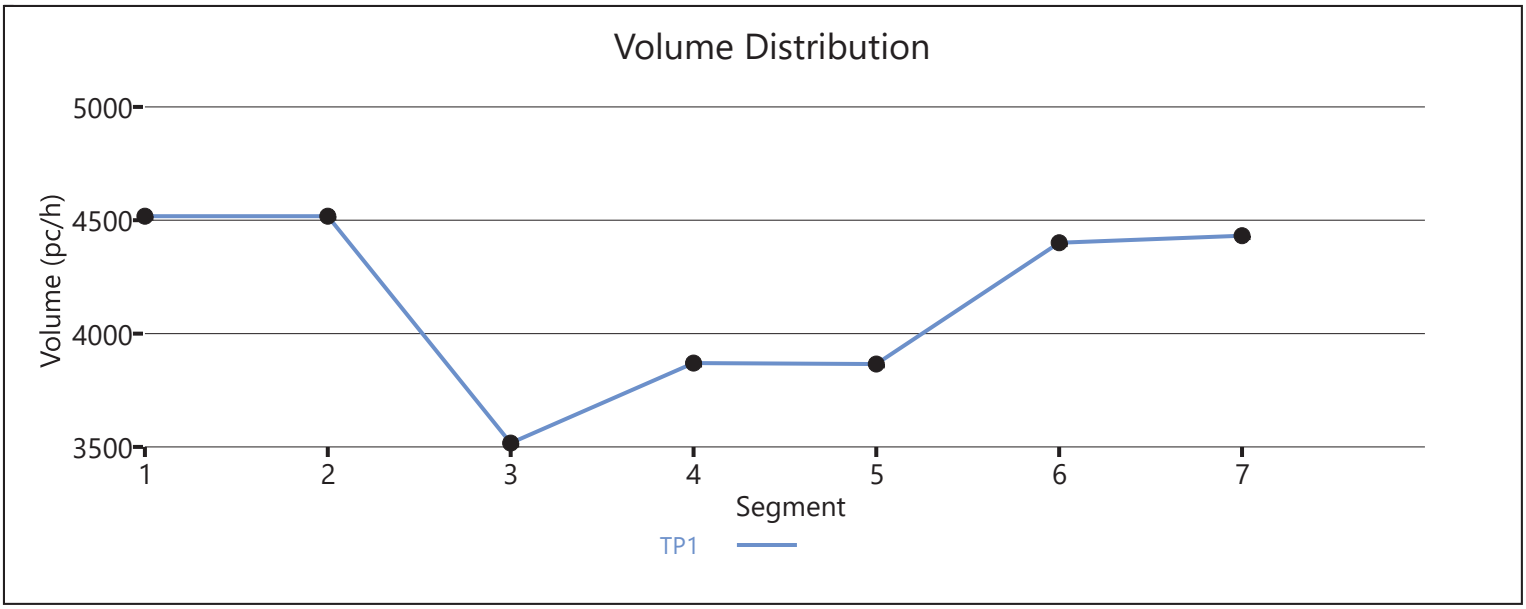
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.935	4432	7146	0.62	67.7	21.8	C

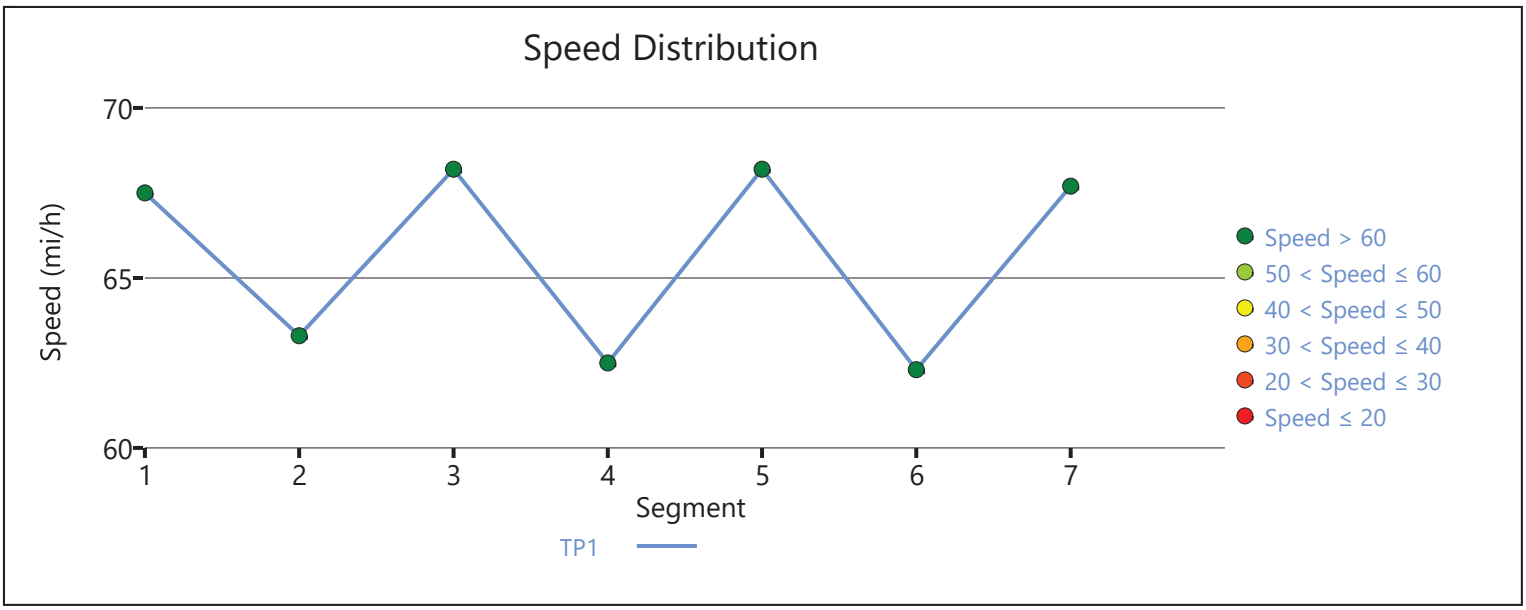
Facility Time Period Results

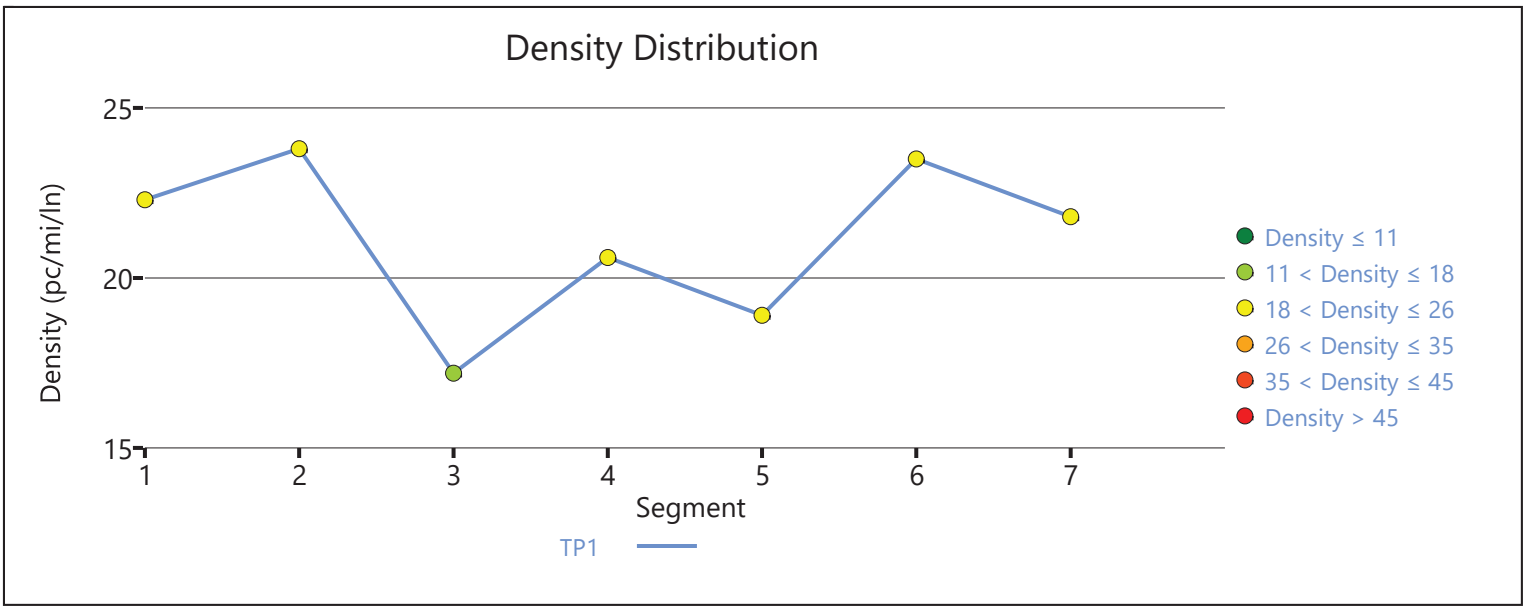
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.8	21.9	21.0	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	66.8	Density, veh/mi/ln	21.0
Average Travel Time, min	5.0	Density, pc/mi/ln	21.9







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4115	7179	0.57	69.1	19.9	C

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.847	5099	1096	9600	2100	0.42	0.52	70.0	-	14.3	-	B

Segment 3: Basic

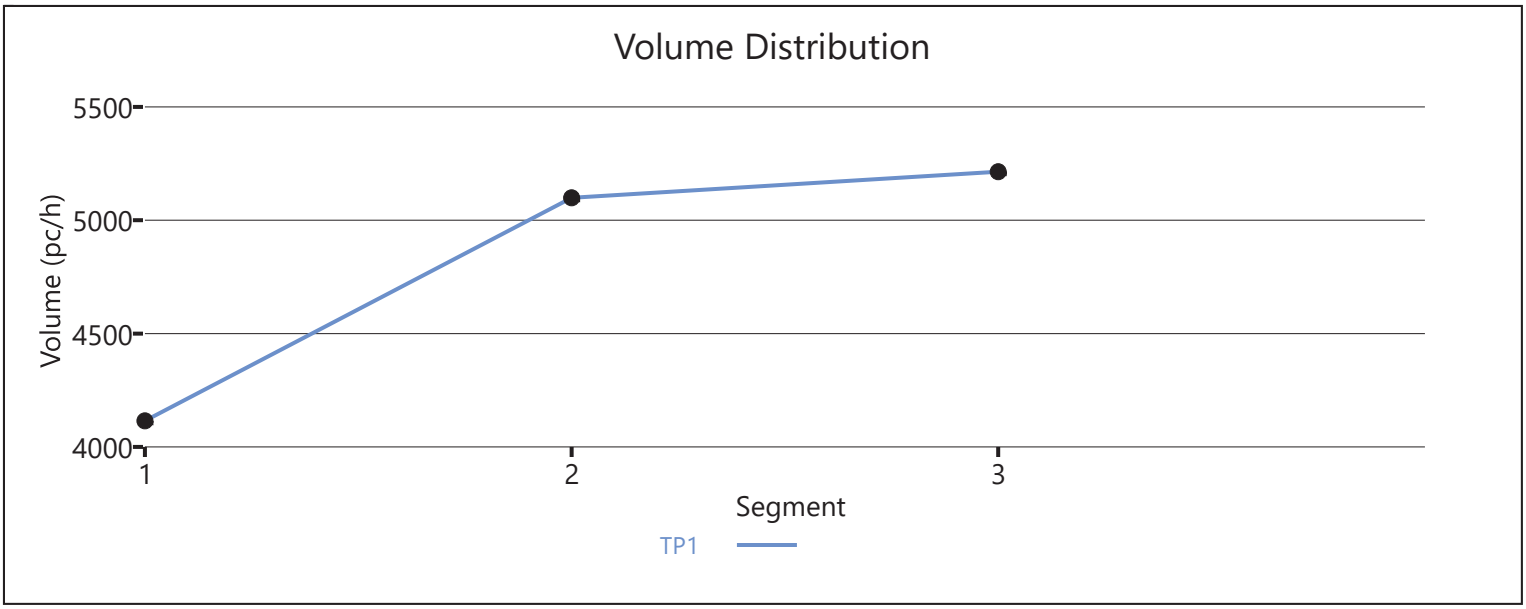
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.909	5214	9572	0.54	69.2	18.8	C

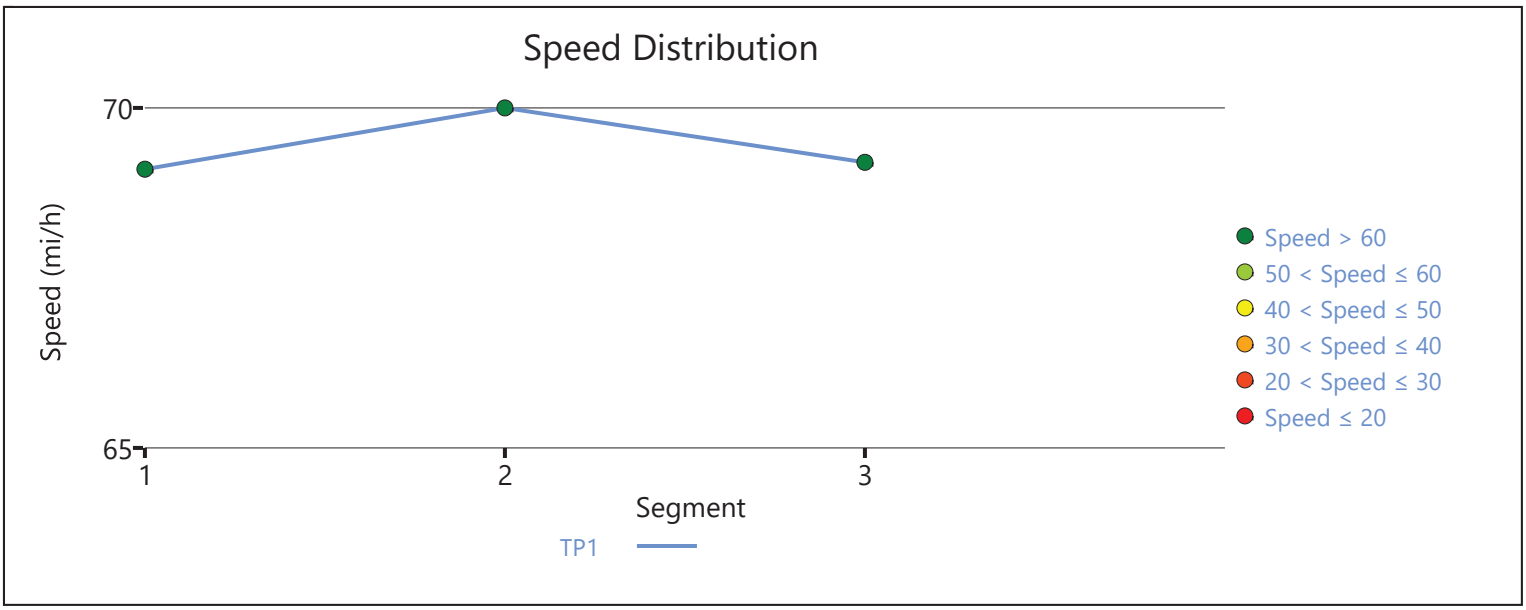
Facility Time Period Results

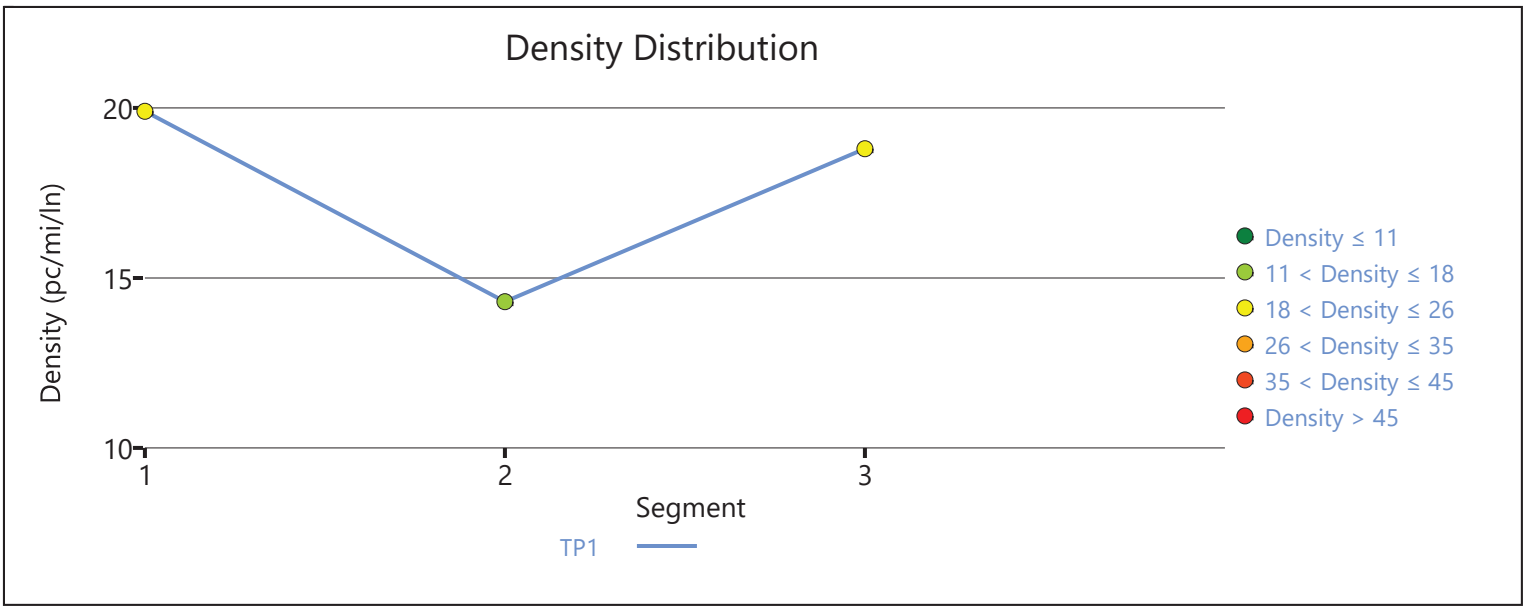
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.3	18.4	17.0	1.6	C

Facility Overall Results

Space Mean Speed, mi/h	69.3	Density, veh/mi/ln	17.0
Average Travel Time, min	1.6	Density, pc/mi/ln	18.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	CM	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6625	7146	0.93	57.3	38.5	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.917	6625	1184	7200	2100	0.92	0.56	62.8	58.7	35.2	38.4	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5456	7146	0.76	64.5	28.2	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.840	6113	657	7200	1900	0.85	0.35	58.9	56.4	34.6	32.4	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6132	7146	0.86	60.8	33.6	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6559	427	7200	2100	0.91	0.20	58.1	55.8	37.6	34.3	D

Segment 7: Basic

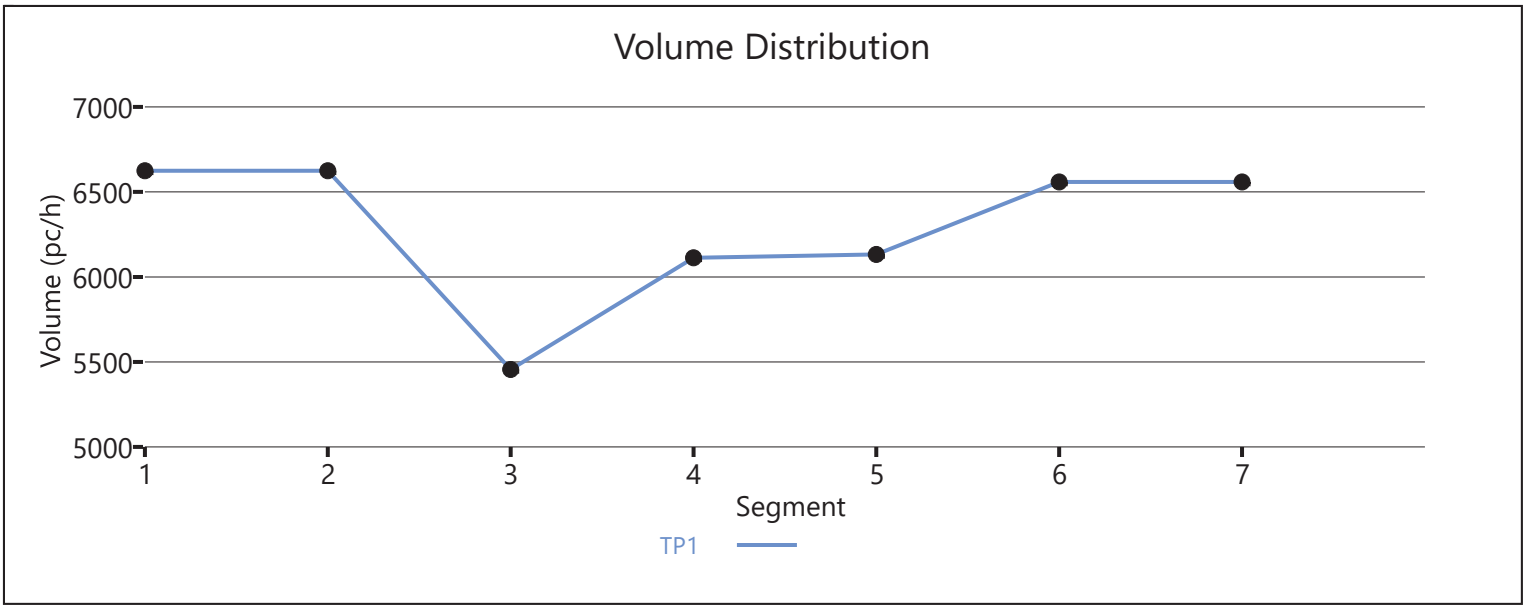
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6559	7146	0.92	57.8	37.8	E

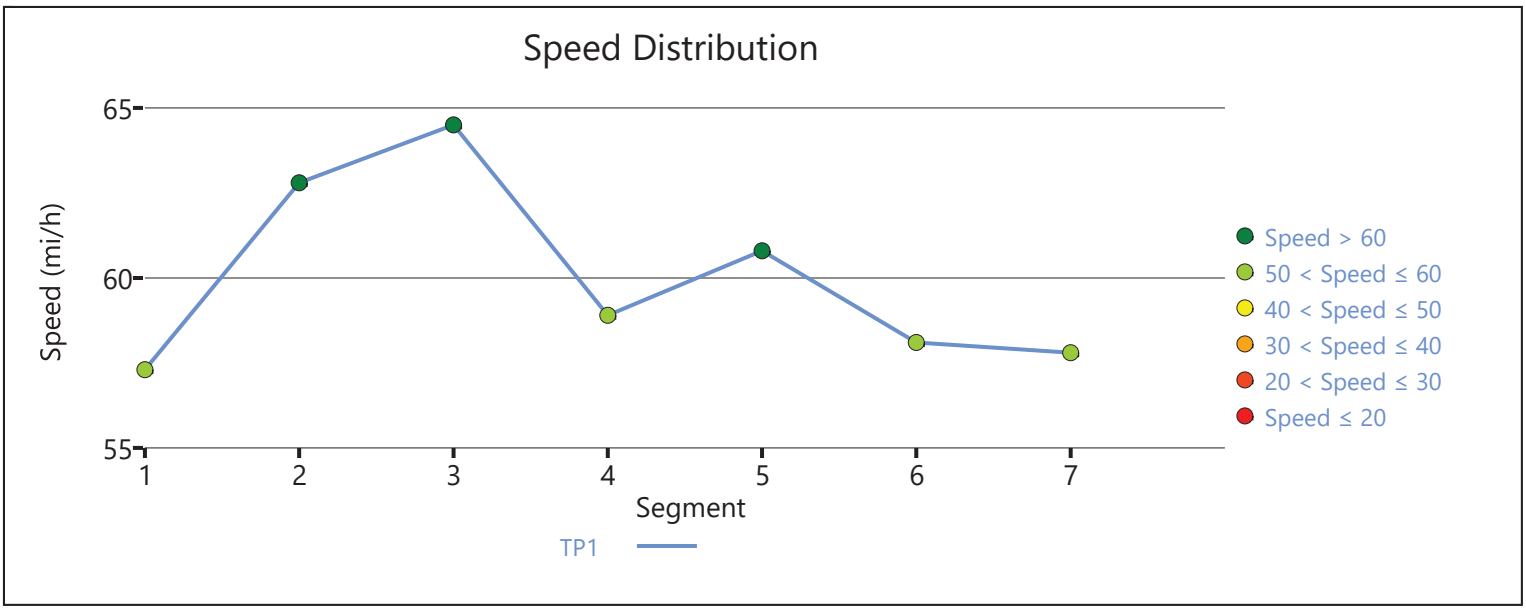
Facility Time Period Results

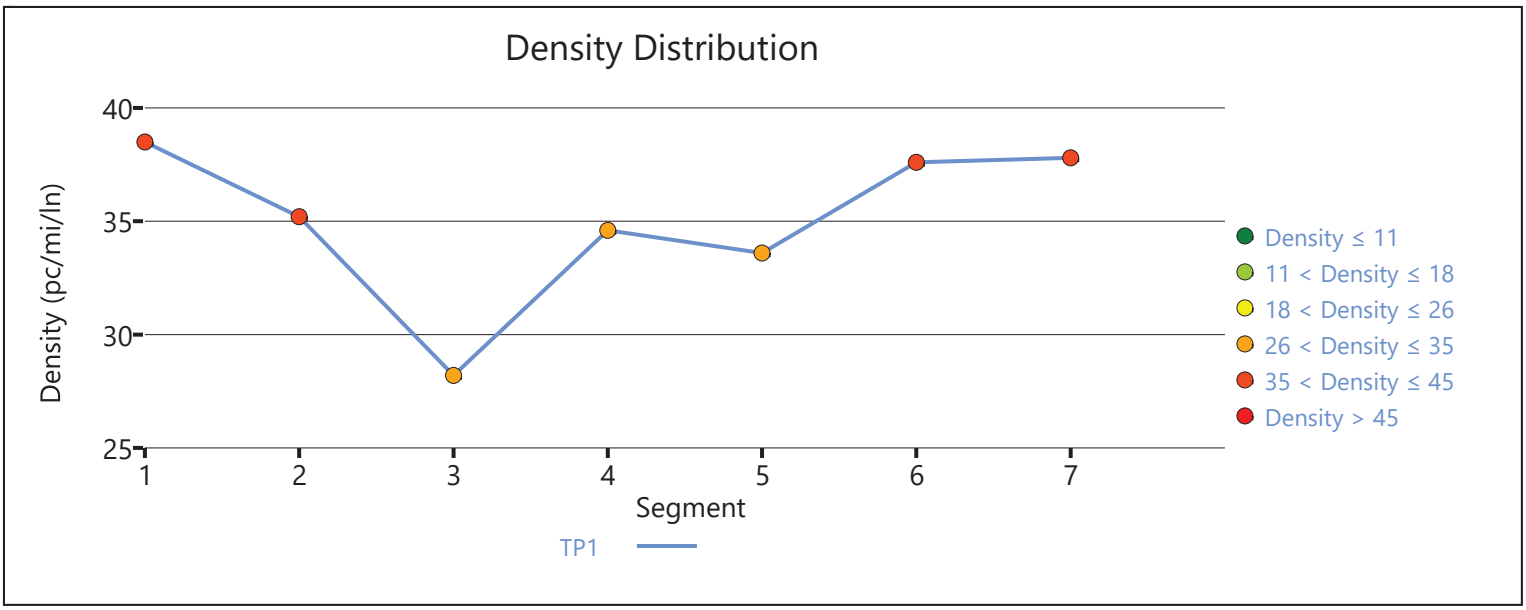
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.3	37.1	35.9	5.7	E

Facility Overall Results

Space Mean Speed, mi/h	58.3	Density, veh/mi/ln	35.9
Average Travel Time, min	5.7	Density, pc/mi/ln	37.1







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HCS7 Freeway Facilities Report

Project Information

Analyst	CP	Date	1/23/2020
Agency	Urban Crossroads, Inc.	Analysis Year	E+P
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6507	9572	0.68	67.4	24.1	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.885	6507	1426	9600	2100	0.68	0.68	64.5	58.1	25.2	30.3	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	5066	9572	0.53	69.3	18.3	C

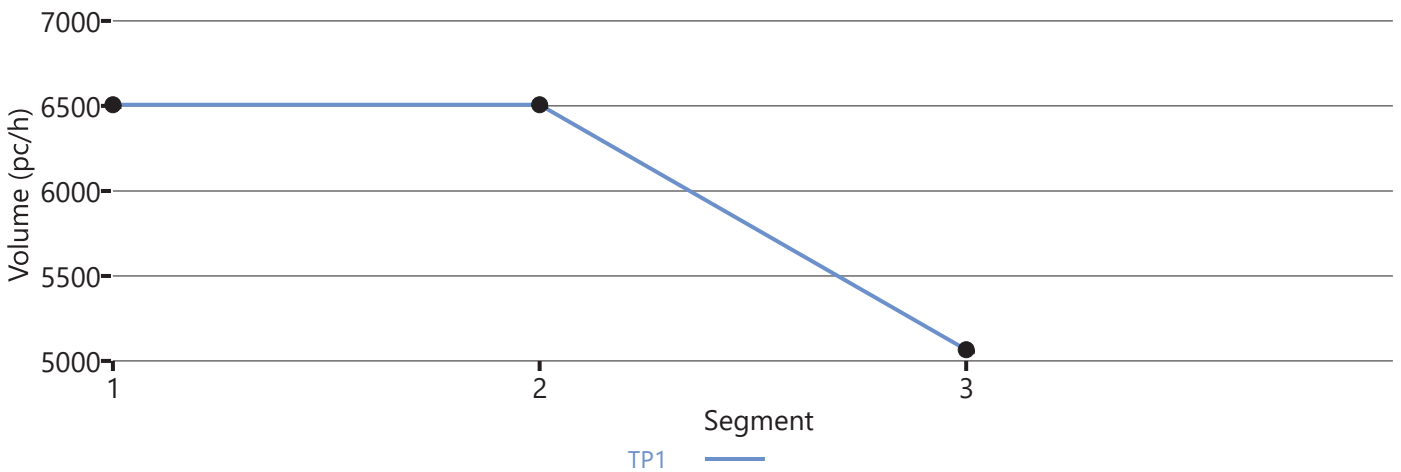
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.0	20.5	19.6	1.6	C

Facility Overall Results

Space Mean Speed, mi/h	68.0	Density, veh/mi/ln	19.6
Average Travel Time, min	1.6	Density, pc/mi/ln	20.5

Volume Distribution



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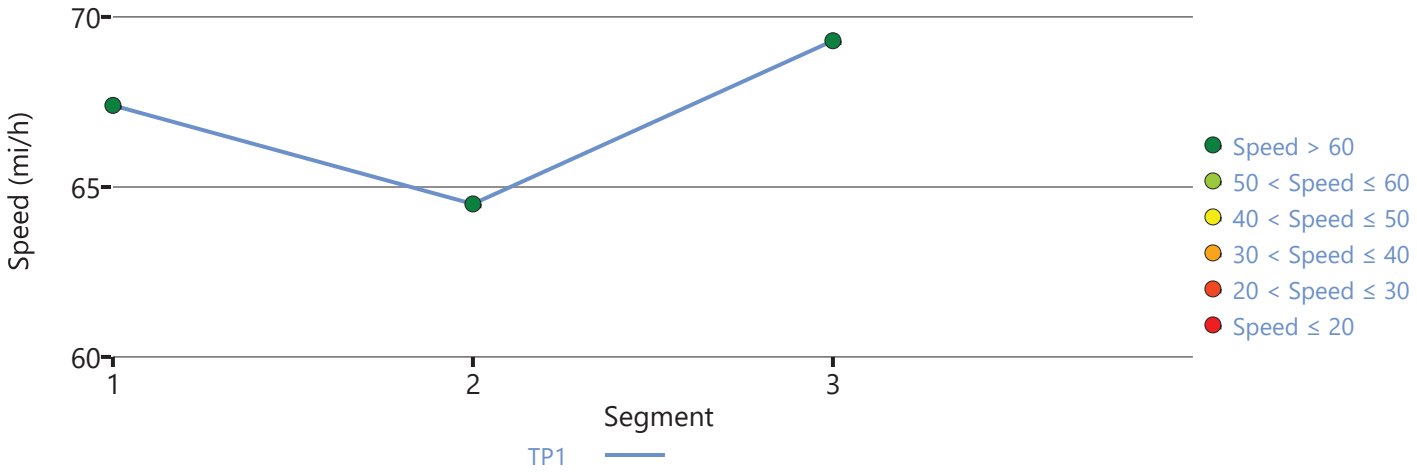

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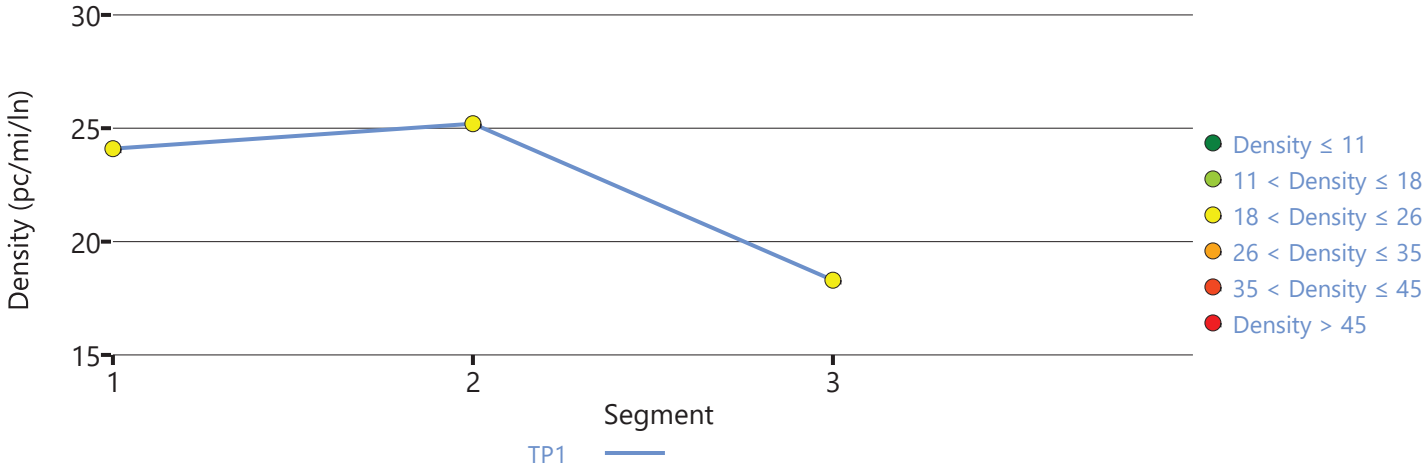

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APPENDIX 5.5:

E+P CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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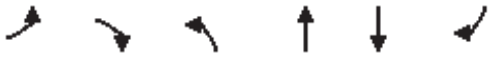
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	324	969	1175
Future Volume (vph)	19	74	324	969	1175
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	22.6	22.6	9.6	16.5	23.5
Total Split (s)	22.6	22.6	35.0	97.4	62.4
Total Split (%)	18.8%	18.8%	29.2%	81.2%	52.0%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	11.5	11.5	25.4	92.8	61.3
Actuated g/C Ratio	0.10	0.10	0.23	0.84	0.55
v/c Ratio	0.11	0.34	0.87	0.68	0.72
Control Delay	47.2	14.2	62.9	7.9	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	14.2	62.9	7.9	23.4
LOS	D	B	E	A	C
Approach Delay	20.9			21.7	23.4
Approach LOS	C			C	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 22.5	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	324	969	1175	111
Future Volume (veh/h)	19	74	324	969	1175	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	60	360	1077	1306	123
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	149	133	390	1553	1870	176
Arrive On Green	0.08	0.08	0.22	0.82	0.56	0.56
Sat Flow, veh/h	1810	1610	1810	1900	3431	313
Grp Volume(v), veh/h	21	60	360	1077	705	724
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	1805	1844
Q Serve(g_s), s	1.2	3.9	21.7	26.5	31.3	31.6
Cycle Q Clear(g_c), s	1.2	3.9	21.7	26.5	31.3	31.6
Prop In Lane	1.00	1.00	1.00			0.17
Lane Grp Cap(c), veh/h	149	133	390	1553	1012	1034
V/C Ratio(X)	0.14	0.45	0.92	0.69	0.70	0.70
Avail Cap(c_a), veh/h	293	261	495	1553	1012	1034
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	48.6	42.7	4.3	17.6	17.7
Incr Delay (d2), s/veh	0.4	2.4	18.1	2.6	4.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.6	11.1	5.1	12.2	12.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.8	51.0	60.8	6.8	21.6	21.6
LnGrp LOS	D	D	E	A	C	C
Approach Vol, veh/h	81			1437	1429	
Approach Delay, s/veh	50.1			20.4	21.6	
Approach LOS	D			C	C	

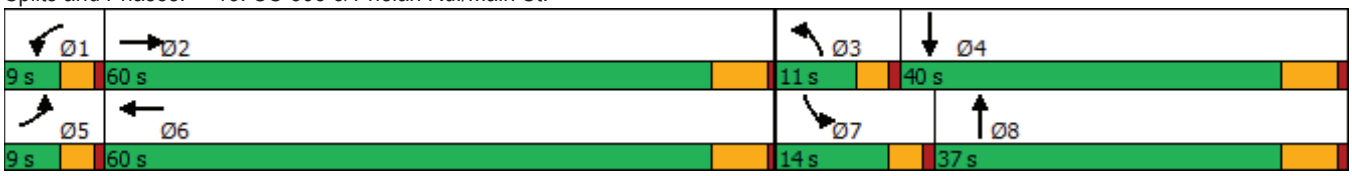
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.4		13.8	28.6	68.8
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		90.9		18.0	30.4	55.9
Max Q Clear Time (g_c+I1), s		28.5		5.9	23.7	33.6
Green Ext Time (p_c), s		10.5		0.1	0.3	9.2

Intersection Summary		
HCM 6th Ctrl Delay		21.8
HCM 6th LOS		C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	47	761	4	1072	178	794	264	955
Future Volume (vph)	47	761	4	1072	178	794	264	955
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	60.0	9.0	60.0	11.0	37.0	14.0	40.0
Total Split (%)	7.5%	50.0%	7.5%	50.0%	9.2%	30.8%	11.7%	33.3%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	59.4	5.0	54.1	7.0	31.0	10.0	34.0
Actuated g/C Ratio	0.04	0.50	0.04	0.46	0.06	0.26	0.08	0.29
v/c Ratio	0.64	0.52	0.05	0.98	0.89	0.88	0.93	0.99
Control Delay	92.3	20.9	56.8	49.6	95.7	54.3	91.5	68.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.3	20.9	56.8	49.6	95.7	54.3	91.5	68.4
LOS	F	C	E	D	F	D	F	E
Approach Delay		24.5		49.6		61.8		73.3
Approach LOS		C		D		E		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 118.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 53.5	Intersection LOS: D
Intersection Capacity Utilization 89.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	761	121	4	1072	452	178	794	9	264	955	31
Future Volume (veh/h)	47	761	121	4	1072	452	178	794	9	264	955	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	49	793	81	4	1117	341	185	827	9	275	995	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	63	1567	160	9	1214	366	210	968	11	300	1041	29
Arrive On Green	0.04	0.47	0.47	0.01	0.44	0.44	0.06	0.26	0.26	0.09	0.29	0.29
Sat Flow, veh/h	1810	3307	338	1810	2733	824	3510	3658	40	3510	3586	101
Grp Volume(v), veh/h	49	433	441	4	733	725	185	408	428	275	501	522
Grp Sat Flow(s),veh/h/ln	1810	1805	1839	1810	1805	1752	1755	1805	1893	1755	1805	1882
Q Serve(g_s), s	3.1	19.4	19.4	0.3	44.5	46.0	6.1	25.1	25.1	9.1	31.9	31.9
Cycle Q Clear(g_c), s	3.1	19.4	19.4	0.3	44.5	46.0	6.1	25.1	25.1	9.1	31.9	31.9
Prop In Lane	1.00		0.18	1.00		0.47	1.00		0.02	1.00		0.05
Lane Grp Cap(c), veh/h	63	855	872	9	802	778	210	478	501	300	524	546
V/C Ratio(X)	0.77	0.51	0.51	0.42	0.91	0.93	0.88	0.85	0.85	0.92	0.96	0.96
Avail Cap(c_a), veh/h	77	855	872	77	833	808	210	478	501	300	524	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	21.3	21.3	58.0	30.4	30.9	54.6	40.9	40.9	53.1	40.8	40.8
Incr Delay (d2), s/veh	29.1	0.5	0.5	20.9	14.2	17.1	31.9	14.2	13.7	31.1	28.6	27.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	7.6	7.7	0.2	20.5	21.1	3.5	12.4	12.9	5.1	17.4	18.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.1	21.8	21.8	78.9	44.6	48.0	86.5	55.2	54.6	84.2	69.4	68.7
LnGrp LOS	F	C	C	E	D	D	F	E	D	F	E	E
Approach Vol, veh/h		923			1462			1021			1298	
Approach Delay, s/veh		25.1			46.4			60.6			72.2	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.6	61.5	11.0	40.0	8.1	58.0	14.0	37.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	54.0	7.0	34.0	5.0	54.0	10.0	31.0
Max Q Clear Time (g_c+I1), s	2.3	21.4	8.1	33.9	5.1	48.0	11.1	27.1
Green Ext Time (p_c), s	0.0	5.1	0.0	0.1	0.0	4.0	0.0	1.8

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	9	971	13	24	1054
Future Vol, veh/h	5	9	971	13	24	1054
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	10	1044	14	26	1133

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1670	529	0	0	1058	0
Stage 1	1051	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	89	499	-	-	666	-
Stage 1	302	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	86	499	-	-	666	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	485	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0.2
HCM LOS	C		

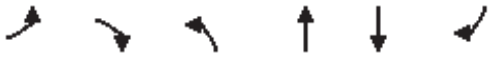
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	206	499	666	-
HCM Lane V/C Ratio	-	-	0.026	0.019	0.039	-
HCM Control Delay (s)	-	-	22.9	12.4	10.6	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0.1	-

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	110	413	71	1377	1006
Future Volume (vph)	110	413	71	1377	1006
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	29.0	29.0	15.0	91.0	76.0
Total Split (%)	24.2%	24.2%	12.5%	75.8%	63.3%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	20.2	20.2	8.5	84.7	73.7
Actuated g/C Ratio	0.17	0.17	0.07	0.73	0.64
v/c Ratio	0.37	0.92	0.56	1.03	0.45
Control Delay	45.2	47.3	69.1	51.5	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	47.3	69.1	51.5	13.0
LOS	D	D	E	D	B
Approach Delay	46.9			52.4	13.0
Approach LOS	D			D	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 37.9	Intersection LOS: D
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	413	71	1377	1006	27
Future Volume (veh/h)	110	413	71	1377	1006	27
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	115	356	74	1434	1048	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	368	327	95	1338	2260	60
Arrive On Green	0.20	0.20	0.05	1.00	0.92	0.61
Sat Flow, veh/h	1810	1610	1810	1900	3684	98
Grp Volume(v), veh/h	115	356	74	1434	540	536
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	1900	1882
Q Serve(g_s), s	6.5	24.4	4.8	84.5	4.8	5.6
Cycle Q Clear(g_c), s	6.5	24.4	4.8	84.5	4.8	5.6
Prop In Lane	1.00	1.00	1.00			0.05
Lane Grp Cap(c), veh/h	368	327	95	1338	1166	1155
V/C Ratio(X)	0.31	1.09	0.78	1.07	0.46	0.46
Avail Cap(c_a), veh/h	368	327	157	1338	1166	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	47.8	56.2	0.0	2.0	2.5
Incr Delay (d2), s/veh	0.5	75.1	5.2	46.3	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.4	2.3	17.2	1.5	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	122.9	61.3	46.3	3.4	3.8
LnGrp LOS	D	F	E	F	A	A
Approach Vol, veh/h	471			1508	1076	
Approach Delay, s/veh	103.0			47.1	3.6	
Approach LOS	F			D	A	

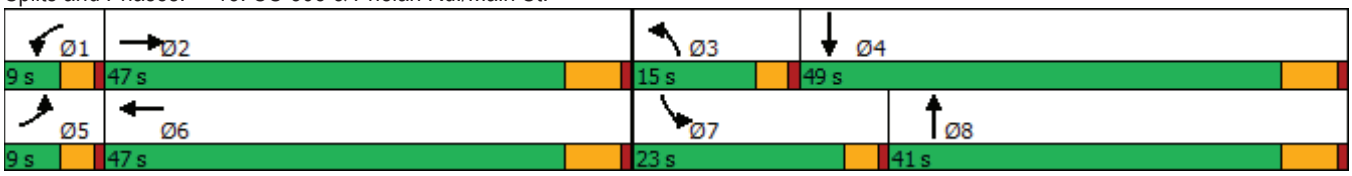
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.0		29.0	10.9	80.1
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		84.5		24.4	10.4	69.5
Max Q Clear Time (g_c+I1), s		86.5		26.4	6.8	7.6
Green Ext Time (p_c), s		0.0		0.0	0.0	7.1

Intersection Summary		
HCM 6th Ctrl Delay		40.4
HCM 6th LOS		D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	45	1169	9	807	180	1104	512	861
Future Volume (vph)	45	1169	9	807	180	1104	512	861
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	47.0	9.0	47.0	15.0	41.0	23.0	49.0
Total Split (%)	7.5%	39.2%	7.5%	39.2%	12.5%	34.2%	19.2%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0	0.0	-2.0	0.0	-2.0	0.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	48.4	5.0	43.1	10.1	37.0	18.9	45.9
Actuated g/C Ratio	0.04	0.41	0.04	0.36	0.09	0.31	0.16	0.39
v/c Ratio	0.62	0.91	0.12	0.85	0.62	1.00	0.93	0.65
Control Delay	89.3	42.2	58.9	40.7	61.5	67.0	73.9	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	42.2	58.9	40.7	61.5	67.0	73.9	32.5
LOS	F	D	E	D	E	E	E	C
Approach Delay		43.8		40.8		66.3		47.5
Approach LOS		D		D		E		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 118.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 49.8	Intersection LOS: D
Intersection Capacity Utilization 93.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	1169	152	9	807	299	180	1104	26	512	861	46
Future Volume (veh/h)	45	1169	152	9	807	299	180	1104	26	512	861	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	1231	107	9	849	168	189	1162	20	539	906	33
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	61	1273	110	20	1069	212	251	1185	20	591	1502	55
Arrive On Green	0.03	0.37	0.35	0.01	0.35	0.33	0.07	0.32	0.30	0.16	0.41	0.40
Sat Flow, veh/h	1810	3443	299	1810	3081	610	3619	3724	64	3619	3643	133
Grp Volume(v), veh/h	47	678	660	9	524	493	189	593	589	539	472	467
Grp Sat Flow(s),veh/h/ln	1810	1900	1842	1810	1900	1790	1810	1900	1888	1810	1900	1876
Q Serve(g_s), s	3.0	40.6	40.9	0.6	28.9	29.0	6.0	35.9	36.0	17.0	22.6	22.6
Cycle Q Clear(g_c), s	3.0	40.6	40.9	0.6	28.9	29.0	6.0	35.9	36.0	17.0	22.6	22.6
Prop In Lane	1.00		0.16	1.00		0.34	1.00		0.03	1.00		0.07
Lane Grp Cap(c), veh/h	61	703	681	20	660	621	251	605	601	591	783	774
V/C Ratio(X)	0.77	0.96	0.97	0.46	0.79	0.79	0.75	0.98	0.98	0.91	0.60	0.60
Avail Cap(c_a), veh/h	78	703	681	78	703	662	342	605	601	591	783	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	35.9	36.1	57.2	34.2	34.5	53.1	39.3	39.3	47.8	26.7	26.8
Incr Delay (d2), s/veh	26.8	25.4	26.8	11.9	5.9	6.3	5.2	31.5	31.7	18.3	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	22.2	21.9	0.3	13.4	12.8	2.8	20.8	20.7	8.8	9.7	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.6	61.3	63.0	69.0	40.1	40.8	58.3	70.8	71.0	66.1	28.2	28.2
LnGrp LOS	F	E	E	E	D	D	E	E	E	E	C	C
Approach Vol, veh/h		1385			1026			1371			1478	
Approach Delay, s/veh		62.8			40.7			69.2			42.0	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	47.0	12.1	51.9	7.9	44.4	23.0	41.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	41.0	11.0	43.0	5.0	41.0	19.0	35.0
Max Q Clear Time (g_c+I1), s	2.6	42.9	8.0	24.6	5.0	31.0	19.0	38.0
Green Ext Time (p_c), s	0.0	0.0	0.1	5.9	0.0	4.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.3
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	24	1286	26	11	1011
Future Vol, veh/h	7	24	1286	26	11	1011
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	7	24	1312	27	11	1032

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1864	670	0	0	1339	0
Stage 1	1326	-	-	-	-	-
Stage 2	538	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	66	404	-	-	521	-
Stage 1	216	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	404	-	-	521	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	216	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	164	404	521	-
HCM Lane V/C Ratio	-	-	0.044	0.061	0.022	-
HCM Control Delay (s)	-	-	27.9	14.5	12.1	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-

APPENDIX 5.6:

E+P CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	919	4	1588	185	836	275	1027
v/c Ratio	0.64	0.52	0.05	0.98	0.89	0.88	0.93	0.99
Control Delay	92.3	20.9	56.8	49.6	95.7	54.3	91.5	68.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.3	20.9	56.8	49.6	95.7	54.3	91.5	68.4
Queue Length 50th (ft)	38	226	3	614	74	330	111	~423
Queue Length 95th (ft)	#102	331	15	#796	#145	#442	#196	#573
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	76	1784	76	1616	207	946	296	1036
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.52	0.05	0.98	0.89	0.88	0.93	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	1391	9	1164	189	1189	539	954
v/c Ratio	0.62	0.91	0.12	0.85	0.62	1.00	0.93	0.65
Control Delay	89.3	42.2	58.9	40.7	61.5	67.0	73.9	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.3	42.2	58.9	40.7	61.5	67.0	73.9	32.5
Queue Length 50th (ft)	37	472	7	400	71	~474	209	304
Queue Length 95th (ft)	#97	#709	25	490	109	#618	#312	374
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	76	1536	76	1363	336	1189	581	1467
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.91	0.12	0.85	0.56	1.00	0.93	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 6.1:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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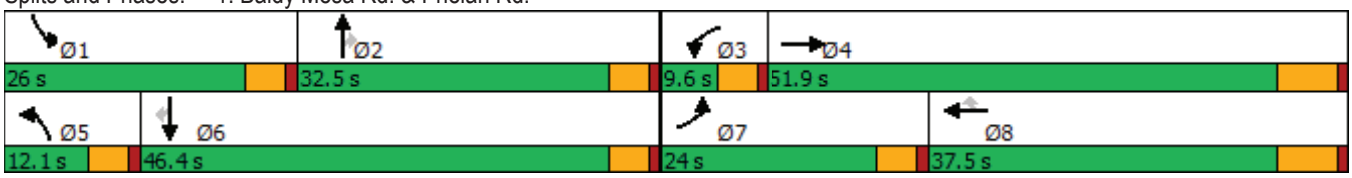
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	161	738	12	470	147	37	75	54	189	50	192
Future Volume (vph)	161	738	12	470	147	37	75	54	189	50	192
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	15.3	50.7	5.2	32.2	32.2	6.6	13.5	13.5	17.2	24.9	24.9
Actuated g/C Ratio	0.16	0.53	0.05	0.34	0.34	0.07	0.14	0.14	0.18	0.26	0.26
v/c Ratio	0.72	0.49	0.16	0.47	0.27	0.38	0.34	0.16	0.75	0.12	0.40
Control Delay	57.2	18.5	54.7	30.0	5.4	58.3	43.7	0.9	56.4	28.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	18.5	54.7	30.0	5.4	58.3	43.7	0.9	56.4	28.6	6.1
LOS	E	B	D	C	A	E	D	A	E	C	A
Approach Delay		25.3		24.7			33.0			30.8	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 95.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 58.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	738	24	12	470	147	37	75	54	189	50	192
Future Volume (veh/h)	161	738	24	12	470	147	37	75	54	189	50	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	187	858	18	14	547	115	43	87	35	220	58	116
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	217	1628	34	85	1345	600	58	188	160	251	404	342
Arrive On Green	0.13	0.48	0.48	0.05	0.39	0.39	0.04	0.10	0.10	0.16	0.22	0.22
Sat Flow, veh/h	1619	3425	72	1619	3420	1525	1619	1800	1525	1619	1800	1525
Grp Volume(v), veh/h	187	428	448	14	547	115	43	87	35	220	58	116
Grp Sat Flow(s),veh/h/ln	1619	1710	1787	1619	1710	1525	1619	1800	1525	1619	1800	1525
Q Serve(g_s), s	10.8	16.8	16.8	0.8	11.0	4.7	2.5	4.3	2.0	12.7	2.5	6.1
Cycle Q Clear(g_c), s	10.8	16.8	16.8	0.8	11.0	4.7	2.5	4.3	2.0	12.7	2.5	6.1
Prop In Lane	1.00		0.04	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	813	849	85	1345	600	58	188	160	251	404	342
V/C Ratio(X)	0.86	0.53	0.53	0.17	0.41	0.19	0.75	0.46	0.22	0.88	0.14	0.34
Avail Cap(c_a), veh/h	329	813	849	85	1345	600	127	526	446	363	788	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	17.5	17.5	43.3	20.9	19.0	45.6	40.2	39.2	39.4	29.7	31.1
Incr Delay (d2), s/veh	9.2	2.4	2.3	0.3	0.9	0.7	6.9	1.8	0.7	11.5	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	6.2	6.5	0.3	4.1	1.6	1.1	2.0	0.7	5.8	1.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	20.0	19.9	43.6	21.8	19.7	52.6	42.0	39.9	51.0	29.9	31.7
LnGrp LOS	D	B	B	D	C	B	D	D	D	D	C	C
Approach Vol, veh/h		1063			676			165			394	
Approach Delay, s/veh		25.2			21.9			44.3			42.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	14.6	9.6	51.9	8.0	26.0	17.4	44.1
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	14.7	6.3	2.8	18.8	4.5	8.1	12.8	13.0
Green Ext Time (p_c), s	0.2	0.5	0.0	4.9	0.0	0.7	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1008	6	5	584	0	17	0	19	6	0	9
Future Vol, veh/h	3	1008	6	5	584	0	17	0	19	6	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	1172	7	6	679	0	20	0	22	7	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	679	0	0	1179	0	0	1874	1869	1172	1884	1876	679
Stage 1	-	-	-	-	-	-	1178	1178	-	691	691	-
Stage 2	-	-	-	-	-	-	696	691	-	1193	1185	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	923	-	-	600	-	-	55	73	236	55	72	455
Stage 1	-	-	-	-	-	-	235	267	-	438	449	-
Stage 2	-	-	-	-	-	-	435	449	-	230	265	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	923	-	-	600	-	-	53	72	236	49	71	455
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	182	-	145	179	-
Stage 1	-	-	-	-	-	-	234	266	-	437	445	-
Stage 2	-	-	-	-	-	-	421	445	-	208	264	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	28.9	20.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	192	923	-	-	600	-	-	245
HCM Lane V/C Ratio	0.218	0.004	-	-	0.01	-	-	0.071
HCM Control Delay (s)	28.9	8.9	-	-	11.1	-	-	20.8
HCM Lane LOS	D	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.8	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	992	10	3	577	15	6
Future Vol, veh/h	992	10	3	577	15	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1140	11	3	663	17	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1151	0	1815	1146
Stage 1	-	-	-	-	1146	-
Stage 2	-	-	-	-	669	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	614	-	87	245
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	513	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	614	-	87	245
Mov Cap-2 Maneuver	-	-	-	-	211	-
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	510	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	23.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	220	-	-	614	-
HCM Lane V/C Ratio	0.11	-	-	0.006	-
HCM Control Delay (s)	23.4	-	-	10.9	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	998	580	23	22	11
Future Vol, veh/h	11	998	580	23	22	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	1085	630	25	24	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	655	0	-	0	1210	328
Stage 1	-	-	-	-	643	-
Stage 2	-	-	-	-	567	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	942	-	-	-	178	674
Stage 1	-	-	-	-	491	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	942	-	-	-	176	674
Mov Cap-2 Maneuver	-	-	-	-	313	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	942	-	-	-	381
HCM Lane V/C Ratio	0.013	-	-	-	0.094
HCM Control Delay (s)	8.9	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	126	70	67	95	37	874	45	218	975	71
Future Volume (vph)	50	126	70	67	95	37	874	45	218	975	71
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	22.4	22.4	22.4	22.4	22.4	5.9	44.5	44.5	18.0	61.0	61.0
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.06	0.44	0.44	0.18	0.61	0.61
v/c Ratio	0.71	0.32	0.17	0.28	0.85	0.38	0.59	0.07	0.73	0.48	0.08
Control Delay	82.7	34.3	4.0	34.7	41.7	60.9	25.7	1.0	53.6	14.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	34.3	4.0	34.7	41.7	60.9	25.7	1.0	53.6	14.0	3.4
LOS	F	C	A	C	D	E	C	A	D	B	A
Approach Delay		35.4			40.7		25.9			20.3	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	126	70	67	95	274	37	874	45	218	975	71
Future Volume (veh/h)	50	126	70	67	95	274	37	874	45	218	975	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	54	137	43	73	103	232	40	950	33	237	1060	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	147	485	411	323	132	298	59	1633	726	272	2056	917
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.45	0.45	0.15	0.57	0.57
Sat Flow, veh/h	1120	1900	1610	1291	519	1168	1810	3610	1605	1810	3610	1610
Grp Volume(v), veh/h	54	137	43	73	0	335	40	950	33	237	1060	59
Grp Sat Flow(s),veh/h/ln	1120	1900	1610	1291	0	1687	1810	1805	1605	1810	1805	1610
Q Serve(g_s), s	5.0	6.1	2.2	5.1	0.0	19.4	2.3	20.6	1.2	13.5	18.8	1.7
Cycle Q Clear(g_c), s	24.4	6.1	2.2	11.2	0.0	19.4	2.3	20.6	1.2	13.5	18.8	1.7
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	485	411	323	0	430	59	1633	726	272	2056	917
V/C Ratio(X)	0.37	0.28	0.10	0.23	0.00	0.78	0.68	0.58	0.05	0.87	0.52	0.06
Avail Cap(c_a), veh/h	276	704	596	472	0	624	103	1633	726	464	2056	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	31.5	30.0	36.0	0.0	36.5	50.4	21.4	16.1	43.8	13.8	10.1
Incr Delay (d2), s/veh	0.6	0.1	0.0	0.1	0.0	2.1	9.5	1.5	0.1	7.2	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.7	0.8	1.6	0.0	8.0	1.1	8.1	0.4	6.2	6.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	31.6	30.1	36.1	0.0	38.6	59.9	23.0	16.3	50.9	14.7	10.3
LnGrp LOS	D	C	C	D	A	D	E	C	B	D	B	B
Approach Vol, veh/h		234			408			1023			1356	
Approach Delay, s/veh		35.2			38.1			24.2			20.9	
Approach LOS		D			D			C			C	

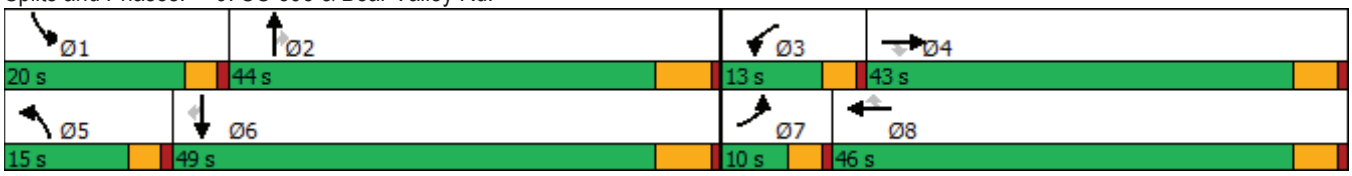
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.8	53.6		31.9	7.4	66.0		31.9				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	15.5	22.6		26.4	4.3	20.8		21.4				
Green Ext Time (p_c), s	0.3	4.4		0.5	0.0	6.3		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		25.4	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	312	172	165	260	106	109	827	101	172	916	23
Future Volume (vph)	42	312	172	165	260	106	109	827	101	172	916	23
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.8	16.4	16.4	9.1	23.8	23.8	9.9	39.9	39.9	13.5	43.5	43.5
Actuated g/C Ratio	0.06	0.17	0.17	0.09	0.24	0.24	0.10	0.41	0.41	0.14	0.44	0.44
v/c Ratio	0.40	0.53	0.43	1.02	0.31	0.22	0.62	0.58	0.14	0.71	0.59	0.03
Control Delay	59.5	40.0	8.2	121.2	32.0	3.8	59.6	26.6	3.6	58.2	24.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	40.0	8.2	121.2	32.0	3.8	59.6	26.6	3.6	58.2	24.2	0.1
LOS	E	D	A	F	C	A	E	C	A	E	C	A
Approach Delay		31.1			54.1			27.9			29.0	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 33.1	Intersection LOS: C
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	312	172	165	260	106	109	827	101	172	916	23
Future Volume (veh/h)	42	312	172	165	260	106	109	827	101	172	916	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	43	322	96	170	268	75	112	853	77	177	944	18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	441	197	183	674	301	142	1604	715	214	1747	779
Arrive On Green	0.04	0.12	0.12	0.10	0.19	0.19	0.08	0.44	0.44	0.12	0.48	0.48
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	43	322	96	170	268	75	112	853	77	177	944	18
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.1	7.6	4.9	8.3	5.8	3.5	5.4	15.3	2.5	8.5	16.2	0.5
Cycle Q Clear(g_c), s	2.1	7.6	4.9	8.3	5.8	3.5	5.4	15.3	2.5	8.5	16.2	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	441	197	183	674	301	142	1604	715	214	1747	779
V/C Ratio(X)	0.65	0.73	0.49	0.93	0.40	0.25	0.79	0.53	0.11	0.83	0.54	0.02
Avail Cap(c_a), veh/h	122	1544	689	183	1666	743	224	1604	715	326	1747	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	37.6	36.4	39.6	31.7	30.8	40.2	18.0	14.4	38.3	16.0	12.0
Incr Delay (d2), s/veh	7.5	0.9	0.7	45.8	0.1	0.2	7.0	1.3	0.3	8.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.2	1.8	5.7	2.3	1.3	2.5	5.7	0.8	4.0	5.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	38.5	37.1	85.4	31.9	31.0	47.2	19.2	14.7	46.7	17.2	12.0
LnGrp LOS	D	D	D	F	C	C	D	B	B	D	B	B
Approach Vol, veh/h		461			513			1042			1139	
Approach Delay, s/veh		39.2			49.5			21.9			21.7	
Approach LOS		D			D			C			C	

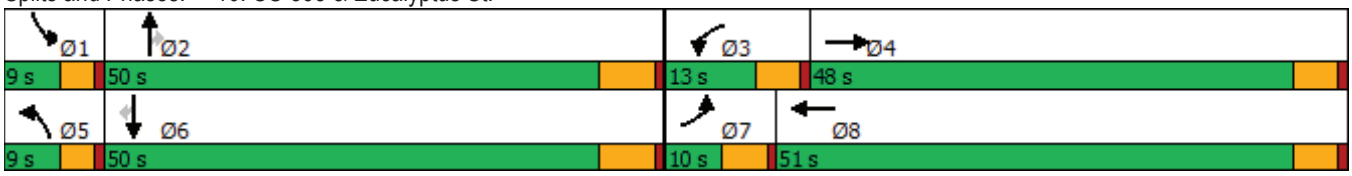
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	45.5	13.0	15.9	11.0	49.0	7.3	21.6
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	10.5	17.3	10.3	9.6	7.4	18.2	4.1	7.8
Green Ext Time (p_c), s	0.1	3.3	0.0	1.2	0.1	3.8	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	5	78	6	7	995	60	4	1270	8
Future Volume (vph)	9	5	78	6	7	995	60	4	1270	8
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	8.7	18.2	5.2	55.3	55.3	5.2	55.3	55.3
Actuated g/C Ratio	0.06	0.18	0.11	0.22	0.06	0.67	0.67	0.06	0.67	0.67
v/c Ratio	0.09	0.06	0.44	0.07	0.07	0.44	0.06	0.04	0.56	0.01
Control Delay	46.2	16.1	47.6	11.4	46.1	13.9	1.8	46.0	15.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	16.1	47.6	11.4	46.1	13.9	1.8	46.0	15.7	0.0
LOS	D	B	D	B	D	B	A	D	B	A
Approach Delay		26.9		38.5		13.5			15.7	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 82.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.56	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	5	12	78	6	20	7	995	60	4	1270	8
Future Volume (veh/h)	9	5	12	78	6	20	7	995	60	4	1270	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	10	5	5	84	6	11	8	1070	61	4	1366	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	23	67	67	109	75	137	19	2133	952	10	2116	944
Arrive On Green	0.01	0.08	0.08	0.06	0.12	0.12	0.01	0.59	0.59	0.01	0.59	0.59
Sat Flow, veh/h	1810	872	872	1810	600	1099	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	10	0	10	84	0	17	8	1070	61	4	1366	8
Grp Sat Flow(s),veh/h/ln	1810	0	1743	1810	0	1699	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.4	0.0	0.4	3.4	0.0	0.7	0.3	12.9	1.2	0.2	18.9	0.2
Cycle Q Clear(g_c), s	0.4	0.0	0.4	3.4	0.0	0.7	0.3	12.9	1.2	0.2	18.9	0.2
Prop In Lane	1.00		0.50	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	0	135	109	0	212	19	2133	952	10	2116	944
V/C Ratio(X)	0.44	0.00	0.07	0.77	0.00	0.08	0.43	0.50	0.06	0.41	0.65	0.01
Avail Cap(c_a), veh/h	121	0	998	193	0	1041	121	2133	952	121	2116	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	0.0	32.1	34.8	0.0	29.0	36.9	8.9	6.5	37.2	10.3	6.5
Incr Delay (d2), s/veh	4.9	0.0	0.2	4.3	0.0	0.2	5.8	0.8	0.1	10.2	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	1.6	0.0	0.3	0.2	3.7	0.4	0.1	7.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	32.4	39.1	0.0	29.2	42.7	9.8	6.7	47.4	11.9	6.5
LnGrp LOS	D	A	C	D	A	C	D	A	A	D	B	A
Approach Vol, veh/h		20			101			1139			1378	
Approach Delay, s/veh		37.1			37.5			9.8			12.0	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	50.4	9.5	10.8	4.8	50.0	5.9	14.4
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.2	14.9	5.4	2.4	2.3	20.9	2.4	2.7
Green Ext Time (p_c), s	0.0	7.7	0.0	0.0	0.0	11.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	1	9	0	1	3	1161	81	6	1399	0
Future Vol, veh/h	0	0	1	9	0	1	3	1161	81	6	1399	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	10	0	1	3	1290	90	7	1554	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2910	2954	1554	2910	2909	1335	1554	0	0	1380	0	0
Stage 1	1568	1568	-	1341	1341	-	-	-	-	-	-	-
Stage 2	1342	1386	-	1569	1568	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	10	15	141	10	16	190	432	-	-	503	-	-
Stage 1	141	173	-	190	223	-	-	-	-	-	-	-
Stage 2	190	212	-	140	173	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	9	13	141	~ 9	14	190	432	-	-	503	-	-
Mov Cap-2 Maneuver	9	13	-	~ 9	14	-	-	-	-	-	-	-
Stage 1	137	155	-	184	216	-	-	-	-	-	-	-
Stage 2	183	205	-	125	155	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.7	$ 815	0	0.1
HCM LOS	D	F		

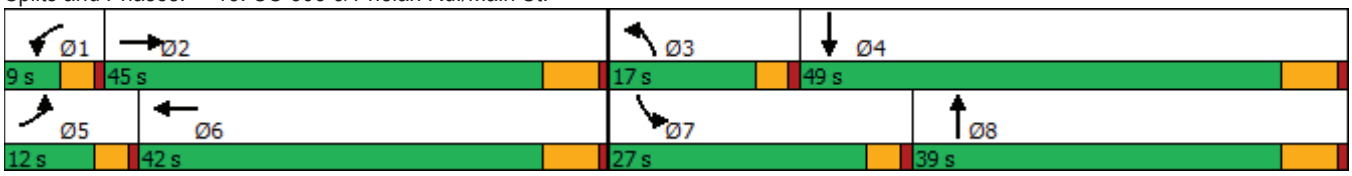
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	432	-	-	141	10	503	-	-
HCM Lane V/C Ratio	0.008	-	-	0.008	1.111	0.013	-	-
HCM Control Delay (s)	13.4	0	-	30.7	$ 815	12.3	0	-
HCM Lane LOS	B	A	-	D	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0	2.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	94	739	21	380	137	795	288	1047
Future Volume (vph)	94	739	21	380	137	795	288	1047
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.0	35.4	5.1	28.1	11.8	30.6	21.0	39.8
Actuated g/C Ratio	0.07	0.33	0.05	0.26	0.11	0.28	0.19	0.37
v/c Ratio	0.73	0.80	0.26	0.75	0.73	0.84	0.86	0.89
Control Delay	83.5	39.6	62.9	31.9	71.2	46.2	67.5	42.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.5	39.6	62.9	31.9	71.2	46.2	67.5	42.3
LOS	F	D	E	C	E	D	E	D
Approach Delay		43.8		32.8		49.8		47.4
Approach LOS		D		C		D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 44.4	Intersection LOS: D
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	739	155	21	380	356	137	795	23	288	1047	74
Future Volume (veh/h)	94	739	155	21	380	356	137	795	23	288	1047	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	98	770	116	22	396	291	143	828	24	300	1091	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	125	925	139	42	495	360	175	1034	30	336	1296	87
Arrive On Green	0.07	0.29	0.29	0.02	0.25	0.25	0.10	0.29	0.29	0.19	0.38	0.38
Sat Flow, veh/h	1810	3146	474	1810	1994	1450	1810	3582	104	1810	3434	230
Grp Volume(v), veh/h	98	442	444	22	358	329	143	417	435	300	573	591
Grp Sat Flow(s),veh/h/ln	1810	1805	1815	1810	1805	1639	1810	1805	1881	1810	1805	1859
Q Serve(g_s), s	5.1	21.9	22.0	1.2	17.8	18.1	7.4	20.5	20.5	15.5	27.8	27.8
Cycle Q Clear(g_c), s	5.1	21.9	22.0	1.2	17.8	18.1	7.4	20.5	20.5	15.5	27.8	27.8
Prop In Lane	1.00		0.26	1.00		0.88	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	125	531	534	42	448	407	175	521	543	336	681	702
V/C Ratio(X)	0.79	0.83	0.83	0.53	0.80	0.81	0.82	0.80	0.80	0.89	0.84	0.84
Avail Cap(c_a), veh/h	151	734	738	94	677	615	245	621	647	434	809	833
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	31.7	31.7	46.3	33.8	33.9	42.5	31.6	31.6	38.1	27.2	27.3
Incr Delay (d2), s/veh	18.4	5.9	5.9	7.4	4.0	4.8	11.9	6.7	6.4	16.1	7.2	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	9.5	9.6	0.6	7.7	7.1	3.7	9.1	9.4	7.9	11.9	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.4	37.5	37.5	53.7	37.8	38.7	54.4	38.2	38.0	54.2	34.5	34.3
LnGrp LOS	E	D	D	D	D	D	D	D	D	D	C	C
Approach Vol, veh/h		984			709			995			1464	
Approach Delay, s/veh		40.0			38.7			40.4			38.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.2	34.2	13.3	42.2	10.6	29.8	21.8	33.7
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	3.2	24.0	9.4	29.8	7.1	20.1	17.5	22.5
Green Ext Time (p_c), s	0.0	4.2	0.1	6.4	0.0	3.4	0.3	3.9

Intersection Summary	
HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	947	17	25	1199
Future Vol, veh/h	10	9	947	17	25	1199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1018	18	27	1289

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2370	518	0	0	1036	0
Stage 1	1027	-	-	-	-	-
Stage 2	1343	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	34	508	-	-	679	-
Stage 1	311	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	508	-	-	679	-
Mov Cap-2 Maneuver	33	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	236	-	-	-	-	-

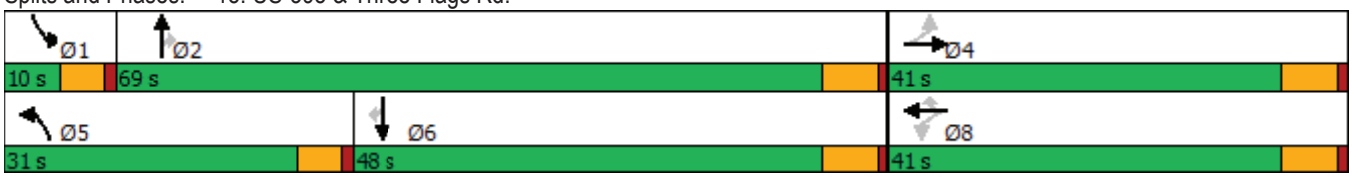
Approach	WB	NB	SB
HCM Control Delay, s	89.9	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	33	508	679	-
HCM Lane V/C Ratio	-	-	0.326	0.019	0.04	-
HCM Control Delay (s)	-	-	159.9	12.2	10.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.1	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	64	1	171	2	43	225	858	105	21	1067	121
Future Volume (vph)	64	1	171	2	43	225	858	105	21	1067	121
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	31.0	69.0	69.0	10.0	48.0	48.0
Total Split (%)	34.2%	34.2%	34.2%	34.2%	34.2%	25.8%	57.5%	57.5%	8.3%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	27.4	27.4	27.4	27.4	27.4	18.8	63.9	63.9	5.1	45.5	45.5
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.17	0.59	0.59	0.05	0.42	0.42
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.44	0.12	0.27	0.77	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
LOS	C	A	F	C	A	E	B	A	E	C	A
Approach Delay		12.0		79.7			23.1			31.7	
Approach LOS		B		E			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1	248	171	2	43	225	858	105	21	1067	121
Future Volume (veh/h)	64	1	248	171	2	43	225	858	105	21	1067	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	70	1	233	186	2	38	245	933	102	23	1160	111
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	482	2	461	267	546	462	275	1961	874	41	1495	667
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.15	0.54	0.54	0.02	0.41	0.41
Sat Flow, veh/h	1463	7	1604	1229	1900	1607	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	70	0	234	186	2	38	245	933	102	23	1160	111
Grp Sat Flow(s),veh/h/ln	1463	0	1611	1229	1900	1607	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.2	0.0	14.0	17.2	0.1	2.0	15.4	18.5	3.6	1.5	32.2	5.0
Cycle Q Clear(g_c), s	4.2	0.0	14.0	31.3	0.1	2.0	15.4	18.5	3.6	1.5	32.2	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	0	463	267	546	462	275	1961	874	41	1495	667
V/C Ratio(X)	0.15	0.00	0.51	0.70	0.00	0.08	0.89	0.48	0.12	0.56	0.78	0.17
Avail Cap(c_a), veh/h	503	0	486	284	573	485	406	1961	874	78	1495	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	34.4	47.5	29.5	30.1	48.2	16.3	12.9	56.1	29.3	21.4
Incr Delay (d2), s/veh	0.1	0.0	0.3	5.4	0.0	0.0	11.8	0.8	0.3	4.5	4.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	5.5	5.7	0.0	0.8	7.5	7.0	1.2	0.7	13.5	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	34.7	52.9	29.5	30.2	60.0	17.1	13.2	60.6	33.4	21.9
LnGrp LOS	C	A	C	D	C	C	E	B	B	E	C	C
Approach Vol, veh/h		304			226			1280			1294	
Approach Delay, s/veh		33.9			48.9			25.0			32.9	
Approach LOS		C			D			C			C	

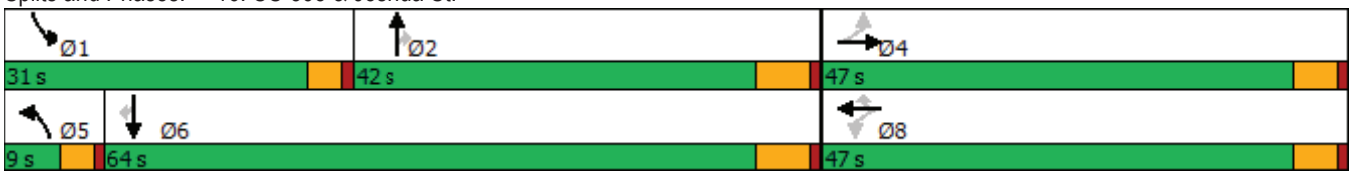
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	69.0		39.3	22.6	54.0		39.3				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		35.0	26.0	42.0		35.0				
Max Q Clear Time (g_c+I1), s	3.5	20.5		16.0	17.4	34.2		33.3				
Green Ext Time (p_c), s	0.0	7.0		1.0	0.2	4.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		30.9	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	36	67	95	81	216	12	937	61	198	1232	57
Future Volume (vph)	36	67	95	81	216	12	937	61	198	1232	57
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	42.0	42.0	31.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	35.0%	35.0%	25.8%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.6	16.6	16.6	16.6	16.6	5.1	43.5	43.5	15.2	61.5	61.5
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.06	0.50	0.50	0.17	0.70	0.70
v/c Ratio	0.15	0.21	0.41	0.24	0.48	0.12	0.57	0.08	0.69	0.53	0.05
Control Delay	29.7	29.1	35.0	30.7	7.2	48.2	20.6	3.0	46.6	10.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	29.1	35.0	30.7	7.2	48.2	20.6	3.0	46.6	10.1	3.6
LOS	C	C	D	C	A	D	C	A	D	B	A
Approach Delay		29.3		18.8			19.8			14.7	
Approach LOS		C		B			B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 87.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	67	4	95	81	216	12	937	61	198	1232	57
Future Volume (veh/h)	36	67	4	95	81	216	12	937	61	198	1232	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	39	73	1	103	88	181	13	1018	52	215	1339	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	218	289	4	254	294	248	28	2041	910	257	2497	1114
Arrive On Green	0.15	0.15	0.14	0.15	0.15	0.15	0.02	0.57	0.57	0.14	0.69	0.69
Sat Flow, veh/h	1189	1870	26	1422	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	39	0	74	103	88	181	13	1018	52	215	1339	57
Grp Sat Flow(s),veh/h/ln	1189	0	1895	1422	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.6	0.0	3.0	6.0	3.6	9.3	0.6	14.8	1.3	10.0	15.8	1.0
Cycle Q Clear(g_c), s	6.2	0.0	3.0	8.9	3.6	9.3	0.6	14.8	1.3	10.0	15.8	1.0
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	293	254	294	248	28	2041	910	257	2497	1114
V/C Ratio(X)	0.18	0.00	0.25	0.41	0.30	0.73	0.46	0.50	0.06	0.84	0.54	0.05
Avail Cap(c_a), veh/h	624	0	939	739	942	797	104	2041	910	563	2497	1114
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	0.0	32.3	36.2	32.5	34.9	42.3	11.4	8.5	36.3	6.6	4.3
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.4	0.2	1.5	8.6	0.9	0.1	5.4	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.4	2.1	1.6	3.7	0.3	4.8	0.4	4.5	3.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	0.0	32.4	36.6	32.7	36.5	50.9	12.3	8.6	41.7	7.4	4.4
LnGrp LOS	D	A	C	D	C	D	D	B	A	D	A	A
Approach Vol, veh/h		113			372			1083			1611	
Approach Delay, s/veh		33.5			35.6			12.6			11.9	
Approach LOS		C			D			B			B	

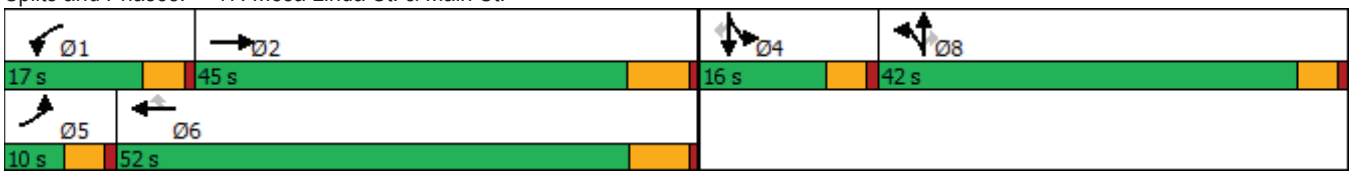
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.3	53.0		17.4	5.3	64.0		17.4				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	12.0	16.8		8.2	2.6	17.8		11.3				
Green Ext Time (p_c), s	0.3	10.8		0.3	0.0	23.0		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	1023	50	1503	17	2	126	2	14
Future Volume (vph)	5	1023	50	1503	17	2	126	2	14
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.3	41.7	7.9	50.6	50.6	14.2	14.2	10.6	10.6
Actuated g/C Ratio	0.06	0.47	0.09	0.57	0.57	0.16	0.16	0.12	0.12
v/c Ratio	0.06	0.52	0.42	0.63	0.02	0.01	0.39	0.28	0.05
Control Delay	48.6	21.6	51.3	17.7	0.1	31.5	8.0	45.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	21.6	51.3	17.7	0.1	31.5	8.0	45.1	0.3
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		21.7		18.6		8.3		35.3	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.9	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1023	3	50	1503	17	0	2	126	47	2	14
Future Volume (veh/h)	5	1023	3	50	1503	17	0	2	126	47	2	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	6	1204	4	59	1768	12	0	2	127	55	2	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	2578	9	73	2688	835	0	204	173	148	5	136
Arrive On Green	0.01	0.51	0.51	0.05	0.55	0.55	0.00	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1619	5056	17	1619	4914	1525	0	1800	1525	1657	60	1525
Grp Volume(v), veh/h	6	780	428	59	1768	12	0	2	127	57	0	2
Grp Sat Flow(s),veh/h/ln	1619	1638	1797	1619	1638	1525	0	1800	1525	1717	0	1525
Q Serve(g_s), s	0.3	12.8	12.8	3.0	21.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Cycle Q Clear(g_c), s	0.3	12.8	12.8	3.0	21.3	0.3	0.0	0.1	6.7	2.6	0.0	0.1
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	13	1670	916	73	2688	835	0	204	173	153	0	136
V/C Ratio(X)	0.48	0.47	0.47	0.81	0.66	0.01	0.00	0.01	0.73	0.37	0.00	0.01
Avail Cap(c_a), veh/h	104	1670	916	240	2688	835	0	804	681	234	0	208
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	13.2	13.2	39.6	13.4	8.7	0.0	32.9	35.9	35.9	0.0	34.8
Incr Delay (d2), s/veh	10.0	0.9	1.7	7.7	1.3	0.0	0.0	0.0	5.9	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.0	4.6	1.3	6.5	0.1	0.0	0.0	2.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	14.1	14.9	47.4	14.7	8.7	0.0	33.0	41.8	37.4	0.0	34.8
LnGrp LOS	D	B	B	D	B	A	A	C	D	D	A	C
Approach Vol, veh/h		1214			1839			129			59	
Approach Delay, s/veh		14.6			15.7			41.6			37.3	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	49.2		12.1	5.3	52.3		14.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	5.0	14.8		4.6	2.3	23.3		8.7				
Green Ext Time (p_c), s	0.0	7.4		0.1	0.0	12.8		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

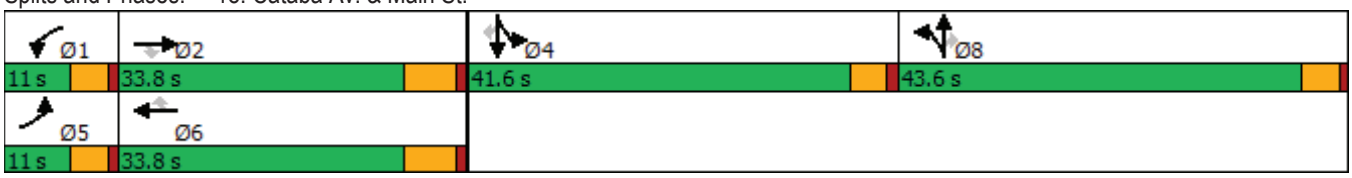
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	945	78	258	628	19	163	13	140	35	13	27
Future Volume (vph)	70	945	78	258	628	19	163	13	140	35	13	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	33.8	33.8	11.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	26.0%	26.0%	8.5%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	29.5	29.5	6.9	29.5	29.5	14.9	14.9	14.9	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.36	0.36	0.08	0.36	0.36	0.18	0.18	0.18	0.17	0.17	0.17
v/c Ratio	0.59	0.61	0.15	1.19	0.40	0.04	0.36	0.34	0.39	0.14	0.05	0.09
Control Delay	61.5	27.7	7.8	155.2	25.3	0.1	35.2	34.5	8.4	32.6	31.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	27.7	7.8	155.2	25.3	0.1	35.2	34.5	8.4	32.6	31.6	0.5
LOS	E	C	A	F	C	A	D	C	A	C	C	A
Approach Delay		28.4			61.8			23.2			21.0	
Approach LOS		C			E			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 82.8	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 40.1	Intersection LOS: D
Intersection Capacity Utilization 55.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	945	78	258	628	19	163	13	140	35	13	27
Future Volume (veh/h)	70	945	78	258	628	19	163	13	140	35	13	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	79	1062	81	290	706	14	194	0	137	39	15	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	98	1913	593	267	2060	639	469	0	221	151	168	142
Arrive On Green	0.06	0.39	0.39	0.09	0.42	0.42	0.14	0.00	0.14	0.09	0.09	0.09
Sat Flow, veh/h	1619	4914	1524	2956	4914	1524	3238	0	1522	1619	1800	1525
Grp Volume(v), veh/h	79	1062	81	290	706	14	194	0	137	39	15	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1524	1619	0	1522	1619	1800	1525
Q Serve(g_s), s	3.4	11.9	2.4	6.4	6.9	0.4	3.9	0.0	6.0	1.6	0.5	0.0
Cycle Q Clear(g_c), s	3.4	11.9	2.4	6.4	6.9	0.4	3.9	0.0	6.0	1.6	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	1913	593	267	2060	639	469	0	221	151	168	142
V/C Ratio(X)	0.81	0.56	0.14	1.09	0.34	0.02	0.41	0.00	0.62	0.26	0.09	0.01
Avail Cap(c_a), veh/h	146	1913	593	267	2060	639	1781	0	837	845	939	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	16.9	14.0	32.2	14.0	12.1	27.6	0.0	28.5	29.9	29.4	29.2
Incr Delay (d2), s/veh	10.7	1.2	0.5	80.1	0.5	0.1	0.6	0.0	2.8	0.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.8	0.8	5.0	2.2	0.1	1.5	0.0	2.3	0.6	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	18.0	14.4	112.4	14.4	12.1	28.1	0.0	31.3	30.8	29.6	29.2
LnGrp LOS	D	B	B	F	B	B	C	A	C	C	C	C
Approach Vol, veh/h		1222			1010			331			55	
Approach Delay, s/veh		19.4			42.5			29.5			30.4	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	33.8		11.2	8.9	35.9		14.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	6.4	27.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	8.4	13.9		3.6	5.4	8.9		8.0				
Green Ext Time (p_c), s	0.0	5.6		0.2	0.0	4.1		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		29.8	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	31	1086	12	144	944	11	11	81	149	27
Future Volume (vph)	31	1086	12	144	944	11	11	81	149	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.5	44.4	44.4	12.6	55.1	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.07	0.49	0.49	0.14	0.61	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.28	0.46	0.02	0.66	0.37	0.04	0.03	0.21	0.60	0.12
Control Delay	50.9	18.4	0.0	53.2	11.7	29.6	29.3	3.7	43.7	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	18.4	0.0	53.2	11.7	29.6	29.3	3.7	43.7	22.2
LOS	D	B	A	D	B	C	C	A	D	C
Approach Delay		19.1			16.7		9.1			38.9
Approach LOS		B			B		A			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.8	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 59.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1086	12	144	944	111	11	11	81	149	27	15
Future Volume (veh/h)	31	1086	12	144	944	111	11	11	81	149	27	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	32	1108	9	147	963	79	11	11	23	152	28	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	51	2733	848	179	2942	241	259	272	230	277	192	68
Arrive On Green	0.03	0.56	0.56	0.11	0.64	0.64	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1619	4914	1524	1619	4629	379	1314	1800	1522	1316	1266	452
Grp Volume(v), veh/h	32	1108	9	147	681	361	11	11	23	152	0	38
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1619	1638	1732	1314	1800	1522	1316	0	1719
Q Serve(g_s), s	1.7	10.9	0.2	7.5	8.1	8.1	0.6	0.4	1.1	9.4	0.0	1.6
Cycle Q Clear(g_c), s	1.7	10.9	0.2	7.5	8.1	8.1	2.2	0.4	1.1	9.9	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	51	2733	848	179	2082	1101	259	272	230	277	0	260
V/C Ratio(X)	0.63	0.41	0.01	0.82	0.33	0.33	0.04	0.04	0.10	0.55	0.00	0.15
Avail Cap(c_a), veh/h	180	2733	848	467	2082	1101	702	880	745	722	0	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	10.8	8.4	36.8	7.1	7.1	32.1	30.7	31.0	34.9	0.0	31.2
Incr Delay (d2), s/veh	4.8	0.4	0.0	3.6	0.4	0.8	0.1	0.1	0.2	1.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.3	0.1	2.9	2.2	2.4	0.2	0.2	0.4	3.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	11.2	8.4	40.4	7.5	7.9	32.2	30.7	31.1	36.6	0.0	31.4
LnGrp LOS	D	B	A	D	A	A	C	C	C	D	A	C
Approach Vol, veh/h		1149			1189			45			190	
Approach Delay, s/veh		12.1			11.7			31.3			35.5	
Approach LOS		B			B			C			D	

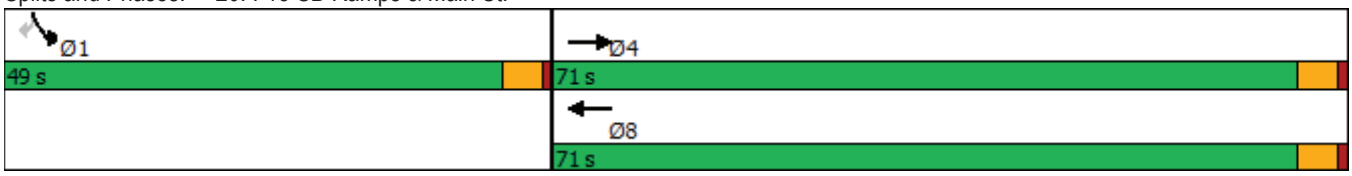
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	53.3		17.4	7.2	60.0		17.4				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	9.5	12.9		11.9	3.7	10.1		4.2				
Green Ext Time (p_c), s	0.1	7.7		0.7	0.0	7.3		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		14.0	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1176	32	920	21	358	266
Future Volume (vph)	1176	32	920	21	358	266
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	71.0		71.0		49.0	49.0
Total Split (%)	59.2%		59.2%		40.8%	40.8%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	19.7	40.8	19.7	40.8	11.6	11.6
Actuated g/C Ratio	0.48	1.00	0.48	1.00	0.28	0.28
v/c Ratio	0.50	0.02	0.39	0.01	0.38	0.52
Control Delay	8.2	0.0	7.4	0.0	13.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	0.0	7.4	0.0	13.5	12.2
LOS	A	A	A	A	B	B
Approach Delay	7.9		7.3			
Approach LOS	A		A			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 40.8	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.8	Intersection LOS: A
Intersection Capacity Utilization 41.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1176	32	0	920	21	0	0	0	358	0	266
Future Volume (veh/h)	0	1176	32	0	920	21	0	0	0	358	0	266
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1238	0	0	968	0				377	0	199
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2639		0	2639					801	0	367
Arrive On Green	0.00	0.51	0.00	0.00	0.51	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1238	0	0	968	0				377	0	199
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	5.4	0.0	0.0	3.9	0.0				3.2	0.0	3.8
Cycle Q Clear(g_c), s	0.0	5.4	0.0	0.0	3.9	0.0				3.2	0.0	3.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2639		0	2639					801	0	367
V/C Ratio(X)	0.00	0.47		0.00	0.37					0.47	0.00	0.54
Avail Cap(c_a), veh/h	0	9855		0	9855					4460	0	2046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.5	0.0	0.0	5.2	0.0				11.7	0.0	11.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				0.4	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.0	0.4	0.0				1.1	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	5.7	0.0	0.0	5.3	0.0				12.1	0.0	13.1
LnGrp LOS	A	A		A	A					B	A	B
Approach Vol, veh/h		1238	A		968	A					576	
Approach Delay, s/veh		5.7			5.3						12.5	
Approach LOS		A			A						B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				22.4		12.6		22.4				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				66.4		44.4		66.4				
Max Q Clear Time (g_c+I1), s				7.4		5.8		5.9				
Green Ext Time (p_c), s				10.4		2.2		7.3				

Intersection Summary												
HCM 6th Ctrl Delay			6.9									
HCM 6th LOS			A									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1180	355	1375	492	147	6	442
Future Volume (vph)	1180	355	1375	492	147	6	442
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	30.7	30.7	30.7	30.7	13.5	13.5	13.5
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.25	0.25	0.25
v/c Ratio	0.41	0.34	0.48	0.44	0.33	0.51	0.52
Control Delay	7.3	1.8	7.8	2.1	21.1	17.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	1.8	7.8	2.1	21.1	17.6	17.9
LOS	A	A	A	A	C	B	B
Approach Delay	6.0		6.3			18.6	
Approach LOS	A		A			B	

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 54.3			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 8.0		Intersection LOS: A	
Intersection Capacity Utilization 48.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1180	355	0	1375	492	147	6	442	0	0	0
Future Volume (veh/h)	0	1180	355	0	1375	492	147	6	442	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1204	0	0	1403	470	150	0	245			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	3199		0	3199	993	290	0	516			
Arrive On Green	0.00	0.62	0.00	0.00	0.62	0.62	0.16	0.00	0.16			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1204	0	0	1403	470	150	0	245			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	4.8	0.0	0.0	5.9	6.5	3.1	0.0	2.9			
Cycle Q Clear(g_c), s	0.0	4.8	0.0	0.0	5.9	6.5	3.1	0.0	2.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3199		0	3199	993	290	0	516			
V/C Ratio(X)	0.00	0.38		0.00	0.44	0.47	0.52	0.00	0.47			
Avail Cap(c_a), veh/h	0	9222		0	9222	2863	1639	0	2917			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	3.9	0.0	0.0	4.2	4.3	15.9	0.0	15.8			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.4	1.4	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.0	0.0	0.4	0.5	1.3	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.0	0.0	0.0	4.2	4.6	17.3	0.0	16.4			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1204	A		1873			395				
Approach Delay, s/veh		4.0			4.3			16.8				
Approach LOS		A			A			B				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		30.1				30.1		11.2				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		73.4				73.4		37.4				
Max Q Clear Time (g_c+I1), s		6.8				8.5		5.1				
Green Ext Time (p_c), s		10.0				16.9		1.5				

Intersection Summary		
HCM 6th Ctrl Delay	5.6	
HCM 6th LOS	A	

Notes

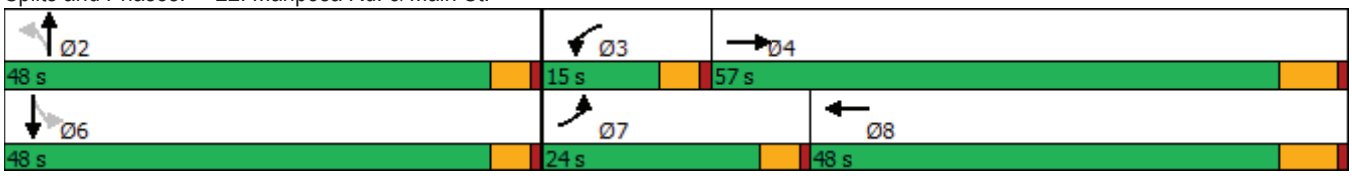
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	142	1377	45	1665	73	40	36	50
Future Volume (vph)	142	1377	45	1665	73	40	36	50
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	12.8	51.4	10.5	49.2	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.13	0.54	0.11	0.52	0.18	0.18	0.18	0.18
v/c Ratio	0.71	0.48	0.27	0.57	0.80	0.24	0.18	0.59
Control Delay	57.8	15.3	46.5	19.1	86.5	19.7	32.5	16.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	15.6	46.5	19.1	86.5	19.7	32.5	16.8
LOS	E	B	D	B	F	B	C	B
Approach Delay		19.3		19.8		52.2		18.9
Approach LOS		B		B		D		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 74.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	1377	103	45	1665	29	73	40	36	36	50	189
Future Volume (veh/h)	142	1377	103	45	1665	29	73	40	36	36	50	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	153	1481	98	48	1790	30	78	43	17	39	54	120
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	183	3206	212	178	3370	56	184	235	93	285	95	211
Arrive On Green	0.11	0.54	0.54	0.11	0.53	0.53	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1619	5978	395	1619	6319	106	1162	1227	485	1288	497	1104
Grp Volume(v), veh/h	153	1150	429	48	1315	505	78	0	60	39	0	174
Grp Sat Flow(s),veh/h/ln	1619	1548	1729	1619	1548	1781	1162	0	1713	1288	0	1601
Q Serve(g_s), s	8.8	14.5	14.5	2.6	17.5	17.5	6.2	0.0	2.8	2.5	0.0	9.3
Cycle Q Clear(g_c), s	8.8	14.5	14.5	2.6	17.5	17.5	15.5	0.0	2.8	5.3	0.0	9.3
Prop In Lane	1.00		0.23	1.00		0.06	1.00		0.28	1.00		0.69
Lane Grp Cap(c), veh/h	183	2491	927	178	2477	950	184	0	328	285	0	306
V/C Ratio(X)	0.84	0.46	0.46	0.27	0.53	0.53	0.42	0.00	0.18	0.14	0.00	0.57
Avail Cap(c_a), veh/h	332	2491	927	178	2477	950	494	0	785	628	0	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	13.5	13.5	38.7	14.4	14.4	41.8	0.0	32.1	34.3	0.0	34.7
Incr Delay (d2), s/veh	3.9	0.6	1.7	3.7	0.2	0.6	1.6	0.0	0.3	0.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.4	5.2	1.2	5.3	6.1	1.9	0.0	1.2	0.8	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	14.2	15.2	42.4	14.6	15.0	43.3	0.0	32.4	34.5	0.0	36.4
LnGrp LOS	D	B	B	D	B	B	D	A	C	C	A	D
Approach Vol, veh/h		1732			1868			138			213	
Approach Delay, s/veh		17.1			15.4			38.6			36.1	
Approach LOS		B			B			D			D	

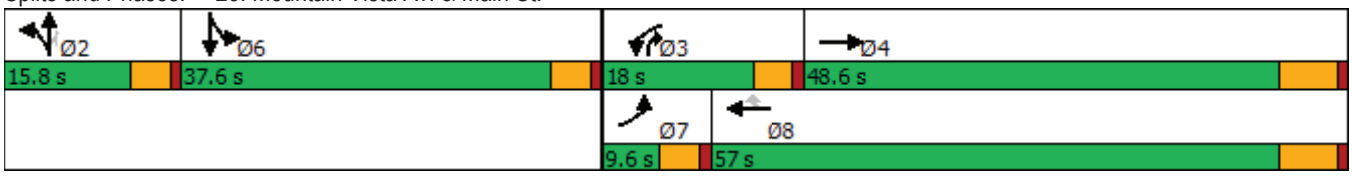
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.7	15.0	57.0		22.7	15.3	56.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		17.5	4.6	16.5		11.3	10.8	19.5				
Green Ext Time (p_c), s		0.6	0.0	12.5		1.3	0.1	12.3				

Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	1278	74	1722	59	16	1	30	50	2
Future Volume (vph)	16	1278	74	1722	59	16	1	30	50	2
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	54.3	8.6	63.7	63.7	10.4	10.4	11.8	13.8	13.8
Actuated g/C Ratio	0.06	0.63	0.10	0.74	0.74	0.12	0.12	0.14	0.16	0.16
v/c Ratio	0.09	0.35	0.48	0.49	0.05	0.05	0.02	0.07	0.13	0.12
Control Delay	48.2	14.4	51.4	13.1	1.3	44.1	43.2	0.3	34.7	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	14.4	51.4	13.1	1.3	44.1	43.2	0.3	34.7	27.2
LOS	D	B	D	B	A	D	D	A	C	C
Approach Delay		14.8		14.2			15.7			31.0
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.5	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1278	21	74	1722	59	16	1	30	50	2	9
Future Volume (veh/h)	16	1278	21	74	1722	59	16	1	30	50	2	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	16	1318	21	76	1775	58	16	1	11	57	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	55	3531	56	95	2940	912	184	102	353	294	163	0
Arrive On Green	0.02	0.56	0.56	0.06	0.60	0.60	0.06	0.06	0.06	0.09	0.00	0.00
Sat Flow, veh/h	2956	6325	101	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	16	967	372	76	1775	58	16	1	11	57	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1782	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	0.5	9.9	9.9	3.9	19.3	1.3	0.4	0.0	0.3	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	9.9	9.9	3.9	19.3	1.3	0.4	0.0	0.3	1.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2592	995	95	2940	912	184	102	353	294	163	0
V/C Ratio(X)	0.29	0.37	0.37	0.80	0.60	0.06	0.09	0.01	0.03	0.19	0.00	0.00
Avail Cap(c_a), veh/h	174	2592	995	256	2940	912	427	237	581	1259	700	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.1	10.5	10.5	39.5	10.7	7.1	37.9	37.8	33.3	35.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.4	1.1	5.7	0.9	0.1	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	3.4	1.6	5.5	0.4	0.2	0.0	0.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	10.9	11.5	45.2	11.7	7.3	38.1	37.8	33.4	36.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1355			1909			28			57	
Approach Delay, s/veh		11.4			12.9			36.3			36.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.4	9.6	53.6		12.3	6.2	57.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		11.2	13.4	42.4		33.0	5.0	50.8				
Max Q Clear Time (g_c+I1), s		2.4	5.9	11.9		3.4	2.5	21.3				
Green Ext Time (p_c), s		0.0	0.0	9.6		0.2	0.0	15.2				

Intersection Summary												
HCM 6th Ctrl Delay			12.9									
HCM 6th LOS			B									

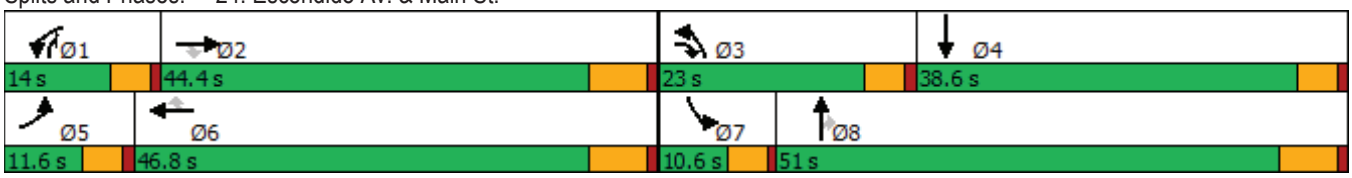
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	906	439	327	1104	3	740	22	345	1	3
Future Volume (vph)	4	906	439	327	1104	3	740	22	345	1	3
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	44.4	23.0	14.0	46.8	46.8	23.0	51.0	14.0	10.6	38.6
Total Split (%)	9.7%	37.0%	19.2%	11.7%	39.0%	39.0%	19.2%	42.5%	11.7%	8.8%	32.2%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	5.2	24.8	50.0	9.6	37.6	37.6	18.9	34.2	50.2	5.1	13.7
Actuated g/C Ratio	0.06	0.28	0.57	0.11	0.43	0.43	0.22	0.39	0.57	0.06	0.16
v/c Ratio	0.04	0.67	0.42	1.04	0.77	0.00	1.20	0.03	0.38	0.01	0.06
Control Delay	47.0	30.6	2.5	101.1	27.4	0.0	137.6	19.4	7.6	48.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	30.6	2.5	101.1	27.4	0.0	137.6	19.4	7.6	48.0	18.5
LOS	D	C	A	F	C	A	F	B	A	D	B
Approach Delay		21.5			44.2			94.7			20.3
Approach LOS		C			D			F			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 87.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 50.6	Intersection LOS: D
Intersection Capacity Utilization 82.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	906	439	327	1104	3	740	22	345	1	3	12
Future Volume (veh/h)	4	906	439	327	1104	3	740	22	345	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	934	339	337	1138	3	763	23	194	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1423	777	332	1357	605	651	609	687	2	40	148
Arrive On Green	0.01	0.29	0.29	0.11	0.40	0.40	0.22	0.34	0.34	0.00	0.12	0.12
Sat Flow, veh/h	1619	4914	1525	2956	3420	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	934	339	337	1138	3	763	23	194	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1710	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	13.9	11.7	9.4	25.2	0.1	18.4	0.7	6.7	0.1	0.0	0.7
Cycle Q Clear(g_c), s	0.2	13.9	11.7	9.4	25.2	0.1	18.4	0.7	6.7	0.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1423	777	332	1357	605	651	609	687	2	0	189
V/C Ratio(X)	0.47	0.66	0.44	1.01	0.84	0.00	1.17	0.04	0.28	0.45	0.00	0.07
Avail Cap(c_a), veh/h	136	2245	1033	332	1661	741	651	964	989	116	0	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.5	26.0	12.9	37.1	22.8	15.2	32.6	18.5	14.5	41.7	0.0	32.7
Incr Delay (d2), s/veh	13.9	0.5	0.4	53.0	3.3	0.0	93.5	0.0	0.2	45.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.0	3.9	5.6	9.4	0.0	14.9	0.3	2.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	26.6	13.3	90.1	26.1	15.2	126.1	18.6	14.7	86.7	0.0	32.9
LnGrp LOS	E	C	B	F	C	B	F	B	B	F	A	C
Approach Vol, veh/h		1277			1478			980			15	
Approach Delay, s/veh		23.1			40.7			101.5			36.5	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	30.4	23.0	16.2	5.0	39.4	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	11.4	15.9	20.4	2.7	2.2	27.2	2.1	8.7
Green Ext Time (p_c), s	0.0	7.3	0.0	0.0	0.0	6.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	50.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	224	876	33	93	538
Future Vol, veh/h	24	224	876	33	93	538
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	27	249	973	37	103	598

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1497	505	0	0	1010	0
Stage 1	992	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	115	518	-	-	694	-
Stage 1	324	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	98	518	-	-	694	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	492	-	-	-	-	-

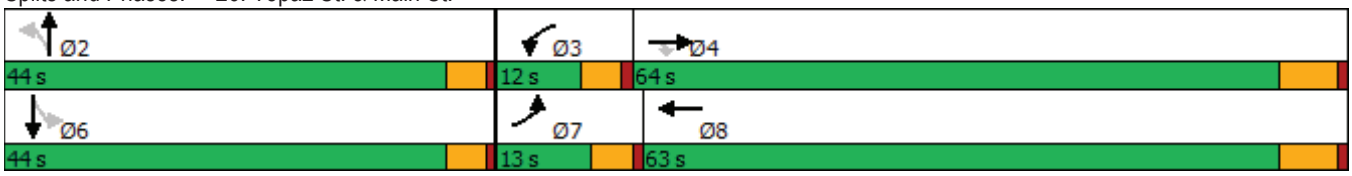
Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	221	518	694	-
HCM Lane V/C Ratio	-	-	0.121	0.48	0.149	-
HCM Control Delay (s)	-	-	23.5	18.2	11.1	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	2.6	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	42	1098	84	33	1140	173	83	98	64
Future Volume (vph)	42	1098	84	33	1140	173	83	98	64
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.1	42.5	42.5	7.9	48.9	23.5	23.5	23.5	23.5
Actuated g/C Ratio	0.08	0.47	0.47	0.09	0.54	0.26	0.26	0.26	0.26
v/c Ratio	0.37	0.76	0.12	0.26	0.75	0.71	0.35	0.41	0.33
Control Delay	55.9	23.5	3.9	52.9	22.1	48.0	25.1	35.4	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	23.5	3.9	52.9	22.1	48.0	25.1	35.4	21.5
LOS	E	C	A	D	C	D	C	D	C
Approach Delay		23.3			22.9		37.6		27.3
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 25.0	Intersection LOS: C
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1098	84	33	1140	96	173	83	60	98	64	74
Future Volume (veh/h)	42	1098	84	33	1140	96	173	83	60	98	64	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	47	1220	80	37	1267	104	192	92	48	109	71	34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	1563	683	156	1639	134	337	274	143	307	284	136
Arrive On Green	0.04	0.46	0.46	0.10	0.51	0.51	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1619	3420	1494	1619	3200	262	1237	1113	580	1195	1150	551
Grp Volume(v), veh/h	47	1220	80	37	676	695	192	0	140	109	0	105
Grp Sat Flow(s),veh/h/ln	1619	1710	1494	1619	1710	1753	1237	0	1693	1195	0	1701
Q Serve(g_s), s	2.2	23.2	2.4	1.6	24.5	24.7	11.4	0.0	5.2	6.3	0.0	3.8
Cycle Q Clear(g_c), s	2.2	23.2	2.4	1.6	24.5	24.7	15.2	0.0	5.2	11.6	0.0	3.8
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.34	1.00		0.32
Lane Grp Cap(c), veh/h	67	1563	683	156	876	897	337	0	417	307	0	419
V/C Ratio(X)	0.70	0.78	0.12	0.24	0.77	0.77	0.57	0.00	0.34	0.35	0.00	0.25
Avail Cap(c_a), veh/h	177	2569	1122	156	1262	1294	666	0	867	624	0	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.4	17.6	12.0	32.2	15.1	15.2	29.4	0.0	23.8	28.6	0.0	23.3
Incr Delay (d2), s/veh	5.0	0.9	0.1	3.6	1.8	1.9	1.5	0.0	0.5	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	7.6	0.7	0.7	7.9	8.1	3.4	0.0	2.1	1.8	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	18.5	12.1	35.7	17.0	17.0	30.9	0.0	24.3	29.3	0.0	23.6
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1347			1408			332			214	
Approach Delay, s/veh		18.9			17.5			28.1			26.5	
Approach LOS		B			B			C			C	

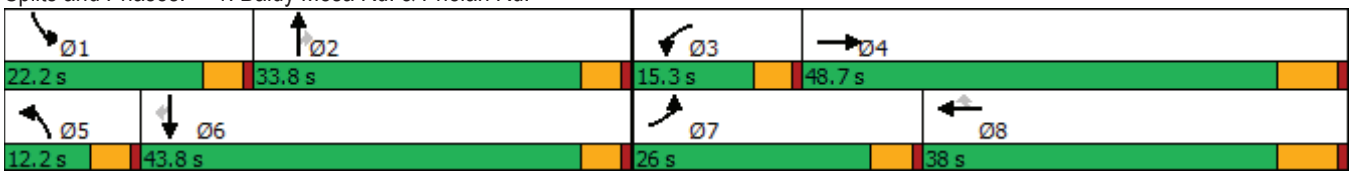
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.6	12.0	41.4		23.6	7.8	45.6				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		17.2	3.6	25.2		13.6	4.2	26.7				
Green Ext Time (p_c), s		1.5	0.0	10.0		1.0	0.0	10.1				

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	157	710	60	736	124	39	30	27	122	38	140
Future Volume (vph)	157	710	60	736	124	39	30	27	122	38	140
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	13.8	44.2	8.0	35.6	35.6	6.6	13.0	13.0	12.7	19.8	19.8
Actuated g/C Ratio	0.15	0.48	0.09	0.39	0.39	0.07	0.14	0.14	0.14	0.21	0.21
v/c Ratio	0.70	0.49	0.46	0.60	0.19	0.36	0.13	0.08	0.59	0.11	0.33
Control Delay	55.2	21.4	55.9	28.5	2.3	55.4	38.5	0.4	52.5	31.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	21.4	55.9	28.5	2.3	55.4	38.5	0.4	52.5	31.5	6.8
LOS	E	C	E	C	A	E	D	A	D	C	A
Approach Delay		27.3		26.8			34.7			28.5	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 62.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	710	38	60	736	124	39	30	27	122	38	140
Future Volume (veh/h)	157	710	38	60	736	124	39	30	27	122	38	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	169	763	32	65	791	93	42	32	18	131	41	89
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	202	1624	68	101	1448	642	59	215	180	161	327	277
Arrive On Green	0.12	0.49	0.49	0.06	0.42	0.42	0.04	0.12	0.12	0.10	0.18	0.18
Sat Flow, veh/h	1619	3345	140	1619	3420	1516	1619	1800	1513	1619	1800	1525
Grp Volume(v), veh/h	169	390	405	65	791	93	42	32	18	131	41	89
Grp Sat Flow(s),veh/h/ln	1619	1710	1775	1619	1710	1516	1619	1800	1513	1619	1800	1525
Q Serve(g_s), s	8.9	13.2	13.2	3.4	15.1	3.3	2.2	1.4	0.9	6.9	1.7	4.4
Cycle Q Clear(g_c), s	8.9	13.2	13.2	3.4	15.1	3.3	2.2	1.4	0.9	6.9	1.7	4.4
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	830	862	101	1448	642	59	215	180	161	327	277
V/C Ratio(X)	0.84	0.47	0.47	0.64	0.55	0.14	0.71	0.15	0.10	0.82	0.13	0.32
Avail Cap(c_a), veh/h	399	830	862	199	1448	642	142	605	508	328	812	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	14.9	14.9	39.8	18.8	15.4	41.4	34.3	34.1	38.4	29.8	30.9
Incr Delay (d2), s/veh	3.5	1.9	1.8	2.5	1.5	0.5	5.6	0.3	0.2	3.8	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	4.7	4.8	1.3	5.4	1.1	1.0	0.6	0.3	2.9	0.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	16.8	16.7	42.3	20.3	15.9	47.1	34.6	34.4	42.2	29.9	31.6
LnGrp LOS	D	B	B	D	C	B	D	C	C	D	C	C
Approach Vol, veh/h		964			949			92			261	
Approach Delay, s/veh		21.0			21.4			40.2			36.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.2	15.0	10.0	48.7	7.8	20.4	15.4	43.3
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	8.9	3.4	5.4	15.2	4.2	6.4	10.9	17.1
Green Ext Time (p_c), s	0.1	0.2	0.0	4.4	0.0	0.5	0.1	4.3

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	840	4	29	956	5	3	0	15	6	0	3
Future Vol, veh/h	4	840	4	29	956	5	3	0	15	6	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	884	4	31	1006	5	3	0	16	6	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1011	0	0	888	0	0	1964	1965	884	1970	1964	1006
Stage 1	-	-	-	-	-	-	892	892	-	1068	1068	-
Stage 2	-	-	-	-	-	-	1072	1073	-	902	896	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	694	-	-	771	-	-	48	64	347	47	64	295
Stage 1	-	-	-	-	-	-	339	363	-	271	301	-
Stage 2	-	-	-	-	-	-	269	299	-	335	362	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	694	-	-	771	-	-	46	61	347	43	61	295
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	172	-	146	168	-
Stage 1	-	-	-	-	-	-	337	361	-	269	289	-
Stage 2	-	-	-	-	-	-	255	287	-	318	360	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	18.5	26.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	286	694	-	-	771	-	-	176
HCM Lane V/C Ratio	0.066	0.006	-	-	0.04	-	-	0.054
HCM Control Delay (s)	18.5	10.2	-	-	9.9	-	-	26.6
HCM Lane LOS	C	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	842	2	4	1045	6	5
Future Vol, veh/h	842	2	4	1045	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	877	2	4	1089	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	879	0	1975	878
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	1097	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	777	-	69	350
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	323	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	777	-	69	350
Mov Cap-2 Maneuver	-	-	-	-	195	-
Stage 1	-	-	-	-	410	-
Stage 2	-	-	-	-	321	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	244	-	-	777	-
HCM Lane V/C Ratio	0.047	-	-	0.005	-
HCM Control Delay (s)	20.5	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	847	1049	25	23	12
Future Vol, veh/h	13	847	1049	25	23	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	921	1140	27	25	13

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	1167	0	-	0	1643	584			
Stage 1	-	-	-	-	1154	-			
Stage 2	-	-	-	-	489	-			
Critical Hdwy	4.1	-	-	-	6.8	6.9			
Critical Hdwy Stg 1	-	-	-	-	5.8	-			
Critical Hdwy Stg 2	-	-	-	-	5.8	-			
Follow-up Hdwy	2.2	-	-	-	3.5	3.3			
Pot Cap-1 Maneuver	606	-	-	-	92	460			
Stage 1	-	-	-	-	267	-			
Stage 2	-	-	-	-	588	-			
Platoon blocked, %		-	-	-					
Mov Cap-1 Maneuver	606	-	-	-	90	460			
Mov Cap-2 Maneuver	-	-	-	-	198	-			
Stage 1	-	-	-	-	261	-			
Stage 2	-	-	-	-	588	-			

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	22.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	606	-	-	-	246
HCM Lane V/C Ratio	0.023	-	-	-	0.155
HCM Control Delay (s)	11.1	-	-	-	22.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	72	40	45	109	67	1043	85	224	1036	90
Future Volume (vph)	53	72	40	45	109	67	1043	85	224	1036	90
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	21.0	21.0	21.0	21.0	21.0	8.2	47.6	47.6	17.4	59.1	59.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.08	0.47	0.47	0.17	0.58	0.58
v/c Ratio	0.73	0.19	0.10	0.17	0.81	0.48	0.64	0.11	0.75	0.51	0.10
Control Delay	87.9	33.9	0.5	34.0	43.6	59.3	25.2	5.2	56.8	16.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	33.9	0.5	34.0	43.6	59.3	25.2	5.2	56.8	16.0	3.5
LOS	F	C	A	C	D	E	C	A	E	B	A
Approach Delay		43.0			42.5		25.7			22.0	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	72	40	45	109	216	67	1043	85	224	1036	90
Future Volume (veh/h)	53	72	40	45	109	216	67	1043	85	224	1036	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	75	23	47	114	163	70	1086	64	233	1079	75
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	153	416	352	332	155	221	91	1741	777	269	2097	935
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.05	0.48	0.48	0.15	0.58	0.58
Sat Flow, veh/h	1181	1900	1610	1391	706	1010	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	55	75	23	47	0	277	70	1086	64	233	1079	75
Grp Sat Flow(s),veh/h/ln	1181	1900	1610	1391	0	1717	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.5	3.2	1.1	2.8	0.0	15.0	3.8	22.2	2.1	12.6	17.8	2.0
Cycle Q Clear(g_c), s	19.6	3.2	1.1	6.0	0.0	15.0	3.8	22.2	2.1	12.6	17.8	2.0
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	416	352	332	0	375	91	1741	777	269	2097	935
V/C Ratio(X)	0.36	0.18	0.07	0.14	0.00	0.74	0.77	0.62	0.08	0.87	0.51	0.08
Avail Cap(c_a), veh/h	332	704	597	543	0	636	181	1741	777	453	2097	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	31.7	30.9	34.2	0.0	36.3	46.9	19.1	13.9	41.5	12.5	9.2
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.0	1.1	9.8	1.7	0.2	7.1	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.4	0.4	0.9	0.0	6.2	1.9	8.4	0.7	5.8	6.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	31.8	30.9	34.3	0.0	37.4	56.7	20.8	14.1	48.6	13.4	9.4
LnGrp LOS	D	C	C	C	A	D	E	C	B	D	B	A
Approach Vol, veh/h		153			324			1220			1387	
Approach Delay, s/veh		36.8			37.0			22.5			19.1	
Approach LOS		D			D			C			B	

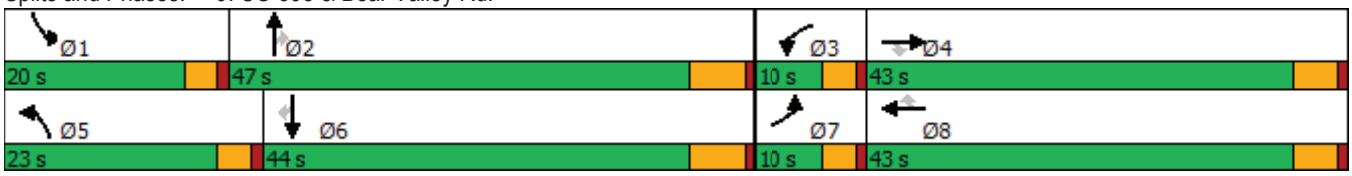
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.9	54.2		26.8	9.0	64.0		26.8				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	14.6	24.2		21.6	5.8	19.8		17.0				
Green Ext Time (p_c), s	0.3	5.5		0.3	0.0	6.5		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		23.2	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	329	138	116	321	142	183	973	221	167	919	36
Future Volume (vph)	56	329	138	116	321	142	183	973	221	167	919	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	16.8	16.8	6.1	19.1	19.1	14.4	41.6	41.6	13.5	40.7	40.7
Actuated g/C Ratio	0.06	0.17	0.17	0.06	0.20	0.20	0.15	0.43	0.43	0.14	0.42	0.42
v/c Ratio	0.53	0.56	0.36	1.08	0.48	0.34	0.72	0.66	0.28	0.70	0.64	0.05
Control Delay	65.8	39.7	8.1	155.0	37.4	7.6	56.9	26.8	4.2	57.6	27.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	39.7	8.1	155.0	37.4	7.6	56.9	26.8	4.2	57.6	27.2	0.1
LOS	E	D	A	F	D	A	E	C	A	E	C	A
Approach Delay		34.1			53.7			27.2			30.8	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.2	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 33.6	Intersection LOS: C
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	329	138	116	321	142	183	973	221	167	919	36
Future Volume (veh/h)	56	329	138	116	321	142	183	973	221	167	919	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	59	346	63	122	338	80	193	1024	172	176	967	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	78	491	219	123	580	258	232	1674	746	213	1637	730
Arrive On Green	0.04	0.14	0.14	0.07	0.16	0.16	0.13	0.46	0.46	0.12	0.45	0.45
Sat Flow, veh/h	1810	3610	1610	1810	3610	1604	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	59	346	63	122	338	80	193	1024	172	176	967	25
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1604	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	2.9	8.1	3.1	6.0	7.7	3.9	9.2	18.8	5.7	8.4	17.7	0.8
Cycle Q Clear(g_c), s	2.9	8.1	3.1	6.0	7.7	3.9	9.2	18.8	5.7	8.4	17.7	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	491	219	123	580	258	232	1674	746	213	1637	730
V/C Ratio(X)	0.75	0.70	0.29	0.99	0.58	0.31	0.83	0.61	0.23	0.83	0.59	0.03
Avail Cap(c_a), veh/h	123	1551	692	123	1551	689	389	1674	746	327	1637	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	36.5	34.4	41.2	34.4	32.8	37.6	17.8	14.2	38.1	18.0	13.4
Incr Delay (d2), s/veh	10.3	0.7	0.3	79.2	0.3	0.3	5.8	1.7	0.7	8.1	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.3	1.1	5.2	3.1	1.4	4.1	6.9	1.9	3.9	6.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	37.2	34.6	120.4	34.7	33.0	43.4	19.4	15.0	46.3	19.6	13.5
LnGrp LOS	D	D	C	F	C	C	D	B	B	D	B	B
Approach Vol, veh/h		468			540			1389			1168	
Approach Delay, s/veh		38.7			53.8			22.2			23.5	
Approach LOS		D			D			C			C	

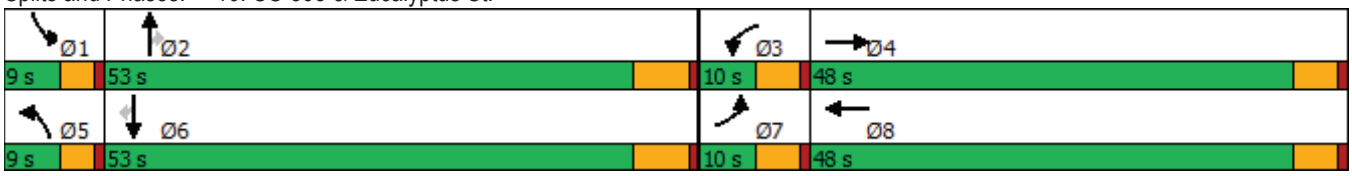
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	47.0	10.0	17.0	15.3	46.1	7.8	19.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	10.4	20.8	8.0	10.1	11.2	19.7	4.9	9.7
Green Ext Time (p_c), s	0.1	4.3	0.0	1.3	0.2	3.7	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	6	0	46	2	9	1401	88	12	1107	11
Future Volume (vph)	6	0	46	2	9	1401	88	12	1107	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.1	8.4	15.1	5.2	61.2	61.2	5.2	61.2	61.2
Actuated g/C Ratio	0.06	0.18	0.10	0.18	0.06	0.72	0.72	0.06	0.72	0.72
v/c Ratio	0.05	0.01	0.27	0.04	0.08	0.57	0.08	0.12	0.45	0.01
Control Delay	45.8	0.0	45.0	14.9	46.2	13.6	3.5	46.8	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	0.0	45.0	14.9	46.2	13.6	3.5	46.8	12.0	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		30.6		38.6		13.2			12.2	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 57.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	3	46	2	10	9	1401	88	12	1107	11
Future Volume (veh/h)	6	0	3	46	2	10	9	1401	88	12	1107	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	6	0	0	48	2	3	9	1475	90	13	1165	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	14	104	0	76	61	91	21	2247	1002	29	2263	1010
Arrive On Green	0.01	0.00	0.00	0.04	0.09	0.09	0.01	0.62	0.62	0.02	0.63	0.63
Sat Flow, veh/h	1810	1900	0	1810	686	1029	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	6	0	0	48	0	5	9	1475	90	13	1165	11
Grp Sat Flow(s),veh/h/ln	1810	1900	0	1810	0	1715	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.2	0.0	0.0	2.0	0.0	0.2	0.4	19.7	1.7	0.5	13.4	0.2
Cycle Q Clear(g_c), s	0.2	0.0	0.0	2.0	0.0	0.2	0.4	19.7	1.7	0.5	13.4	0.2
Prop In Lane	1.00		0.00	1.00		0.60	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	14	104	0	76	0	152	21	2247	1002	29	2263	1010
V/C Ratio(X)	0.42	0.00	0.00	0.63	0.00	0.03	0.44	0.66	0.09	0.45	0.51	0.01
Avail Cap(c_a), veh/h	120	1082	0	120	0	977	120	2247	1002	120	2263	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	0.0	35.6	0.0	31.4	37.1	9.1	5.7	36.8	7.8	5.3
Incr Delay (d2), s/veh	7.3	0.0	0.0	3.2	0.0	0.1	5.3	1.5	0.2	4.1	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	0.9	0.0	0.1	0.2	5.3	0.5	0.3	4.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.6	0.0	0.0	38.8	0.0	31.5	42.4	10.6	5.9	41.0	8.6	5.3
LnGrp LOS	D	A	A	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		6			53			1574			1189	
Approach Delay, s/veh		44.6			38.1			10.5			8.9	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	53.0	8.2	9.1	4.9	53.3	5.6	11.7
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.5	21.7	4.0	0.0	2.4	15.4	2.2	2.2
Green Ext Time (p_c), s	0.0	11.5	0.0	0.0	0.0	11.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	33.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	0	4	31	0	3	8	1598	28	2	1281	4
Future Vol, veh/h	3	0	4	31	0	3	8	1598	28	2	1281	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	0	4	32	0	3	8	1665	29	2	1334	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3037	3050	1336	3038	3038	1680	1338	0	0	1694	0	0
Stage 1	1340	1340	-	1696	1696	-	-	-	-	-	-	-
Stage 2	1697	1710	-	1342	1342	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	8	13	190	~ 8	13	118	522	-	-	382	-	-
Stage 1	190	223	-	119	150	-	-	-	-	-	-	-
Stage 2	118	147	-	190	223	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	6	9	190	~ 6	9	118	522	-	-	382	-	-
Mov Cap-2 Maneuver	6	9	-	~ 6	9	-	-	-	-	-	-	-
Stage 1	138	219	-	86	109	-	-	-	-	-	-	-
Stage 2	83	107	-	182	219	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 465.4	$ 2848.7	0.1	0
HCM LOS	F	F		

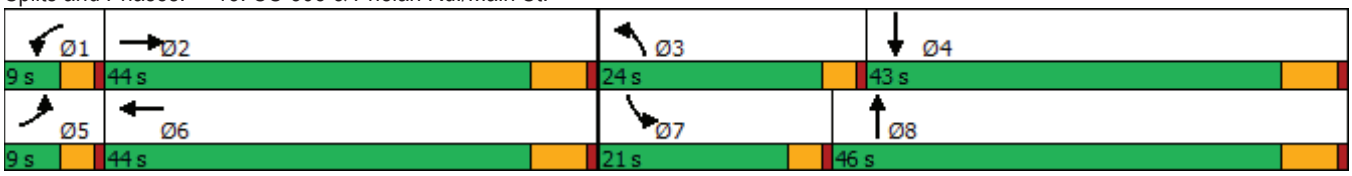
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	522	-	-	13	7	382	-	-
HCM Lane V/C Ratio	0.016	-	-	0.561	5.06	0.005	-	-
HCM Control Delay (s)	12	0	-	$ 465.4	$ 2848.7	14.5	0	-
HCM Lane LOS	B	A	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0	-	-	1.3	5.8	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	632	24	743	220	1210	321	895
Future Volume (vph)	90	632	24	743	220	1210	321	895
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	41.6	5.0	38.0	18.3	40.0	17.0	38.7
Actuated g/C Ratio	0.04	0.35	0.04	0.32	0.15	0.33	0.14	0.32
v/c Ratio	1.27	0.64	0.33	1.00	0.84	1.10	1.33	0.91
Control Delay	237.4	35.7	68.0	66.1	75.2	97.4	211.5	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	35.7	68.0	66.1	75.2	97.4	211.5	51.3
LOS	F	D	E	E	E	F	F	D
Approach Delay		57.5		66.1		94.1		90.4
Approach LOS		E		E		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 80.1	Intersection LOS: F
Intersection Capacity Utilization 105.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	632	114	24	743	335	220	1210	47	321	895	99
Future Volume (veh/h)	90	632	114	24	743	335	220	1210	47	321	895	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	665	92	25	782	269	232	1274	42	338	942	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	76	1054	146	43	826	284	260	1194	39	258	1112	105
Arrive On Green	0.04	0.33	0.33	0.02	0.31	0.31	0.14	0.33	0.33	0.14	0.33	0.33
Sat Flow, veh/h	1810	3176	439	1810	2636	906	1810	3566	117	1810	3333	315
Grp Volume(v), veh/h	95	378	379	25	535	516	232	644	672	338	510	521
Grp Sat Flow(s),veh/h/ln	1810	1805	1810	1810	1805	1737	1810	1805	1879	1810	1805	1843
Q Serve(g_s), s	5.0	21.1	21.2	1.6	34.6	34.6	15.0	40.0	40.0	17.0	31.4	31.4
Cycle Q Clear(g_c), s	5.0	21.1	21.2	1.6	34.6	34.6	15.0	40.0	40.0	17.0	31.4	31.4
Prop In Lane	1.00		0.24	1.00		0.52	1.00		0.06	1.00		0.17
Lane Grp Cap(c), veh/h	76	599	600	43	566	544	260	604	629	258	602	615
V/C Ratio(X)	1.25	0.63	0.63	0.59	0.95	0.95	0.89	1.07	1.07	1.31	0.85	0.85
Avail Cap(c_a), veh/h	76	599	600	76	574	553	303	604	629	258	602	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	33.7	33.7	57.7	40.0	40.0	50.2	39.7	39.7	51.2	37.0	37.0
Incr Delay (d2), s/veh	186.3	2.1	2.2	9.1	24.8	25.5	23.4	55.4	55.2	165.5	11.1	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	9.0	9.1	0.8	18.2	17.6	8.2	25.7	26.7	19.2	14.7	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	243.6	35.9	35.9	66.8	64.8	65.5	73.6	95.2	95.0	216.7	48.0	47.9
LnGrp LOS	F	D	D	E	E	E	E	F	F	F	D	D
Approach Vol, veh/h		852			1076			1548			1369	
Approach Delay, s/veh		59.0			65.2			91.8			89.6	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	45.6	21.2	45.8	9.0	43.4	21.0	46.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	3.6	23.2	17.0	33.4	7.0	36.6	19.0	42.0
Green Ext Time (p_c), s	0.0	3.5	0.1	2.1	0.0	0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	79.5
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1452	33	11	1026
Future Vol, veh/h	14	24	1452	33	11	1026
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1482	34	11	1047

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2568	758	0	0	1516	0
Stage 1	1499	-	-	-	-	-
Stage 2	1069	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	25	354	-	-	446	-
Stage 1	175	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	354	-	-	446	-
Mov Cap-2 Maneuver	24	-	-	-	-	-
Stage 1	175	-	-	-	-	-
Stage 2	325	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	114.7	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	24	354	446	-
HCM Lane V/C Ratio	-	-	0.595	0.069	0.025	-
HCM Control Delay (s)	-	-	284.1	15.9	13.3	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	80	1	132	4	33	210	1374	153	34	905	101
Future Volume (vph)	80	1	132	4	33	210	1374	153	34	905	101
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	26.0	69.0	69.0	10.0	53.0	53.0
Total Split (%)	34.2%	34.2%	34.2%	34.2%	34.2%	21.7%	57.5%	57.5%	8.3%	44.2%	44.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.6	20.6	20.6	20.6	20.6	15.7	64.4	64.4	5.1	49.2	49.2
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.15	0.63	0.63	0.05	0.48	0.48
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.62	0.15	0.39	0.53	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
LOS	D	A	F	C	A	E	B	A	E	C	A
Approach Delay		14.5		97.2			20.2			22.0	
Approach LOS		B		F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 24.2	Intersection LOS: C
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	1	258	132	4	33	210	1374	153	34	905	101
Future Volume (veh/h)	80	1	258	132	4	33	210	1374	153	34	905	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	1	222	135	4	28	214	1402	150	35	923	86
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	428	2	396	222	470	398	245	2056	916	54	1675	747
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.14	0.57	0.57	0.03	0.46	0.46
Sat Flow, veh/h	1477	7	1604	1242	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	82	0	223	135	4	28	214	1402	150	35	923	86
Grp Sat Flow(s),veh/h/ln	1477	0	1611	1242	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.9	0.0	13.4	11.8	0.2	1.5	12.8	30.2	4.9	2.1	20.4	3.3
Cycle Q Clear(g_c), s	5.1	0.0	13.4	25.2	0.2	1.5	12.8	30.2	4.9	2.1	20.4	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	0	398	222	470	398	245	2056	916	54	1675	747
V/C Ratio(X)	0.19	0.00	0.56	0.61	0.01	0.07	0.87	0.68	0.16	0.65	0.55	0.12
Avail Cap(c_a), veh/h	530	0	510	308	601	509	343	2056	916	82	1675	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	36.4	47.4	31.4	31.9	46.9	16.8	11.3	53.1	21.3	16.8
Incr Delay (d2), s/veh	0.1	0.0	0.5	1.0	0.0	0.0	12.9	1.9	0.4	4.8	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	5.3	3.7	0.1	0.6	6.3	11.1	1.6	1.0	8.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	36.9	48.4	31.4	31.9	59.8	18.6	11.7	57.9	22.7	17.1
LnGrp LOS	C	A	D	D	C	C	E	B	B	E	C	B
Approach Vol, veh/h		305			167			1766			1044	
Approach Delay, s/veh		35.9			45.2			23.0			23.4	
Approach LOS		D			D			C			C	

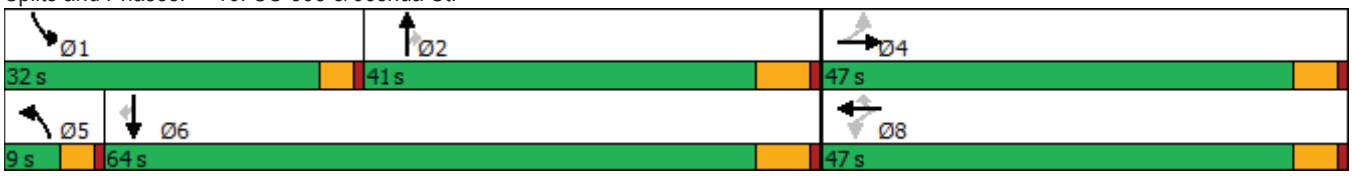
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	69.0		33.3	20.0	57.3		33.3				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		35.0	21.0	47.0		35.0				
Max Q Clear Time (g_c+I1), s	4.1	32.2		15.4	14.8	22.4		27.2				
Green Ext Time (p_c), s	0.0	11.9		1.0	0.1	6.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		25.5	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	91	135	84	69	221	27	1427	90	182	1057	56
Future Volume (vph)	91	135	84	69	221	27	1427	90	182	1057	56
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	41.0	41.0	32.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	34.2%	34.2%	26.7%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.0	17.0	17.0	17.0	17.0	5.1	46.3	46.3	14.2	61.5	61.5
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.06	0.52	0.52	0.16	0.68	0.68
v/c Ratio	0.37	0.43	0.45	0.20	0.47	0.27	0.79	0.11	0.66	0.44	0.05
Control Delay	35.3	34.3	39.4	31.2	7.3	53.3	24.7	5.2	48.2	9.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	34.3	39.4	31.2	7.3	53.3	24.7	5.2	48.2	9.8	3.4
LOS	D	C	D	C	A	D	C	A	D	A	A
Approach Delay		34.7		18.9			24.1			14.9	
Approach LOS		C		B			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 89.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 80.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	135	16	84	69	221	27	1427	90	182	1057	56
Future Volume (veh/h)	91	135	16	84	69	221	27	1427	90	182	1057	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	94	139	13	87	71	170	28	1471	81	188	1090	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	259	307	29	221	341	288	50	2032	906	227	2385	1064
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.18	0.03	0.56	0.56	0.13	0.66	0.66
Sat Flow, veh/h	1220	1711	160	1324	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	94	0	152	87	71	170	28	1471	81	188	1090	51
Grp Sat Flow(s),veh/h/ln	1220	0	1871	1324	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	6.5	0.0	6.6	5.7	2.9	8.8	1.4	27.3	2.1	9.2	13.3	1.0
Cycle Q Clear(g_c), s	9.4	0.0	6.6	12.3	2.9	8.8	1.4	27.3	2.1	9.2	13.3	1.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	0	336	221	341	288	50	2032	906	227	2385	1064
V/C Ratio(X)	0.36	0.00	0.45	0.39	0.21	0.59	0.55	0.72	0.09	0.83	0.46	0.05
Avail Cap(c_a), veh/h	618	0	886	610	900	761	100	2032	906	558	2385	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	33.3	38.8	31.8	34.2	43.6	14.6	9.1	38.8	7.5	5.4
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.4	0.1	0.7	6.9	2.3	0.2	5.7	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.0	1.9	1.3	3.4	0.7	9.3	0.6	4.1	3.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	33.7	39.2	31.9	34.9	50.5	16.9	9.3	44.4	8.1	5.5
LnGrp LOS	D	A	C	D	C	C	D	B	A	D	A	A
Approach Vol, veh/h		246			328			1580			1329	
Approach Delay, s/veh		34.6			35.4			17.1			13.2	
Approach LOS		C			D			B			B	

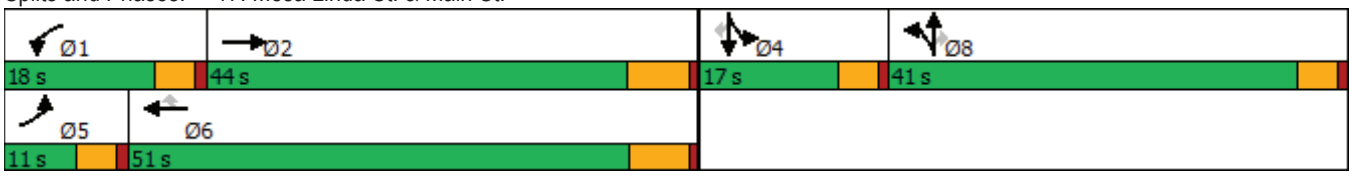
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.4	55.1		20.3	6.5	64.0		20.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	35.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	11.2	29.3		11.4	3.4	15.3		14.3				
Green Ext Time (p_c), s	0.3	5.0		0.7	0.0	18.1		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		18.6	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	1696	47	1102	54	7	81	0	3
Future Volume (vph)	5	1696	47	1102	54	7	81	0	3
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	44.0	18.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	36.7%	15.0%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	48.5	7.3	54.2	54.2	14.2	14.2	10.5	10.5
Actuated g/C Ratio	0.06	0.58	0.09	0.65	0.65	0.17	0.17	0.13	0.13
v/c Ratio	0.05	0.62	0.35	0.36	0.05	0.06	0.22	0.15	0.01
Control Delay	47.2	21.3	48.4	12.9	1.0	31.6	1.3	42.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	21.3	48.4	12.9	1.0	31.6	1.3	42.2	0.0
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		21.4		13.7		6.4		38.6	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.8	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.62	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 64.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1696	6	47	1102	54	10	7	81	31	0	3
Future Volume (veh/h)	5	1696	6	47	1102	54	10	7	81	31	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	5	1767	5	49	1148	48	10	7	25	32	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	11	2780	8	68	2876	893	79	56	118	113	0	100
Arrive On Green	0.01	0.55	0.55	0.04	0.59	0.59	0.08	0.08	0.08	0.07	0.00	0.07
Sat Flow, veh/h	1619	5059	14	1619	4914	1525	1029	720	1525	1714	0	1525
Grp Volume(v), veh/h	5	1144	628	49	1148	48	17	0	25	32	0	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1797	1619	1638	1525	1749	0	1525	1714	0	1525
Q Serve(g_s), s	0.2	18.5	18.5	2.3	9.7	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	18.5	18.5	2.3	9.7	1.0	0.7	0.0	1.2	1.4	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.59		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	11	1800	988	68	2876	893	135	0	118	113	0	100
V/C Ratio(X)	0.47	0.64	0.64	0.72	0.40	0.05	0.13	0.00	0.21	0.28	0.00	0.01
Avail Cap(c_a), veh/h	135	1800	988	283	2876	893	831	0	725	278	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.9	11.9	11.9	36.2	8.6	6.8	32.9	0.0	33.1	34.0	0.0	33.4
Incr Delay (d2), s/veh	11.4	1.7	3.1	5.1	0.4	0.1	0.4	0.0	0.9	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.3	6.2	0.9	2.6	0.3	0.3	0.0	0.5	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	13.7	15.1	41.3	9.0	6.9	33.3	0.0	34.0	35.4	0.0	33.5
LnGrp LOS	D	B	B	D	A	A	C	A	C	D	A	C
Approach Vol, veh/h		1777			1245			42			33	
Approach Delay, s/veh		14.3			10.2			33.7			35.3	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	48.6		9.6	5.1	51.3		10.5				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	13.4	37.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	4.3	20.5		3.4	2.2	11.7		3.2				
Green Ext Time (p_c), s	0.0	10.0		0.0	0.0	8.8		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		13.1
HCM 6th LOS		B

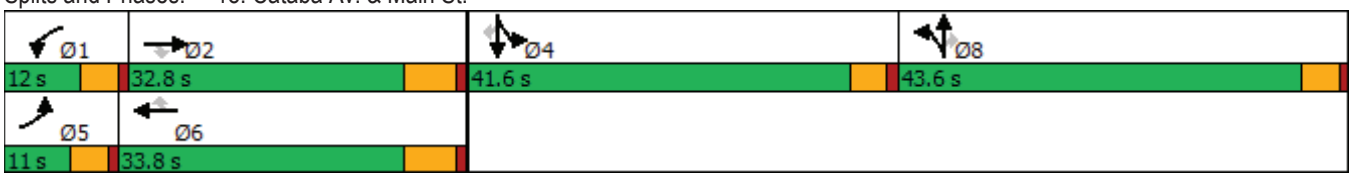
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	909	99	295	898	46	198	56	188	73	33	115
Future Volume (vph)	91	909	99	295	898	46	198	56	188	73	33	115
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	32.8	32.8	12.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	25.2%	25.2%	9.2%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	27.9	27.9	7.8	28.9	28.9	15.9	15.9	15.9	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.32	0.32	0.09	0.33	0.33	0.18	0.18	0.18	0.16	0.16	0.16
v/c Ratio	0.74	0.59	0.18	1.14	0.56	0.08	0.45	0.43	0.44	0.28	0.12	0.34
Control Delay	76.8	29.4	8.1	137.4	28.4	0.6	36.9	36.0	8.2	35.4	32.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	29.4	8.1	137.4	28.4	0.6	36.9	36.0	8.2	35.4	32.7	9.3
LOS	E	C	A	F	C	A	D	D	A	D	C	A
Approach Delay		31.4			53.3			24.4			21.4	
Approach LOS		C			D			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 86.6	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 38.7	Intersection LOS: D
Intersection Capacity Utilization 61.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	909	99	295	898	46	198	56	188	73	33	115
Future Volume (veh/h)	91	909	99	295	898	46	198	56	188	73	33	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	93	928	62	301	916	35	130	158	89	74	34	27
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	115	1745	541	292	1881	583	248	276	232	203	226	191
Arrive On Green	0.07	0.36	0.36	0.10	0.38	0.38	0.15	0.15	0.15	0.13	0.13	0.13
Sat Flow, veh/h	1619	4914	1524	2956	4914	1523	1619	1800	1511	1619	1800	1525
Grp Volume(v), veh/h	93	928	62	301	916	35	130	158	89	74	34	27
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1523	1619	1800	1511	1619	1800	1525
Q Serve(g_s), s	4.2	11.2	2.0	7.4	10.6	1.1	5.5	6.1	4.0	3.1	1.3	1.2
Cycle Q Clear(g_c), s	4.2	11.2	2.0	7.4	10.6	1.1	5.5	6.1	4.0	3.1	1.3	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	1745	541	292	1881	583	248	276	232	203	226	191
V/C Ratio(X)	0.81	0.53	0.11	1.03	0.49	0.06	0.52	0.57	0.38	0.36	0.15	0.14
Avail Cap(c_a), veh/h	138	1745	541	292	1881	583	843	937	787	800	889	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	19.2	16.2	33.7	17.5	14.6	29.2	29.4	28.5	30.0	29.2	29.2
Incr Delay (d2), s/veh	20.8	1.2	0.4	60.7	0.9	0.2	1.7	1.9	1.0	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.8	0.7	4.9	3.6	0.4	2.2	2.7	1.5	1.3	0.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	20.4	16.7	94.5	18.4	14.8	30.9	31.3	29.6	31.1	29.5	29.5
LnGrp LOS	E	C	B	F	B	B	C	C	C	C	C	C
Approach Vol, veh/h		1083			1252			377			135	
Approach Delay, s/veh		23.1			36.6			30.7			30.4	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	32.8		14.0	9.9	34.9		16.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	7.4	26.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	9.4	13.2		5.1	6.2	12.6		8.1				
Green Ext Time (p_c), s	0.0	4.8		0.5	0.0	5.1		1.7				

Intersection Summary		
HCM 6th Ctrl Delay		30.4
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	57	1208	25	224	1363	30	74	240	231	87
Future Volume (vph)	57	1208	25	224	1363	30	74	240	231	87
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	16.0	42.0	42.0	34.0	60.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	13.3%	35.0%	35.0%	28.3%	50.0%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	8.0	41.9	41.9	18.6	55.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.08	0.41	0.41	0.18	0.54	0.25	0.25	0.25	0.25	0.25
v/c Ratio	0.46	0.61	0.04	0.77	0.62	0.11	0.17	0.44	0.79	0.28
Control Delay	59.8	27.6	0.1	57.8	19.4	30.3	30.8	6.4	55.7	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	27.6	0.1	57.8	19.6	30.3	30.8	6.4	55.7	27.9
LOS	E	C	A	E	B	C	C	A	E	C
Approach Delay		28.5			24.3		13.8			46.2
Approach LOS		C			C		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.2	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	1208	25	224	1363	221	30	74	240	231	87	32
Future Volume (veh/h)	57	1208	25	224	1363	221	30	74	240	231	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	58	1233	22	229	1391	150	31	76	104	236	89	12
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	72	2051	637	259	2400	259	350	486	405	345	419	56
Arrive On Green	0.04	0.42	0.42	0.16	0.53	0.53	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1619	4914	1525	1619	4502	485	1237	1800	1501	1153	1552	209
Grp Volume(v), veh/h	58	1233	22	229	1012	529	31	76	104	236	0	101
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1619	1638	1712	1237	1800	1501	1153	0	1761
Q Serve(g_s), s	3.6	19.7	0.9	14.0	21.1	21.1	2.0	3.2	5.5	19.8	0.0	4.5
Cycle Q Clear(g_c), s	3.6	19.7	0.9	14.0	21.1	21.1	6.5	3.2	5.5	23.0	0.0	4.5
Prop In Lane	1.00		1.00	1.00		0.28	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	72	2051	637	259	1746	913	350	486	405	345	0	475
V/C Ratio(X)	0.80	0.60	0.03	0.88	0.58	0.58	0.09	0.16	0.26	0.68	0.00	0.21
Avail Cap(c_a), veh/h	183	2051	637	472	1746	913	499	703	586	484	0	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	22.9	17.4	41.4	15.9	15.9	31.1	28.1	28.9	36.9	0.0	28.5
Incr Delay (d2), s/veh	7.5	1.3	0.1	3.9	1.4	2.7	0.1	0.1	0.3	2.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.1	0.3	5.5	7.2	7.8	0.6	1.4	2.0	5.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	24.2	17.5	45.3	17.3	18.6	31.2	28.2	29.2	39.3	0.0	28.8
LnGrp LOS	E	C	B	D	B	B	C	C	C	D	A	C
Approach Vol, veh/h		1313			1770			211			337	
Approach Delay, s/veh		25.4			21.3			29.2			36.1	
Approach LOS		C			C			C			D	

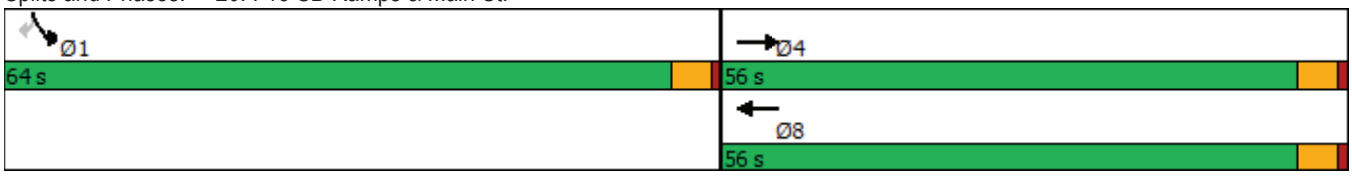
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.8	48.3		31.8	9.1	60.0		31.8				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	29.4	35.8		39.4	11.4	53.8		39.4				
Max Q Clear Time (g_c+I1), s	16.0	21.7		25.0	5.6	23.1		8.5				
Green Ext Time (p_c), s	0.2	6.6		1.3	0.0	11.8		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		24.6	
HCM 6th LOS		C	

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1459	60	1323	42	587	462
Future Volume (vph)	1459	60	1323	42	587	462
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	56.0		56.0		64.0	64.0
Total Split (%)	46.7%		46.7%		53.3%	53.3%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	32.4	72.3	32.4	72.3	30.0	30.0
Actuated g/C Ratio	0.45	1.00	0.45	1.00	0.41	0.41
v/c Ratio	0.65	0.04	0.59	0.03	0.42	0.70
Control Delay	17.9	0.1	17.0	0.0	16.3	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	0.1	17.0	0.0	16.3	24.0
LOS	B	A	B	A	B	C
Approach Delay	17.2		16.5			
Approach LOS	B		B			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 72.3	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 61.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1459	60	0	1323	42	0	0	0	587	0	462
Future Volume (veh/h)	0	1459	60	0	1323	42	0	0	0	587	0	462
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1504	0	0	1364	0				605	0	363
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2600		0	2600					1116	0	512
Arrive On Green	0.00	0.50	0.00	0.00	0.50	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1504	0	0	1364	0				605	0	363
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	10.4	0.0	0.0	9.1	0.0				7.2	0.0	10.1
Cycle Q Clear(g_c), s	0.0	10.4	0.0	0.0	9.1	0.0				7.2	0.0	10.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2600		0	2600					1116	0	512
V/C Ratio(X)	0.00	0.58		0.00	0.52					0.54	0.00	0.71
Avail Cap(c_a), veh/h	0	5239		0	5239					4098	0	1880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	0.0	0.0	8.6	0.0				14.3	0.0	15.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0				0.4	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	0.0	0.0	2.1	0.0				2.6	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.1	0.0	0.0	8.8	0.0				14.7	0.0	17.1
LnGrp LOS	A	A		A	A					B	A	B
Approach Vol, veh/h		1504	A		1364	A					968	
Approach Delay, s/veh		9.1			8.8						15.6	
Approach LOS		A			A						B	

Timer - Assigned Phs		4		6		8						
Phs Duration (G+Y+Rc), s		30.1		20.8		30.1						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		51.4		59.4		51.4						
Max Q Clear Time (g_c+I1), s		12.4		12.1		11.1						
Green Ext Time (p_c), s		13.1		4.1		11.4						

Intersection Summary												
HCM 6th Ctrl Delay		10.6										
HCM 6th LOS		B										

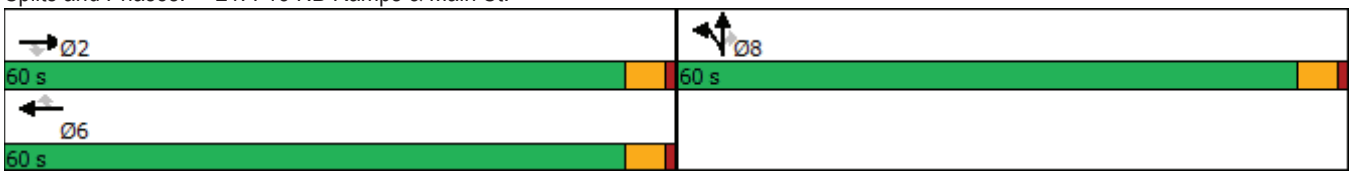
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1740	306	1515	454	221	0	889
Future Volume (vph)	1740	306	1515	454	221	0	889
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	46.7	46.7	46.7	46.7	38.7	38.7	38.7
Actuated g/C Ratio	0.49	0.49	0.49	0.49	0.41	0.41	0.41
v/c Ratio	0.71	0.33	0.61	0.45	0.31	0.72	0.72
Control Delay	21.9	3.8	20.1	3.2	21.0	31.0	31.0
Queue Delay	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Total Delay	21.9	3.8	20.3	3.5	21.0	31.0	31.0
LOS	C	A	C	A	C	C	C
Approach Delay	19.2		16.5			29.0	
Approach LOS	B		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 95.2	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 20.3	Intersection LOS: C
Intersection Capacity Utilization 78.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1740	306	0	1515	454	221	0	889	0	0	0
Future Volume (veh/h)	0	1740	306	0	1515	454	221	0	889	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1794	0	0	1562	321	228	0	769			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2798		0	2798	868	574	0	1022			
Arrive On Green	0.00	0.54	0.00	0.00	0.54	0.54	0.32	0.00	0.32			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1794	0	0	1562	321	228	0	769			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	15.6	0.0	0.0	12.7	7.4	6.3	0.0	13.8			
Cycle Q Clear(g_c), s	0.0	15.6	0.0	0.0	12.7	7.4	6.3	0.0	13.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2798		0	2798	868	574	0	1022			
V/C Ratio(X)	0.00	0.64		0.00	0.56	0.37	0.40	0.00	0.75			
Avail Cap(c_a), veh/h	0	4475		0	4475	1389	1561	0	2779			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	10.4	0.0	0.0	9.7	8.5	17.1	0.0	19.7			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.3	0.4	0.0	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	4.1	0.0	0.0	3.3	1.8	2.6	0.0	5.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.7	0.0	0.0	9.9	8.8	17.6	0.0	20.8			
LnGrp LOS	A	B		A	A	A	B	A	C			
Approach Vol, veh/h		1794	A		1883			997				
Approach Delay, s/veh		10.7			9.7			20.1				
Approach LOS		B			A			C				

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	39.2				39.2		25.0					
Change Period (Y+Rc), s	4.6				4.6		4.6					
Max Green Setting (Gmax), s	55.4				55.4		55.4					
Max Q Clear Time (g_c+I1), s	17.6				14.7		15.8					
Green Ext Time (p_c), s	17.0				16.3		4.6					

Intersection Summary												
HCM 6th Ctrl Delay		12.3										
HCM 6th LOS		B										

Notes

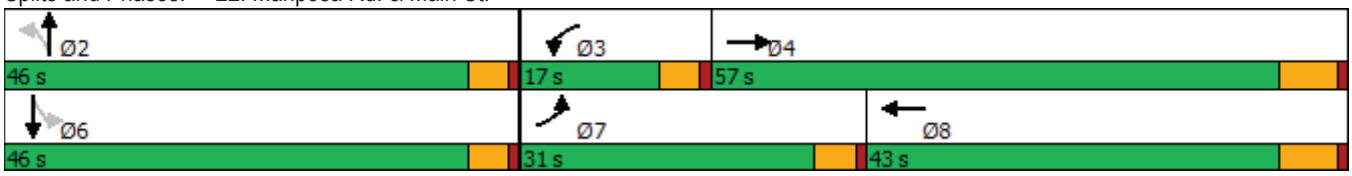
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	249	2221	87	1572	134	80	137	55
Future Volume (vph)	249	2221	87	1572	134	80	137	55
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	31.0	57.0	17.0	43.0	46.0	46.0	46.0	46.0
Total Split (%)	25.8%	47.5%	14.2%	35.8%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	19.4	51.2	12.5	44.3	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.19	0.50	0.12	0.43	0.22	0.22	0.22	0.22
v/c Ratio	0.83	0.79	0.45	0.64	0.98	0.38	0.63	0.54
Control Delay	63.0	24.8	52.8	26.7	110.2	26.0	48.1	16.2
Queue Delay	0.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	38.5	52.8	26.7	110.2	26.0	48.1	16.2
LOS	E	D	D	C	F	C	D	B
Approach Delay		40.8		28.0		65.6		27.3
Approach LOS		D		C		E		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.3	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 36.7	Intersection LOS: D
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	2221	159	87	1572	106	134	80	71	137	55	202
Future Volume (veh/h)	249	2221	159	87	1572	106	134	80	71	137	55	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	254	2266	146	89	1604	92	137	82	45	140	56	135
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	283	2910	187	192	2594	149	236	270	148	296	116	280
Arrive On Green	0.17	0.49	0.49	0.12	0.43	0.43	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1619	5989	385	1619	6036	346	1144	1087	596	1212	468	1129
Grp Volume(v), veh/h	254	1756	656	89	1234	462	137	0	127	140	0	191
Grp Sat Flow(s),veh/h/ln	1619	1548	1731	1619	1548	1738	1144	0	1683	1212	0	1597
Q Serve(g_s), s	16.1	32.7	32.8	5.4	21.6	21.6	12.1	0.0	6.4	11.1	0.0	10.7
Cycle Q Clear(g_c), s	16.1	32.7	32.8	5.4	21.6	21.6	22.8	0.0	6.4	17.5	0.0	10.7
Prop In Lane	1.00		0.22	1.00		0.20	1.00		0.35	1.00		0.71
Lane Grp Cap(c), veh/h	283	2256	841	192	1996	747	236	0	418	296	0	397
V/C Ratio(X)	0.90	0.78	0.78	0.46	0.62	0.62	0.58	0.00	0.30	0.47	0.00	0.48
Avail Cap(c_a), veh/h	409	2256	841	192	1996	747	405	0	667	474	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.2	22.2	22.3	43.0	23.2	23.2	43.3	0.0	32.0	39.1	0.0	33.6
Incr Delay (d2), s/veh	13.2	2.7	7.1	7.8	0.6	1.6	2.3	0.0	0.4	1.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	11.1	13.4	2.5	7.3	8.4	3.6	0.0	2.7	3.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	25.0	29.3	50.8	23.7	24.7	45.6	0.0	32.4	40.2	0.0	34.5
LnGrp LOS	E	C	C	D	C	C	D	A	C	D	A	C
Approach Vol, veh/h		2666			1785			264			331	
Approach Delay, s/veh		28.9			25.3			39.2			36.9	
Approach LOS		C			C			D			D	

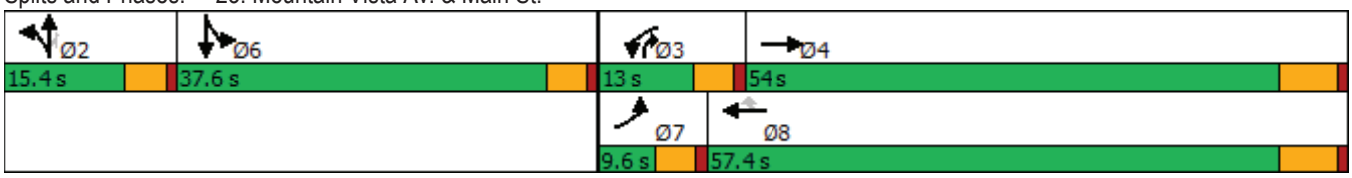
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.6	17.0	57.0		30.6	22.9	51.1				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		41.4	12.4	50.8		41.4	26.4	36.8				
Max Q Clear Time (g_c+I1), s		24.8	7.4	34.8		19.5	18.1	23.6				
Green Ext Time (p_c), s		1.1	0.0	12.6		1.7	0.2	8.2				

Intersection Summary												
HCM 6th Ctrl Delay			28.7									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	49	2271	63	1831	71	33	5	28	80	7
Future Volume (vph)	49	2271	63	1831	71	33	5	28	80	7
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	55.6	7.4	60.0	60.0	10.3	10.3	12.8	13.9	13.9
Actuated g/C Ratio	0.06	0.60	0.08	0.65	0.65	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.32	0.65	0.52	0.61	0.07	0.10	0.07	0.07	0.21	0.20
Control Delay	53.3	20.1	60.5	17.4	2.4	46.4	44.5	0.3	38.6	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	20.1	60.5	17.4	2.4	46.4	44.5	0.3	38.6	34.4
LOS	D	C	E	B	A	D	D	A	D	C
Approach Delay		20.8		18.2			26.4			36.5
Approach LOS		C		B			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 63.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	2271	19	63	1831	71	33	5	28	80	7	6
Future Volume (veh/h)	49	2271	19	63	1831	71	33	5	28	80	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	52	2391	18	66	1927	60	35	5	14	94	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	119	3509	26	82	2752	854	264	147	404	322	179	0
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	2956	6386	48	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	52	1739	670	66	1927	60	35	5	14	94	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1790	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	1.6	24.6	24.7	3.7	25.9	1.6	0.9	0.2	0.4	2.5	0.0	0.0
Cycle Q Clear(g_c), s	1.6	24.6	24.7	3.7	25.9	1.6	0.9	0.2	0.4	2.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	119	2552	984	82	2752	854	264	147	404	322	179	0
V/C Ratio(X)	0.44	0.68	0.68	0.80	0.70	0.07	0.13	0.03	0.03	0.29	0.00	0.00
Avail Cap(c_a), veh/h	162	2552	984	149	2752	854	383	213	515	1169	650	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.9	14.8	14.8	42.9	14.5	9.2	39.0	38.7	34.6	38.2	0.0	0.0
Incr Delay (d2), s/veh	0.9	1.5	3.8	6.7	1.5	0.2	0.2	0.1	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.4	9.2	1.6	8.2	0.5	0.4	0.1	0.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	16.3	18.6	49.7	16.1	9.4	39.2	38.7	34.6	38.7	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		2461			2053			54			94	
Approach Delay, s/veh		17.5			16.9			38.0			38.7	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.1	9.2	56.4		13.7	8.3	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		2.9	5.7	26.7		4.5	3.6	27.9				
Green Ext Time (p_c), s		0.1	0.0	15.7		0.3	0.0	14.6				

Intersection Summary												
HCM 6th Ctrl Delay			17.9									
HCM 6th LOS			B									

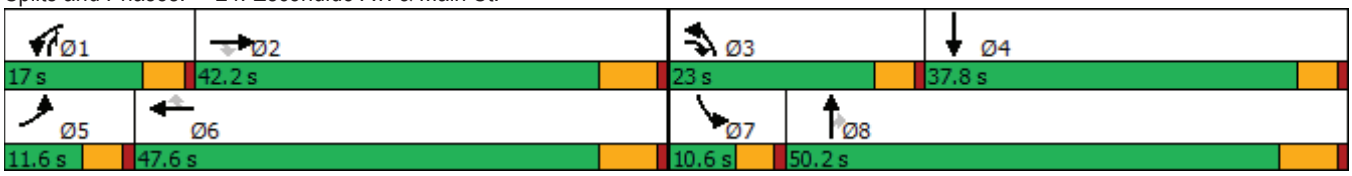
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	55	1557	724	458	1198	10	713	52	240	57	38
Future Volume (vph)	55	1557	724	458	1198	10	713	52	240	57	38
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.2	23.0	17.0	47.6	47.6	23.0	50.2	17.0	10.6	37.8
Total Split (%)	9.7%	35.2%	19.2%	14.2%	39.7%	39.7%	19.2%	41.8%	14.2%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.6	36.5	56.8	12.6	44.8	44.8	18.7	23.9	42.8	6.0	13.9
Actuated g/C Ratio	0.07	0.37	0.58	0.13	0.45	0.45	0.19	0.24	0.43	0.06	0.14
v/c Ratio	0.53	0.89	0.64	1.27	0.80	0.01	1.33	0.12	0.36	0.60	0.34
Control Delay	66.2	38.0	4.1	177.6	31.2	0.0	194.7	29.4	14.5	74.4	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	38.0	4.1	177.6	31.2	0.0	194.7	29.4	14.5	74.4	21.6
LOS	E	D	A	F	C	A	F	C	B	E	C
Approach Delay		28.1			71.3			143.1			41.7
Approach LOS		C			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 64.9	Intersection LOS: E
Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1557	724	458	1198	10	713	52	240	57	38	54
Future Volume (veh/h)	55	1557	724	458	1198	10	713	52	240	57	38	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	57	1622	564	477	1248	8	743	54	169	59	40	53
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1813	849	376	1547	676	557	428	556	73	66	88
Arrive On Green	0.04	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.05	0.09	0.09
Sat Flow, veh/h	1619	4914	1523	2956	3420	1494	2956	1800	1525	1619	702	930
Grp Volume(v), veh/h	57	1622	564	477	1248	8	743	54	169	59	0	93
Grp Sat Flow(s),veh/h/ln	1619	1638	1523	1478	1710	1494	1478	1800	1525	1619	0	1633
Q Serve(g_s), s	3.4	30.3	25.4	12.4	30.7	0.3	18.4	2.3	7.7	3.5	0.0	5.3
Cycle Q Clear(g_c), s	3.4	30.3	25.4	12.4	30.7	0.3	18.4	2.3	7.7	3.5	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	71	1813	849	376	1547	676	557	428	556	73	0	154
V/C Ratio(X)	0.81	0.89	0.66	1.27	0.81	0.01	1.33	0.13	0.30	0.81	0.00	0.60
Avail Cap(c_a), veh/h	116	1813	849	376	1547	676	557	812	882	100	0	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	29.0	15.2	42.6	23.0	14.7	39.6	29.2	22.2	46.2	0.0	42.5
Incr Delay (d2), s/veh	7.8	7.3	4.1	140.9	4.6	0.0	161.9	0.1	0.3	20.8	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	12.0	9.3	11.6	11.9	0.1	19.2	1.0	2.8	1.8	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	36.3	19.3	183.5	27.7	14.7	201.5	29.4	22.5	66.9	0.0	46.2
LnGrp LOS	D	D	B	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		2243			1733			966			152	
Approach Delay, s/veh		32.5			70.5			160.5			54.3	
Approach LOS		C			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.4	8.9	50.3	9.0	29.4
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	32.3	20.4	7.3	5.4	32.7	5.5	9.7
Green Ext Time (p_c), s	0.0	3.1	0.0	0.5	0.0	4.9	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	70.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	137	601	11	257	828
Future Vol, veh/h	11	137	601	11	257	828
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	143	626	11	268	863

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1604	323	0	0	641	0
Stage 1	636	-	-	-	-	-
Stage 2	968	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	98	679	-	-	953	-
Stage 1	495	-	-	-	-	-
Stage 2	334	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	70	676	-	-	949	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	240	-	-	-	-	-

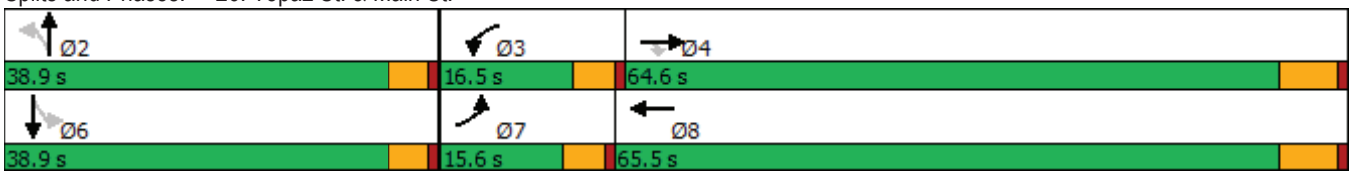
Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	2.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	175	676	949	-
HCM Lane V/C Ratio	-	-	0.065	0.211	0.282	-
HCM Control Delay (s)	-	-	27	11.7	10.3	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.8	1.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	66	1576	226	106	1305	216	33	63	36
Future Volume (vph)	66	1576	226	106	1305	216	33	63	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	15.6	64.6	64.6	16.5	65.5	38.9	38.9	38.9	38.9
Total Split (%)	13.0%	53.8%	53.8%	13.8%	54.6%	32.4%	32.4%	32.4%	32.4%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.5	56.8	56.8	12.0	62.6	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.08	0.52	0.52	0.11	0.57	0.23	0.23	0.23	0.23
v/c Ratio	0.54	0.91	0.27	0.62	0.73	0.82	0.30	0.27	0.20
Control Delay	66.7	34.3	5.5	65.0	22.5	63.6	12.7	37.7	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	34.3	5.5	65.0	22.5	63.6	12.7	37.7	18.3
LOS	E	C	A	E	C	E	B	D	B
Approach Delay		32.0			25.6		44.5		26.8
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 109.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 30.5	Intersection LOS: C
Intersection Capacity Utilization 96.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1576	226	106	1305	70	216	33	97	63	36	45
Future Volume (veh/h)	66	1576	226	106	1305	70	216	33	97	63	36	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	68	1625	161	109	1345	65	223	34	69	65	37	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	85	1776	792	180	1919	93	326	120	243	281	274	111
Arrive On Green	0.05	0.52	0.52	0.11	0.58	0.58	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1619	3420	1525	1619	3321	160	1284	530	1076	1239	1213	492
Grp Volume(v), veh/h	68	1625	161	109	691	719	223	0	103	65	0	52
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1771	1284	0	1606	1239	0	1704
Q Serve(g_s), s	4.5	46.6	6.1	6.9	30.7	30.9	18.0	0.0	5.7	4.9	0.0	2.6
Cycle Q Clear(g_c), s	4.5	46.6	6.1	6.9	30.7	30.9	20.6	0.0	5.7	10.6	0.0	2.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.67	1.00		0.29
Lane Grp Cap(c), veh/h	85	1776	792	180	988	1024	326	0	363	281	0	385
V/C Ratio(X)	0.80	0.91	0.20	0.61	0.70	0.70	0.68	0.00	0.28	0.23	0.00	0.14
Avail Cap(c_a), veh/h	166	1863	831	180	988	1024	447	0	514	398	0	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.2	23.6	13.8	45.4	16.0	16.1	41.4	0.0	34.3	38.7	0.0	33.1
Incr Delay (d2), s/veh	6.4	7.3	0.1	14.3	2.2	2.2	2.5	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	18.1	1.9	3.4	10.8	11.2	5.9	0.0	2.3	1.5	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	30.9	14.0	59.7	18.2	18.2	43.9	0.0	34.7	39.1	0.0	33.3
LnGrp LOS	E	C	B	E	B	B	D	A	C	D	A	C
Approach Vol, veh/h		1854			1519			326			117	
Approach Delay, s/veh		30.4			21.2			41.0			36.5	
Approach LOS		C			C			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.8	16.5	61.9		28.8	10.2	68.2				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		34.3	11.9	58.4		34.3	11.0	59.3				
Max Q Clear Time (g_c+I1), s		22.6	8.9	48.6		12.6	6.5	32.9				
Green Ext Time (p_c), s		1.1	0.0	7.0		0.4	0.0	10.0				

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

APPENDIX 6.2:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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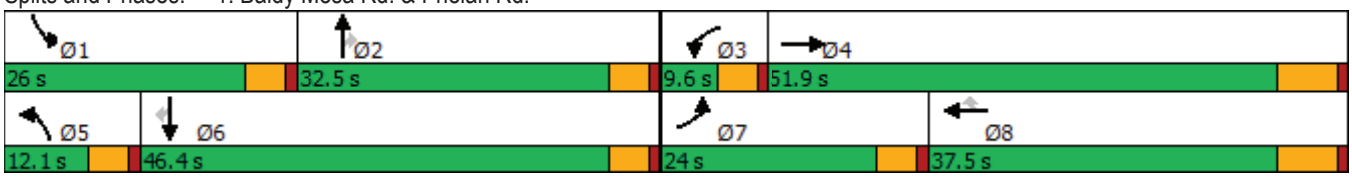
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	161	772	15	476	151	37	75	71	215	50	192
Future Volume (vph)	161	772	15	476	151	37	75	71	215	50	192
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	15.4	48.1	5.1	31.5	31.5	6.6	13.4	13.4	19.2	30.5	30.5
Actuated g/C Ratio	0.15	0.48	0.05	0.32	0.32	0.07	0.13	0.13	0.19	0.30	0.30
v/c Ratio	0.75	0.57	0.21	0.51	0.29	0.41	0.36	0.22	0.81	0.11	0.36
Control Delay	61.4	22.4	56.9	32.0	5.8	60.3	44.8	1.4	60.7	28.2	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	22.4	56.9	32.0	5.8	60.3	44.8	1.4	60.7	28.2	5.6
LOS	E	C	E	C	A	E	D	A	E	C	A
Approach Delay		28.9		26.4			31.0			34.0	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 29.4	Intersection LOS: C
Intersection Capacity Utilization 60.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	772	24	15	476	151	37	75	71	215	50	192
Future Volume (veh/h)	161	772	24	15	476	151	37	75	71	215	50	192
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	187	898	18	17	553	120	43	87	55	250	58	116
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	217	1595	32	83	1308	583	57	184	156	280	432	367
Arrive On Green	0.13	0.47	0.47	0.05	0.38	0.38	0.04	0.10	0.10	0.17	0.24	0.24
Sat Flow, veh/h	1619	3429	69	1619	3420	1525	1619	1800	1525	1619	1800	1525
Grp Volume(v), veh/h	187	448	468	17	553	120	43	87	55	250	58	116
Grp Sat Flow(s),veh/h/ln	1619	1710	1788	1619	1710	1525	1619	1800	1525	1619	1800	1525
Q Serve(g_s), s	11.0	18.5	18.5	1.0	11.6	5.1	2.6	4.4	3.3	14.7	2.5	6.1
Cycle Q Clear(g_c), s	11.0	18.5	18.5	1.0	11.6	5.1	2.6	4.4	3.3	14.7	2.5	6.1
Prop In Lane	1.00		0.04	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	796	832	83	1308	583	57	184	156	280	432	367
V/C Ratio(X)	0.86	0.56	0.56	0.20	0.42	0.21	0.75	0.47	0.35	0.89	0.13	0.32
Avail Cap(c_a), veh/h	322	796	832	83	1308	583	124	515	436	355	771	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	18.9	18.9	44.4	22.2	20.2	46.7	41.3	40.8	39.5	29.1	30.5
Incr Delay (d2), s/veh	10.2	2.9	2.7	0.4	1.0	0.8	7.2	1.9	1.3	17.7	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	7.0	7.3	0.4	4.4	1.8	1.2	2.1	1.2	7.2	1.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	21.8	21.7	44.8	23.2	21.0	53.9	43.2	42.1	57.2	29.2	31.0
LnGrp LOS	D	C	C	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		1103			690			185			424	
Approach Delay, s/veh		26.8			23.3			45.4			46.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	14.6	9.6	51.9	8.0	28.0	17.7	43.8
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	16.7	6.4	3.0	20.5	4.6	8.1	13.0	13.6
Green Ext Time (p_c), s	0.2	0.6	0.0	5.1	0.0	0.7	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1085	6	5	597	1	17	0	19	15	0	9
Future Vol, veh/h	3	1085	6	5	597	1	17	0	19	15	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	3	1262	7	6	694	1	20	0	22	17	0	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	695	0	0	1269	0	0	1980	1975	1262	1989	1981	694
Stage 1	-	-	-	-	-	-	1268	1268	-	706	706	-
Stage 2	-	-	-	-	-	-	712	707	-	1283	1275	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	910	-	-	554	-	-	47	63	209	46	62	446
Stage 1	-	-	-	-	-	-	209	242	-	430	442	-
Stage 2	-	-	-	-	-	-	427	441	-	205	240	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	910	-	-	554	-	-	45	62	209	41	61	446
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	167	-	129	163	-
Stage 1	-	-	-	-	-	-	208	241	-	429	437	-
Stage 2	-	-	-	-	-	-	412	436	-	183	239	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	32.5	29.3
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	172	910	-	-	554	-	-	176
HCM Lane V/C Ratio	0.243	0.004	-	-	0.01	-	-	0.159
HCM Control Delay (s)	32.5	9	-	-	11.6	-	-	29.3
HCM Lane LOS	D	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.9	0	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1072	10	3	590	15	6
Future Vol, veh/h	1072	10	3	590	15	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1232	11	3	678	17	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1243	0	1922	1238
Stage 1	-	-	-	-	1238	-
Stage 2	-	-	-	-	684	-
Critical Hdwy	-	-	4.1	-	6.2	6.2
Critical Hdwy Stg 1	-	-	-	-	5.3	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	567	-	83	216
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	567	-	83	216
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	24.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	205	-	-	567	-
HCM Lane V/C Ratio	0.118	-	-	0.006	-
HCM Control Delay (s)	24.9	-	-	11.4	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	↰	
Traffic Vol, veh/h	0	1084	587	400	12	7
Future Vol, veh/h	0	1084	587	400	12	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1178	638	435	13	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	1816	638
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	1178	-
Critical Hdwy	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	87	480
Stage 1	0	-	-	-	530	-
Stage 2	0	-	-	-	295	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	87	480
Mov Cap-2 Maneuver	-	-	-	-	209	-
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	295	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	264
HCM Lane V/C Ratio	-	-	-	0.078
HCM Control Delay (s)	-	-	-	19.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	161	3	0	42
Future Vol, veh/h	1	0	161	3	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	175	3	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	354	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	353	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	648	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	579	1090
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1090	-	-	1635	-
HCM Lane V/C Ratio	0.042	-	-	0.107	-
HCM Control Delay (s)	8.4	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	0	271	164	0	50
Future Vol, veh/h	43	0	271	164	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	47	0	295	178	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	815	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	768	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1573	-	350	1028
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1573	-	284	1028
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	374	-

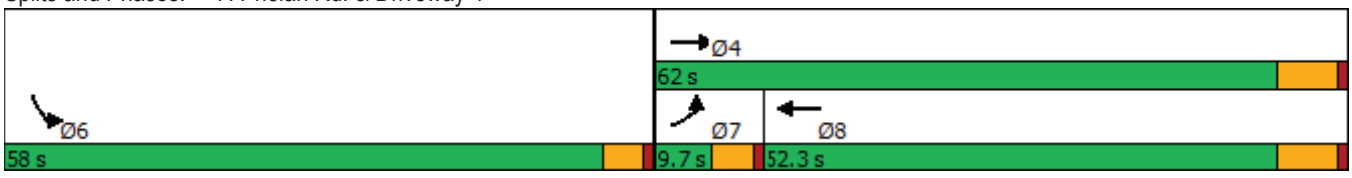
Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1028	-	-	1573	-
HCM Lane V/C Ratio	0.053	-	-	0.187	-
HCM Control Delay (s)	8.7	-	-	7.8	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	97	1010	980	134
Future Volume (vph)	97	1010	980	134
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	9.7	62.0	52.3	58.0
Total Split (%)	8.1%	51.7%	43.6%	48.3%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	5.1	55.7	45.9	14.1
Actuated g/C Ratio	0.06	0.69	0.57	0.17
v/c Ratio	1.04	0.47	0.88	0.58
Control Delay	141.8	7.1	22.9	37.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	141.8	7.1	22.9	37.7
LOS	F	A	C	D
Approach Delay		18.9	22.9	37.7
Approach LOS		B	C	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 80.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 75.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	97	1010	980	463	134	18
Future Volume (veh/h)	97	1010	980	463	134	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1700	1800	1700	1800	1700	1800
Adj Flow Rate, veh/h	105	1098	1065	503	146	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	108	2478	1286	590	182	25
Arrive On Green	0.07	0.72	0.60	0.60	0.13	0.13
Sat Flow, veh/h	1619	3510	2236	986	1395	191
Grp Volume(v), veh/h	105	1098	792	776	167	0
Grp Sat Flow(s),veh/h/ln	1619	1710	1615	1522	1596	0
Q Serve(g_s), s	5.0	10.0	29.6	32.1	7.8	0.0
Cycle Q Clear(g_c), s	5.0	10.0	29.6	32.1	7.8	0.0
Prop In Lane	1.00			0.65	0.87	0.12
Lane Grp Cap(c), veh/h	108	2478	966	910	208	0
V/C Ratio(X)	0.97	0.44	0.82	0.85	0.80	0.00
Avail Cap(c_a), veh/h	108	2478	966	910	1112	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.7	4.3	12.1	12.6	32.3	0.0
Incr Delay (d2), s/veh	77.9	0.6	7.7	10.0	7.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.7	9.2	9.7	3.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	113.6	4.9	19.9	22.6	39.3	0.0
LnGrp LOS	F	A	B	C	D	A
Approach Vol, veh/h		1203	1568		167	
Approach Delay, s/veh		14.3	21.2		39.3	
Approach LOS		B	C		D	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	62.0	14.6	9.7	52.3
Change Period (Y+Rc), s	6.5	4.6	4.6	6.5
Max Green Setting (Gmax), s	55.5	53.4	5.1	45.8
Max Q Clear Time (g_c+I1), s	12.0	9.8	7.0	34.1
Green Ext Time (p_c), s	8.4	0.5	0.0	7.3

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	50	126	70	76	95	37	881	46	218	1017	71
Future Volume (vph)	50	126	70	76	95	37	881	46	218	1017	71
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	22.4	22.4	22.4	22.4	22.4	5.9	44.5	44.5	18.0	61.0	61.0
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.06	0.44	0.44	0.18	0.61	0.61
v/c Ratio	0.71	0.32	0.17	0.31	0.85	0.38	0.60	0.07	0.73	0.50	0.08
Control Delay	82.7	34.3	4.0	35.5	41.7	60.9	25.8	1.1	53.6	14.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	34.3	4.0	35.5	41.7	60.9	25.8	1.1	53.6	14.3	3.4
LOS	F	C	A	D	D	E	C	A	D	B	A
Approach Delay		35.4			40.7		26.0			20.3	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 84.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	126	70	76	95	274	37	881	46	218	1017	71
Future Volume (veh/h)	50	126	70	76	95	274	37	881	46	218	1017	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	54	137	43	83	103	232	40	958	34	237	1105	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	147	485	411	323	132	298	59	1633	726	272	2056	917
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.03	0.45	0.45	0.15	0.57	0.57
Sat Flow, veh/h	1120	1900	1610	1291	519	1168	1810	3610	1605	1810	3610	1610
Grp Volume(v), veh/h	54	137	43	83	0	335	40	958	34	237	1105	59
Grp Sat Flow(s),veh/h/ln	1120	1900	1610	1291	0	1687	1810	1805	1605	1810	1805	1610
Q Serve(g_s), s	5.0	6.1	2.2	5.8	0.0	19.4	2.3	20.8	1.2	13.5	20.0	1.7
Cycle Q Clear(g_c), s	24.4	6.1	2.2	11.9	0.0	19.4	2.3	20.8	1.2	13.5	20.0	1.7
Prop In Lane	1.00		1.00	1.00		0.69	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	147	485	411	323	0	430	59	1633	726	272	2056	917
V/C Ratio(X)	0.37	0.28	0.10	0.26	0.00	0.78	0.68	0.59	0.05	0.87	0.54	0.06
Avail Cap(c_a), veh/h	276	704	596	472	0	624	103	1633	726	464	2056	917
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	31.5	30.0	36.3	0.0	36.5	50.4	21.5	16.1	43.8	14.1	10.1
Incr Delay (d2), s/veh	0.6	0.1	0.0	0.2	0.0	2.1	9.5	1.6	0.1	7.2	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.7	0.8	1.8	0.0	8.0	1.1	8.2	0.4	6.2	7.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	31.6	30.1	36.4	0.0	38.6	59.9	23.1	16.3	50.9	15.1	10.3
LnGrp LOS	D	C	C	D	A	D	E	C	B	D	B	B
Approach Vol, veh/h		234			418			1032			1401	
Approach Delay, s/veh		35.2			38.1			24.3			20.9	
Approach LOS		D			D			C			C	

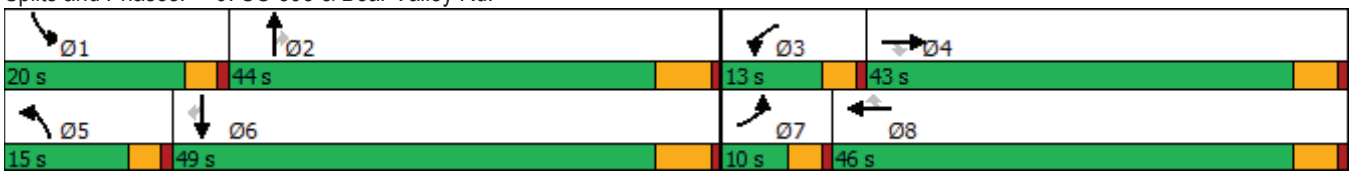
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.8	53.6		31.9	7.4	66.0		31.9				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	15.5	22.8		26.4	4.3	22.0		21.4				
Green Ext Time (p_c), s	0.3	4.4		0.5	0.0	6.6		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		25.5	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	312	172	199	260	106	109	836	107	172	967	23
Future Volume (vph)	42	312	172	199	260	106	109	836	107	172	967	23
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.8	16.4	16.4	9.1	23.8	23.8	9.9	39.9	39.9	13.5	43.5	43.5
Actuated g/C Ratio	0.06	0.17	0.17	0.09	0.24	0.24	0.10	0.41	0.41	0.14	0.44	0.44
v/c Ratio	0.40	0.53	0.43	1.23	0.31	0.22	0.62	0.59	0.15	0.71	0.62	0.03
Control Delay	59.5	40.0	8.2	183.5	32.0	3.8	59.6	26.8	4.1	58.2	24.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	40.0	8.2	183.5	32.0	3.8	59.6	26.8	4.1	58.2	24.9	0.1
LOS	E	D	A	F	C	A	E	C	A	E	C	A
Approach Delay		31.1			80.1			27.9			29.3	
Approach LOS		C			F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 68.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	312	172	199	260	106	109	836	107	172	967	23
Future Volume (veh/h)	42	312	172	199	260	106	109	836	107	172	967	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	43	322	96	205	268	75	112	862	83	177	997	18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	67	441	197	183	674	301	142	1604	715	214	1747	779
Arrive On Green	0.04	0.12	0.12	0.10	0.19	0.19	0.08	0.44	0.44	0.12	0.48	0.48
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	43	322	96	205	268	75	112	862	83	177	997	18
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.1	7.6	4.9	9.0	5.8	3.5	5.4	15.5	2.7	8.5	17.5	0.5
Cycle Q Clear(g_c), s	2.1	7.6	4.9	9.0	5.8	3.5	5.4	15.5	2.7	8.5	17.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	441	197	183	674	301	142	1604	715	214	1747	779
V/C Ratio(X)	0.65	0.73	0.49	1.12	0.40	0.25	0.79	0.54	0.12	0.83	0.57	0.02
Avail Cap(c_a), veh/h	122	1544	689	183	1666	743	224	1604	715	326	1747	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	37.6	36.4	39.9	31.7	30.8	40.2	18.0	14.5	38.3	16.3	12.0
Incr Delay (d2), s/veh	7.5	0.9	0.7	101.8	0.1	0.2	7.0	1.3	0.3	8.5	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.2	1.8	8.9	2.3	1.3	2.5	5.8	0.9	4.0	6.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	38.5	37.1	141.7	31.9	31.0	47.2	19.3	14.8	46.7	17.7	12.0
LnGrp LOS	D	D	D	F	C	C	D	B	B	D	B	B
Approach Vol, veh/h		461			548			1057			1192	
Approach Delay, s/veh		39.2			72.9			21.9			21.9	
Approach LOS		D			E			C			C	

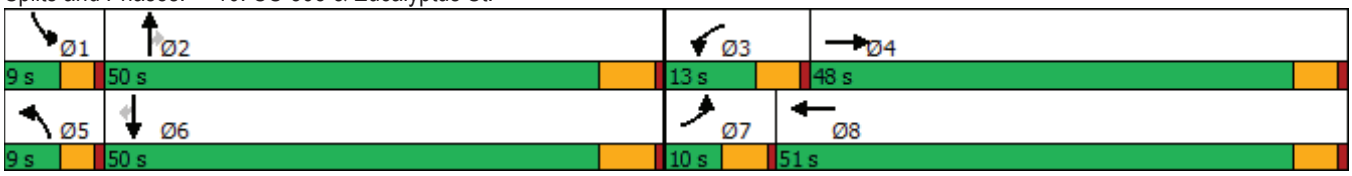
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	45.5	13.0	15.9	11.0	49.0	7.3	21.6
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	10.5	17.5	11.0	9.6	7.4	19.5	4.1	7.8
Green Ext Time (p_c), s	0.1	3.4	0.0	1.2	0.1	4.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	9	5	95	6	8	1009	63	4	1355	8
Future Volume (vph)	9	5	95	6	8	1009	63	4	1355	8
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.7	18.3	5.2	51.9	51.9	5.2	51.9	51.9
Actuated g/C Ratio	0.06	0.18	0.12	0.22	0.06	0.62	0.62	0.06	0.62	0.62
v/c Ratio	0.09	0.09	0.49	0.07	0.08	0.49	0.07	0.04	0.66	0.01
Control Delay	46.1	13.3	47.9	11.4	46.0	14.7	2.1	45.8	17.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	13.3	47.9	11.4	46.0	14.7	2.1	45.8	17.3	0.0
LOS	D	B	D	B	D	B	A	D	B	A
Approach Delay		22.0		40.0		14.2			17.3	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 84.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 17.1	Intersection LOS: B
Intersection Capacity Utilization 59.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	5	21	95	6	20	8	1009	63	4	1355	8
Future Volume (veh/h)	9	5	21	95	6	20	8	1009	63	4	1355	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	10	5	15	102	6	11	9	1085	64	4	1457	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	23	37	110	131	88	162	21	2079	927	10	2057	918
Arrive On Green	0.01	0.09	0.09	0.07	0.15	0.15	0.01	0.58	0.58	0.01	0.57	0.57
Sat Flow, veh/h	1810	419	1256	1810	600	1100	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	10	0	20	102	0	17	9	1085	64	4	1457	8
Grp Sat Flow(s),veh/h/ln	1810	0	1674	1810	0	1699	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.4	0.0	0.9	4.3	0.0	0.7	0.4	14.1	1.4	0.2	22.5	0.2
Cycle Q Clear(g_c), s	0.4	0.0	0.9	4.3	0.0	0.7	0.4	14.1	1.4	0.2	22.5	0.2
Prop In Lane	1.00		0.75	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	0	146	131	0	250	21	2079	927	10	2057	918
V/C Ratio(X)	0.44	0.00	0.14	0.78	0.00	0.07	0.44	0.52	0.07	0.42	0.71	0.01
Avail Cap(c_a), veh/h	117	0	932	187	0	1012	117	2079	927	117	2057	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	32.5	35.2	0.0	28.4	37.9	9.9	7.2	38.3	12.0	7.2
Incr Delay (d2), s/veh	5.0	0.0	0.4	7.3	0.0	0.1	5.3	0.9	0.1	10.2	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.3	2.1	0.0	0.3	0.2	4.2	0.4	0.1	8.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	33.0	42.5	0.0	28.5	43.3	10.9	7.4	48.5	14.1	7.2
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	B	A
Approach Vol, veh/h		30			119			1158			1469	
Approach Delay, s/veh		36.2			40.5			10.9			14.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.4	50.5	10.6	11.7	4.9	50.0	6.0	16.4
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.2	16.1	6.3	2.9	2.4	24.5	2.4	2.7
Green Ext Time (p_c), s	0.0	7.8	0.0	0.1	0.0	11.5	0.0	0.1

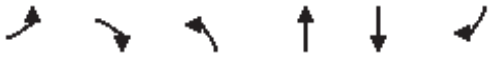
Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	324	1161	1399
Future Volume (vph)	19	74	324	1161	1399
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	26.6	26.6	35.0	93.4	58.4
Total Split (%)	22.2%	22.2%	29.2%	77.8%	48.7%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	12.2	12.2	24.6	89.0	58.2
Actuated g/C Ratio	0.11	0.11	0.23	0.83	0.54
v/c Ratio	0.10	0.32	0.87	0.82	1.64
Control Delay	44.3	13.0	61.8	14.0	317.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	13.0	61.8	14.0	317.6
LOS	D	B	E	B	F
Approach Delay	19.4			24.5	317.6
Approach LOS	B			C	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 167.6	Intersection LOS: F
Intersection Capacity Utilization 119.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	324	1161	1399	111
Future Volume (veh/h)	19	74	324	1161	1399	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	60	360	1290	1554	123
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	154	137	391	1542	959	76
Arrive On Green	0.08	0.08	0.22	0.81	0.55	0.55
Sat Flow, veh/h	1810	1610	1810	1900	1738	138
Grp Volume(v), veh/h	21	60	360	1290	0	1677
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1875
Q Serve(g_s), s	1.2	3.8	20.8	42.7	0.0	59.1
Cycle Q Clear(g_c), s	1.2	3.8	20.8	42.7	0.0	59.1
Prop In Lane	1.00	1.00	1.00			0.07
Lane Grp Cap(c), veh/h	154	137	391	1542	0	1035
V/C Ratio(X)	0.14	0.44	0.92	0.84	0.00	1.62
Avail Cap(c_a), veh/h	372	331	514	1542	0	1035
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.4	46.6	41.1	5.9	0.0	24.0
Incr Delay (d2), s/veh	0.4	2.2	16.3	5.6	0.0	283.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	10.4	8.9	0.0	103.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.8	48.8	57.4	11.5	0.0	307.4
LnGrp LOS	D	D	E	B	A	F
Approach Vol, veh/h	81			1650	1677	
Approach Delay, s/veh	48.0			21.5	307.4	
Approach LOS	D			C	F	

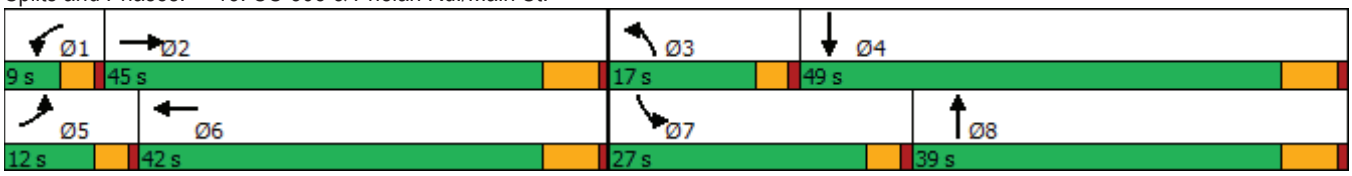
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.4		13.7	27.8	65.6
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		86.9		22.0	30.4	51.9
Max Q Clear Time (g_c+I1), s		44.7		5.8	22.8	61.1
Green Ext Time (p_c), s		15.6		0.2	0.3	0.0

Intersection Summary		
HCM 6th Ctrl Delay		162.8
HCM 6th LOS		F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	94	848	21	1134	223	881	346	1062
Future Volume (vph)	94	848	21	1134	223	881	346	1062
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.0	42.6	5.0	36.0	13.0	33.0	23.0	43.0
Actuated g/C Ratio	0.07	0.36	0.04	0.30	0.11	0.28	0.19	0.36
v/c Ratio	0.82	0.84	0.29	1.66	1.19	0.95	1.04	0.92
Control Delay	99.6	42.8	66.0	329.3	170.9	62.0	107.5	49.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	42.8	66.0	329.3	170.9	62.0	107.5	49.2
LOS	F	D	E	F	F	E	F	D
Approach Delay		47.6		326.1		83.5		62.8
Approach LOS		D		F		F		E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.66	
Intersection Signal Delay: 148.1	Intersection LOS: F
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	848	170	21	1134	591	223	881	23	346	1062	74
Future Volume (veh/h)	94	848	170	21	1134	591	223	881	23	346	1062	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	98	883	132	22	1181	536	232	918	24	360	1106	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	121	1091	163	39	738	320	197	978	26	348	1223	81
Arrive On Green	0.07	0.35	0.35	0.02	0.30	0.30	0.11	0.27	0.27	0.19	0.36	0.36
Sat Flow, veh/h	1810	3149	471	1810	2450	1064	1810	3594	94	1810	3437	227
Grp Volume(v), veh/h	98	506	509	22	856	861	232	461	481	360	580	599
Grp Sat Flow(s),veh/h/ln	1810	1805	1815	1810	1805	1709	1810	1805	1883	1810	1805	1859
Q Serve(g_s), s	6.4	30.4	30.4	1.4	36.0	36.0	13.0	29.8	29.8	23.0	36.5	36.6
Cycle Q Clear(g_c), s	6.4	30.4	30.4	1.4	36.0	36.0	13.0	29.8	29.8	23.0	36.5	36.6
Prop In Lane	1.00		0.26	1.00		0.62	1.00		0.05	1.00		0.12
Lane Grp Cap(c), veh/h	121	625	629	39	544	515	197	491	512	348	642	662
V/C Ratio(X)	0.81	0.81	0.81	0.56	1.57	1.67	1.18	0.94	0.94	1.03	0.90	0.90
Avail Cap(c_a), veh/h	121	625	629	76	544	515	197	498	520	348	649	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.0	35.5	35.5	57.9	41.8	41.8	53.3	42.5	42.5	48.3	36.6	36.6
Incr Delay (d2), s/veh	31.4	7.8	7.8	9.0	267.4	311.4	120.7	25.8	25.0	57.3	16.2	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	13.8	13.9	0.7	55.3	58.6	12.2	16.0	16.6	15.4	17.7	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.4	43.3	43.3	66.9	309.1	353.2	174.0	68.3	67.5	105.5	52.7	52.5
LnGrp LOS	F	D	D	E	F	F	F	E	E	F	D	D
Approach Vol, veh/h		1113			1739			1174			1539	
Approach Delay, s/veh		47.1			327.9			88.9			65.0	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	47.4	17.0	48.5	12.0	42.0	27.0	38.5
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	3.4	32.4	15.0	38.6	8.4	38.0	25.0	31.8
Green Ext Time (p_c), s	0.0	3.0	0.0	2.8	0.0	0.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	148.6
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	1118	17	25	1228
Future Vol, veh/h	10	9	1118	17	25	1228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1202	18	27	1320

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2585	610	0	0	1220	0
Stage 1	1211	-	-	-	-	-
Stage 2	1374	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	25	442	-	-	579	-
Stage 1	249	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	442	-	-	579	-
Mov Cap-2 Maneuver	24	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	226	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	135	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	24	442	579	-
HCM Lane V/C Ratio	-	-	0.448	0.022	0.046	-
HCM Control Delay (s)	-	-	244.5	13.3	11.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	64	1	171	2	43	225	1029	105	21	1096	121
Future Volume (vph)	64	1	171	2	43	225	1029	105	21	1096	121
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	31.0	69.0	69.0	10.0	48.0	48.0
Total Split (%)	34.2%	34.2%	34.2%	34.2%	34.2%	25.8%	57.5%	57.5%	8.3%	40.0%	40.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	27.4	27.4	27.4	27.4	27.4	18.8	63.9	63.9	5.1	45.5	45.5
Actuated g/C Ratio	0.25	0.25	0.25	0.25	0.25	0.17	0.59	0.59	0.05	0.42	0.42
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.53	0.12	0.27	0.79	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
LOS	C	A	F	C	A	E	B	A	E	C	A
Approach Delay		12.0		79.7			23.1			32.4	
Approach LOS		B		E			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 29.6	Intersection LOS: C
Intersection Capacity Utilization 86.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	1	248	171	2	43	225	1029	105	21	1096	121
Future Volume (veh/h)	64	1	248	171	2	43	225	1029	105	21	1096	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	70	1	233	186	2	38	245	1118	102	23	1191	111
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	482	2	461	267	546	462	275	1961	874	41	1495	667
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.15	0.54	0.54	0.02	0.41	0.41
Sat Flow, veh/h	1463	7	1604	1229	1900	1607	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	70	0	234	186	2	38	245	1118	102	23	1191	111
Grp Sat Flow(s),veh/h/ln	1463	0	1611	1229	1900	1607	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.2	0.0	14.0	17.2	0.1	2.0	15.4	23.8	3.6	1.5	33.5	5.0
Cycle Q Clear(g_c), s	4.2	0.0	14.0	31.3	0.1	2.0	15.4	23.8	3.6	1.5	33.5	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	0	463	267	546	462	275	1961	874	41	1495	667
V/C Ratio(X)	0.15	0.00	0.51	0.70	0.00	0.08	0.89	0.57	0.12	0.56	0.80	0.17
Avail Cap(c_a), veh/h	503	0	486	284	573	485	406	1961	874	78	1495	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	34.4	47.5	29.5	30.1	48.2	17.5	12.9	56.1	29.7	21.4
Incr Delay (d2), s/veh	0.1	0.0	0.3	5.4	0.0	0.0	11.8	1.2	0.3	4.5	4.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	5.5	5.7	0.0	0.8	7.5	9.0	1.2	0.7	14.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	34.7	52.9	29.5	30.2	60.0	18.7	13.2	60.6	34.2	21.9
LnGrp LOS	C	A	C	D	C	C	E	B	B	E	C	C
Approach Vol, veh/h		304			226			1465			1325	
Approach Delay, s/veh		33.9			48.9			25.3			33.6	
Approach LOS		C			D			C			C	

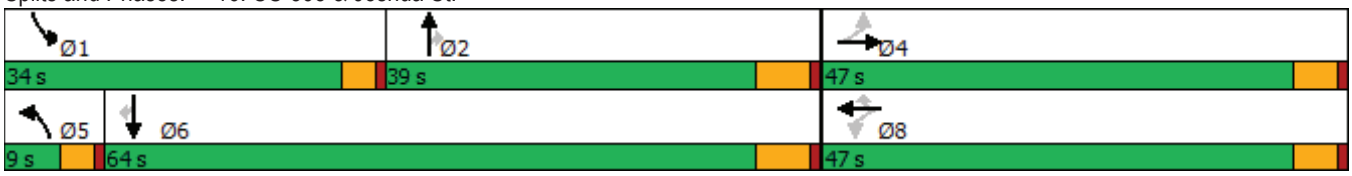
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	69.0		39.3	22.6	54.0		39.3				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		35.0	26.0	42.0		35.0				
Max Q Clear Time (g_c+I1), s	3.5	25.8		16.0	17.4	35.5		33.3				
Green Ext Time (p_c), s	0.0	8.9		1.0	0.2	3.9		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		31.0	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	36	67	95	81	250	12	1074	61	204	1256	57
Future Volume (vph)	36	67	95	81	250	12	1074	61	204	1256	57
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	39.0	39.0	34.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	32.5%	32.5%	28.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.6	16.6	16.6	16.6	16.6	5.1	43.2	43.2	15.6	61.5	61.5
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.06	0.49	0.49	0.18	0.70	0.70
v/c Ratio	0.15	0.21	0.41	0.24	0.52	0.12	0.66	0.08	0.69	0.54	0.05
Control Delay	29.7	29.1	35.0	30.7	7.3	48.2	22.5	3.0	46.4	10.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	29.1	35.0	30.7	7.3	48.2	22.5	3.0	46.4	10.2	3.6
LOS	C	C	D	C	A	D	C	A	D	B	A
Approach Delay		29.3		17.9			21.7			14.9	
Approach LOS		C		B			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 87.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	67	4	95	81	250	12	1074	61	204	1256	57
Future Volume (veh/h)	36	67	4	95	81	250	12	1074	61	204	1256	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	39	73	1	103	88	218	13	1167	52	222	1365	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	237	329	5	283	334	283	28	1963	876	263	2433	1085
Arrive On Green	0.18	0.18	0.16	0.18	0.18	0.18	0.02	0.54	0.54	0.15	0.67	0.67
Sat Flow, veh/h	1150	1870	26	1422	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	39	0	74	103	88	218	13	1167	52	222	1365	57
Grp Sat Flow(s),veh/h/ln	1150	0	1895	1422	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	2.7	0.0	3.0	6.0	3.6	11.5	0.6	19.4	1.4	10.6	17.7	1.1
Cycle Q Clear(g_c), s	6.3	0.0	3.0	8.9	3.6	11.5	0.6	19.4	1.4	10.6	17.7	1.1
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	0	333	283	334	283	28	1963	876	263	2433	1085
V/C Ratio(X)	0.16	0.00	0.22	0.36	0.26	0.77	0.47	0.59	0.06	0.84	0.56	0.05
Avail Cap(c_a), veh/h	590	0	915	720	918	776	102	1963	876	610	2433	1085
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	0.0	31.5	35.3	31.7	35.0	43.5	13.7	9.6	37.1	7.6	4.9
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.3	0.2	1.7	8.7	1.3	0.1	5.5	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	1.4	2.1	1.6	4.5	0.3	6.6	0.4	4.7	4.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	0.0	31.6	35.6	31.9	36.7	52.1	15.0	9.7	42.5	8.6	5.0
LnGrp LOS	C	A	C	D	C	D	D	B	A	D	A	A
Approach Vol, veh/h		113			409			1232			1644	
Approach Delay, s/veh		32.6			35.4			15.2			13.0	
Approach LOS		C			D			B			B	

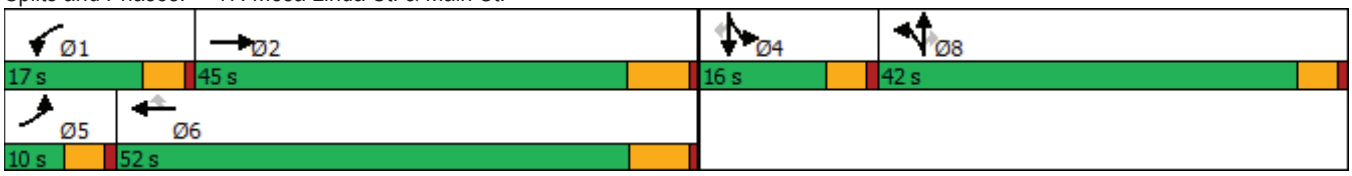
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.0	52.4		19.7	5.4	64.0		19.7				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	30.0	33.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	12.6	21.4		8.3	2.6	19.7		13.5				
Green Ext Time (p_c), s	0.4	8.3		0.3	0.0	22.8		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		17.1	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	1040	110	730	18	2	131	2	15
Future Volume (vph)	5	1040	110	730	18	2	131	2	15
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.2	39.5	11.1	54.0	54.0	14.3	14.3	10.5	10.5
Actuated g/C Ratio	0.06	0.43	0.12	0.58	0.58	0.15	0.15	0.11	0.11
v/c Ratio	0.07	0.59	0.67	0.30	0.02	0.01	0.42	0.31	0.06
Control Delay	49.6	24.2	59.6	13.0	0.1	32.0	8.8	47.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	24.2	59.6	13.0	0.1	32.0	8.8	47.2	0.3
LOS	D	C	E	B	A	C	A	D	A
Approach Delay		24.3		18.7		9.1		36.4	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 51.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1040	3	110	730	18	0	2	131	49	2	15
Future Volume (veh/h)	5	1040	3	110	730	18	0	2	131	49	2	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	6	1224	4	129	859	13	0	2	133	58	2	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	2308	8	158	2683	833	0	204	173	153	5	140
Arrive On Green	0.01	0.46	0.46	0.10	0.55	0.55	0.00	0.11	0.11	0.09	0.09	0.09
Sat Flow, veh/h	1619	5057	17	1619	4914	1525	0	1800	1525	1660	57	1525
Grp Volume(v), veh/h	6	793	435	129	859	13	0	2	133	60	0	4
Grp Sat Flow(s),veh/h/ln	1619	1638	1797	1619	1638	1525	0	1800	1525	1717	0	1525
Q Serve(g_s), s	0.3	14.6	14.6	6.6	8.1	0.3	0.0	0.1	7.1	2.8	0.0	0.2
Cycle Q Clear(g_c), s	0.3	14.6	14.6	6.6	8.1	0.3	0.0	0.1	7.1	2.8	0.0	0.2
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	13	1495	820	158	2683	833	0	204	173	158	0	140
V/C Ratio(X)	0.48	0.53	0.53	0.82	0.32	0.02	0.00	0.01	0.77	0.38	0.00	0.03
Avail Cap(c_a), veh/h	104	1495	820	238	2683	833	0	798	676	232	0	206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	16.4	16.4	37.3	10.5	8.8	0.0	33.2	36.3	36.0	0.0	34.9
Incr Delay (d2), s/veh	10.0	1.4	2.5	7.4	0.3	0.0	0.0	0.0	7.0	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.8	5.6	2.8	2.5	0.1	0.0	0.0	3.0	1.2	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	17.8	18.9	44.7	10.9	8.8	0.0	33.2	43.3	37.5	0.0	34.9
LnGrp LOS	D	B	B	D	B	A	A	C	D	D	A	C
Approach Vol, veh/h		1234			1001			135			64	
Approach Delay, s/veh		18.4			15.2			43.1			37.4	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	45.0		12.4	5.3	52.6		14.2				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	8.6	16.6		4.8	2.3	10.1		9.1				
Green Ext Time (p_c), s	0.0	7.4		0.1	0.0	6.0		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		18.9
HCM 6th LOS		B

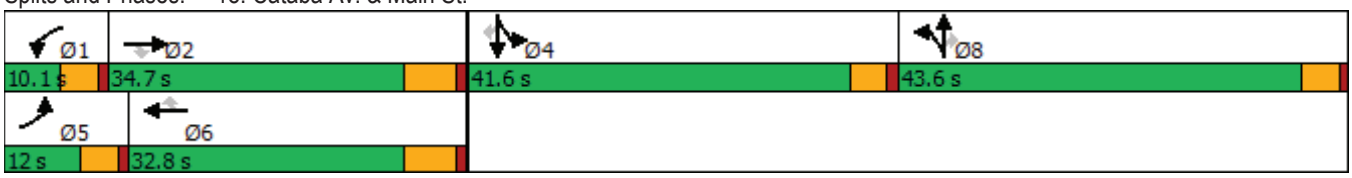
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1112	78	258	1617	19	163	13	140	35	13	27
Future Volume (vph)	70	1112	78	258	1617	19	163	13	140	35	13	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	12.0	34.7	34.7	10.1	32.8	32.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	9.2%	26.7%	26.7%	7.8%	25.2%	25.2%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	7.8	30.5	30.5	5.9	28.6	28.6	14.9	14.9	14.9	14.1	14.1	14.1
Actuated g/C Ratio	0.09	0.37	0.37	0.07	0.35	0.35	0.18	0.18	0.18	0.17	0.17	0.17
v/c Ratio	0.52	0.69	0.14	1.39	1.07	0.04	0.36	0.34	0.39	0.14	0.05	0.09
Control Delay	54.9	28.4	7.6	232.8	73.0	0.1	35.2	34.5	8.4	32.6	31.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	28.4	7.6	232.8	73.0	0.1	35.2	34.5	8.4	32.6	31.6	0.5
LOS	D	C	A	F	E	A	D	C	A	C	C	A
Approach Delay		28.5			94.0			23.2			21.0	
Approach LOS		C			F			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 82.8	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 62.9	Intersection LOS: E
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1112	78	258	1617	19	163	13	140	35	13	27
Future Volume (veh/h)	70	1112	78	258	1617	19	163	13	140	35	13	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	79	1249	81	290	1817	14	194	0	137	39	15	1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	98	1976	613	229	2060	639	469	0	221	151	168	142
Arrive On Green	0.06	0.40	0.40	0.08	0.42	0.42	0.14	0.00	0.14	0.09	0.09	0.09
Sat Flow, veh/h	1619	4914	1524	2956	4914	1524	3238	0	1522	1619	1800	1525
Grp Volume(v), veh/h	79	1249	81	290	1817	14	194	0	137	39	15	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1524	1619	0	1522	1619	1800	1525
Q Serve(g_s), s	3.4	14.4	2.4	5.5	24.2	0.4	3.9	0.0	6.0	1.6	0.5	0.0
Cycle Q Clear(g_c), s	3.4	14.4	2.4	5.5	24.2	0.4	3.9	0.0	6.0	1.6	0.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	1976	613	229	2060	639	469	0	221	151	168	142
V/C Ratio(X)	0.81	0.63	0.13	1.26	0.88	0.02	0.41	0.00	0.62	0.26	0.09	0.01
Avail Cap(c_a), veh/h	169	1976	613	229	2060	639	1781	0	837	845	939	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	17.0	13.4	32.7	19.0	12.1	27.6	0.0	28.5	29.9	29.4	29.2
Incr Delay (d2), s/veh	5.8	1.6	0.4	149.0	5.9	0.1	0.6	0.0	2.8	0.9	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	4.6	0.7	6.5	8.5	0.1	1.5	0.0	2.3	0.6	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	18.5	13.8	181.7	24.9	12.1	28.1	0.0	31.3	30.8	29.6	29.2
LnGrp LOS	D	B	B	F	C	B	C	A	C	C	C	C
Approach Vol, veh/h		1409			2121			331			55	
Approach Delay, s/veh		19.4			46.2			29.5			30.4	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.1	34.7		11.2	8.9	35.9		14.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.5	28.5		37.0	7.4	26.6		39.0				
Max Q Clear Time (g_c+I1), s	7.5	16.4		3.6	5.4	26.2		8.0				
Green Ext Time (p_c), s	0.0	6.1		0.2	0.0	0.4		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		34.9	
HCM 6th LOS		C	

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	31	1253	12	144	1933	11	11	81	149	27
Future Volume (vph)	31	1253	12	144	1933	11	11	81	149	27
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	6.5	44.4	44.4	12.6	55.1	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.07	0.49	0.49	0.14	0.61	0.20	0.20	0.20	0.20	0.20
v/c Ratio	0.28	0.53	0.02	0.66	0.70	0.04	0.03	0.21	0.60	0.12
Control Delay	50.9	19.4	0.0	53.2	17.1	29.6	29.3	3.7	43.7	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	19.4	0.0	53.2	17.4	29.6	29.3	3.7	43.7	22.2
LOS	D	B	A	D	B	C	C	A	D	C
Approach Delay		20.0			19.8		9.1			38.9
Approach LOS		B			B		A			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.8	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 74.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1253	12	144	1933	111	11	11	81	149	27	15
Future Volume (veh/h)	31	1253	12	144	1933	111	11	11	81	149	27	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	32	1279	9	147	1972	79	11	11	23	152	28	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	51	2733	848	179	3081	123	259	272	230	277	192	68
Arrive On Green	0.03	0.56	0.56	0.11	0.64	0.64	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1619	4914	1524	1619	4847	194	1314	1800	1522	1316	1266	452
Grp Volume(v), veh/h	32	1279	9	147	1331	720	11	11	23	152	0	38
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1619	1638	1765	1314	1800	1522	1316	0	1719
Q Serve(g_s), s	1.7	13.2	0.2	7.5	21.1	21.2	0.6	0.4	1.1	9.4	0.0	1.6
Cycle Q Clear(g_c), s	1.7	13.2	0.2	7.5	21.1	21.2	2.2	0.4	1.1	9.9	0.0	1.6
Prop In Lane	1.00		1.00	1.00		0.11	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	51	2733	848	179	2082	1122	259	272	230	277	0	260
V/C Ratio(X)	0.63	0.47	0.01	0.82	0.64	0.64	0.04	0.04	0.10	0.55	0.00	0.15
Avail Cap(c_a), veh/h	180	2733	848	467	2082	1122	702	880	745	722	0	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	11.3	8.4	36.8	9.5	9.5	32.1	30.7	31.0	34.9	0.0	31.2
Incr Delay (d2), s/veh	4.8	0.6	0.0	3.6	1.5	2.8	0.1	0.1	0.2	1.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.0	0.1	2.9	5.8	6.7	0.2	0.2	0.4	3.1	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	11.8	8.4	40.4	11.0	12.3	32.2	30.7	31.1	36.6	0.0	31.4
LnGrp LOS	D	B	A	D	B	B	C	C	C	D	A	C
Approach Vol, veh/h		1320			2198			45			190	
Approach Delay, s/veh		12.6			13.4			31.3			35.5	
Approach LOS		B			B			C			D	

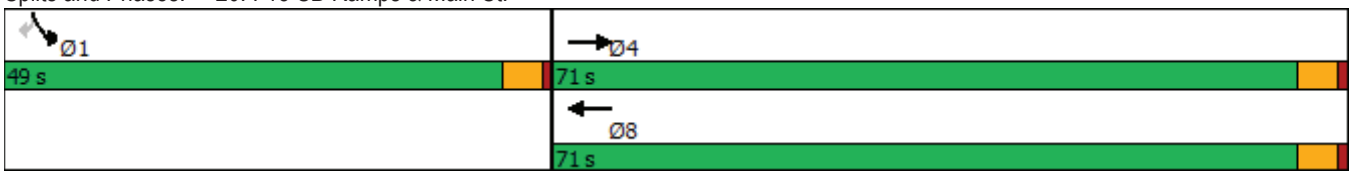
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	53.3		17.4	7.2	60.0		17.4				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	9.5	15.2		11.9	3.7	23.2		4.2				
Green Ext Time (p_c), s	0.1	8.9		0.7	0.0	17.4		0.1				

Intersection Summary			
HCM 6th Ctrl Delay		14.5	
HCM 6th LOS		B	

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1265	110	1470	21	358	705
Future Volume (vph)	1265	110	1470	21	358	705
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	71.0		71.0		49.0	49.0
Total Split (%)	59.2%		59.2%		40.8%	40.8%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	37.5	91.3	37.5	91.3	44.6	44.6
Actuated g/C Ratio	0.41	1.00	0.41	1.00	0.49	0.49
v/c Ratio	0.63	0.07	0.73	0.01	0.22	0.93
Control Delay	22.5	0.1	24.6	0.0	14.9	42.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	0.1	24.6	0.0	14.9	42.2
LOS	C	A	C	A	B	D
Approach Delay	20.7		24.3			
Approach LOS	C		C			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.3	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 79.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1265	110	0	1470	21	0	0	0	358	0	705
Future Volume (veh/h)	0	1265	110	0	1470	21	0	0	0	358	0	705
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1332	0	0	1547	0				377	0	661
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2271		0	2271					1578	0	724
Arrive On Green	0.00	0.44	0.00	0.00	0.44	0.00				0.45	0.00	0.45
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1332	0	0	1547	0				377	0	661
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	15.9	0.0	0.0	19.5	0.0				5.4	0.0	31.3
Cycle Q Clear(g_c), s	0.0	15.9	0.0	0.0	19.5	0.0				5.4	0.0	31.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2271		0	2271					1578	0	724
V/C Ratio(X)	0.00	0.59		0.00	0.68					0.24	0.00	0.91
Avail Cap(c_a), veh/h	0	4214		0	4214					1907	0	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.4	0.0	0.0	18.4	0.0				13.9	0.0	21.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.4	0.0				0.1	0.0	12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.4	0.0	0.0	6.7	0.0				2.1	0.0	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.6	0.0	0.0	18.8	0.0				13.9	0.0	33.3
LnGrp LOS	A	B		A	B					B	A	C
Approach Vol, veh/h		1332	A		1547	A					1038	
Approach Delay, s/veh		17.6			18.8						26.2	
Approach LOS		B			B						C	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				40.4		41.3		40.4				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				66.4		44.4		66.4				
Max Q Clear Time (g_c+I1), s				17.9		33.3		21.5				
Green Ext Time (p_c), s				11.4		3.4		14.2				

Intersection Summary												
HCM 6th Ctrl Delay			20.4									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1195	429	1461	492	611	6	442
Future Volume (vph)	1195	429	1461	492	611	6	442
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	41.0	41.0	41.0	41.0	37.8	37.8	37.8
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.43	0.43	0.43
v/c Ratio	0.51	0.44	0.62	0.49	0.80	0.32	0.33
Control Delay	16.8	2.7	18.4	2.9	34.1	14.2	14.4
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	16.8	2.7	18.5	3.0	34.1	14.2	14.4
LOS	B	A	B	A	C	B	B
Approach Delay	13.1		14.6			25.7	
Approach LOS	B		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88.2	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 16.6	Intersection LOS: B
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1195	429	0	1461	492	611	6	442	0	0	0
Future Volume (veh/h)	0	1195	429	0	1461	492	611	6	442	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1219	0	0	1491	470	623	0	245			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2526		0	2526	784	700	0	1246			
Arrive On Green	0.00	0.49	0.00	0.00	0.49	0.49	0.39	0.00	0.39			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1219	0	0	1491	470	623	0	245			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	11.5	0.0	0.0	15.1	15.4	23.5	0.0	3.7			
Cycle Q Clear(g_c), s	0.0	11.5	0.0	0.0	15.1	15.4	23.5	0.0	3.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2526		0	2526	784	700	0	1246			
V/C Ratio(X)	0.00	0.48		0.00	0.59	0.60	0.89	0.00	0.20			
Avail Cap(c_a), veh/h	0	5213		0	5213	1618	927	0	1649			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	12.6	0.0	0.0	13.5	13.6	20.9	0.0	14.9			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.7	8.6	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.5	0.0	0.0	4.7	4.5	10.9	0.0	1.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.7	0.0	0.0	13.7	14.3	29.5	0.0	14.9			
LnGrp LOS	A	B		A	B	B	C	A	B			
Approach Vol, veh/h		1219	A		1961			868				
Approach Delay, s/veh		12.7			13.8			25.4				
Approach LOS		B			B			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		40.2				40.2		32.9				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		73.4				73.4		37.4				
Max Q Clear Time (g_c+I1), s		13.5				17.4		25.5				
Green Ext Time (p_c), s		10.2				18.1		2.8				

Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									

Notes

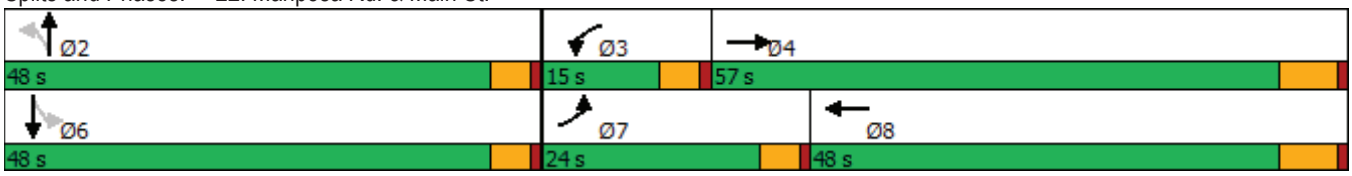
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	142	1392	45	1751	73	40	36	50
Future Volume (vph)	142	1392	45	1751	73	40	36	50
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	12.8	51.4	10.5	49.2	17.3	17.3	17.3	17.3
Actuated g/C Ratio	0.13	0.54	0.11	0.52	0.18	0.18	0.18	0.18
v/c Ratio	0.71	0.48	0.27	0.60	0.80	0.24	0.18	0.59
Control Delay	57.8	15.3	46.5	19.6	86.5	19.7	32.5	16.8
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	15.6	46.5	19.6	86.5	19.7	32.5	16.8
LOS	E	B	D	B	F	B	C	B
Approach Delay		19.3		20.2		52.2		18.9
Approach LOS		B		C		D		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 21.0	Intersection LOS: C
Intersection Capacity Utilization 76.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	1392	103	45	1751	29	73	40	36	36	50	189
Future Volume (veh/h)	142	1392	103	45	1751	29	73	40	36	36	50	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	153	1497	98	48	1883	30	78	43	17	39	54	120
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	183	3208	210	178	3373	54	184	235	93	285	95	211
Arrive On Green	0.11	0.54	0.54	0.11	0.53	0.53	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1619	5982	391	1619	6325	101	1162	1227	485	1288	497	1104
Grp Volume(v), veh/h	153	1162	433	48	1383	530	78	0	60	39	0	174
Grp Sat Flow(s),veh/h/ln	1619	1548	1730	1619	1548	1782	1162	0	1713	1288	0	1601
Q Serve(g_s), s	8.8	14.7	14.7	2.6	18.7	18.7	6.2	0.0	2.8	2.5	0.0	9.3
Cycle Q Clear(g_c), s	8.8	14.7	14.7	2.6	18.7	18.7	15.5	0.0	2.8	5.3	0.0	9.3
Prop In Lane	1.00		0.23	1.00		0.06	1.00		0.28	1.00		0.69
Lane Grp Cap(c), veh/h	183	2491	928	178	2477	950	184	0	328	285	0	306
V/C Ratio(X)	0.84	0.47	0.47	0.27	0.56	0.56	0.42	0.00	0.18	0.14	0.00	0.57
Avail Cap(c_a), veh/h	332	2491	928	178	2477	950	494	0	785	628	0	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.2	13.6	13.6	38.7	14.7	14.7	41.8	0.0	32.1	34.3	0.0	34.7
Incr Delay (d2), s/veh	3.9	0.6	1.7	3.7	0.3	0.7	1.6	0.0	0.3	0.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	4.5	5.3	1.2	5.6	6.6	1.9	0.0	1.2	0.8	0.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	14.2	15.3	42.4	15.0	15.4	43.3	0.0	32.4	34.5	0.0	36.4
LnGrp LOS	D	B	B	D	B	B	D	A	C	C	A	D
Approach Vol, veh/h		1748			1961			138			213	
Approach Delay, s/veh		17.2			15.8			38.6			36.1	
Approach LOS		B			B			D			D	

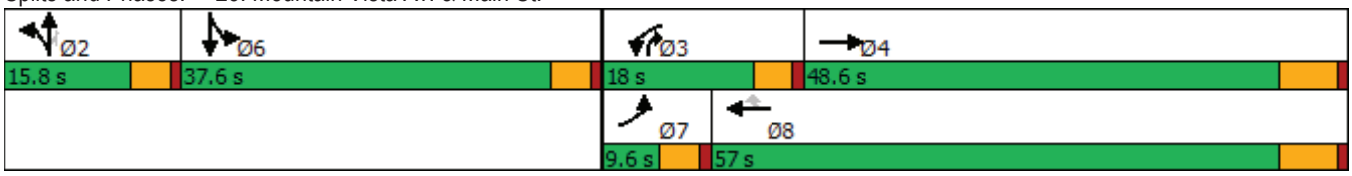
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.7	15.0	57.0		22.7	15.3	56.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		17.5	4.6	16.7		11.3	10.8	20.7				
Green Ext Time (p_c), s		0.6	0.0	12.7		1.3	0.1	12.5				

Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	16	1293	74	1808	59	16	1	30	50	2
Future Volume (vph)	16	1293	74	1808	59	16	1	30	50	2
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	54.3	8.6	63.7	63.7	10.4	10.4	11.8	13.8	13.8
Actuated g/C Ratio	0.06	0.63	0.10	0.74	0.74	0.12	0.12	0.14	0.16	0.16
v/c Ratio	0.09	0.35	0.48	0.52	0.05	0.05	0.02	0.07	0.13	0.12
Control Delay	48.2	14.5	51.4	13.5	1.3	44.1	43.2	0.3	34.7	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	14.5	51.4	13.5	1.3	44.1	43.2	0.3	34.7	27.2
LOS	D	B	D	B	A	D	D	A	C	C
Approach Delay		14.9		14.6			15.7			31.0
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.5	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 63.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	1293	21	74	1808	59	16	1	30	50	2	9
Future Volume (veh/h)	16	1293	21	74	1808	59	16	1	30	50	2	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	16	1333	21	76	1864	58	16	1	11	57	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	55	3531	56	95	2940	912	184	102	353	294	163	0
Arrive On Green	0.02	0.56	0.56	0.06	0.60	0.60	0.06	0.06	0.06	0.09	0.00	0.00
Sat Flow, veh/h	2956	6326	100	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	16	978	376	76	1864	58	16	1	11	57	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1782	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	0.5	10.0	10.0	3.9	20.8	1.3	0.4	0.0	0.3	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	10.0	10.0	3.9	20.8	1.3	0.4	0.0	0.3	1.4	0.0	0.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	55	2592	995	95	2940	912	184	102	353	294	163	0
V/C Ratio(X)	0.29	0.38	0.38	0.80	0.63	0.06	0.09	0.01	0.03	0.19	0.00	0.00
Avail Cap(c_a), veh/h	174	2592	995	256	2940	912	427	237	581	1259	700	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	41.1	10.5	10.5	39.5	11.0	7.1	37.9	37.8	33.3	35.7	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.4	1.1	5.7	1.1	0.1	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.8	3.5	1.6	6.0	0.4	0.2	0.0	0.1	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	10.9	11.6	45.2	12.1	7.3	38.1	37.8	33.4	36.0	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1370			1998			28			57	
Approach Delay, s/veh		11.5			13.2			36.3			36.0	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.4	9.6	53.6		12.3	6.2	57.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		11.2	13.4	42.4		33.0	5.0	50.8				
Max Q Clear Time (g_c+I1), s		2.4	5.9	12.0		3.4	2.5	22.8				
Green Ext Time (p_c), s		0.0	0.0	9.7		0.2	0.0	15.7				

Intersection Summary												
HCM 6th Ctrl Delay			13.1									
HCM 6th LOS			B									

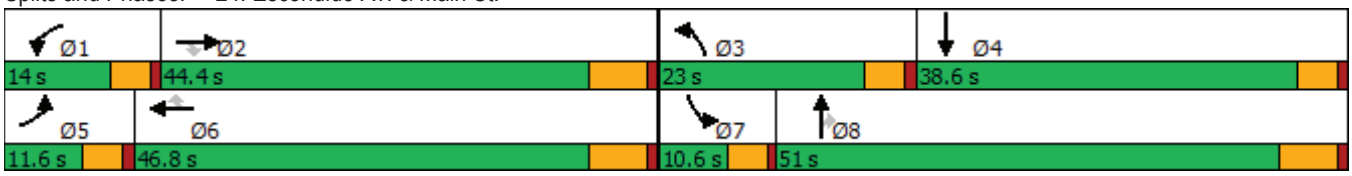
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	915	445	327	1155	3	774	22	345	1	3
Future Volume (vph)	4	915	445	327	1155	3	774	22	345	1	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	44.4	44.4	14.0	46.8	46.8	23.0	51.0	51.0	10.6	38.6
Total Split (%)	9.7%	37.0%	37.0%	11.7%	39.0%	39.0%	19.2%	42.5%	42.5%	8.8%	32.2%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min
Act Effct Green (s)	5.2	29.5	29.5	9.6	42.1	42.1	18.7	34.0	34.0	5.1	13.7
Actuated g/C Ratio	0.06	0.32	0.32	0.10	0.46	0.46	0.20	0.37	0.37	0.06	0.15
v/c Ratio	0.04	0.60	0.57	1.10	0.76	0.00	1.33	0.03	0.48	0.01	0.06
Control Delay	48.0	28.6	5.7	120.9	26.5	0.0	191.0	20.5	7.5	49.0	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.0	28.6	5.7	120.9	26.5	0.0	191.0	20.5	7.5	49.0	18.9
LOS	D	C	A	F	C	A	F	C	A	D	B
Approach Delay		21.2			47.2			132.2			20.8
Approach LOS		C			D			F			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 62.5	Intersection LOS: E
Intersection Capacity Utilization 84.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	915	445	327	1155	3	774	22	345	1	3	12
Future Volume (veh/h)	4	915	445	327	1155	3	774	22	345	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	943	345	337	1191	3	798	23	194	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1509	468	324	1407	628	635	594	503	2	39	145
Arrive On Green	0.01	0.31	0.31	0.11	0.41	0.41	0.21	0.33	0.33	0.00	0.12	0.12
Sat Flow, veh/h	1619	4914	1525	2956	3420	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	943	345	337	1191	3	798	23	194	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1710	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	14.1	17.4	9.4	27.0	0.1	18.4	0.7	8.4	0.1	0.0	0.7
Cycle Q Clear(g_c), s	0.2	14.1	17.4	9.4	27.0	0.1	18.4	0.7	8.4	0.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1509	468	324	1407	628	635	594	503	2	0	184
V/C Ratio(X)	0.47	0.63	0.74	1.04	0.85	0.00	1.26	0.04	0.39	0.45	0.00	0.08
Avail Cap(c_a), veh/h	132	2190	680	324	1620	723	635	941	797	113	0	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	25.5	26.6	38.2	22.8	14.9	33.7	19.5	22.0	42.8	0.0	33.7
Incr Delay (d2), s/veh	13.9	0.4	2.4	60.6	3.9	0.0	128.4	0.0	0.5	45.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.0	6.5	5.9	10.1	0.0	17.8	0.3	3.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	25.9	29.0	98.8	26.7	14.9	162.0	19.5	22.5	87.8	0.0	33.9
LnGrp LOS	E	C	C	F	C	B	F	B	C	F	A	C
Approach Vol, veh/h		1292			1531			1015			15	
Approach Delay, s/veh		26.8			42.5			132.1			37.5	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	32.5	23.0	16.2	5.1	41.5	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	11.4	19.4	20.4	2.7	2.2	29.0	2.1	10.4
Green Ext Time (p_c), s	0.0	7.0	0.0	0.0	0.0	5.8	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	24	241	893	33	96	541
Future Vol, veh/h	24	241	893	33	96	541
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	27	268	992	37	107	601

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1526	515	0	0	1029	0
Stage 1	1011	-	-	-	-	-
Stage 2	515	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	111	510	-	-	683	-
Stage 1	317	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	94	510	-	-	683	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	317	-	-	-	-	-
Stage 2	481	-	-	-	-	-

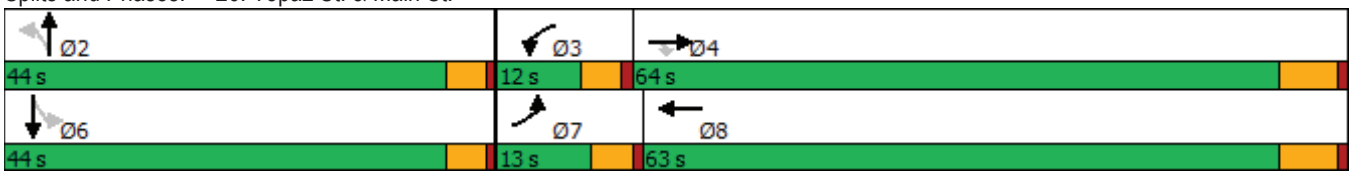
Approach	WB	NB	SB
HCM Control Delay, s	20	0	1.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	215	510	683	-
HCM Lane V/C Ratio	-	-	0.124	0.525	0.156	-
HCM Control Delay (s)	-	-	24.1	19.6	11.2	-
HCM Lane LOS	-	-	C	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	3	0.6	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	43	1102	87	33	1166	190	83	98	64
Future Volume (vph)	43	1102	87	33	1166	190	83	98	64
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.2	45.2	45.2	7.9	49.0	25.9	25.9	25.9	25.9
Actuated g/C Ratio	0.08	0.47	0.47	0.08	0.51	0.27	0.27	0.27	0.27
v/c Ratio	0.40	0.76	0.13	0.28	0.81	0.77	0.33	0.39	0.33
Control Delay	59.3	24.4	4.0	55.5	26.2	53.3	25.1	35.1	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.3	24.4	4.0	55.5	26.2	53.3	25.1	35.1	21.1
LOS	E	C	A	E	C	D	C	D	C
Approach Delay		24.2			27.0		41.2		26.7
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 95.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1102	87	33	1166	96	190	83	60	98	64	83
Future Volume (veh/h)	43	1102	87	33	1166	96	190	83	60	98	64	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	48	1224	84	37	1296	104	211	92	48	109	71	44
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	66	1549	676	148	1615	129	348	295	154	326	275	171
Arrive On Green	0.04	0.45	0.45	0.09	0.50	0.50	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1619	3420	1494	1619	3207	257	1226	1113	581	1195	1040	644
Grp Volume(v), veh/h	48	1224	84	37	689	711	211	0	140	109	0	115
Grp Sat Flow(s),veh/h/ln	1619	1710	1494	1619	1710	1754	1226	0	1693	1195	0	1684
Q Serve(g_s), s	2.4	24.6	2.6	1.7	27.1	27.3	13.2	0.0	5.4	6.5	0.0	4.4
Cycle Q Clear(g_c), s	2.4	24.6	2.6	1.7	27.1	27.3	17.6	0.0	5.4	11.8	0.0	4.4
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.34	1.00		0.38
Lane Grp Cap(c), veh/h	66	1549	676	148	861	883	348	0	448	326	0	446
V/C Ratio(X)	0.73	0.79	0.12	0.25	0.80	0.80	0.61	0.00	0.31	0.33	0.00	0.26
Avail Cap(c_a), veh/h	168	2449	1069	148	1203	1234	621	0	826	593	0	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.3	18.8	12.8	34.1	16.7	16.7	30.4	0.0	23.8	28.5	0.0	23.4
Incr Delay (d2), s/veh	5.5	0.9	0.1	4.0	2.7	2.7	1.7	0.0	0.4	0.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	8.3	0.8	0.8	9.1	9.4	4.0	0.0	2.2	1.9	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	19.8	12.9	38.1	19.4	19.4	32.1	0.0	24.2	29.1	0.0	23.7
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1356			1437			351			224	
Approach Delay, s/veh		20.2			19.9			28.9			26.4	
Approach LOS		C			B			C			C	

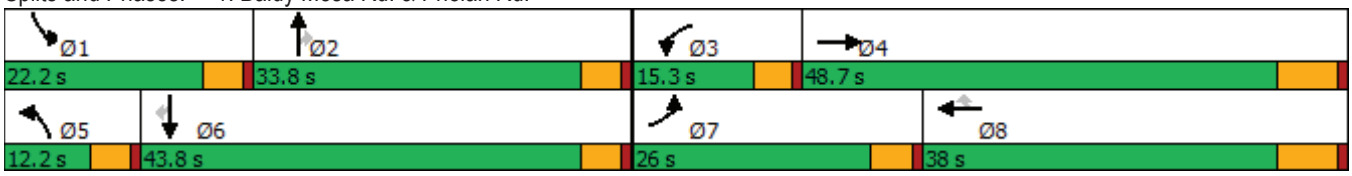
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		26.0	12.0	42.8		26.0	7.9	46.9				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		19.6	3.7	26.6		13.8	4.4	29.3				
Green Ext Time (p_c), s		1.5	0.0	9.9		1.1	0.0	10.1				

Intersection Summary												
HCM 6th Ctrl Delay			21.4									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	157	717	77	770	149	39	30	31	128	38	140
Future Volume (vph)	157	717	77	770	149	39	30	31	128	38	140
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	13.9	44.2	8.7	36.1	36.1	6.6	13.1	13.1	13.0	20.1	20.1
Actuated g/C Ratio	0.15	0.48	0.09	0.39	0.39	0.07	0.14	0.14	0.14	0.22	0.22
v/c Ratio	0.70	0.50	0.55	0.62	0.23	0.37	0.13	0.09	0.61	0.11	0.33
Control Delay	55.9	22.0	59.4	29.1	4.2	56.1	39.0	0.5	53.7	31.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	22.0	59.4	29.1	4.2	56.1	39.0	0.5	53.7	31.6	6.8
LOS	E	C	E	C	A	E	D	A	D	C	A
Approach Delay		27.8		27.7			33.8			29.5	
Approach LOS		C		C			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 93	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 28.3	Intersection LOS: C
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	717	38	77	770	149	39	30	31	128	38	140
Future Volume (veh/h)	157	717	38	77	770	149	39	30	31	128	38	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	169	771	32	83	828	120	42	32	22	138	41	89
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	201	1595	66	118	1455	645	59	211	177	168	332	282
Arrive On Green	0.12	0.48	0.48	0.07	0.43	0.43	0.04	0.12	0.12	0.10	0.18	0.18
Sat Flow, veh/h	1619	3346	139	1619	3420	1516	1619	1800	1512	1619	1800	1525
Grp Volume(v), veh/h	169	394	409	83	828	120	42	32	22	138	41	89
Grp Sat Flow(s),veh/h/ln	1619	1710	1775	1619	1710	1516	1619	1800	1512	1619	1800	1525
Q Serve(g_s), s	9.0	13.9	13.9	4.4	16.2	4.4	2.3	1.4	1.2	7.4	1.7	4.5
Cycle Q Clear(g_c), s	9.0	13.9	13.9	4.4	16.2	4.4	2.3	1.4	1.2	7.4	1.7	4.5
Prop In Lane	1.00		0.08	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	815	846	118	1455	645	59	211	177	168	332	282
V/C Ratio(X)	0.84	0.48	0.48	0.70	0.57	0.19	0.71	0.15	0.12	0.82	0.12	0.32
Avail Cap(c_a), veh/h	391	815	846	196	1455	645	139	594	499	322	797	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	15.7	15.8	40.1	19.3	15.9	42.2	35.1	35.0	38.9	30.1	31.2
Incr Delay (d2), s/veh	3.6	2.0	2.0	2.8	1.6	0.6	5.8	0.3	0.3	3.8	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.0	5.2	1.7	5.8	1.4	1.0	0.6	0.4	3.1	0.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	17.8	17.7	42.9	20.9	16.5	48.0	35.4	35.3	42.7	30.3	31.9
LnGrp LOS	D	B	B	D	C	B	D	D	D	D	C	C
Approach Vol, veh/h		972			1031			96			268	
Approach Delay, s/veh		21.9			22.2			40.9			37.2	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	15.0	11.1	48.7	7.8	20.9	15.6	44.2
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	9.4	3.4	6.4	15.9	4.3	6.5	11.0	18.2
Green Ext Time (p_c), s	0.1	0.2	0.0	4.4	0.0	0.5	0.1	4.4

Intersection Summary	
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	857	4	29	1032	13	3	0	15	8	0	3
Future Vol, veh/h	4	857	4	29	1032	13	3	0	15	8	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	902	4	31	1086	14	3	0	16	8	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1100	0	0	906	0	0	2067	2072	902	2068	2062	1086
Stage 1	-	-	-	-	-	-	910	910	-	1148	1148	-
Stage 2	-	-	-	-	-	-	1157	1162	-	920	914	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	642	-	-	759	-	-	40	55	339	40	55	265
Stage 1	-	-	-	-	-	-	332	356	-	244	276	-
Stage 2	-	-	-	-	-	-	241	272	-	327	355	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	642	-	-	759	-	-	38	52	339	37	52	265
Mov Cap-2 Maneuver	-	-	-	-	-	-	138	159	-	135	156	-
Stage 1	-	-	-	-	-	-	330	354	-	243	265	-
Stage 2	-	-	-	-	-	-	228	261	-	310	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.3	19.2	29.9
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	273	642	-	-	759	-	-	156
HCM Lane V/C Ratio	0.069	0.007	-	-	0.04	-	-	0.074
HCM Control Delay (s)	19.2	10.6	-	-	9.9	-	-	29.9
HCM Lane LOS	C	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	860	2	4	1129	6	5
Future Vol, veh/h	860	2	4	1129	6	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	896	2	4	1176	6	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	898	0	2081	897
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	1184	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	765	-	59	341
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	293	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	765	-	59	341
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	401	-
Stage 2	-	-	-	-	292	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	-	-	765	-
HCM Lane V/C Ratio	0.05	-	-	0.005	-
HCM Control Delay (s)	21.5	-	-	9.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑	↱	↰	
Traffic Vol, veh/h	0	865	1091	82	65	42
Future Vol, veh/h	0	865	1091	82	65	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	940	1186	89	71	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	2126	1186
Stage 1	-	-	-	-	1186	-
Stage 2	-	-	-	-	940	-
Critical Hdwy	-	-	-	-	5.5	6
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	-	-	3	3
Pot Cap-1 Maneuver	0	-	-	-	100	262
Stage 1	0	-	-	-	309	-
Stage 2	0	-	-	-	412	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	100	262
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	412	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	255
HCM Lane V/C Ratio	-	-	-	0.456
HCM Control Delay (s)	-	-	-	30.4
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.2

Intersection	
Int Delay, s/veh	8.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	7	0	32	12	0	236
Future Vol, veh/h	7	0	32	12	0	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	0	35	13	0	257

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	8	0	91	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1625	-	914	1080
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1625	-	894	1080
Mov Cap-2 Maneuver	-	-	-	-	894	-
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	924	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1080	-	-	1625	-
HCM Lane V/C Ratio	0.238	-	-	0.021	-
HCM Control Delay (s)	9.4	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	243	0	54	44	0	280
Future Vol, veh/h	243	0	54	44	0	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	264	0	59	48	0	304

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	264	0	430	264
Stage 1	-	-	-	-	264	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1312	-	586	780
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1312	-	560	780
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	829	-

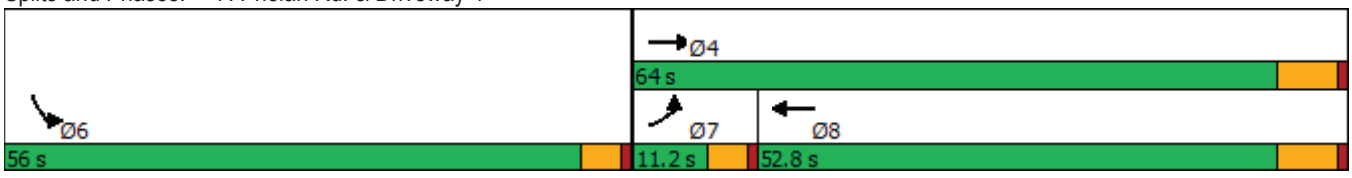
Approach	EB	WB	NB
HCM Control Delay, s	0	4.3	12.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	780	-	-	1312	-
HCM Lane V/C Ratio	0.39	-	-	0.045	-
HCM Control Delay (s)	12.5	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	31	912	1131	654
Future Volume (vph)	31	912	1131	654
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	11.2	64.0	52.8	56.0
Total Split (%)	9.3%	53.3%	44.0%	46.7%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	6.1	57.5	50.8	51.4
Actuated g/C Ratio	0.05	0.48	0.42	0.43
v/c Ratio	0.42	0.57	0.95	1.11
Control Delay	70.5	24.1	48.7	103.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	70.5	24.1	48.7	103.2
LOS	E	C	D	F
Approach Delay		25.7	48.7	103.2
Approach LOS		C	D	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 54.5	Intersection LOS: D
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	912	1131	113	654	54
Future Volume (veh/h)	31	912	1131	113	654	54
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1700	1800	1700	1800	1700	1800
Adj Flow Rate, veh/h	34	991	1229	74	711	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	46	1725	1310	79	658	31
Arrive On Green	0.03	0.48	0.41	0.41	0.43	0.43
Sat Flow, veh/h	1619	3600	3175	191	1537	71
Grp Volume(v), veh/h	34	991	657	646	745	0
Grp Sat Flow(s),veh/h/ln	1619	1800	1700	1666	1610	0
Q Serve(g_s), s	2.5	23.7	44.4	44.6	51.4	0.0
Cycle Q Clear(g_c), s	2.5	23.7	44.4	44.6	51.4	0.0
Prop In Lane	1.00			0.11	0.95	0.04
Lane Grp Cap(c), veh/h	46	1725	701	687	690	0
V/C Ratio(X)	0.74	0.57	0.94	0.94	1.08	0.00
Avail Cap(c_a), veh/h	89	1725	701	687	690	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.9	22.5	33.8	33.8	34.3	0.0
Incr Delay (d2), s/veh	8.5	1.4	21.7	22.3	57.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	9.4	20.9	20.7	30.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	66.4	23.9	55.4	56.1	92.2	0.0
LnGrp LOS	E	C	E	E	F	A
Approach Vol, veh/h		1025	1303		745	
Approach Delay, s/veh		25.3	55.8		92.2	
Approach LOS		C	E		F	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			64.0		56.0	8.0	56.0
Change Period (Y+Rc), s			6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s			57.5		51.4	6.6	46.3
Max Q Clear Time (g_c+I1), s			25.7		53.4	4.5	46.6
Green Ext Time (p_c), s			6.9		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	53	72	40	47	109	67	1083	93	224	1044	90
Future Volume (vph)	53	72	40	47	109	67	1083	93	224	1044	90
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	21.0	21.0	21.0	21.0	21.0	8.2	47.6	47.6	17.4	59.1	59.1
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.08	0.47	0.47	0.17	0.58	0.58
v/c Ratio	0.73	0.19	0.10	0.18	0.81	0.48	0.66	0.12	0.75	0.52	0.10
Control Delay	87.9	33.9	0.5	34.1	43.6	59.3	25.8	5.2	56.8	16.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	33.9	0.5	34.1	43.6	59.3	25.8	5.2	56.8	16.1	3.5
LOS	F	C	A	C	D	E	C	A	E	B	A
Approach Delay		43.0			42.4		26.1			22.0	
Approach LOS		D			D		C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 86.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	72	40	47	109	216	67	1083	93	224	1044	90
Future Volume (veh/h)	53	72	40	47	109	216	67	1083	93	224	1044	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	75	23	49	114	163	70	1128	72	233	1088	75
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	153	416	352	332	155	221	91	1741	777	269	2097	935
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.05	0.48	0.48	0.15	0.58	0.58
Sat Flow, veh/h	1181	1900	1610	1391	706	1010	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	55	75	23	49	0	277	70	1128	72	233	1088	75
Grp Sat Flow(s),veh/h/ln	1181	1900	1610	1391	0	1717	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.5	3.2	1.1	3.0	0.0	15.0	3.8	23.5	2.4	12.6	18.1	2.0
Cycle Q Clear(g_c), s	19.6	3.2	1.1	6.2	0.0	15.0	3.8	23.5	2.4	12.6	18.1	2.0
Prop In Lane	1.00		1.00	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	153	416	352	332	0	375	91	1741	777	269	2097	935
V/C Ratio(X)	0.36	0.18	0.07	0.15	0.00	0.74	0.77	0.65	0.09	0.87	0.52	0.08
Avail Cap(c_a), veh/h	332	704	597	543	0	636	181	1741	777	453	2097	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	31.7	30.9	34.2	0.0	36.3	46.9	19.5	14.0	41.5	12.5	9.2
Incr Delay (d2), s/veh	0.5	0.1	0.0	0.1	0.0	1.1	9.8	1.9	0.2	7.1	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.4	0.4	1.0	0.0	6.2	1.9	8.9	0.8	5.8	6.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	31.8	30.9	34.3	0.0	37.4	56.7	21.3	14.2	48.6	13.5	9.4
LnGrp LOS	D	C	C	C	A	D	E	C	B	D	B	A
Approach Vol, veh/h		153			326			1270			1396	
Approach Delay, s/veh		36.8			36.9			22.9			19.1	
Approach LOS		D			D			C			B	

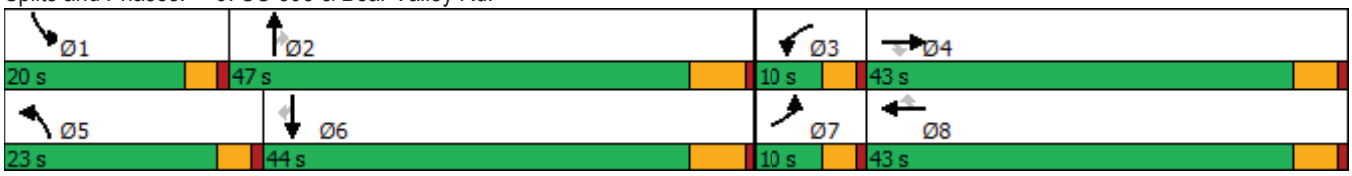
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.9	54.2		26.8	9.0	64.0		26.8				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	14.6	25.5		21.6	5.8	20.1		17.0				
Green Ext Time (p_c), s	0.3	5.7		0.3	0.0	6.5		1.0				

Intersection Summary			
HCM 6th Ctrl Delay		23.3	
HCM 6th LOS		C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	329	138	123	321	142	183	1021	255	167	929	36
Future Volume (vph)	56	329	138	123	321	142	183	1021	255	167	929	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	16.8	16.8	6.1	19.1	19.1	14.4	41.6	41.6	13.5	40.7	40.7
Actuated g/C Ratio	0.06	0.17	0.17	0.06	0.20	0.20	0.15	0.43	0.43	0.14	0.42	0.42
v/c Ratio	0.53	0.56	0.36	1.14	0.48	0.34	0.72	0.70	0.32	0.70	0.65	0.05
Control Delay	65.8	39.7	8.1	173.0	37.4	7.6	56.9	27.6	4.4	57.6	27.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	39.7	8.1	173.0	37.4	7.6	56.9	27.6	4.4	57.6	27.3	0.1
LOS	E	D	A	F	D	A	E	C	A	E	C	A
Approach Delay		34.1			58.6			27.3			30.9	
Approach LOS		C			E			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.2	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 34.3	Intersection LOS: C
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	329	138	123	321	142	183	1021	255	167	929	36
Future Volume (veh/h)	56	329	138	123	321	142	183	1021	255	167	929	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	59	346	63	129	338	80	193	1075	207	176	978	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	78	491	219	123	580	258	232	1674	746	213	1637	730
Arrive On Green	0.04	0.14	0.14	0.07	0.16	0.16	0.13	0.46	0.46	0.12	0.45	0.45
Sat Flow, veh/h	1810	3610	1610	1810	3610	1604	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	59	346	63	129	338	80	193	1075	207	176	978	25
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1604	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	2.9	8.1	3.1	6.0	7.7	3.9	9.2	20.1	7.0	8.4	18.0	0.8
Cycle Q Clear(g_c), s	2.9	8.1	3.1	6.0	7.7	3.9	9.2	20.1	7.0	8.4	18.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	491	219	123	580	258	232	1674	746	213	1637	730
V/C Ratio(X)	0.75	0.70	0.29	1.05	0.58	0.31	0.83	0.64	0.28	0.83	0.60	0.03
Avail Cap(c_a), veh/h	123	1551	692	123	1551	689	389	1674	746	327	1637	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	36.5	34.4	41.2	34.4	32.8	37.6	18.1	14.6	38.1	18.1	13.4
Incr Delay (d2), s/veh	10.3	0.7	0.3	95.5	0.3	0.3	5.8	1.9	0.9	8.1	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.3	1.1	5.7	3.1	1.4	4.1	7.5	2.4	3.9	6.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	37.2	34.6	136.7	34.7	33.0	43.4	20.0	15.5	46.3	19.7	13.5
LnGrp LOS	D	D	C	F	C	C	D	C	B	D	B	B
Approach Vol, veh/h		468			547			1475			1179	
Approach Delay, s/veh		38.7			58.5			22.5			23.6	
Approach LOS		D			E			C			C	

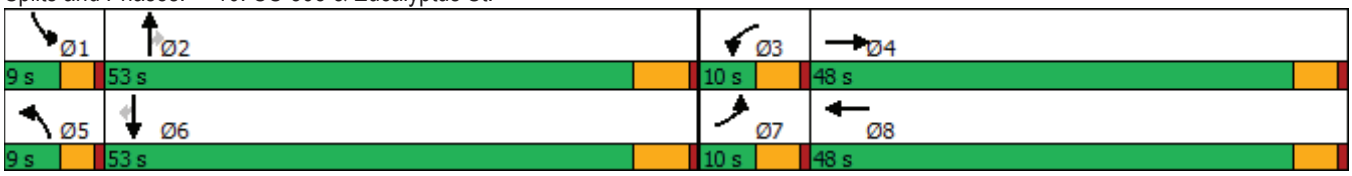
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	47.0	10.0	17.0	15.3	46.1	7.8	19.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	10.4	22.1	8.0	10.1	11.2	20.0	4.9	9.7
Green Ext Time (p_c), s	0.1	4.5	0.0	1.3	0.2	3.7	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	6	0	50	2	17	1483	105	12	1124	11
Future Volume (vph)	6	0	50	2	17	1483	105	12	1124	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	8.5	15.0	5.2	60.1	60.1	5.2	60.1	60.1
Actuated g/C Ratio	0.06	0.18	0.10	0.18	0.06	0.71	0.71	0.06	0.71	0.71
v/c Ratio	0.05	0.01	0.29	0.04	0.16	0.60	0.09	0.12	0.46	0.01
Control Delay	45.3	0.0	44.7	14.9	46.9	14.1	4.3	45.9	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	0.0	44.7	14.9	46.9	14.1	4.3	45.9	12.1	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		24.7		38.8		13.8			12.4	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 84.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 59.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	0	5	50	2	10	17	1483	105	12	1124	11
Future Volume (veh/h)	6	0	5	50	2	10	17	1483	105	12	1124	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	6	0	2	53	2	3	18	1561	108	13	1183	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	14	0	93	80	65	97	38	2239	999	29	2221	991
Arrive On Green	0.01	0.00	0.06	0.04	0.09	0.09	0.02	0.62	0.62	0.02	0.62	0.62
Sat Flow, veh/h	1810	0	1610	1810	686	1029	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	6	0	2	53	0	5	18	1561	108	13	1183	11
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1715	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.3	0.0	0.1	2.2	0.0	0.2	0.8	22.1	2.1	0.5	14.3	0.2
Cycle Q Clear(g_c), s	0.3	0.0	0.1	2.2	0.0	0.2	0.8	22.1	2.1	0.5	14.3	0.2
Prop In Lane	1.00		1.00	1.00		0.60	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	14	0	93	80	0	162	38	2239	999	29	2221	991
V/C Ratio(X)	0.42	0.00	0.02	0.66	0.00	0.03	0.48	0.70	0.11	0.46	0.53	0.01
Avail Cap(c_a), veh/h	118	0	906	118	0	965	118	2239	999	118	2221	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	33.9	35.9	0.0	31.4	37.0	9.7	5.9	37.3	8.4	5.7
Incr Delay (d2), s/veh	7.3	0.0	0.1	3.5	0.0	0.1	3.5	1.8	0.2	4.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	1.0	0.0	0.1	0.3	6.1	0.6	0.3	5.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	0.0	34.0	39.4	0.0	31.5	40.5	11.5	6.1	41.4	9.3	5.7
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		8			58			1687			1207	
Approach Delay, s/veh		42.3			38.7			11.5			9.6	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	53.4	8.4	9.4	5.6	53.0	5.6	12.2
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.5	24.1	4.2	2.1	2.8	16.3	2.3	2.2
Green Ext Time (p_c), s	0.0	11.8	0.0	0.0	0.0	11.3	0.0	0.0

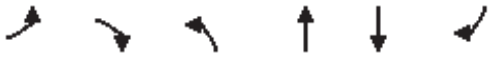
Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	110	413	71	1598	1281
Future Volume (vph)	110	413	71	1598	1281
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	29.0	29.0	15.0	91.0	76.0
Total Split (%)	24.2%	24.2%	12.5%	75.8%	63.3%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	22.6	22.6	8.6	84.5	73.5
Actuated g/C Ratio	0.19	0.19	0.07	0.71	0.62
v/c Ratio	0.33	0.94	0.57	1.23	1.16
Control Delay	44.1	56.6	70.3	128.6	105.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	56.6	70.3	128.6	105.1
LOS	D	E	E	F	F
Approach Delay	54.0			126.1	105.1
Approach LOS	D			F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 118.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 107.5	Intersection LOS: F
Intersection Capacity Utilization 103.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	413	71	1598	1281	27
Future Volume (veh/h)	110	413	71	1598	1281	27
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	115	356	74	1665	1334	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	368	327	95	1338	1137	24
Arrive On Green	0.20	0.20	0.05	1.00	0.92	0.61
Sat Flow, veh/h	1810	1610	1810	1900	1854	39
Grp Volume(v), veh/h	115	356	74	1665	0	1362
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1893
Q Serve(g_s), s	6.5	24.4	4.8	84.5	0.0	73.6
Cycle Q Clear(g_c), s	6.5	24.4	4.8	84.5	0.0	73.6
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	368	327	95	1338	0	1161
V/C Ratio(X)	0.31	1.09	0.78	1.24	0.00	1.17
Avail Cap(c_a), veh/h	368	327	157	1338	0	1161
HCM Platoon Ratio	1.00	1.00	1.00	1.50	1.50	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	47.8	56.2	0.0	0.0	5.2
Incr Delay (d2), s/veh	0.5	75.1	5.2	116.5	0.0	87.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.4	2.3	43.3	0.0	30.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	122.9	61.3	116.5	0.0	92.3
LnGrp LOS	D	F	E	F	A	F
Approach Vol, veh/h	471			1739	1362	
Approach Delay, s/veh	103.0			114.1	92.3	
Approach LOS	F			F	F	

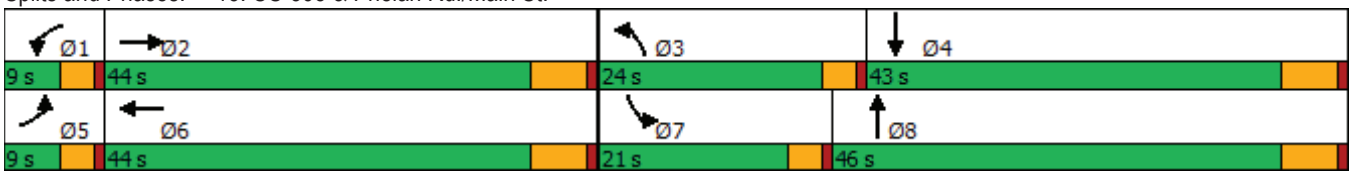
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.0		29.0	10.9	80.1
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		84.5		24.4	10.4	69.5
Max Q Clear Time (g_c+I1), s		86.5		26.4	6.8	75.6
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		104.3
HCM 6th LOS		F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	90	1244	24	895	238	1228	646	979
Future Volume (vph)	90	1244	24	895	238	1228	646	979
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	41.6	5.0	38.0	19.0	40.0	17.0	38.0
Actuated g/C Ratio	0.04	0.35	0.04	0.32	0.16	0.33	0.14	0.32
v/c Ratio	1.27	1.23	0.33	1.19	0.88	1.12	2.67	1.00
Control Delay	237.4	146.3	68.0	128.7	79.6	102.8	782.4	68.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	146.3	68.0	128.7	79.6	102.8	782.4	68.3
LOS	F	F	E	F	E	F	F	E
Approach Delay		151.7		127.6		99.2		335.8
Approach LOS		F		F		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.67	
Intersection Signal Delay: 185.8	Intersection LOS: F
Intersection Capacity Utilization 132.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1244	198	24	895	379	238	1228	47	646	979	99
Future Volume (veh/h)	90	1244	198	24	895	379	238	1228	47	646	979	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	1309	180	25	942	315	251	1293	42	680	1031	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	75	1065	145	43	842	280	278	1189	39	256	1080	93
Arrive On Green	0.04	0.33	0.33	0.02	0.32	0.32	0.15	0.33	0.33	0.14	0.32	0.32
Sat Flow, veh/h	1810	3182	434	1810	2660	885	1810	3568	116	1810	3363	290
Grp Volume(v), veh/h	95	738	751	25	638	619	251	654	681	680	553	567
Grp Sat Flow(s),veh/h/ln	1810	1805	1811	1810	1805	1741	1810	1805	1879	1810	1805	1848
Q Serve(g_s), s	5.0	40.2	40.2	1.6	38.0	38.0	16.4	40.0	40.0	17.0	36.0	36.0
Cycle Q Clear(g_c), s	5.0	40.2	40.2	1.6	38.0	38.0	16.4	40.0	40.0	17.0	36.0	36.0
Prop In Lane	1.00		0.24	1.00		0.51	1.00		0.06	1.00		0.16
Lane Grp Cap(c), veh/h	75	604	606	43	572	551	278	602	626	256	580	594
V/C Ratio(X)	1.26	1.22	1.24	0.59	1.12	1.12	0.90	1.09	1.09	2.65	0.95	0.95
Avail Cap(c_a), veh/h	75	604	606	75	572	551	302	602	626	256	580	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	39.9	39.9	58.0	41.0	41.0	49.9	40.0	40.0	51.5	39.9	39.9
Incr Delay (d2), s/veh	188.7	114.2	120.9	9.1	73.5	77.1	26.8	62.3	62.2	754.8	26.4	26.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	35.7	36.9	0.8	27.4	26.9	9.1	26.8	27.9	61.1	19.1	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	246.2	154.1	160.8	67.2	114.5	118.1	76.7	102.3	102.2	806.3	66.2	66.0
LnGrp LOS	F	F	F	E	F	F	E	F	F	F	E	E
Approach Vol, veh/h		1584			1282			1586			1800	
Approach Delay, s/veh		162.8			115.3			98.2			345.7	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	46.2	22.4	44.6	9.0	44.0	21.0	46.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	3.6	42.2	18.4	38.0	7.0	40.0	19.0	42.0
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	189.3
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1489	33	11	1194
Future Vol, veh/h	14	24	1489	33	11	1194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1519	34	11	1218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2776	777	0	0	1553	0
Stage 1	1536	-	-	-	-	-
Stage 2	1240	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	18	344	-	-	432	-
Stage 1	167	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	18	344	-	-	432	-
Mov Cap-2 Maneuver	18	-	-	-	-	-
Stage 1	167	-	-	-	-	-
Stage 2	269	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	168.6	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	18	344	432	-
HCM Lane V/C Ratio	-	-	0.794	0.071	0.026	-
HCM Control Delay (s)	-	-	$ 429.8	16.3	13.6	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.1	0.2	0.1	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	80	1	132	4	33	210	1411	153	34	1073	101
Future Volume (vph)	80	1	132	4	33	210	1411	153	34	1073	101
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	41.0	41.0	41.0	41.0	41.0	26.0	69.0	69.0	10.0	53.0	53.0
Total Split (%)	34.2%	34.2%	34.2%	34.2%	34.2%	21.7%	57.5%	57.5%	8.3%	44.2%	44.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.6	20.6	20.6	20.6	20.6	15.7	64.4	64.4	5.1	49.2	49.2
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.15	0.63	0.63	0.05	0.48	0.48
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.64	0.15	0.39	0.63	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
LOS	D	A	F	C	A	E	B	A	E	C	A
Approach Delay		14.5		97.2			20.4			23.9	
Approach LOS		B		F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.7	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 24.8	Intersection LOS: C
Intersection Capacity Utilization 86.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	1	258	132	4	33	210	1411	153	34	1073	101
Future Volume (veh/h)	80	1	258	132	4	33	210	1411	153	34	1073	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	1	222	135	4	28	214	1440	150	35	1095	86
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	428	2	396	222	470	398	245	2056	916	54	1675	747
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.14	0.57	0.57	0.03	0.46	0.46
Sat Flow, veh/h	1477	7	1604	1242	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	82	0	223	135	4	28	214	1440	150	35	1095	86
Grp Sat Flow(s),veh/h/ln	1477	0	1611	1242	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.9	0.0	13.4	11.8	0.2	1.5	12.8	31.6	4.9	2.1	25.8	3.3
Cycle Q Clear(g_c), s	5.1	0.0	13.4	25.2	0.2	1.5	12.8	31.6	4.9	2.1	25.8	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	0	398	222	470	398	245	2056	916	54	1675	747
V/C Ratio(X)	0.19	0.00	0.56	0.61	0.01	0.07	0.87	0.70	0.16	0.65	0.65	0.12
Avail Cap(c_a), veh/h	530	0	510	308	601	509	343	2056	916	82	1675	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	36.4	47.4	31.4	31.9	46.9	17.1	11.3	53.1	22.8	16.8
Incr Delay (d2), s/veh	0.1	0.0	0.5	1.0	0.0	0.0	12.9	2.0	0.4	4.8	2.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	5.3	3.7	0.1	0.6	6.3	11.6	1.6	1.0	10.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	36.9	48.4	31.4	31.9	59.8	19.1	11.7	57.9	24.8	17.1
LnGrp LOS	C	A	D	D	C	C	E	B	B	E	C	B
Approach Vol, veh/h		305			167			1804			1216	
Approach Delay, s/veh		35.9			45.2			23.3			25.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	69.0		33.3	20.0	57.3		33.3				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	63.0		35.0	21.0	47.0		35.0				
Max Q Clear Time (g_c+I1), s	4.1	33.6		15.4	14.8	27.8		27.2				
Green Ext Time (p_c), s	0.0	12.1		1.0	0.1	7.0		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		26.1	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	91	135	84	69	228	27	1456	90	216	1192	56
Future Volume (vph)	91	135	84	69	228	27	1456	90	216	1192	56
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	46.0	46.0	46.0	46.0	46.0	10.0	34.0	34.0	40.0	64.0	64.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	8.3%	28.3%	28.3%	33.3%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.0	17.0	17.0	17.0	17.0	5.8	44.8	44.8	17.2	61.6	61.6
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19	0.06	0.50	0.50	0.19	0.68	0.68
v/c Ratio	0.37	0.44	0.45	0.20	0.48	0.24	0.84	0.11	0.65	0.50	0.05
Control Delay	35.6	34.6	39.9	31.5	7.4	51.1	27.7	5.6	44.2	10.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	34.6	39.9	31.5	7.4	51.1	27.7	5.6	44.2	10.8	3.8
LOS	D	C	D	C	A	D	C	A	D	B	A
Approach Delay		35.0		18.9			26.8			15.4	
Approach LOS		C		B			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 83.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	135	16	84	69	228	27	1456	90	216	1192	56
Future Volume (veh/h)	91	135	16	84	69	228	27	1456	90	216	1192	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	94	139	13	87	71	177	28	1501	81	223	1229	51
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	258	307	29	221	341	289	50	1963	876	281	2384	1064
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.18	0.03	0.54	0.54	0.16	0.66	0.66
Sat Flow, veh/h	1212	1711	160	1324	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	94	0	152	87	71	177	28	1501	81	223	1229	51
Grp Sat Flow(s),veh/h/ln	1212	0	1871	1324	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	6.5	0.0	6.6	5.7	2.9	9.2	1.4	29.5	2.2	10.8	15.9	1.0
Cycle Q Clear(g_c), s	9.4	0.0	6.6	12.3	2.9	9.2	1.4	29.5	2.2	10.8	15.9	1.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	0	336	221	341	289	50	1963	876	281	2384	1064
V/C Ratio(X)	0.36	0.00	0.45	0.39	0.21	0.61	0.55	0.76	0.09	0.79	0.52	0.05
Avail Cap(c_a), veh/h	601	0	865	596	878	743	120	1963	876	737	2384	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	33.3	38.8	31.8	34.4	43.6	16.2	10.0	36.9	7.9	5.4
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.4	0.1	0.8	6.9	2.9	0.2	3.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.0	1.9	1.3	3.6	0.7	10.4	0.7	4.7	4.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	0.0	33.7	39.2	31.9	35.2	50.5	19.1	10.2	40.7	8.7	5.5
LnGrp LOS	D	A	C	D	C	D	D	B	B	D	A	A
Approach Vol, veh/h		246			335			1610			1503	
Approach Delay, s/veh		34.6			35.5			19.2			13.4	
Approach LOS		C			D			B			B	

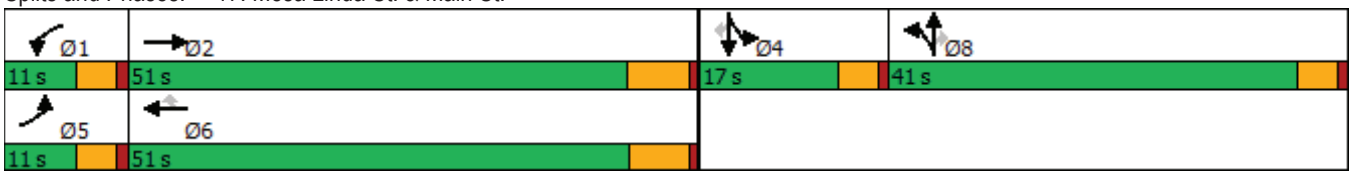
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.1	53.4		20.3	6.5	64.0		20.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	36.0	28.0		41.0	6.0	58.0		41.0				
Max Q Clear Time (g_c+I1), s	12.8	31.5		11.4	3.4	17.9		14.3				
Green Ext Time (p_c), s	0.4	0.0		0.7	0.0	20.5		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		19.3	
HCM 6th LOS		B	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	5	988	89	1089	56	7	84	0	3
Future Volume (vph)	5	988	89	1089	56	7	84	0	3
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	51.0	11.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	42.5%	9.2%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	46.6	6.7	58.6	58.6	14.3	14.3	10.5	10.5
Actuated g/C Ratio	0.06	0.53	0.08	0.67	0.67	0.16	0.16	0.12	0.12
v/c Ratio	0.05	0.40	0.76	0.35	0.06	0.06	0.25	0.16	0.01
Control Delay	48.8	16.5	82.2	12.4	1.2	33.2	4.9	44.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	16.5	82.2	12.4	1.2	33.2	4.9	44.3	0.0
LOS	D	B	F	B	A	C	A	D	A
Approach Delay		16.7		17.0		9.5		40.6	
Approach LOS		B		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 87.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 16.9	Intersection LOS: B
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	988	6	89	1089	56	10	7	84	32	0	3
Future Volume (veh/h)	5	988	6	89	1089	56	10	7	84	32	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	5	1029	5	93	1134	50	10	7	29	33	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	11	2718	13	115	2964	920	81	57	120	112	0	100
Arrive On Green	0.01	0.54	0.54	0.07	0.60	0.60	0.08	0.08	0.08	0.07	0.00	0.07
Sat Flow, veh/h	1619	5047	25	1619	4914	1525	1029	720	1525	1714	0	1525
Grp Volume(v), veh/h	5	668	366	93	1134	50	17	0	29	33	0	1
Grp Sat Flow(s),veh/h/ln	1619	1638	1796	1619	1638	1525	1749	0	1525	1714	0	1525
Q Serve(g_s), s	0.3	9.8	9.8	4.7	9.8	1.1	0.7	0.0	1.5	1.5	0.0	0.1
Cycle Q Clear(g_c), s	0.3	9.8	9.8	4.7	9.8	1.1	0.7	0.0	1.5	1.5	0.0	0.1
Prop In Lane	1.00		0.01	1.00		1.00	0.59		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	11	1764	967	115	2964	920	138	0	120	112	0	100
V/C Ratio(X)	0.47	0.38	0.38	0.81	0.38	0.05	0.12	0.00	0.24	0.29	0.00	0.01
Avail Cap(c_a), veh/h	125	1764	967	125	2964	920	770	0	672	257	0	229
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	11.0	11.0	37.8	8.5	6.7	35.4	0.0	35.7	36.8	0.0	36.1
Incr Delay (d2), s/veh	11.5	0.6	1.1	26.2	0.4	0.1	0.4	0.0	1.0	1.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.9	3.3	2.6	2.7	0.3	0.3	0.0	0.6	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	11.7	12.2	64.0	8.8	6.8	35.8	0.0	36.8	38.2	0.0	36.1
LnGrp LOS	D	B	B	E	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1039			1277			46			34	
Approach Delay, s/veh		12.0			12.8			36.4			38.2	
Approach LOS		B			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.5	51.0		10.0	5.1	56.3		11.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	6.4	44.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	6.7	11.8		3.5	2.3	11.8		3.5				
Green Ext Time (p_c), s	0.0	6.6		0.1	0.0	8.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	1846	99	295	1094	46	198	56	188	73	33	115
Future Volume (vph)	91	1846	99	295	1094	46	198	56	188	73	33	115
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	32.8	32.8	12.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	25.2%	25.2%	9.2%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	27.9	27.9	7.8	28.9	28.9	15.9	15.9	15.9	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.32	0.32	0.09	0.33	0.33	0.18	0.18	0.18	0.16	0.16	0.16
v/c Ratio	0.74	1.19	0.18	1.14	0.68	0.08	0.45	0.43	0.44	0.28	0.12	0.34
Control Delay	76.8	120.8	9.8	137.4	30.2	0.6	36.9	36.0	8.2	35.4	32.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	120.8	9.8	137.4	30.2	0.6	36.9	36.0	8.2	35.4	32.7	9.3
LOS	E	F	A	F	C	A	D	D	A	D	C	A
Approach Delay		113.4			51.3			24.4			21.4	
Approach LOS		F			D			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 86.6	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 77.4	Intersection LOS: E
Intersection Capacity Utilization 77.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	1846	99	295	1094	46	198	56	188	73	33	115
Future Volume (veh/h)	91	1846	99	295	1094	46	198	56	188	73	33	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	93	1884	62	301	1116	35	130	158	89	74	34	27
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	115	1745	541	292	1881	583	248	276	232	203	226	191
Arrive On Green	0.07	0.36	0.36	0.10	0.38	0.38	0.15	0.15	0.15	0.13	0.13	0.13
Sat Flow, veh/h	1619	4914	1524	2956	4914	1523	1619	1800	1511	1619	1800	1525
Grp Volume(v), veh/h	93	1884	62	301	1116	35	130	158	89	74	34	27
Grp Sat Flow(s),veh/h/ln	1619	1638	1524	1478	1638	1523	1619	1800	1511	1619	1800	1525
Q Serve(g_s), s	4.2	26.6	2.0	7.4	13.6	1.1	5.5	6.1	4.0	3.1	1.3	1.2
Cycle Q Clear(g_c), s	4.2	26.6	2.0	7.4	13.6	1.1	5.5	6.1	4.0	3.1	1.3	1.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	1745	541	292	1881	583	248	276	232	203	226	191
V/C Ratio(X)	0.81	1.08	0.11	1.03	0.59	0.06	0.52	0.57	0.38	0.36	0.15	0.14
Avail Cap(c_a), veh/h	138	1745	541	292	1881	583	843	937	787	800	889	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	24.1	16.2	33.7	18.5	14.6	29.2	29.4	28.5	30.0	29.2	29.2
Incr Delay (d2), s/veh	20.8	46.5	0.4	60.7	1.4	0.2	1.7	1.9	1.0	1.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	16.0	0.7	4.9	4.6	0.4	2.2	2.7	1.5	1.3	0.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	70.7	16.7	94.5	19.8	14.8	30.9	31.3	29.6	31.1	29.5	29.5
LnGrp LOS	E	F	B	F	B	B	C	C	C	C	C	C
Approach Vol, veh/h		2039			1452			377			135	
Approach Delay, s/veh		68.3			35.2			30.7			30.4	
Approach LOS		E			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	32.8		14.0	9.9	34.9		16.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	7.4	26.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	9.4	28.6		5.1	6.2	15.6		8.1				
Green Ext Time (p_c), s	0.0	0.0		0.5	0.0	5.5		1.7				

Intersection Summary		
HCM 6th Ctrl Delay		51.5
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	57	2145	25	224	1559	30	74	240	231	87
Future Volume (vph)	57	2145	25	224	1559	30	74	240	231	87
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	16.0	42.0	42.0	34.0	60.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	13.3%	35.0%	35.0%	28.3%	50.0%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	8.0	41.9	41.9	18.6	55.0	25.0	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.08	0.41	0.41	0.18	0.54	0.25	0.25	0.25	0.25	0.25
v/c Ratio	0.46	1.08	0.04	0.77	0.69	0.11	0.17	0.44	0.79	0.28
Control Delay	59.8	74.9	0.1	57.8	21.1	30.3	30.8	6.4	55.7	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	74.9	0.1	57.8	21.5	30.3	30.8	6.4	55.7	27.9
LOS	E	E	A	E	C	C	C	A	E	C
Approach Delay		73.7			25.6		13.8			46.2
Approach LOS		E			C		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 48.0	Intersection LOS: D
Intersection Capacity Utilization 92.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	2145	25	224	1559	221	30	74	240	231	87	32
Future Volume (veh/h)	57	2145	25	224	1559	221	30	74	240	231	87	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	58	2189	22	229	1591	150	31	76	104	236	89	12
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	72	2051	637	259	2435	229	350	486	405	345	419	56
Arrive On Green	0.04	0.42	0.42	0.16	0.53	0.53	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1619	4914	1525	1619	4568	430	1237	1800	1501	1153	1552	209
Grp Volume(v), veh/h	58	2189	22	229	1141	600	31	76	104	236	0	101
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1619	1638	1722	1237	1800	1501	1153	0	1761
Q Serve(g_s), s	3.6	42.1	0.9	14.0	25.2	25.2	2.0	3.2	5.5	19.8	0.0	4.5
Cycle Q Clear(g_c), s	3.6	42.1	0.9	14.0	25.2	25.2	6.5	3.2	5.5	23.0	0.0	4.5
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	72	2051	637	259	1746	918	350	486	405	345	0	475
V/C Ratio(X)	0.80	1.07	0.03	0.88	0.65	0.65	0.09	0.16	0.26	0.68	0.00	0.21
Avail Cap(c_a), veh/h	183	2051	637	472	1746	918	499	703	586	484	0	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.8	29.4	17.4	41.4	16.9	16.9	31.1	28.1	28.9	36.9	0.0	28.5
Incr Delay (d2), s/veh	7.5	40.6	0.1	3.9	1.9	3.6	0.1	0.1	0.3	2.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	22.4	0.3	5.5	8.6	9.5	0.6	1.4	2.0	5.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	70.0	17.5	45.3	18.8	20.5	31.2	28.2	29.2	39.3	0.0	28.8
LnGrp LOS	E	F	B	D	B	C	C	C	C	D	A	C
Approach Vol, veh/h		2269			1970			211			337	
Approach Delay, s/veh		69.1			22.4			29.2			36.1	
Approach LOS		E			C			C			D	

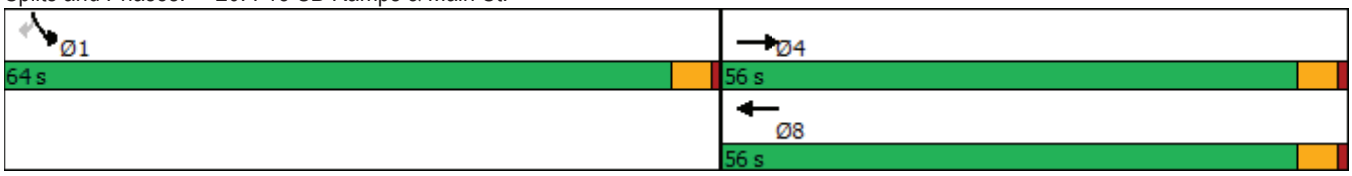
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.8	48.3		31.8	9.1	60.0		31.8				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	29.4	35.8		39.4	11.4	53.8		39.4				
Max Q Clear Time (g_c+I1), s	16.0	44.1		25.0	5.6	27.2		8.5				
Green Ext Time (p_c), s	0.2	0.0		1.3	0.0	13.1		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		45.8	
HCM 6th LOS		D	

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1958	498	1432	42	587	549
Future Volume (vph)	1958	498	1432	42	587	549
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	56.0		56.0		64.0	64.0
Total Split (%)	46.7%		46.7%		53.3%	53.3%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	47.4	98.1	47.4	98.1	41.2	41.2
Actuated g/C Ratio	0.48	1.00	0.48	1.00	0.42	0.42
v/c Ratio	0.81	0.32	0.59	0.03	0.41	0.83
Control Delay	26.0	0.5	20.8	0.0	20.8	36.0
Queue Delay	0.5	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	0.5	20.8	0.0	20.8	36.0
LOS	C	A	C	A	C	D
Approach Delay	21.3		20.2			
Approach LOS	C		C			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.1	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 22.5	Intersection LOS: C
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1958	498	0	1432	42	0	0	0	587	0	549
Future Volume (veh/h)	0	1958	498	0	1432	42	0	0	0	587	0	549
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	2019	0	0	1476	0				605	0	453
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2787		0	2787					1203	0	552
Arrive On Green	0.00	0.54	0.00	0.00	0.54	0.00				0.34	0.00	0.34
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	2019	0	0	1476	0				605	0	453
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	22.6	0.0	0.0	14.1	0.0				10.5	0.0	19.7
Cycle Q Clear(g_c), s	0.0	22.6	0.0	0.0	14.1	0.0				10.5	0.0	19.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2787		0	2787					1203	0	552
V/C Ratio(X)	0.00	0.72		0.00	0.53					0.50	0.00	0.82
Avail Cap(c_a), veh/h	0	3475		0	3475					2718	0	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.4	0.0	0.0	11.5	0.0				20.0	0.0	23.1
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.2	0.0				0.3	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.8	0.0	0.0	4.2	0.0				4.2	0.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.0	0.0	0.0	11.6	0.0				20.4	0.0	26.2
LnGrp LOS	A	B		A	B					C	A	C
Approach Vol, veh/h		2019	A		1476	A					1058	
Approach Delay, s/veh		14.0			11.6						22.8	
Approach LOS		B			B						C	

Timer - Assigned Phs		4		6		8			
Phs Duration (G+Y+Rc), s		45.8		30.9		45.8			
Change Period (Y+Rc), s		4.6		4.6		4.6			
Max Green Setting (Gmax), s		51.4		59.4		51.4			
Max Q Clear Time (g_c+I1), s		24.6		21.7		16.1			
Green Ext Time (p_c), s		16.6		4.6		12.4			

Intersection Summary									
HCM 6th Ctrl Delay		15.3							
HCM 6th LOS		B							

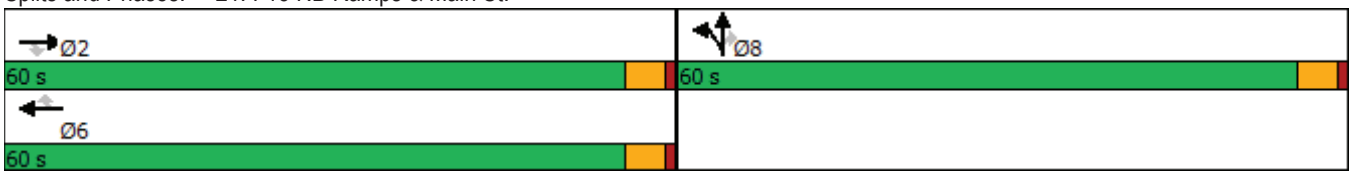
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1824	721	1533	454	312	0	889
Future Volume (vph)	1824	721	1533	454	312	0	889
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	52.7	52.7	52.7	52.7	40.6	40.6	40.6
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.39	0.39	0.39
v/c Ratio	0.71	0.65	0.59	0.44	0.45	0.74	0.74
Control Delay	22.6	5.8	20.2	3.1	24.9	33.9	33.9
Queue Delay	0.0	0.0	0.8	0.4	0.0	0.0	0.0
Total Delay	22.6	5.8	21.0	3.6	24.9	33.9	33.9
LOS	C	A	C	A	C	C	C
Approach Delay	17.8		17.0			31.6	
Approach LOS	B		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.8	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1824	721	0	1533	454	312	0	889	0	0	0
Future Volume (veh/h)	0	1824	721	0	1533	454	312	0	889	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1880	0	0	1580	321	322	0	769			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2840		0	2840	882	575	0	1023			
Arrive On Green	0.00	0.55	0.00	0.00	0.55	0.55	0.32	0.00	0.32			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1880	0	0	1580	321	322	0	769			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	17.5	0.0	0.0	13.5	7.7	10.1	0.0	14.6			
Cycle Q Clear(g_c), s	0.0	17.5	0.0	0.0	13.5	7.7	10.1	0.0	14.6			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2840		0	2840	882	575	0	1023			
V/C Ratio(X)	0.00	0.66		0.00	0.56	0.36	0.56	0.00	0.75			
Avail Cap(c_a), veh/h	0	4214		0	4214	1308	1470	0	2616			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	10.9	0.0	0.0	10.0	8.7	19.3	0.0	20.9			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.2	0.3	0.9	0.0	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	4.8	0.0	0.0	3.7	2.0	4.2	0.0	5.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.2	0.0	0.0	10.2	9.0	20.2	0.0	22.0			
LnGrp LOS	A	B		A	B	A	C	A	C			
Approach Vol, veh/h		1880	A		1901			1091				
Approach Delay, s/veh		11.2			10.0			21.5				
Approach LOS		B			A			C				

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	41.9				41.9		26.3					
Change Period (Y+Rc), s	4.6				4.6		4.6					
Max Green Setting (Gmax), s	55.4				55.4		55.4					
Max Q Clear Time (g_c+I1), s	19.5				15.5		16.6					
Green Ext Time (p_c), s	17.8				16.5		5.1					

Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

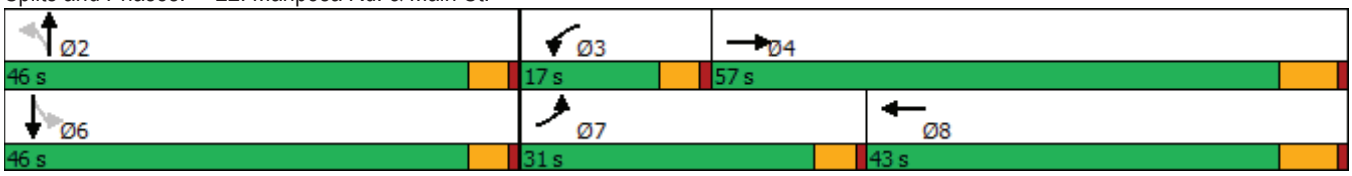
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	249	2305	87	1590	134	80	137	55
Future Volume (vph)	249	2305	87	1590	134	80	137	55
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	31.0	57.0	17.0	43.0	46.0	46.0	46.0	46.0
Total Split (%)	25.8%	47.5%	14.2%	35.8%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	19.4	51.2	12.5	44.3	23.0	23.0	23.0	23.0
Actuated g/C Ratio	0.19	0.50	0.12	0.43	0.22	0.22	0.22	0.22
v/c Ratio	0.83	0.82	0.45	0.65	0.98	0.38	0.63	0.54
Control Delay	63.0	25.7	52.8	26.9	110.2	26.0	48.1	16.2
Queue Delay	0.0	23.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.0	49.3	52.8	26.9	110.2	26.0	48.1	16.2
LOS	E	D	D	C	F	C	D	B
Approach Delay		50.5		28.1		65.6		27.3
Approach LOS		D		C		E		C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 102.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 41.9 — Intersection LOS: D
Intersection Capacity Utilization 84.6% — ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	2305	159	87	1590	106	134	80	71	137	55	202
Future Volume (veh/h)	249	2305	159	87	1590	106	134	80	71	137	55	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	254	2352	146	89	1622	92	137	82	45	140	56	135
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	283	2917	181	192	2595	147	236	270	148	296	116	280
Arrive On Green	0.17	0.49	0.49	0.12	0.43	0.43	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1619	6005	372	1619	6040	342	1144	1087	596	1212	468	1129
Grp Volume(v), veh/h	254	1818	680	89	1247	467	137	0	127	140	0	191
Grp Sat Flow(s),veh/h/ln	1619	1548	1733	1619	1548	1738	1144	0	1683	1212	0	1597
Q Serve(g_s), s	16.1	34.6	34.7	5.4	21.9	21.9	12.1	0.0	6.4	11.1	0.0	10.7
Cycle Q Clear(g_c), s	16.1	34.6	34.7	5.4	21.9	21.9	22.8	0.0	6.4	17.5	0.0	10.7
Prop In Lane	1.00		0.21	1.00		0.20	1.00		0.35	1.00		0.71
Lane Grp Cap(c), veh/h	283	2256	842	192	1996	747	236	0	418	296	0	397
V/C Ratio(X)	0.90	0.81	0.81	0.46	0.62	0.63	0.58	0.00	0.30	0.47	0.00	0.48
Avail Cap(c_a), veh/h	409	2256	842	192	1996	747	405	0	667	474	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.2	22.7	22.8	43.0	23.2	23.3	43.3	0.0	32.0	39.1	0.0	33.6
Incr Delay (d2), s/veh	13.2	3.2	8.2	7.8	0.6	1.6	2.3	0.0	0.4	1.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	11.8	14.4	2.5	7.4	8.5	3.6	0.0	2.7	3.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	25.9	31.0	50.8	23.9	24.9	45.6	0.0	32.4	40.2	0.0	34.5
LnGrp LOS	E	C	C	D	C	C	D	A	C	D	A	C
Approach Vol, veh/h		2752			1803			264			331	
Approach Delay, s/veh		29.9			25.5			39.2			36.9	
Approach LOS		C			C			D			D	

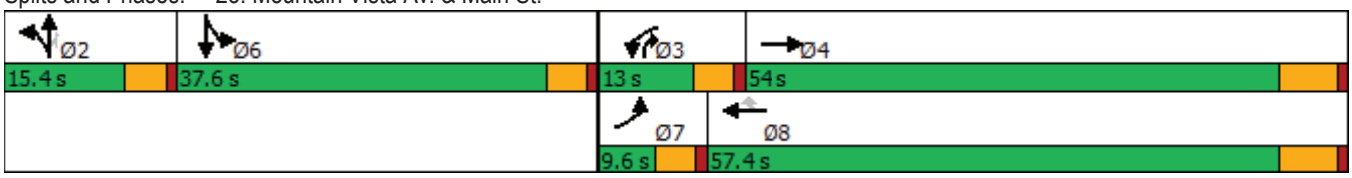
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.6	17.0	57.0		30.6	22.9	51.1				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		41.4	12.4	50.8		41.4	26.4	36.8				
Max Q Clear Time (g_c+I1), s		24.8	7.4	36.7		19.5	18.1	23.9				
Green Ext Time (p_c), s		1.1	0.0	11.6		1.7	0.2	8.1				

Intersection Summary	
HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	49	2355	63	1849	71	33	5	28	80	7
Future Volume (vph)	49	2355	63	1849	71	33	5	28	80	7
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	55.6	7.4	60.0	60.0	10.3	10.3	12.8	13.9	13.9
Actuated g/C Ratio	0.06	0.60	0.08	0.65	0.65	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.32	0.68	0.52	0.61	0.07	0.10	0.07	0.07	0.21	0.20
Control Delay	53.3	20.6	60.5	17.5	2.4	46.4	44.5	0.3	38.6	34.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	20.6	60.5	17.5	2.4	46.4	44.5	0.3	38.6	34.4
LOS	D	C	E	B	A	D	D	A	D	C
Approach Delay		21.3		18.3			26.4			36.5
Approach LOS		C		B			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 20.4	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	2355	19	63	1849	71	33	5	28	80	7	6
Future Volume (veh/h)	49	2355	19	63	1849	71	33	5	28	80	7	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1600	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	52	2479	18	66	1946	60	35	5	14	94	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	119	3510	25	82	2752	854	264	147	404	322	179	0
Arrive On Green	0.04	0.55	0.55	0.05	0.56	0.56	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	2956	6388	46	1619	4914	1525	3238	1800	3051	3238	1800	0
Grp Volume(v), veh/h	52	1802	695	66	1946	60	35	5	14	94	0	0
Grp Sat Flow(s),veh/h/ln	1478	1548	1790	1619	1638	1525	1619	1800	1525	1619	1800	0
Q Serve(g_s), s	1.6	26.1	26.1	3.7	26.4	1.6	0.9	0.2	0.4	2.5	0.0	0.0
Cycle Q Clear(g_c), s	1.6	26.1	26.1	3.7	26.4	1.6	0.9	0.2	0.4	2.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	119	2552	984	82	2752	854	264	147	404	322	179	0
V/C Ratio(X)	0.44	0.71	0.71	0.80	0.71	0.07	0.13	0.03	0.03	0.29	0.00	0.00
Avail Cap(c_a), veh/h	162	2552	984	149	2752	854	383	213	515	1169	650	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.9	15.2	15.2	42.9	14.6	9.2	39.0	38.7	34.6	38.2	0.0	0.0
Incr Delay (d2), s/veh	0.9	1.7	4.3	6.7	1.6	0.2	0.2	0.1	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	7.9	9.9	1.6	8.3	0.5	0.4	0.1	0.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	16.8	19.4	49.7	16.2	9.4	39.2	38.7	34.6	38.7	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		2549			2072			54			94	
Approach Delay, s/veh		18.1			17.1			38.0			38.7	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.1	9.2	56.4		13.7	8.3	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		2.9	5.7	28.1		4.5	3.6	28.4				
Green Ext Time (p_c), s		0.1	0.0	15.3		0.3	0.0	14.6				

Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									

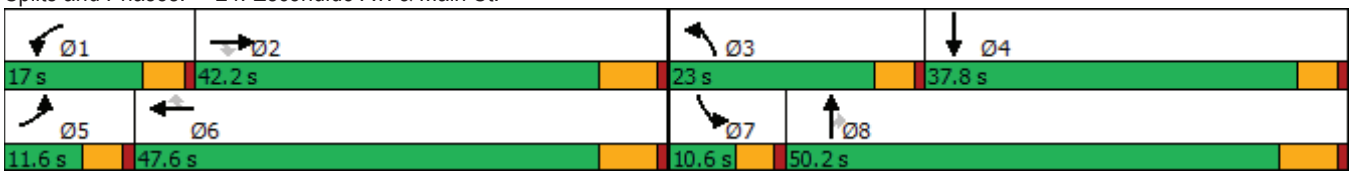
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	55	1607	758	458	1209	10	720	52	240	57	38
Future Volume (vph)	55	1607	758	458	1209	10	720	52	240	57	38
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	42.2	42.2	17.0	47.6	47.6	23.0	50.2	50.2	10.6	37.8
Total Split (%)	9.7%	35.2%	35.2%	14.2%	39.7%	39.7%	19.2%	41.8%	41.8%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.6	36.5	36.5	12.6	44.8	44.8	18.7	23.9	23.9	6.0	13.9
Actuated g/C Ratio	0.07	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.06	0.14
v/c Ratio	0.53	0.92	0.84	1.27	0.81	0.01	1.34	0.12	0.48	0.60	0.34
Control Delay	66.2	40.3	17.0	177.6	31.5	0.0	199.8	29.4	10.7	74.4	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	40.3	17.0	177.6	31.5	0.0	199.8	29.4	10.7	74.4	21.6
LOS	E	D	B	F	C	A	F	C	B	E	C
Approach Delay		33.6			71.2			146.2			41.7
Approach LOS		C			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 67.5	Intersection LOS: E
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1607	758	458	1209	10	720	52	240	57	38	54
Future Volume (veh/h)	55	1607	758	458	1209	10	720	52	240	57	38	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	57	1674	600	477	1259	8	750	54	169	59	40	53
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1813	562	376	1547	676	557	428	362	73	66	88
Arrive On Green	0.04	0.37	0.37	0.13	0.45	0.45	0.19	0.24	0.24	0.05	0.09	0.09
Sat Flow, veh/h	1619	4914	1523	2956	3420	1494	2956	1800	1525	1619	702	930
Grp Volume(v), veh/h	57	1674	600	477	1259	8	750	54	169	59	0	93
Grp Sat Flow(s),veh/h/ln	1619	1638	1523	1478	1710	1494	1478	1800	1525	1619	0	1633
Q Serve(g_s), s	3.4	31.8	36.0	12.4	31.1	0.3	18.4	2.3	9.3	3.5	0.0	5.3
Cycle Q Clear(g_c), s	3.4	31.8	36.0	12.4	31.1	0.3	18.4	2.3	9.3	3.5	0.0	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	71	1813	562	376	1547	676	557	428	362	73	0	154
V/C Ratio(X)	0.81	0.92	1.07	1.27	0.81	0.01	1.35	0.13	0.47	0.81	0.00	0.60
Avail Cap(c_a), veh/h	116	1813	562	376	1547	676	557	812	688	100	0	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.3	29.5	30.8	42.6	23.2	14.7	39.6	29.2	31.9	46.2	0.0	42.5
Incr Delay (d2), s/veh	7.8	9.4	57.4	140.9	4.8	0.0	167.3	0.1	0.9	20.8	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	12.9	21.8	11.6	12.1	0.1	19.6	1.0	3.5	1.8	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	38.9	88.2	183.5	28.0	14.7	206.9	29.4	32.8	66.9	0.0	46.2
LnGrp LOS	D	D	F	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		2331			1744			973			152	
Approach Delay, s/veh		52.0			70.5			166.8			54.3	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.4	8.9	50.3	9.0	29.4
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	38.0	20.4	7.3	5.4	33.1	5.5	11.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.5	0.0	4.8	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	79.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	141	605	11	274	845
Future Vol, veh/h	11	141	605	11	274	845
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	147	630	11	285	880

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1650	325	0	0	645	0
Stage 1	640	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	91	677	-	-	950	-
Stage 1	493	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	63	674	-	-	946	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	491	-	-	-	-	-
Stage 2	222	-	-	-	-	-

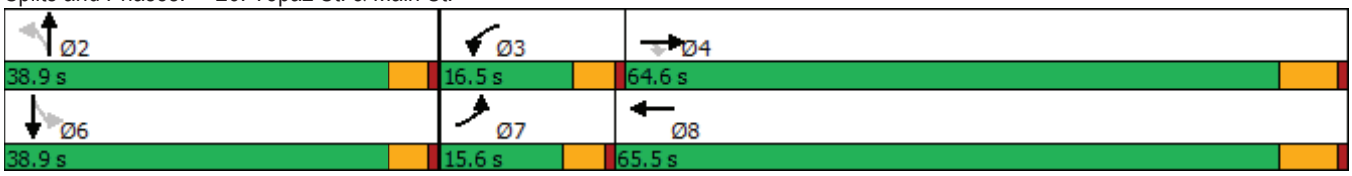
Approach	WB	NB	SB
HCM Control Delay, s	13	0	2.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	163	674	946	-
HCM Lane V/C Ratio	-	-	0.07	0.218	0.302	-
HCM Control Delay (s)	-	-	28.7	11.8	10.4	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.8	1.3	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	74	1601	243	106	1311	220	33	63	36
Future Volume (vph)	74	1601	243	106	1311	220	33	63	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	15.6	64.6	64.6	16.5	65.5	38.9	38.9	38.9	38.9
Total Split (%)	13.0%	53.8%	53.8%	13.8%	54.6%	32.4%	32.4%	32.4%	32.4%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.9	58.2	58.2	12.0	63.5	25.6	25.6	25.6	25.6
Actuated g/C Ratio	0.08	0.52	0.52	0.11	0.57	0.23	0.23	0.23	0.23
v/c Ratio	0.59	0.92	0.28	0.63	0.73	0.83	0.30	0.27	0.21
Control Delay	69.9	35.5	5.7	66.5	23.1	65.1	12.6	37.5	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	35.5	5.7	66.5	23.1	65.1	12.6	37.5	17.8
LOS	E	D	A	E	C	E	B	D	B
Approach Delay		33.1			26.2		45.6		26.3
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 97.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1601	243	106	1311	70	220	33	97	63	36	47
Future Volume (veh/h)	74	1601	243	106	1311	70	220	33	97	63	36	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1700	1800	1800	1700	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	76	1651	179	109	1352	65	227	34	69	65	37	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	95	1779	793	177	1897	91	327	121	246	284	266	122
Arrive On Green	0.06	0.52	0.52	0.11	0.57	0.57	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1619	3420	1525	1619	3322	159	1282	530	1076	1239	1162	534
Grp Volume(v), veh/h	76	1651	179	109	695	722	227	0	103	65	0	54
Grp Sat Flow(s),veh/h/ln	1619	1710	1525	1619	1710	1771	1282	0	1606	1239	0	1696
Q Serve(g_s), s	5.0	48.7	6.9	7.0	31.9	32.1	18.6	0.0	5.7	5.0	0.0	2.8
Cycle Q Clear(g_c), s	5.0	48.7	6.9	7.0	31.9	32.1	21.4	0.0	5.7	10.7	0.0	2.8
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.67	1.00		0.31
Lane Grp Cap(c), veh/h	95	1779	793	177	976	1011	327	0	368	284	0	388
V/C Ratio(X)	0.80	0.93	0.23	0.62	0.71	0.71	0.69	0.00	0.28	0.23	0.00	0.14
Avail Cap(c_a), veh/h	164	1836	819	177	976	1011	438	0	506	391	0	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.6	24.2	14.2	46.3	16.9	16.9	41.9	0.0	34.6	39.0	0.0	33.4
Incr Delay (d2), s/veh	5.9	8.7	0.1	15.0	2.4	2.4	3.0	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	19.3	2.2	3.4	11.4	11.9	6.2	0.0	2.3	1.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	32.9	14.3	61.2	19.3	19.3	44.9	0.0	35.0	39.4	0.0	33.6
LnGrp LOS	E	C	B	E	B	B	D	A	C	D	A	C
Approach Vol, veh/h		1906			1526			330			119	
Approach Delay, s/veh		32.1			22.3			41.8			36.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		29.5	16.5	62.8		29.5	11.0	68.3				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		34.3	11.9	58.4		34.3	11.0	59.3				
Max Q Clear Time (g_c+I1), s		23.4	9.0	50.7		12.7	7.0	34.1				
Green Ext Time (p_c), s		1.0	0.0	5.9		0.4	0.0	9.9				

Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

APPENDIX 6.3:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

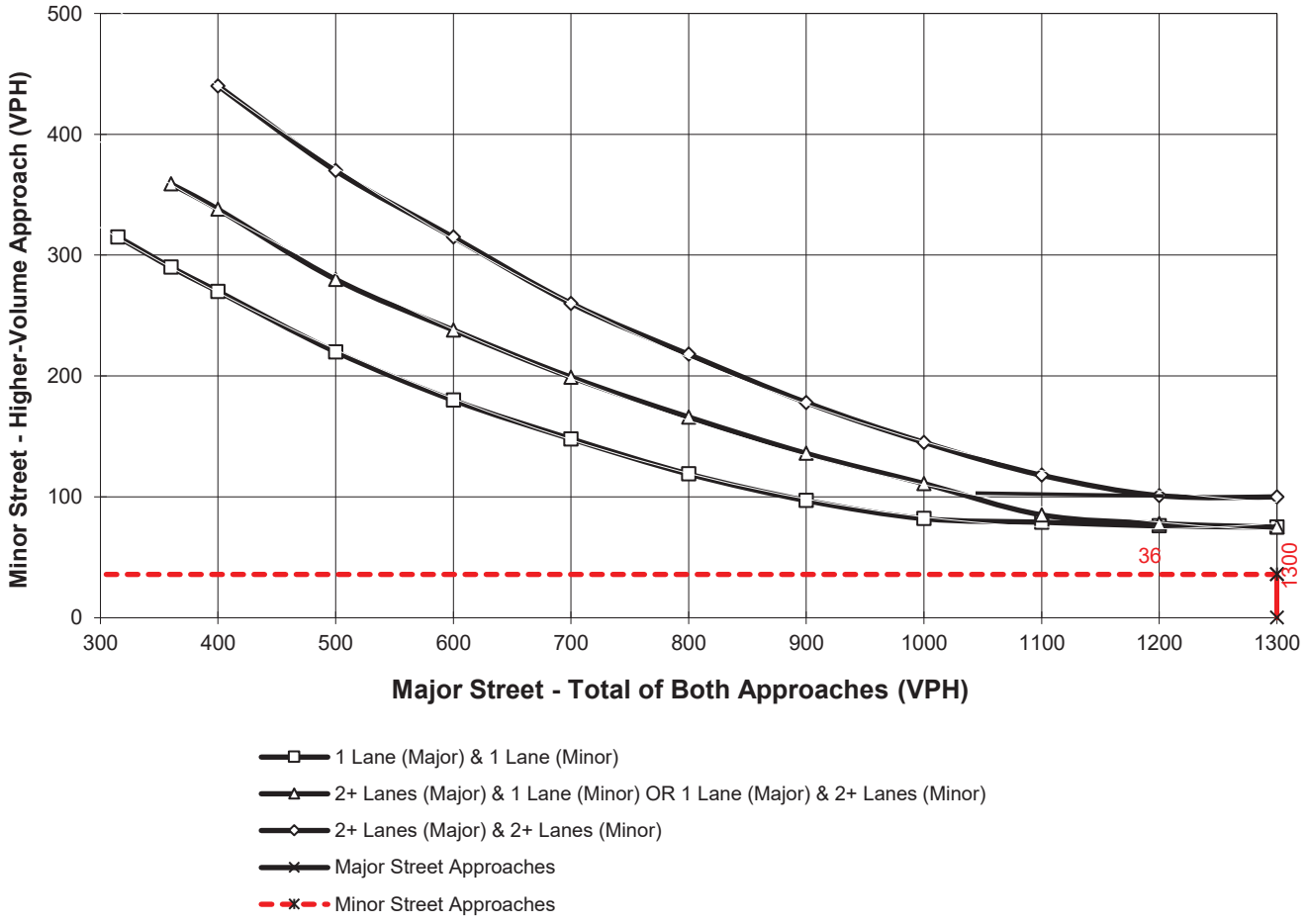
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) Without Project Conditions - Weekday AM Peak Hou**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1606**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road**
High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

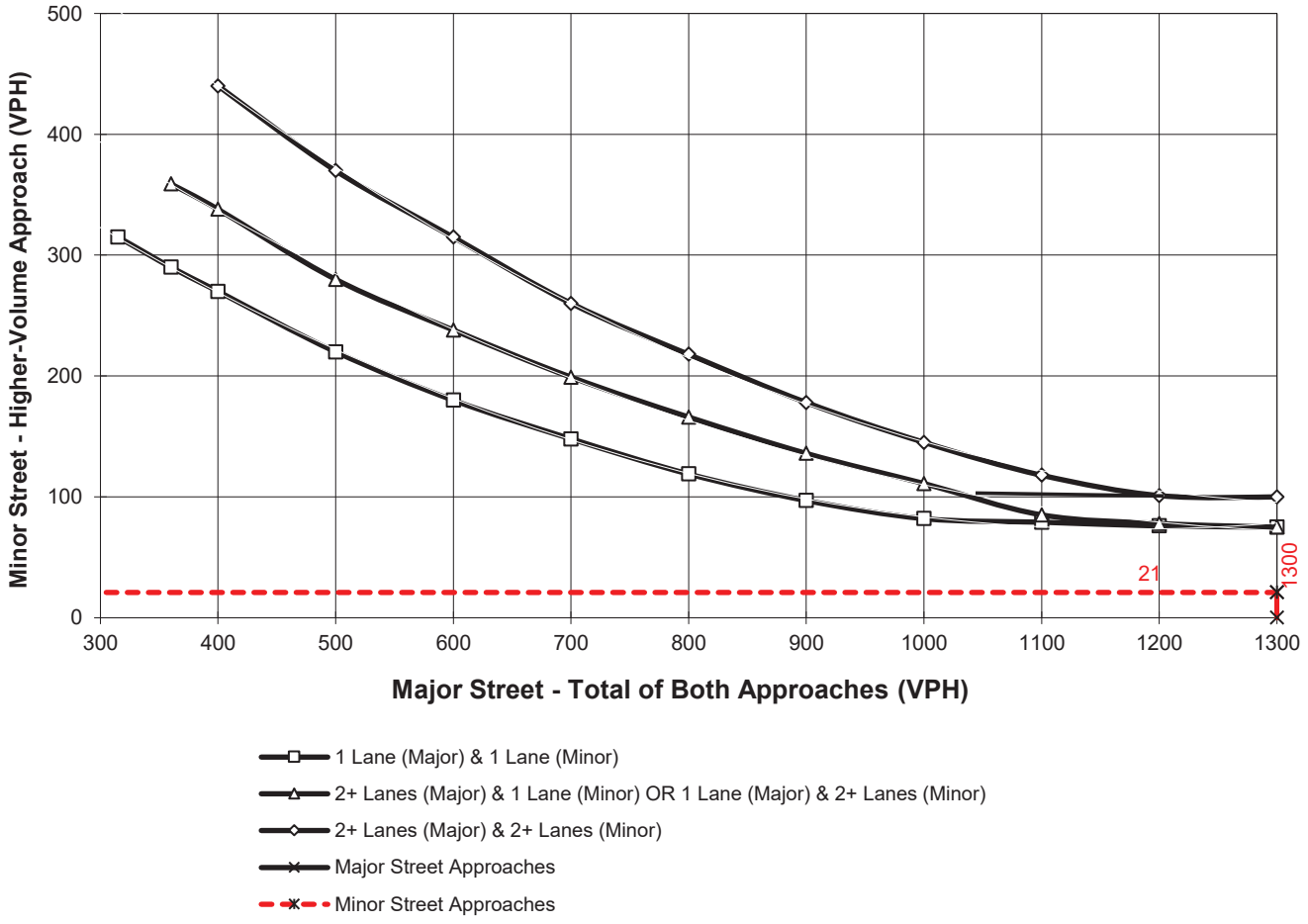
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) Without Project Conditions - Weekday AM Peak Hou**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1582**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street**
High Volume Approach (VPH) = **21**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

Opening Year Cumulative (2021) Without Project

DIST ___ CO ___ RTE ___ PM ___

TRAFFIC CONDITIONS

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **Yucca Terrace Dr.** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 2** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **211** vpd Minor Street Future ADT = **0** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX / XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 **211** / 1 **0**	8,000	5,600	2,400	1,680
2 + / 1	9,600	6,720	2,400	1,680
2 + / 2 +	9,600	6,720	3,200	2,240
1 / 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach: Major Street / Minor Street				
1 **211** / 1 **0**	12,000	8,400	1,200	850
2 + / 1	14,400	10,080	1,200	850
2 + / 2 +	14,400	10,080	1,600	1,120
1 / 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 4% B: 3%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS **Opening Year Cumulative (2021) Without Project**

DIST ___ CO ___ RTE ___ PM ___

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **Yucca Terrace Drive** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 3** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **211** vpd Minor Street Future ADT = **0** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... √

or **RURAL (R)**

In built up area of isolated community of < 10,000 population ……..

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **211** / *1* **0**	8,000	5,600	2,400	1,680
2 + / *1*	9,600	6,720	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **211** / *1* **0**	12,000	8,400	1,200	850
2 + / *1*	14,400	10,080	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 4% B: 3%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

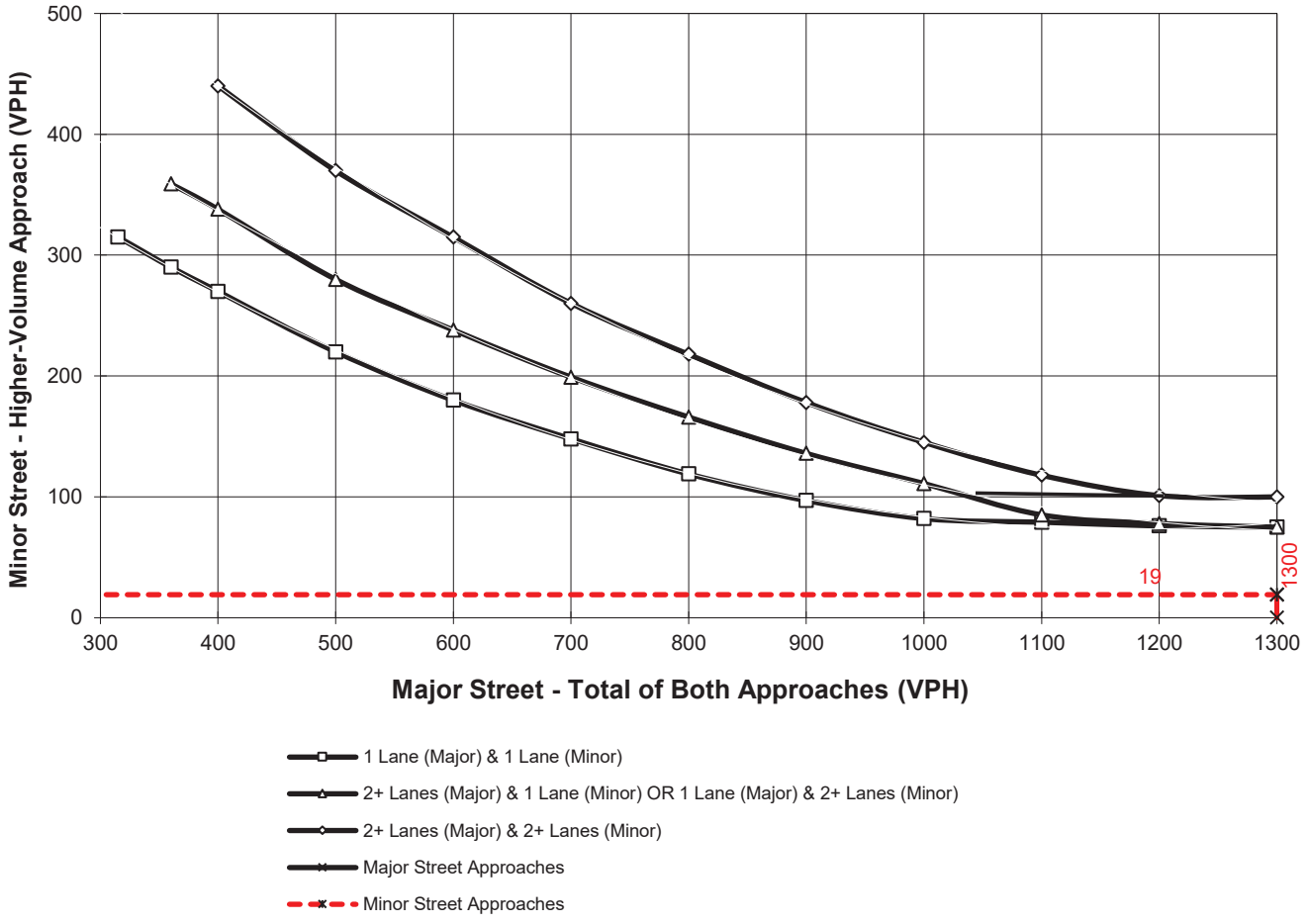
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) Without Project Conditions - Weekday PM Peak Hou**

Major Street Name = **US Highway 395**
Total of Both Approaches (VPH) = **2188**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Poplar Street**
High Volume Approach (VPH) = **19**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

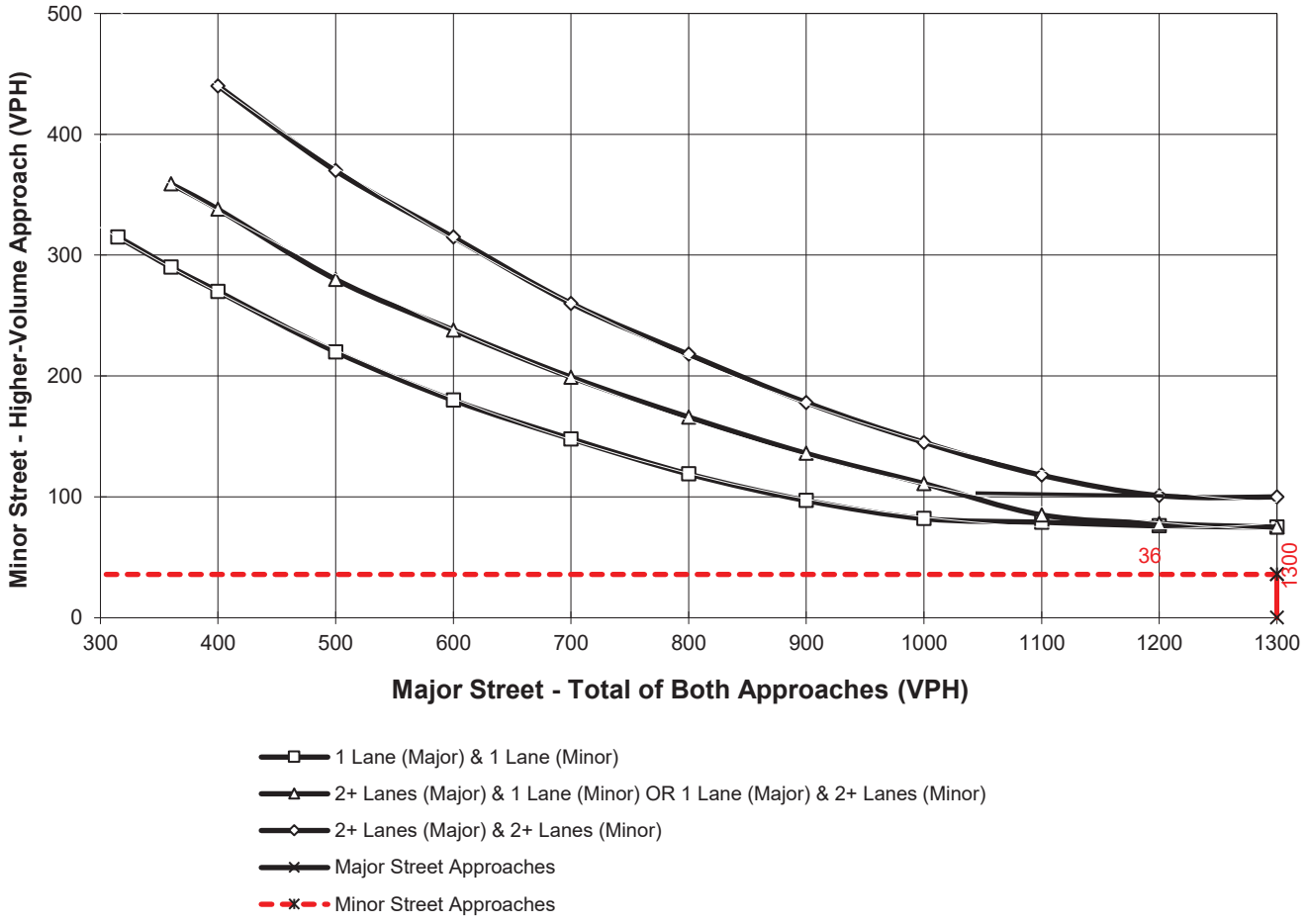
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1697**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road**
High Volume Approach (VPH) = **36**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

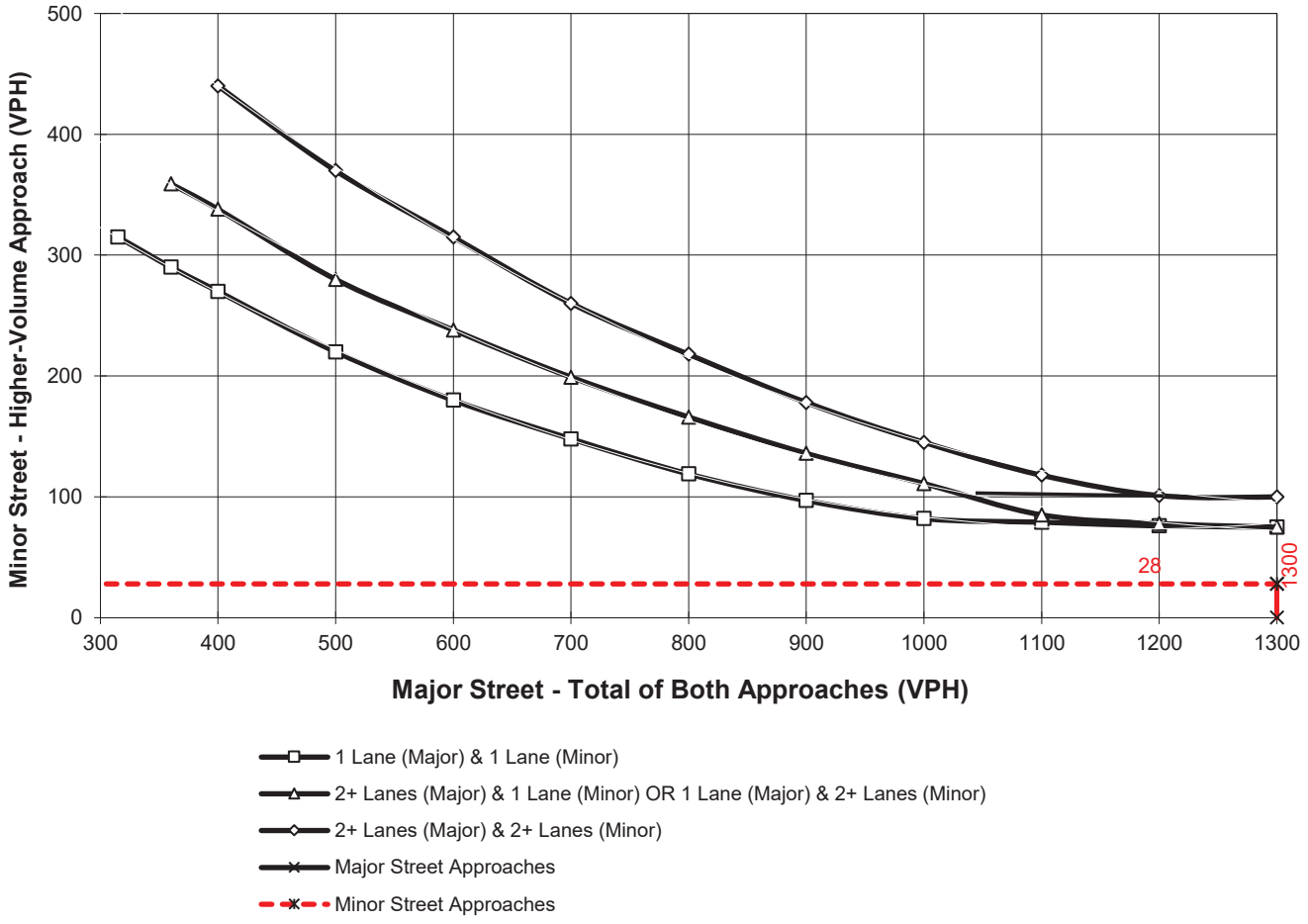
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road** — Total of Both Approaches (VPH) = **1992**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street** — High Volume Approach (VPH) = **28**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

Opening Year Cumulative (2021) With Project

DIST ___ CO ___ RTE ___ PM ___

TRAFFIC CONDITIONS

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **Yucca Terrace Dr.** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 2** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,347** vpd Minor Street Future ADT = **1,136** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,347** / 1 **1,136**	8,000	5,600	2,400	1,680
2 + / 1	9,600	6,720	2,400	1,680
2 + / 2 +	9,600	6,720	3,200	2,240
1 / 2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **1,347** / 1 **1,136**	12,000	8,400	1,200	850 *
2 + / 1	14,400	10,080	1,200	850
2 + / 2 +	14,400	10,080	1,600	1,120
1 / 2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 24% B: 16%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

URBAN CROSSROADS

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS — **Opening Year Cumulative (2021) With Project**

DIST ___ CO ___ RTE ___ PM ___

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **Yucca Terrace Drive** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 3** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **3,971** vpd Minor Street Future ADT = **1,488** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); …….. √

or

In built up area of isolated community of < 10,000 population ……..

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **3,971**	1 **1,488**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **3,971**	1 **1,488**	12,000	8,400	1,200	850 *
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. A 71% B 47%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS — **Opening Year Cumulative (2021) With Project**

DIST ___ CO ___ RTE ___ PM ___

CALC CH DATE 01/23/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/23/20

Major Street: **US Highway 395** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 5** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **2** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **34,448** vpd Minor Street Future ADT = **449** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or **RURAL (R)**

In built up area of isolated community of < 10,000 population …….. [ ]

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **34,448**	*1* **449**	9,600	6,720 *	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **34,448**	*1* **449**	14,400	10,080 *	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	A 27% B 53%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

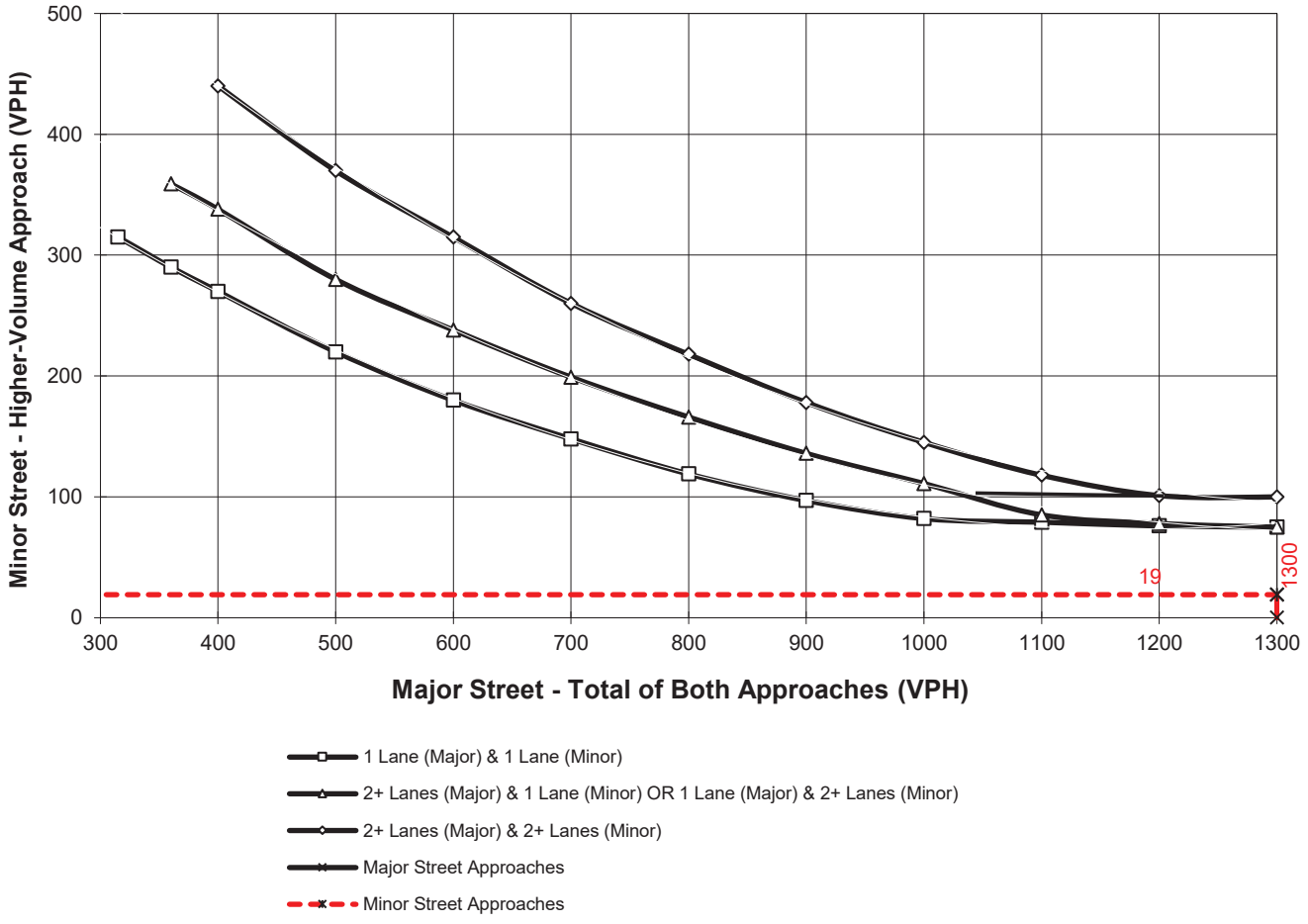
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Opening Year Cumulative (2021) Without Project Conditions - Weekday PM Peak Hou**

Major Street Name = **US Highway 395**
Total of Both Approaches (VPH) = **2388**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Poplar Street**
High Volume Approach (VPH) = **19**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.5:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	137	76	73	401	40	950	49	237	1060	77
v/c Ratio	0.71	0.32	0.17	0.28	0.85	0.38	0.59	0.07	0.73	0.48	0.08
Control Delay	82.7	34.3	4.0	34.7	41.7	60.9	25.7	1.0	53.6	14.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	34.3	4.0	34.7	41.7	60.9	25.7	1.0	53.6	14.0	3.4
Queue Length 50th (ft)	33	77	0	41	179	26	232	0	150	204	0
Queue Length 95th (ft)	#86	129	21	80	293	67	426	6	246	350	24
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	134	752	700	469	740	109	1603	747	495	2200	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.18	0.11	0.16	0.54	0.37	0.59	0.07	0.48	0.48	0.08

Intersection Summary

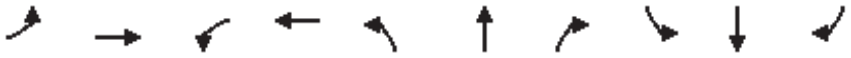
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	322	177	170	268	109	112	853	104	177	944	24
v/c Ratio	0.40	0.53	0.43	1.02	0.31	0.22	0.62	0.58	0.14	0.71	0.59	0.03
Control Delay	59.5	40.0	8.2	121.2	32.0	3.8	59.6	26.6	3.6	58.2	24.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	40.0	8.2	121.2	32.0	3.8	59.6	26.6	3.6	58.2	24.2	0.1
Queue Length 50th (ft)	25	98	0	104	77	0	64	200	0	102	213	0
Queue Length 95th (ft)	#76	137	50	#307	111	25	#166	386	27	#236	410	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	111	1414	740	167	1526	761	204	1466	731	297	1600	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	0.24	1.02	0.18	0.14	0.55	0.58	0.14	0.60	0.59	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	18	84	28	8	1070	65	4	1366	9
v/c Ratio	0.09	0.06	0.44	0.07	0.07	0.44	0.06	0.04	0.56	0.01
Control Delay	46.2	16.1	47.6	11.4	46.1	13.9	1.8	46.0	15.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	16.1	47.6	11.4	46.1	13.9	1.8	46.0	15.7	0.0
Queue Length 50th (ft)	4	2	32	2	3	83	0	2	120	0
Queue Length 95th (ft)	26	19	#145	22	23	477	12	15	#735	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	114	933	203	980	114	2427	1118	114	2427	1118
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.02	0.41	0.03	0.07	0.44	0.06	0.04	0.56	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	931	22	767	143	852	300	1168
v/c Ratio	0.73	0.80	0.26	0.75	0.73	0.84	0.86	0.89
Control Delay	83.5	39.6	62.9	31.9	71.2	46.2	67.5	42.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.5	39.6	62.9	31.9	71.2	46.2	67.5	42.3
Queue Length 50th (ft)	75	338	17	203	107	321	222	433
Queue Length 95th (ft)	#174	421	45	274	#207	#420	#382	#580
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	136	1308	85	1270	221	1121	391	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.71	0.26	0.60	0.65	0.76	0.77	0.80

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	947	17	25	1199
Future Vol, veh/h	10	9	947	17	25	1199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1018	18	27	1289

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2370	518	0	0	1036	0
Stage 1	1027	-	-	-	-	-
Stage 2	1343	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	34	508	-	-	679	-
Stage 1	311	-	-	-	-	-
Stage 2	246	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	33	508	-	-	679	-
Mov Cap-2 Maneuver	33	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	236	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	89.9	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	33	508	679	-
HCM Lane V/C Ratio	-	-	0.326	0.019	0.04	-
HCM Control Delay (s)	-	-	159.9	12.2	10.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.1	0.1	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	70	271	186	2	47	245	933	114	23	1160	132
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.44	0.12	0.27	0.77	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
Queue Length 50th (ft)	40	1	135	1	0	178	217	0	17	390	6
Queue Length 95th (ft)	79	63	#269	8	0	263	290	28	46	#583	50
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	468	708	248	619	598	437	2117	974	84	1508	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.75	0.00	0.08	0.56	0.44	0.12	0.27	0.77	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	77	103	88	235	13	1018	66	215	1339	62
v/c Ratio	0.15	0.21	0.41	0.24	0.48	0.12	0.57	0.08	0.69	0.53	0.05
Control Delay	29.7	29.1	35.0	30.7	7.2	48.2	20.6	3.0	46.6	10.1	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	29.1	35.0	30.7	7.2	48.2	20.6	3.0	46.6	10.1	3.6
Queue Length 50th (ft)	17	33	48	40	0	6	161	0	101	104	1
Queue Length 95th (ft)	45	73	100	84	54	32	468	18	230	498	25
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	668	949	675	955	918	105	1792	847	569	2533	1149
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.08	0.15	0.09	0.26	0.12	0.57	0.08	0.38	0.53	0.05

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1238	34	968	22	377	280
v/c Ratio	0.50	0.02	0.39	0.01	0.38	0.52
Control Delay	8.2	0.0	7.4	0.0	13.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	0.0	7.4	0.0	13.5	12.2
Queue Length 50th (ft)	57	0	42	0	33	30
Queue Length 95th (ft)	115	0	86	0	74	96
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	5187	1615	5187	1615	3364	1556
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.02	0.19	0.01	0.11	0.18

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1204	362	1403	502	150	227	230
v/c Ratio	0.41	0.34	0.48	0.44	0.33	0.51	0.52
Control Delay	7.3	1.8	7.8	2.1	21.1	17.6	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	1.8	7.8	2.1	21.1	17.6	17.9
Queue Length 50th (ft)	65	0	79	0	37	38	40
Queue Length 95th (ft)	132	31	161	35	107	129	131
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	5094	1593	5094	1595	1323	1150	1145
Starvation Cap Reductn	0	0	403	75	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.23	0.30	0.33	0.11	0.20	0.20

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	75	42	47	339	70	1086	89	233	1079	94
v/c Ratio	0.73	0.19	0.10	0.17	0.81	0.48	0.64	0.11	0.75	0.51	0.10
Control Delay	87.9	33.9	0.5	34.0	43.6	59.3	25.2	5.2	56.8	16.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	33.9	0.5	34.0	43.6	59.3	25.2	5.2	56.8	16.0	3.5
Queue Length 50th (ft)	34	41	0	26	162	44	267	0	146	214	0
Queue Length 95th (ft)	84	80	0	57	265	102	493	34	253	385	28
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	134	707	664	500	685	181	1697	807	454	2108	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.11	0.06	0.09	0.49	0.39	0.64	0.11	0.51	0.51	0.10

Intersection Summary

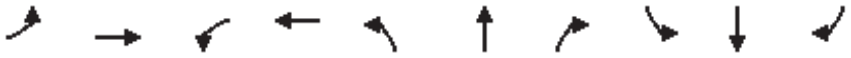


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	59	346	145	122	338	149	193	1024	233	176	967	38
v/c Ratio	0.53	0.56	0.36	1.08	0.48	0.34	0.72	0.66	0.28	0.70	0.64	0.05
Control Delay	65.8	39.7	8.1	155.0	37.4	7.6	56.9	26.8	4.2	57.6	27.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	39.7	8.1	155.0	37.4	7.6	56.9	26.8	4.2	57.6	27.2	0.1
Queue Length 50th (ft)	35	104	0	~80	101	0	110	244	0	99	227	0
Queue Length 95th (ft)	#113	147	46	#250	144	47	#225	468	55	#235	452	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	113	1431	727	113	1431	721	357	1544	824	301	1511	719
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.24	0.20	1.08	0.24	0.21	0.54	0.66	0.28	0.58	0.64	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	3	48	13	9	1475	93	13	1165	12
v/c Ratio	0.05	0.01	0.27	0.04	0.08	0.57	0.08	0.12	0.45	0.01
Control Delay	45.8	0.0	45.0	14.9	46.2	13.6	3.5	46.8	12.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.8	0.0	45.0	14.9	46.2	13.6	3.5	46.8	12.0	0.0
Queue Length 50th (ft)	3	0	23	1	5	137	0	7	94	0
Queue Length 95th (ft)	19	0	#99	15	25	#790	30	32	513	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	110	910	178	875	110	2594	1189	110	2594	1189
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.00	0.27	0.01	0.08	0.57	0.08	0.12	0.45	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	785	25	1135	232	1323	338	1046
v/c Ratio	1.27	0.64	0.33	1.00	0.84	1.10	1.33	0.91
Control Delay	237.4	35.7	68.0	66.1	75.2	97.4	211.5	51.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	35.7	68.0	66.1	75.2	97.4	211.5	51.3
Queue Length 50th (ft)	~93	273	19	~443	174	~615	~339	412
Queue Length 95th (ft)	#205	345	49	#601	#293	#755	#526	#551
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	75	1230	75	1133	300	1198	255	1152
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.64	0.33	1.00	0.77	1.10	1.33	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1452	33	11	1026
Future Vol, veh/h	14	24	1452	33	11	1026
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1482	34	11	1047

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2568	758	0	0	1516	0
Stage 1	1499	-	-	-	-	-
Stage 2	1069	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	25	354	-	-	446	-
Stage 1	175	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	354	-	-	446	-
Mov Cap-2 Maneuver	24	-	-	-	-	-
Stage 1	175	-	-	-	-	-
Stage 2	325	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	114.7	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	24	354	446	-
HCM Lane V/C Ratio	-	-	0.595	0.069	0.025	-
HCM Control Delay (s)	-	-	284.1	15.9	13.3	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	264	135	4	34	214	1402	156	35	923	103
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.62	0.15	0.39	0.53	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
Queue Length 50th (ft)	48	1	~98	2	0	141	309	2	24	220	0
Queue Length 95th (ft)	91	63	#193	11	0	241	507	35	#66	372	28
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	495	731	230	657	635	374	2264	1046	89	1727	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.59	0.01	0.05	0.57	0.62	0.15	0.39	0.53	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	94	155	87	71	228	28	1471	93	188	1090	58
v/c Ratio	0.37	0.43	0.45	0.20	0.47	0.27	0.79	0.11	0.66	0.44	0.05
Control Delay	35.3	34.3	39.4	31.2	7.3	53.3	24.7	5.2	48.2	9.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	34.3	39.4	31.2	7.3	53.3	24.7	5.2	48.2	9.8	3.4
Queue Length 50th (ft)	44	70	41	32	0	14	293	1	88	83	0
Queue Length 95th (ft)	92	133	89	70	53	53	#845	37	207	370	21
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	663	921	502	932	898	103	1861	876	576	2472	1124
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.17	0.17	0.08	0.25	0.27	0.79	0.11	0.33	0.44	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1504	62	1364	43	605	476
v/c Ratio	0.65	0.04	0.59	0.03	0.42	0.70
Control Delay	17.9	0.1	17.0	0.0	16.3	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	0.1	17.0	0.0	16.3	24.0
Queue Length 50th (ft)	173	0	151	0	88	153
Queue Length 95th (ft)	324	0	286	0	175	342
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	3885	1615	3885	1582	2902	1341
Starvation Cap Reductn	84	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.04	0.35	0.03	0.21	0.35

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1794	315	1562	468	228	458	458
v/c Ratio	0.71	0.33	0.61	0.45	0.31	0.72	0.72
Control Delay	21.9	3.8	20.1	3.2	21.0	31.0	31.0
Queue Delay	0.0	0.0	0.3	0.3	0.0	0.0	0.0
Total Delay	21.9	3.8	20.3	3.5	21.0	31.0	31.0
Queue Length 50th (ft)	301	6	246	0	98	248	248
Queue Length 95th (ft)	468	60	385	57	163	394	394
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	3209	1111	3209	1177	1116	955	955
Starvation Cap Reductn	0	0	836	239	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.28	0.66	0.50	0.20	0.48	0.48

Intersection Summary

APPENDIX 6.6:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	54	137	76	83	401	40	958	50	237	1105	77
v/c Ratio	0.71	0.32	0.17	0.31	0.85	0.38	0.60	0.07	0.73	0.50	0.08
Control Delay	82.7	34.3	4.0	35.5	41.7	60.9	25.8	1.1	53.6	14.3	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	34.3	4.0	35.5	41.7	60.9	25.8	1.1	53.6	14.3	3.4
Queue Length 50th (ft)	33	77	0	47	179	26	234	0	150	217	0
Queue Length 95th (ft)	#86	129	21	89	293	67	430	6	246	371	24
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	134	752	700	469	740	109	1603	747	495	2200	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.18	0.11	0.18	0.54	0.37	0.60	0.07	0.48	0.50	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

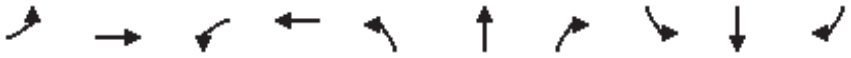


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	322	177	205	268	109	112	862	110	177	997	24
v/c Ratio	0.40	0.53	0.43	1.23	0.31	0.22	0.62	0.59	0.15	0.71	0.62	0.03
Control Delay	59.5	40.0	8.2	183.5	32.0	3.8	59.6	26.8	4.1	58.2	24.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	40.0	8.2	183.5	32.0	3.8	59.6	26.8	4.1	58.2	24.9	0.1
Queue Length 50th (ft)	25	98	0	~150	77	0	64	202	0	102	230	0
Queue Length 95th (ft)	#76	137	50	#376	111	25	#166	392	31	#236	440	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	111	1414	740	167	1526	761	204	1466	731	297	1600	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.23	0.24	1.23	0.18	0.14	0.55	0.59	0.15	0.60	0.62	0.03

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	10	28	102	28	9	1085	68	4	1457	9
v/c Ratio	0.09	0.09	0.49	0.07	0.08	0.49	0.07	0.04	0.66	0.01
Control Delay	46.1	13.3	47.9	11.4	46.0	14.7	2.1	45.8	17.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	13.3	47.9	11.4	46.0	14.7	2.1	45.8	17.3	0.0
Queue Length 50th (ft)	4	2	38	2	3	85	0	2	134	0
Queue Length 95th (ft)	26	23	#184	22	25	485	14	15	#813	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	111	894	207	950	111	2223	1033	111	2223	1033
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.03	0.49	0.03	0.08	0.49	0.07	0.04	0.66	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	1060	22	1797	232	942	360	1183
v/c Ratio	0.82	0.84	0.29	1.66	1.19	0.95	1.04	0.92
Control Delay	99.6	42.8	66.0	329.3	170.9	62.0	107.5	49.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.6	42.8	66.0	329.3	170.9	62.0	107.5	49.2
Queue Length 50th (ft)	76	406	17	~1050	~216	377	~301	456
Queue Length 95th (ft)	#174	#536	45	#1192	#378	#511	#492	#593
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	120	1263	75	1083	195	990	345	1285
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.84	0.29	1.66	1.19	0.95	1.04	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	1118	17	25	1228
Future Vol, veh/h	10	9	1118	17	25	1228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1202	18	27	1320

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2585	610	0	0	1220	0
Stage 1	1211	-	-	-	-	-
Stage 2	1374	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	25	442	-	-	579	-
Stage 1	249	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	442	-	-	579	-
Mov Cap-2 Maneuver	24	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	226	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	135	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	24	442	579	-
HCM Lane V/C Ratio	-	-	0.448	0.022	0.046	-
HCM Control Delay (s)	-	-	244.5	13.3	11.5	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	70	271	186	2	47	245	1118	114	23	1191	132
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.53	0.12	0.27	0.79	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
Queue Length 50th (ft)	40	1	135	1	0	178	280	0	17	405	6
Queue Length 95th (ft)	79	63	#269	8	0	263	367	28	46	#611	50
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	468	708	248	619	598	437	2117	974	84	1508	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.75	0.00	0.08	0.56	0.53	0.12	0.27	0.79	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	39	77	103	88	272	13	1167	66	222	1365	62
v/c Ratio	0.15	0.21	0.41	0.24	0.52	0.12	0.66	0.08	0.69	0.54	0.05
Control Delay	29.7	29.1	35.0	30.7	7.3	48.2	22.5	3.0	46.4	10.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	29.1	35.0	30.7	7.3	48.2	22.5	3.0	46.4	10.2	3.6
Queue Length 50th (ft)	17	33	48	40	0	6	197	0	104	107	1
Queue Length 95th (ft)	45	73	100	84	57	32	#622	18	235	513	25
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	668	949	675	955	936	105	1777	841	633	2533	1149
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.08	0.15	0.09	0.29	0.12	0.66	0.08	0.35	0.54	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1332	116	1547	22	377	742
v/c Ratio	0.63	0.07	0.73	0.01	0.22	0.93
Control Delay	22.5	0.1	24.6	0.0	14.9	42.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	0.1	24.6	0.0	14.9	42.2
Queue Length 50th (ft)	217	0	267	0	61	371
Queue Length 95th (ft)	260	0	316	0	109	#737
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	3789	1615	3789	1615	1710	801
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.07	0.41	0.01	0.22	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1219	438	1491	502	623	227	230
v/c Ratio	0.51	0.44	0.62	0.49	0.80	0.32	0.33
Control Delay	16.8	2.7	18.4	2.9	34.1	14.2	14.4
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	16.8	2.7	18.5	3.0	34.1	14.2	14.4
Queue Length 50th (ft)	164	0	216	0	288	52	53
Queue Length 95th (ft)	198	43	256	45	#633	143	145
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	4368	1429	4368	1439	774	705	702
Starvation Cap Reductn	0	0	707	183	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.31	0.41	0.40	0.80	0.32	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	55	75	42	49	339	70	1128	97	233	1088	94
v/c Ratio	0.73	0.19	0.10	0.18	0.81	0.48	0.66	0.12	0.75	0.52	0.10
Control Delay	87.9	33.9	0.5	34.1	43.6	59.3	25.8	5.2	56.8	16.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.9	33.9	0.5	34.1	43.6	59.3	25.8	5.2	56.8	16.1	3.5
Queue Length 50th (ft)	34	41	0	27	162	44	281	0	146	217	0
Queue Length 95th (ft)	84	80	0	58	265	102	520	36	253	390	28
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	134	707	664	500	685	181	1697	810	454	2108	982
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.11	0.06	0.10	0.49	0.39	0.66	0.12	0.51	0.52	0.10

Intersection Summary

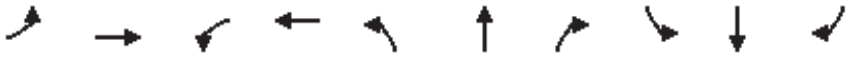


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	59	346	145	129	338	149	193	1075	268	176	978	38
v/c Ratio	0.53	0.56	0.36	1.14	0.48	0.34	0.72	0.70	0.32	0.70	0.65	0.05
Control Delay	65.8	39.7	8.1	173.0	37.4	7.6	56.9	27.6	4.4	57.6	27.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	39.7	8.1	173.0	37.4	7.6	56.9	27.6	4.4	57.6	27.3	0.1
Queue Length 50th (ft)	35	104	0	~89	101	0	110	261	2	99	231	0
Queue Length 95th (ft)	#113	147	46	#263	144	47	#225	499	61	#235	459	0
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	113	1431	727	113	1431	721	357	1544	841	301	1511	719
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.24	0.20	1.14	0.24	0.21	0.54	0.70	0.32	0.58	0.65	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	5	53	13	18	1561	111	13	1183	12
v/c Ratio	0.05	0.01	0.29	0.04	0.16	0.60	0.09	0.12	0.46	0.01
Control Delay	45.3	0.0	44.7	14.9	46.9	14.1	4.3	45.9	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	0.0	44.7	14.9	46.9	14.1	4.3	45.9	12.1	0.0
Queue Length 50th (ft)	3	0	24	1	9	151	1	6	96	0
Queue Length 95th (ft)	19	0	#112	15	39	#863	42	32	524	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	111	919	181	888	111	2581	1183	111	2581	1183
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.01	0.29	0.01	0.16	0.60	0.09	0.12	0.46	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	1517	25	1341	251	1342	680	1135
v/c Ratio	1.27	1.23	0.33	1.19	0.88	1.12	2.67	1.00
Control Delay	237.4	146.3	68.0	128.7	79.6	102.8	782.4	68.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.4	146.3	68.0	128.7	79.6	102.8	782.4	68.3
Queue Length 50th (ft)	~93	~810	19	~643	190	~631	~890	~492
Queue Length 95th (ft)	#205	#952	49	#784	#330	#771	#1122	#630
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	75	1231	75	1130	300	1199	255	1133
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	1.23	0.33	1.19	0.84	1.12	2.67	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1489	33	11	1194
Future Vol, veh/h	14	24	1489	33	11	1194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1519	34	11	1218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2776	777	0	0	1553	0
Stage 1	1536	-	-	-	-	-
Stage 2	1240	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	18	344	-	-	432	-
Stage 1	167	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	18	344	-	-	432	-
Mov Cap-2 Maneuver	18	-	-	-	-	-
Stage 1	167	-	-	-	-	-
Stage 2	269	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	168.6	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	18	344	432	-
HCM Lane V/C Ratio	-	-	0.794	0.071	0.026	-
HCM Control Delay (s)	-	-	$ 429.8	16.3	13.6	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	2.1	0.2	0.1	-



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	264	135	4	34	214	1440	156	35	1095	103
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.64	0.15	0.39	0.63	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
Queue Length 50th (ft)	48	1	~98	2	0	141	323	3	24	278	0
Queue Length 95th (ft)	91	63	#193	11	0	241	530	37	#66	465	28
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	495	731	230	657	635	374	2264	1045	89	1727	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.59	0.01	0.05	0.57	0.64	0.15	0.39	0.63	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	94	155	87	71	235	28	1501	93	223	1229	58
v/c Ratio	0.37	0.44	0.45	0.20	0.48	0.24	0.84	0.11	0.65	0.50	0.05
Control Delay	35.6	34.6	39.9	31.5	7.4	51.1	27.7	5.6	44.2	10.8	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	34.6	39.9	31.5	7.4	51.1	27.7	5.6	44.2	10.8	3.8
Queue Length 50th (ft)	44	70	41	32	0	14	322	1	102	100	0
Queue Length 95th (ft)	93	135	91	71	54	53	#912	39	235	447	23
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	645	896	488	907	884	123	1792	847	759	2463	1119
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17	0.18	0.08	0.27	0.23	0.84	0.11	0.29	0.50	0.05

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	2019	513	1476	43	605	566
v/c Ratio	0.81	0.32	0.59	0.03	0.41	0.83
Control Delay	26.0	0.5	20.8	0.0	20.8	36.0
Queue Delay	0.5	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	0.5	20.8	0.0	20.8	36.0
Queue Length 50th (ft)	368	0	230	0	143	321
Queue Length 95th (ft)	600	0	382	0	184	460
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	2808	1615	2808	1582	2191	1016
Starvation Cap Reductn	339	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.32	0.53	0.03	0.28	0.56

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1880	743	1580	468	322	458	458
v/c Ratio	0.71	0.65	0.59	0.44	0.45	0.74	0.74
Control Delay	22.6	5.8	20.2	3.1	24.9	33.9	33.9
Queue Delay	0.0	0.0	0.8	0.4	0.0	0.0	0.0
Total Delay	22.6	5.8	21.0	3.6	24.9	33.9	33.9
Queue Length 50th (ft)	340	27	261	0	160	269	269
Queue Length 95th (ft)	502	147	391	57	234	394	394
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	2890	1192	2890	1107	1006	861	861
Starvation Cap Reductn	0	0	899	262	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.62	0.79	0.55	0.32	0.53	0.53

Intersection Summary

APPENDIX 6.7:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4334	7146	0.61	67.8	21.3	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.885	4334	575	7200	2100	0.60	0.27	64.4	60.2	22.4	28.4	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	3769	7146	0.53	68.2	18.4	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	4362	593	7200	1900	0.61	0.31	61.9	59.7	23.5	25.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4363	7146	0.61	67.8	21.4	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.893	4479	116	7200	2100	0.62	0.06	62.4	60.6	23.9	23.4	C

Segment 7: Basic

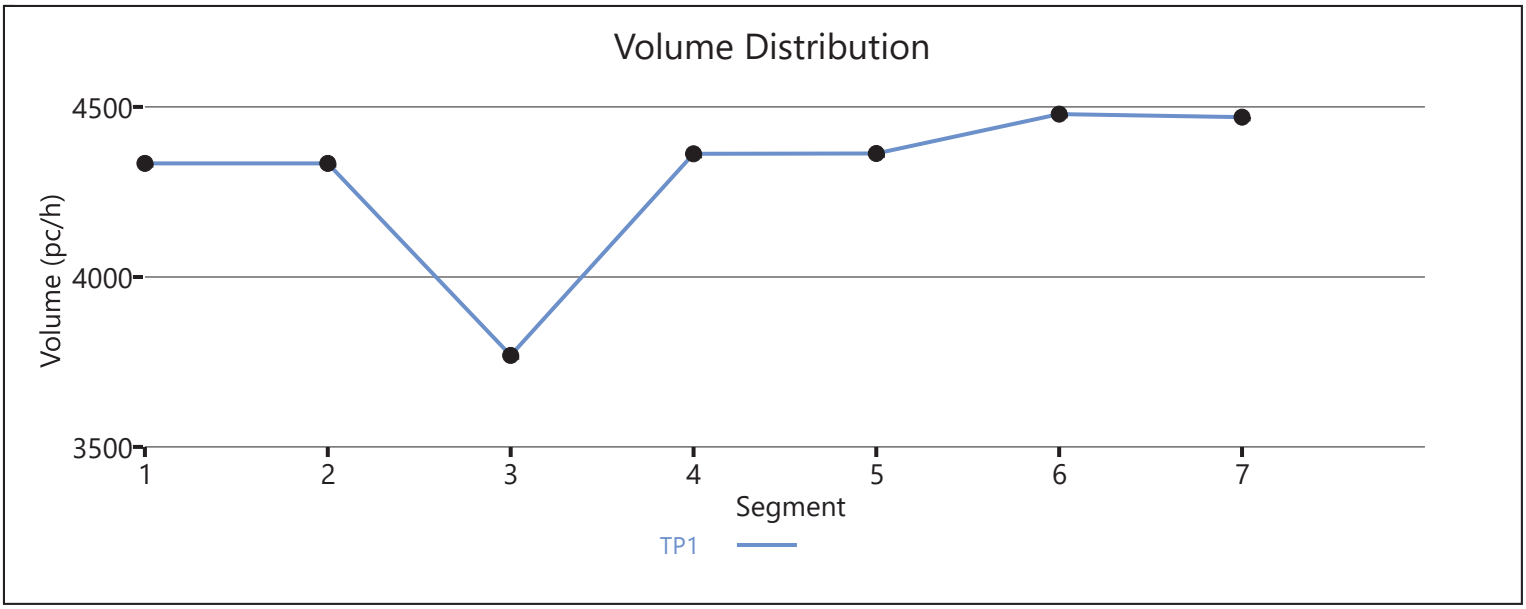
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4470	7146	0.63	67.6	22.0	C

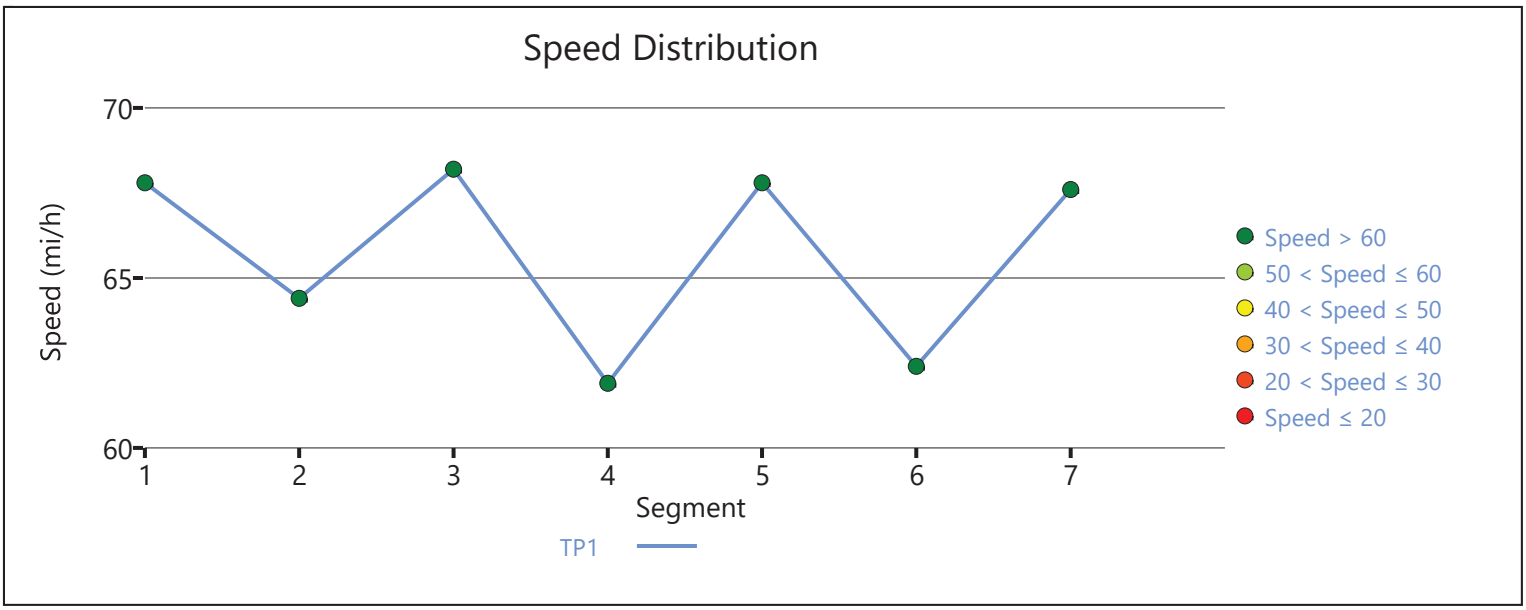
Facility Time Period Results

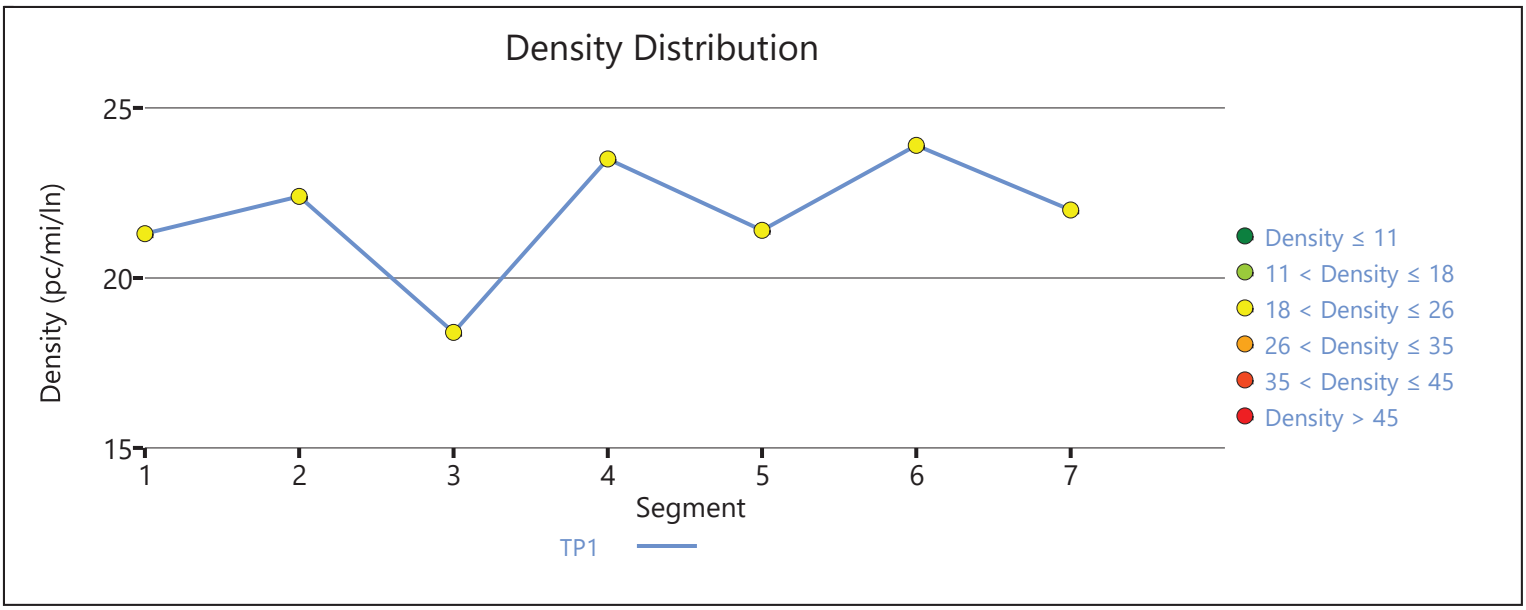
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.0	21.7	20.9	4.9	C

Facility Overall Results

Space Mean Speed, mi/h	67.0	Density, veh/mi/ln	20.9
Average Travel Time, min	4.9	Density, pc/mi/ln	21.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3689	7179	0.51	69.3	17.7	B

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.840	4978	1215	9600	2100	0.39	0.58	70.0	-	13.4	-	B

Segment 3: Basic

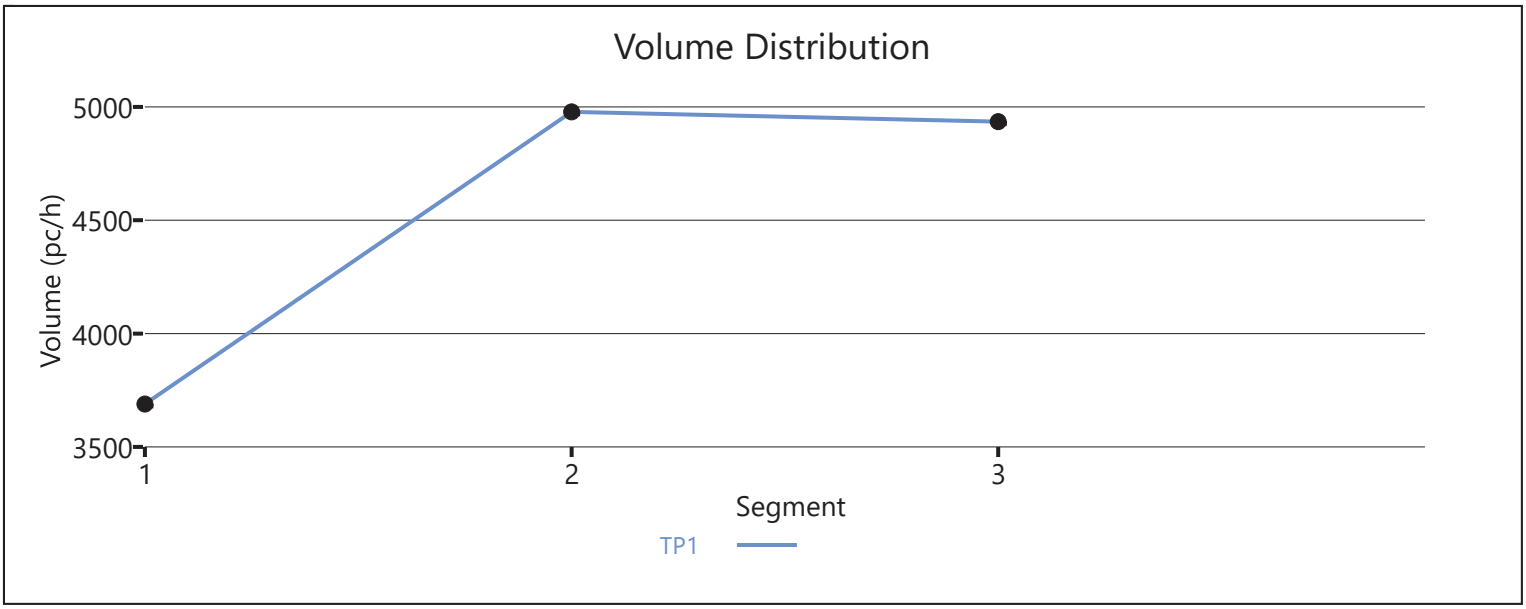
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4935	9572	0.52	69.3	17.8	B

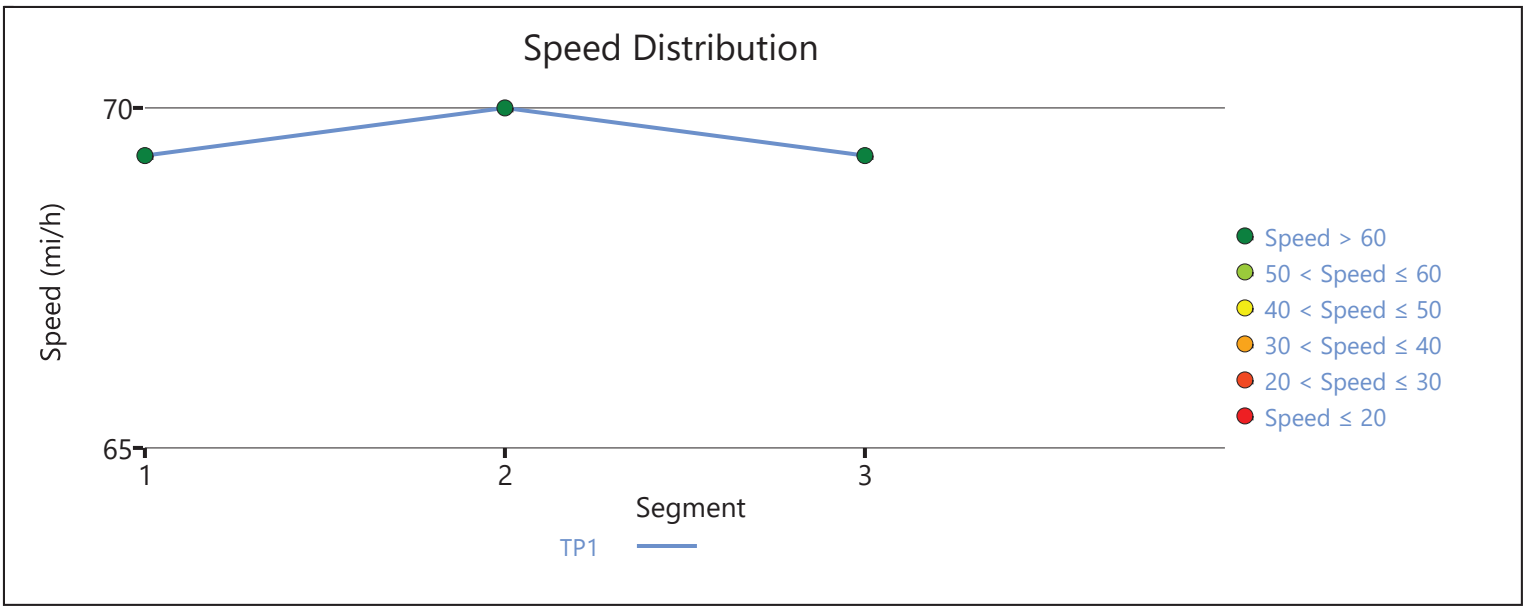
Facility Time Period Results

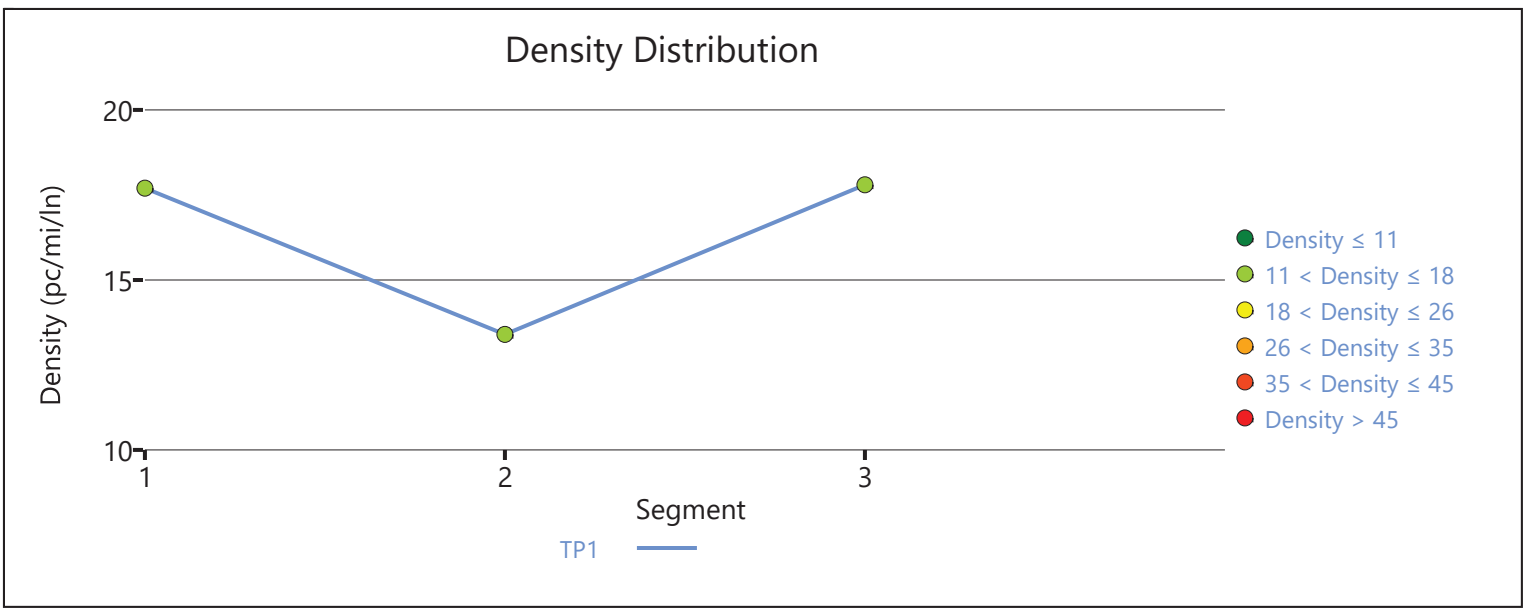
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	17.0	16.0	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	16.0
Average Travel Time, min	1.6	Density, pc/mi/ln	17.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3665	7146	0.51	68.2	17.9	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.901	3665	612	7200	2100	0.51	0.29	64.2	60.1	19.0	25.1	C

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	3036	7146	0.42	68.2	14.8	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.952	3371	335	7200	1900	0.47	0.18	63.0	60.8	17.8	18.9	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3392	7146	0.47	68.2	16.6	B

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	3929	537	7200	2100	0.55	0.26	62.7	60.6	20.9	22.6	C

Segment 7: Basic

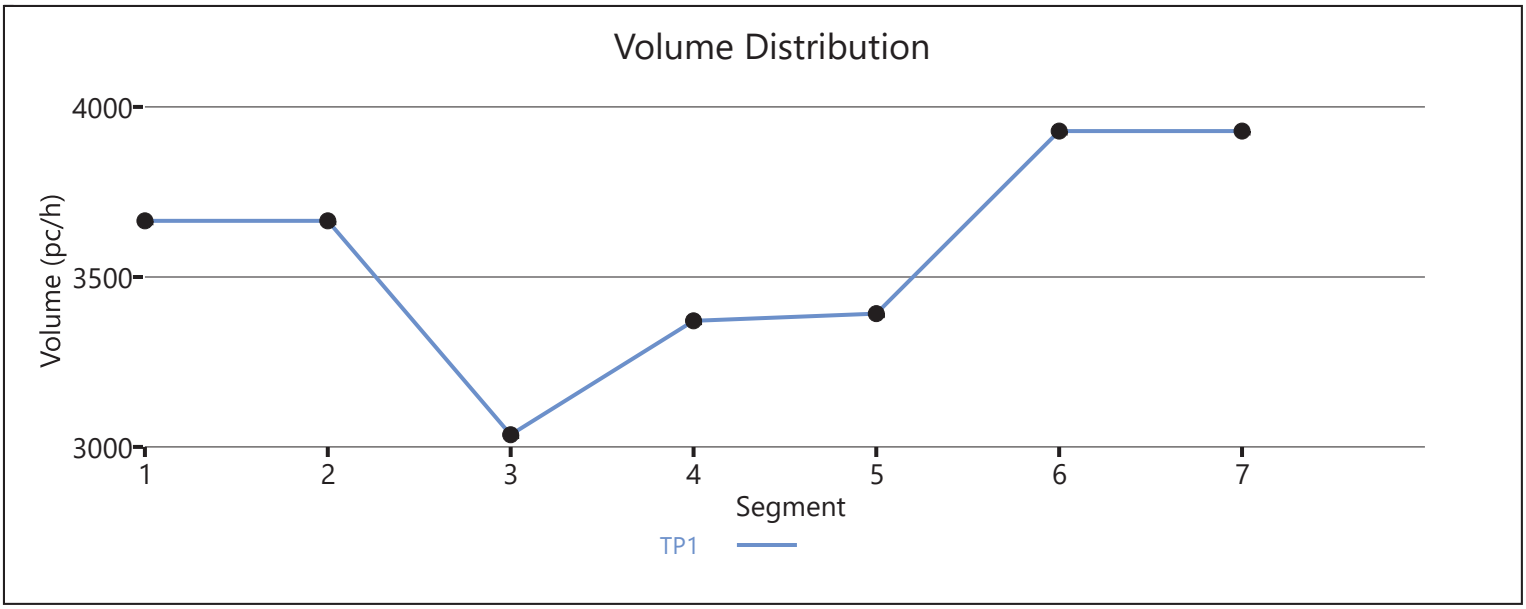
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3929	7146	0.55	68.2	19.2	C

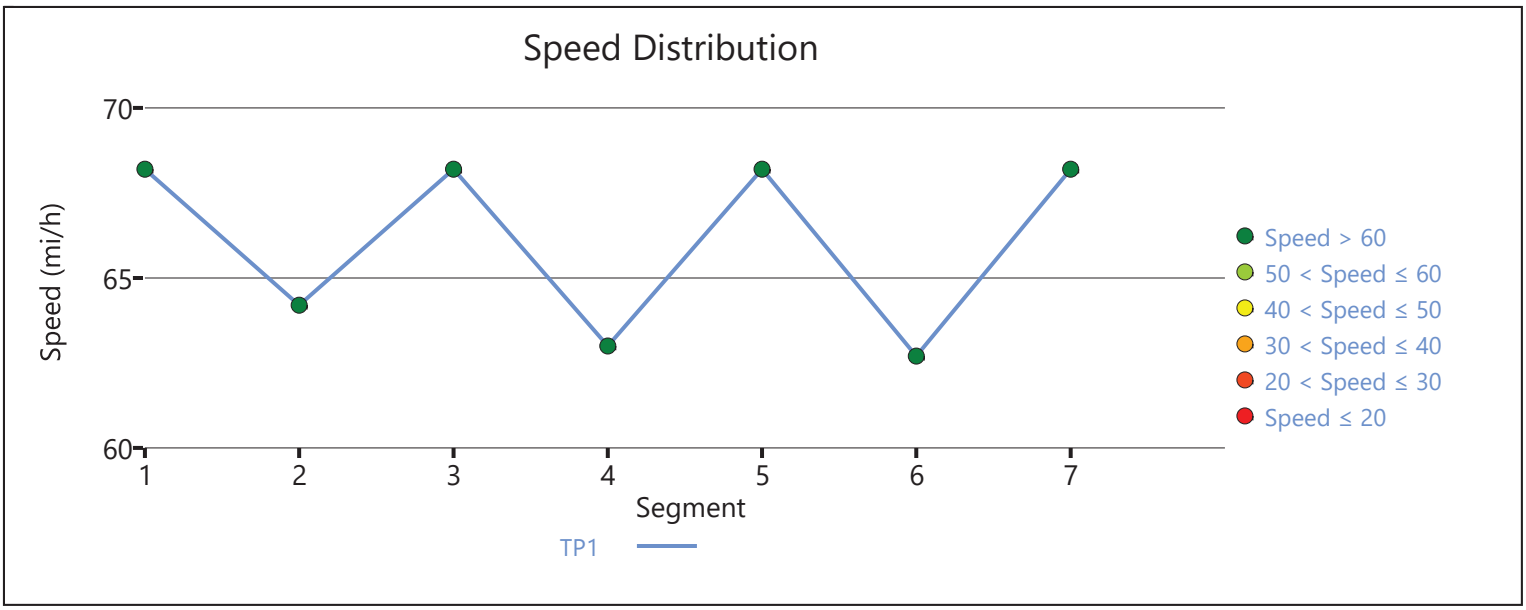
Facility Time Period Results

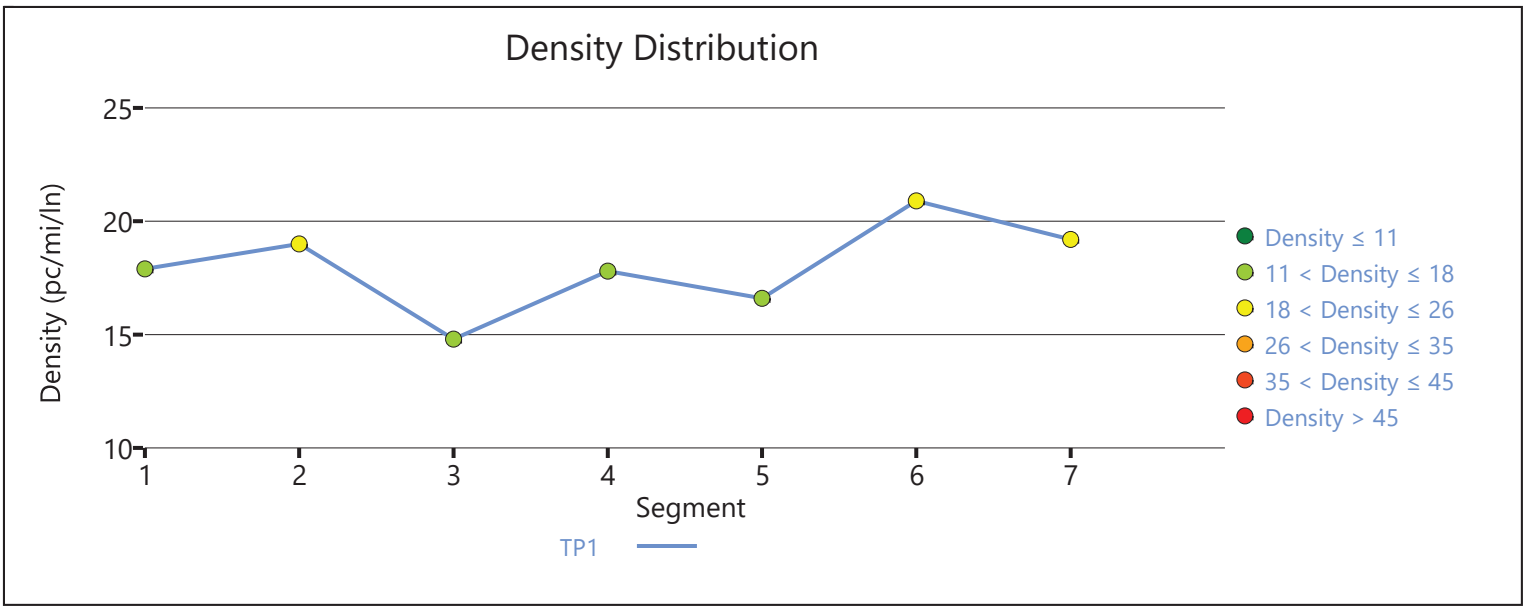
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.4	18.7	18.1	4.9	C

Facility Overall Results

Space Mean Speed, mi/h	67.4	Density, veh/mi/ln	18.1
Average Travel Time, min	4.9	Density, pc/mi/ln	18.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	4237	9572	0.44	69.3	15.3	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.917	0.820	4321	879	9600	2100	0.45	0.42	66.1	59.4	16.3	19.5	B

Segment 3: Basic

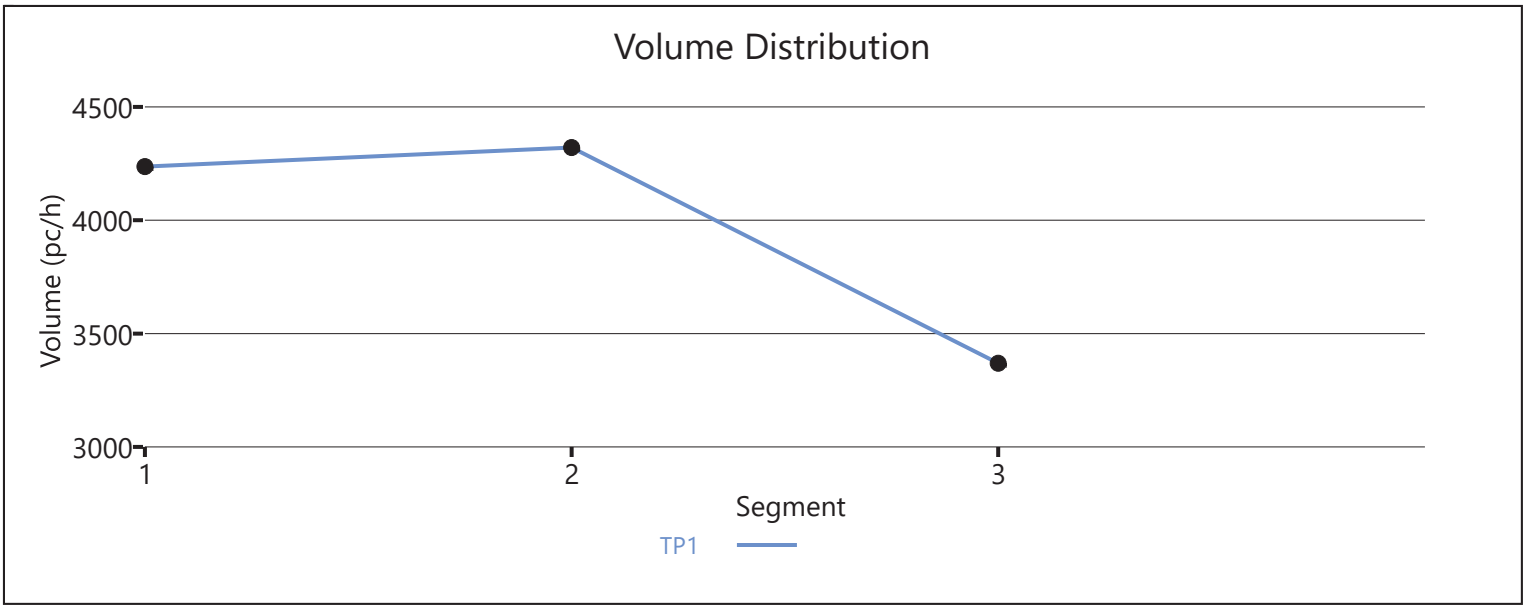
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3369	9572	0.35	69.3	12.2	B

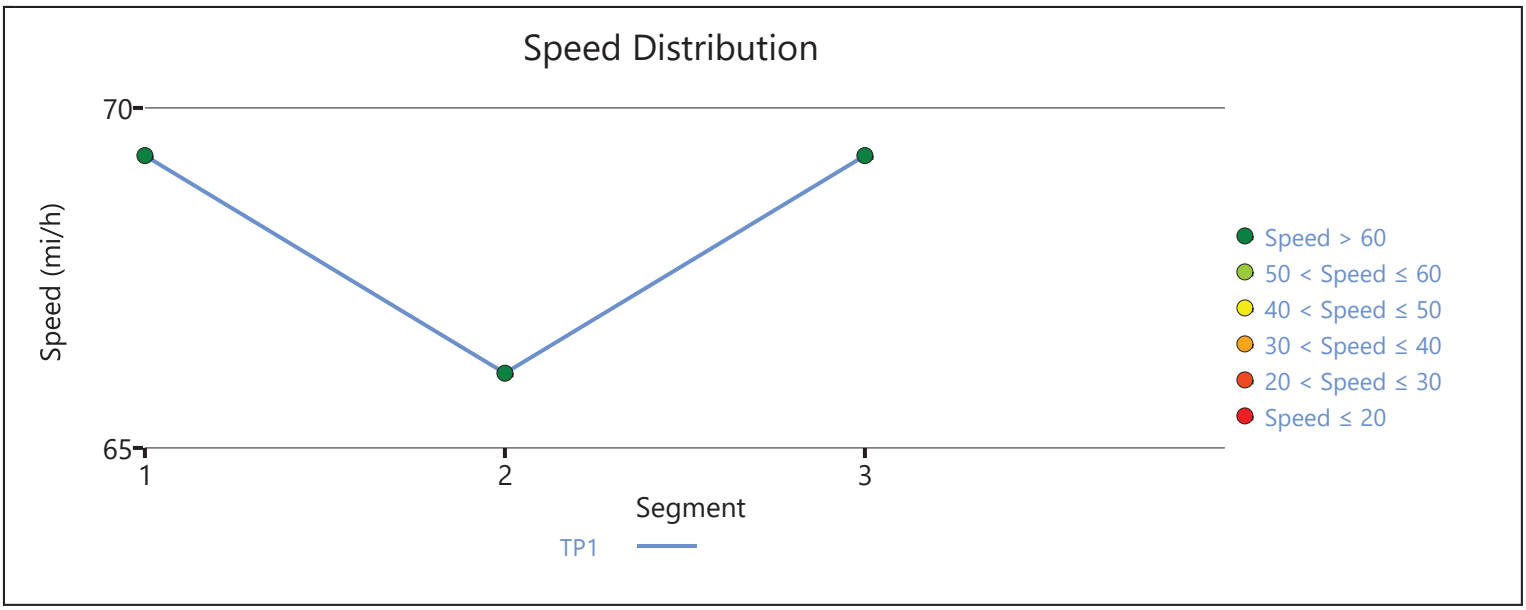
Facility Time Period Results

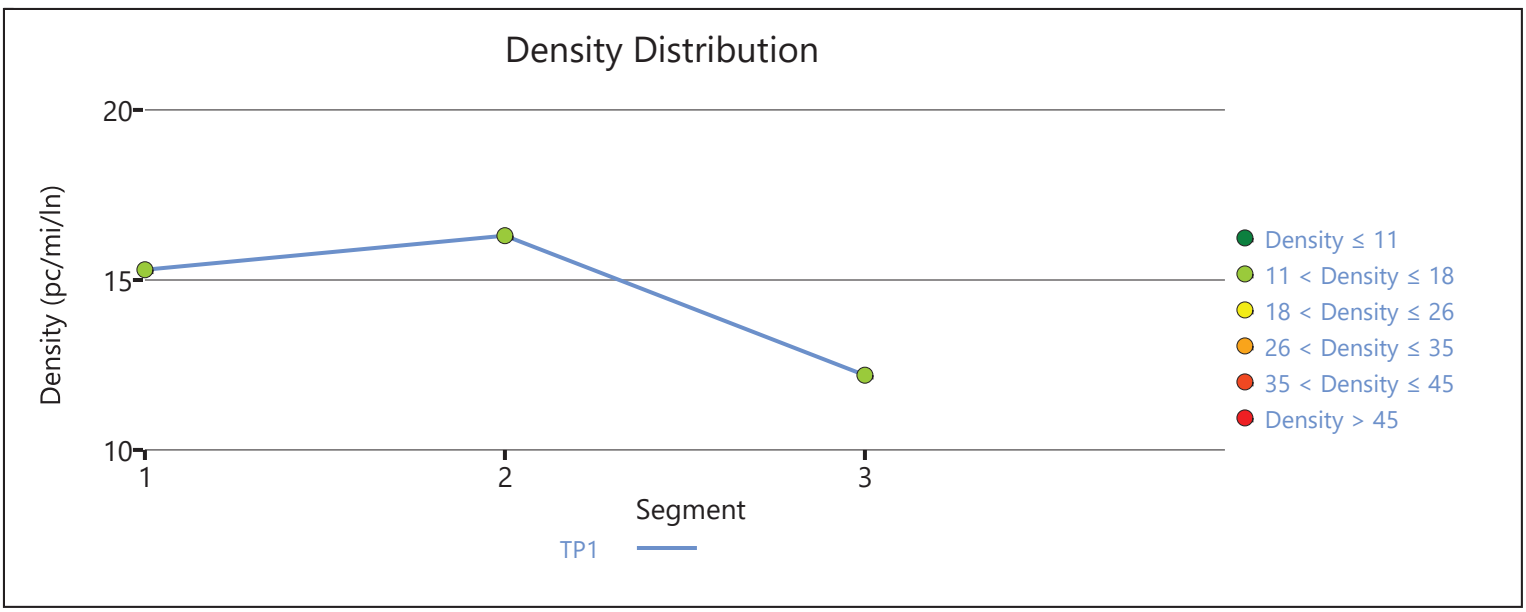
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.7	13.5	12.7	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	68.7	Density, veh/mi/ln	12.7
Average Travel Time, min	1.6	Density, pc/mi/ln	13.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4668	7146	0.65	67.2	23.2	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.962	4668	1009	7200	2100	0.65	0.48	63.3	59.1	24.6	30.7	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3659	7146	0.51	68.2	17.9	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	4071	412	7200	1900	0.57	0.22	62.3	60.1	21.8	23.1	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4067	7146	0.57	68.1	19.9	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.862	4239	172	7200	2100	0.59	0.08	62.7	60.8	22.5	22.5	C

Segment 7: Basic

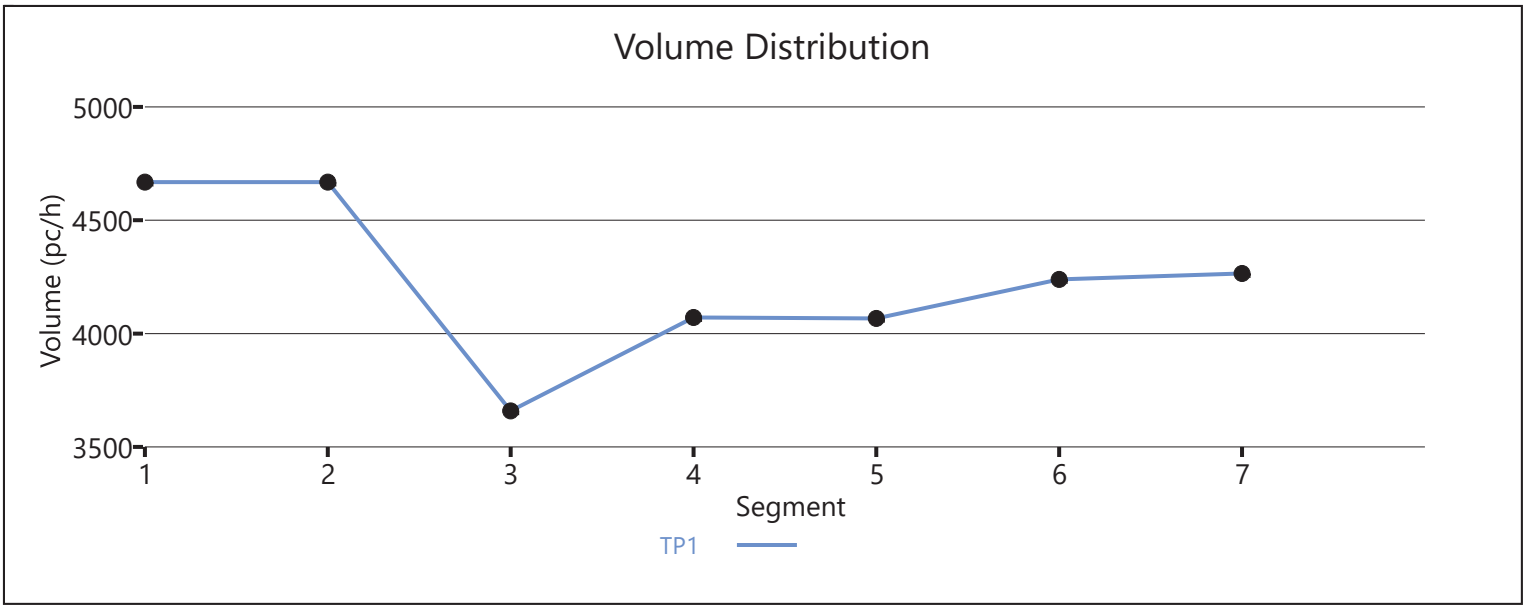
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	4265	7146	0.60	67.9	20.9	C

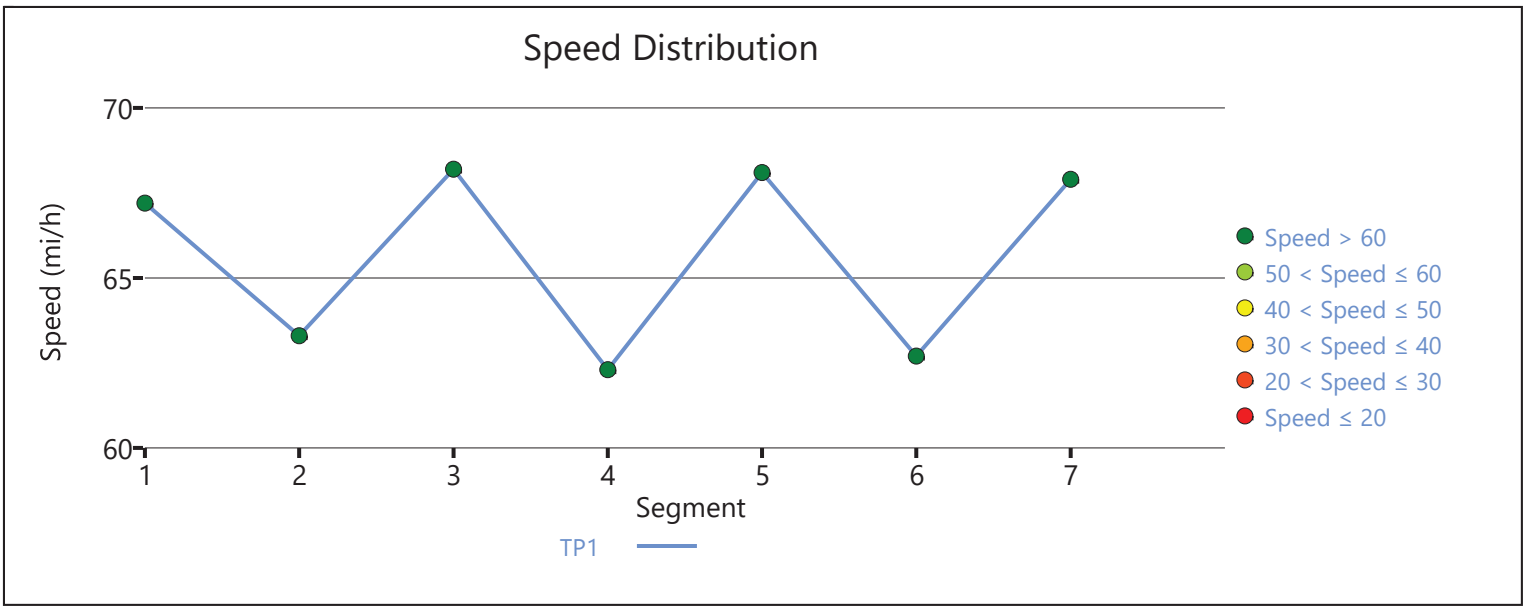
Facility Time Period Results

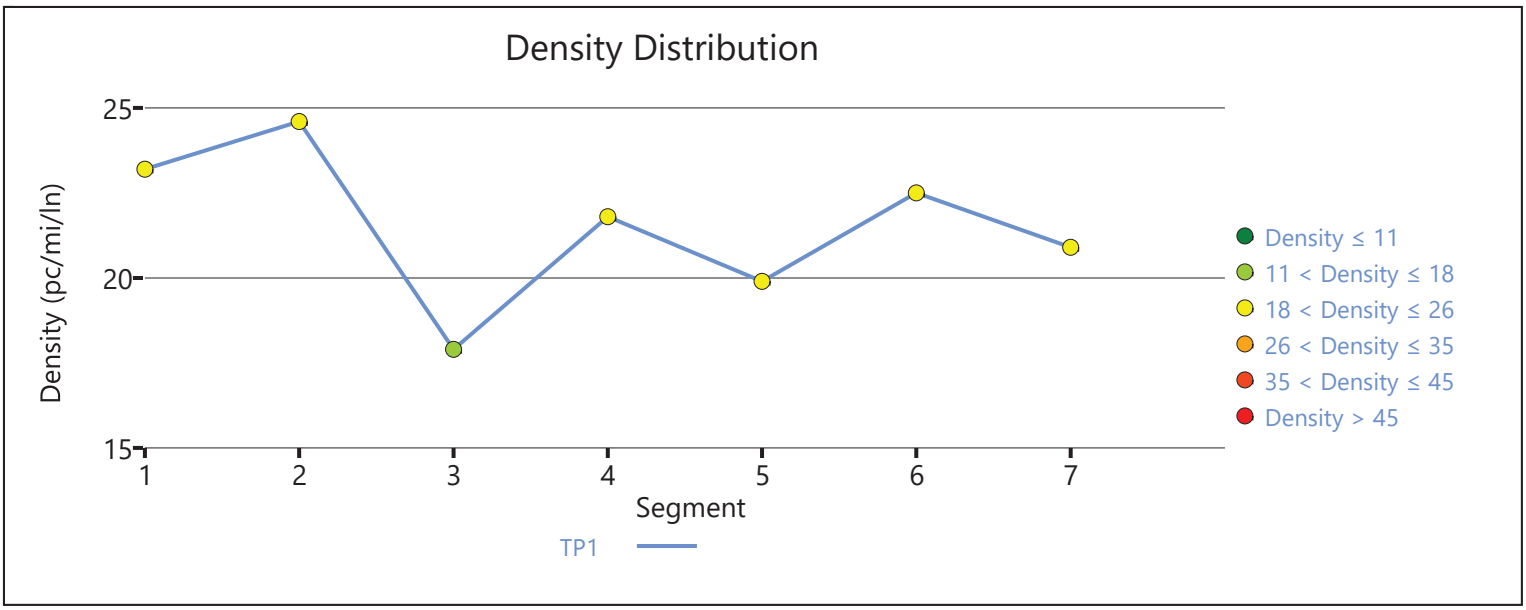
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.7	22.4	21.5	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	66.7	Density, veh/mi/ln	21.5
Average Travel Time, min	5.0	Density, pc/mi/ln	22.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	3913	7179	0.55	69.2	18.8	C

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.826	4924	1011	9600	2100	0.41	0.48	70.0	-	14.0	-	B

Segment 3: Basic

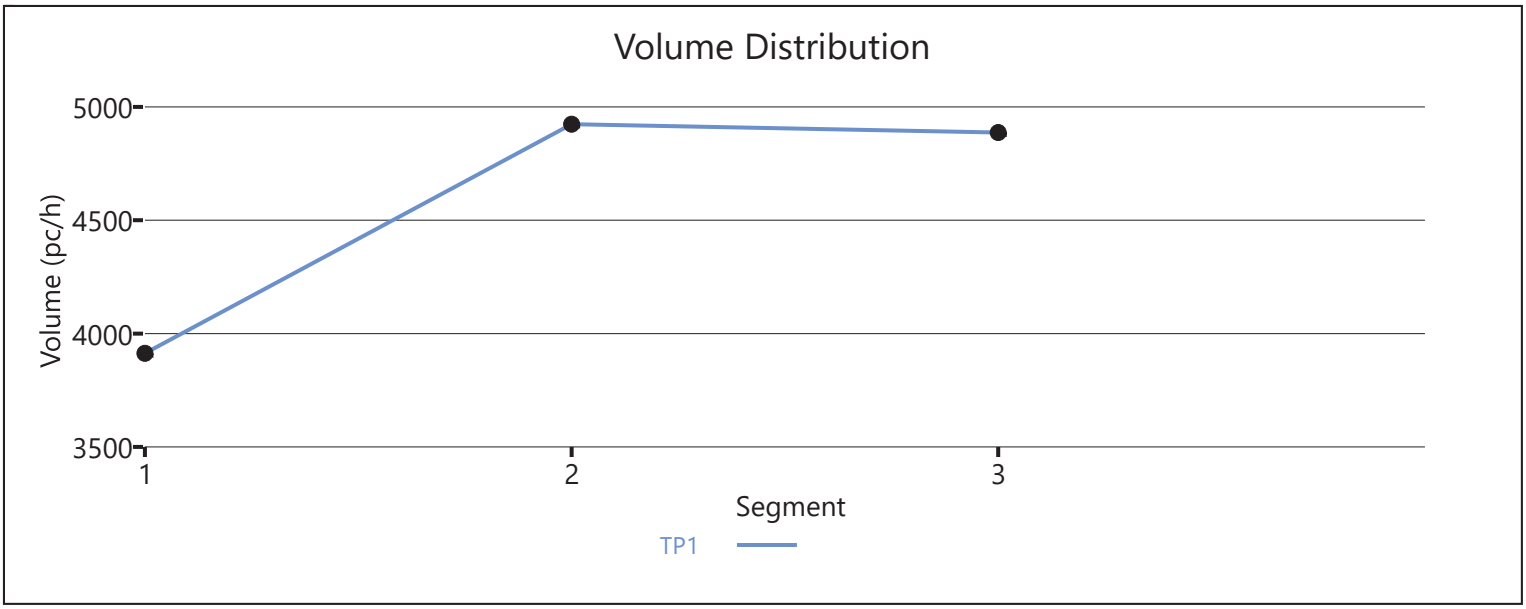
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4887	9572	0.51	69.3	17.6	B

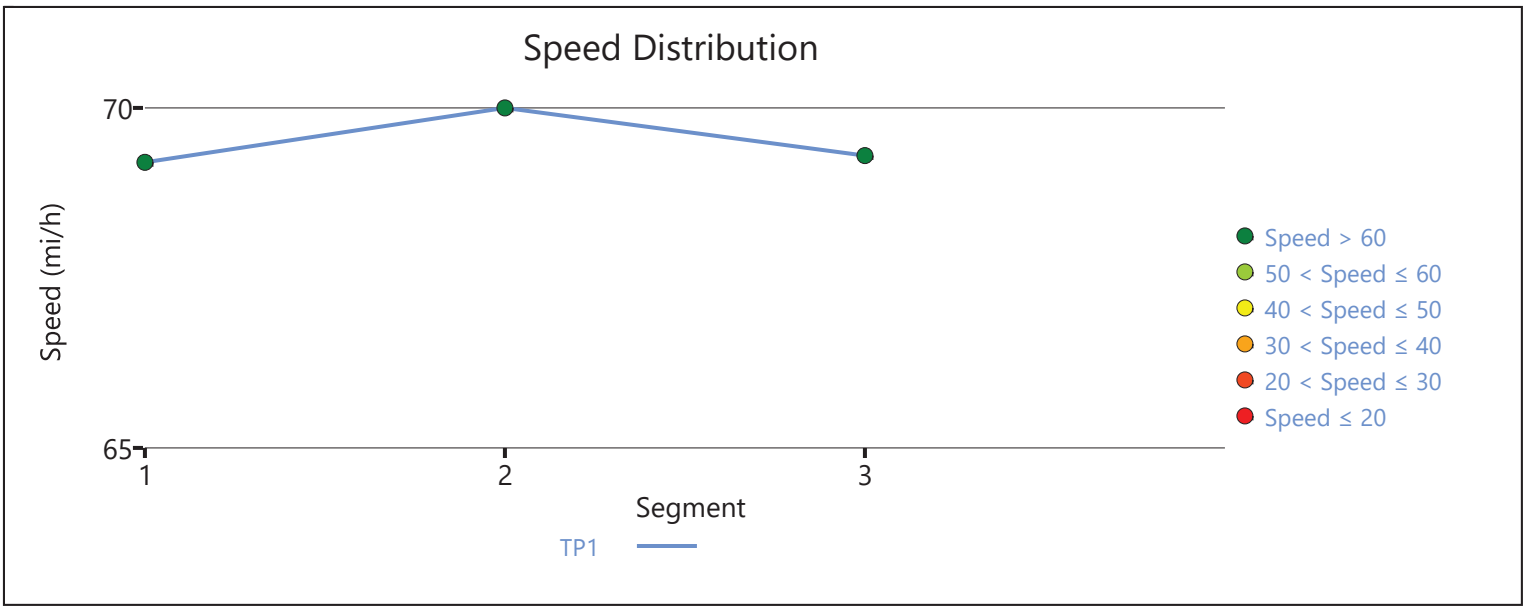
Facility Time Period Results

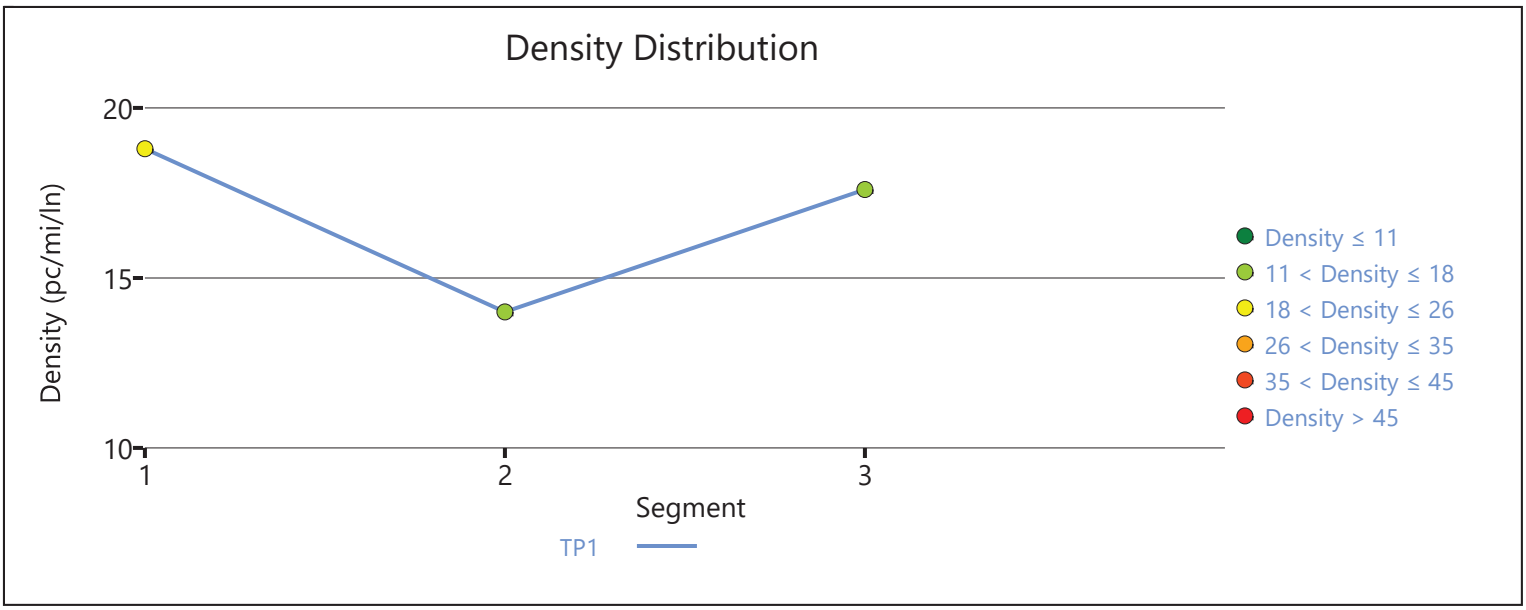
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	17.4	16.3	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	16.3
Average Travel Time, min	1.6	Density, pc/mi/ln	17.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6855	7146	0.96	55.5	41.2	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.926	6855	1182	7200	2100	0.95	0.56	62.7	58.7	36.4	39.2	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5675	7146	0.79	63.4	29.8	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.935	5957	282	7200	1900	0.83	0.15	59.7	57.5	33.3	30.7	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5945	7146	0.83	62.0	32.0	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	6437	492	7200	2100	0.89	0.23	58.4	56.1	36.7	34.0	D

Segment 7: Basic

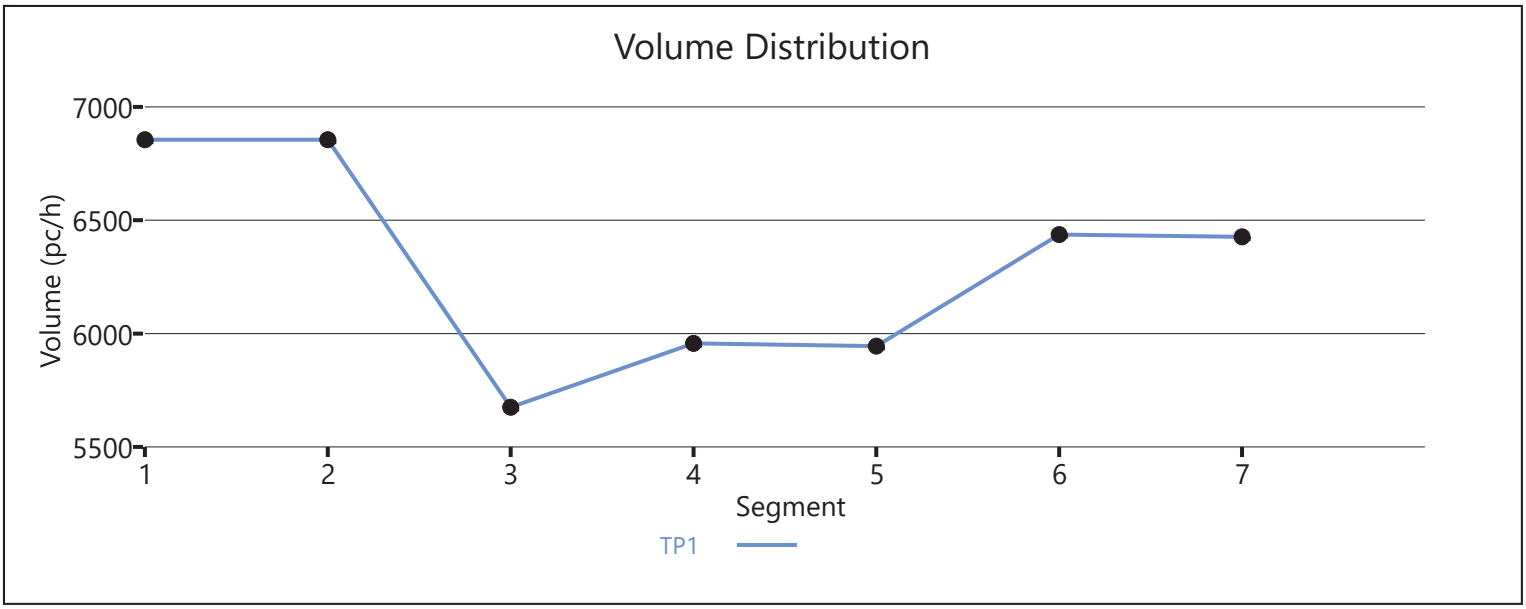
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	6427	7146	0.90	58.8	36.4	E

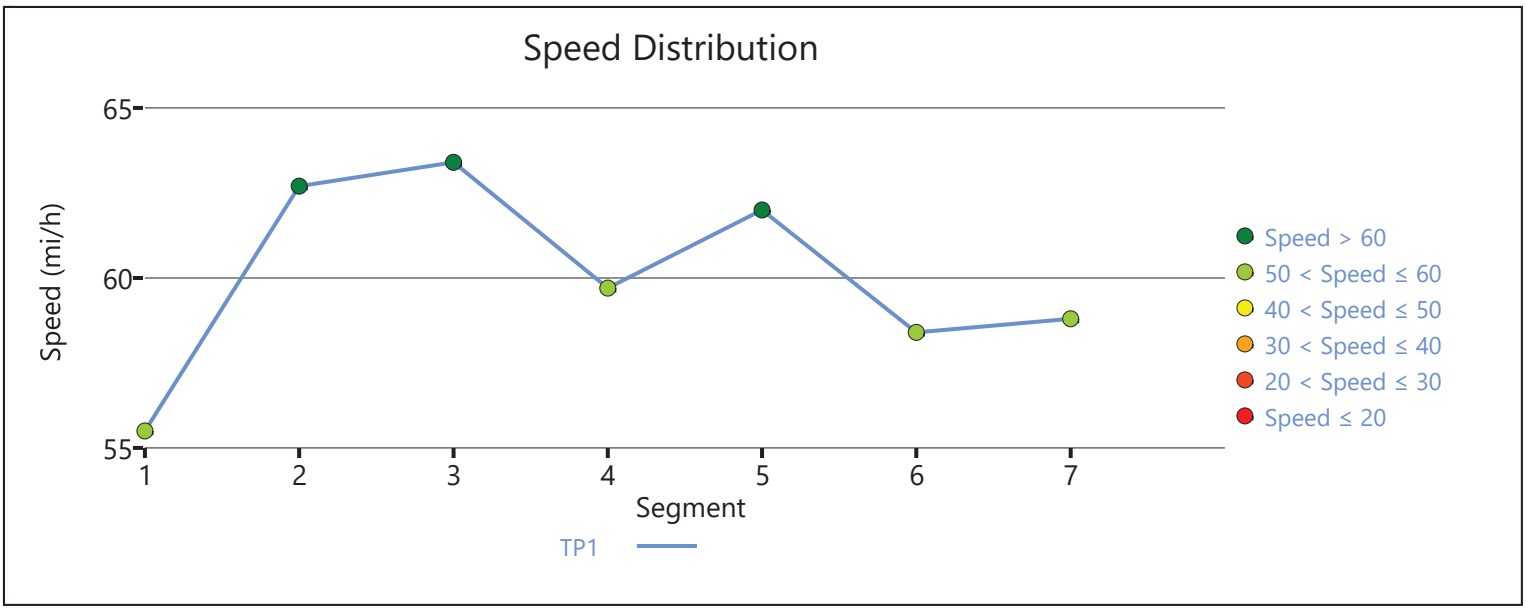
Facility Time Period Results

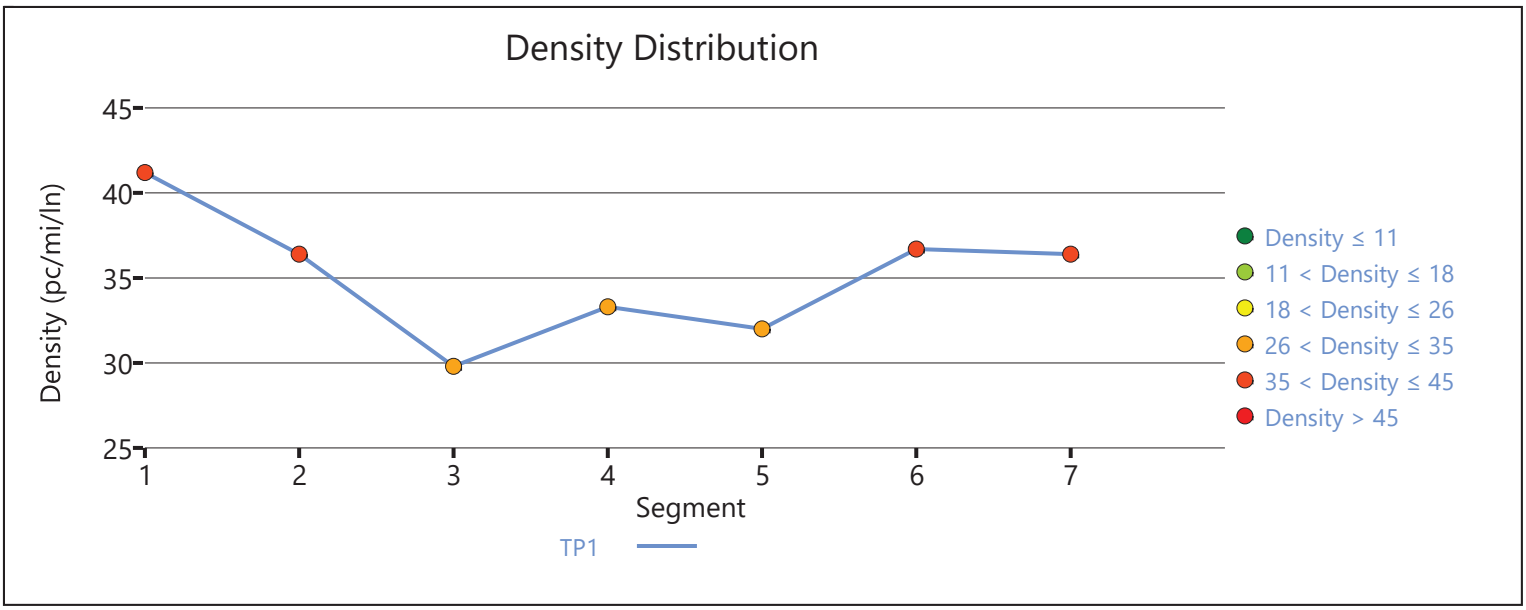
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.5	36.8	36.0	5.7	E

Facility Overall Results

Space Mean Speed, mi/h	58.5	Density, veh/mi/ln	36.0
Average Travel Time, min	5.7	Density, pc/mi/ln	36.8







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6715	9572	0.70	66.9	25.1	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.885	6715	1466	9600	2100	0.70	0.70	64.4	58.0	26.1	31.3	D

Segment 3: Basic

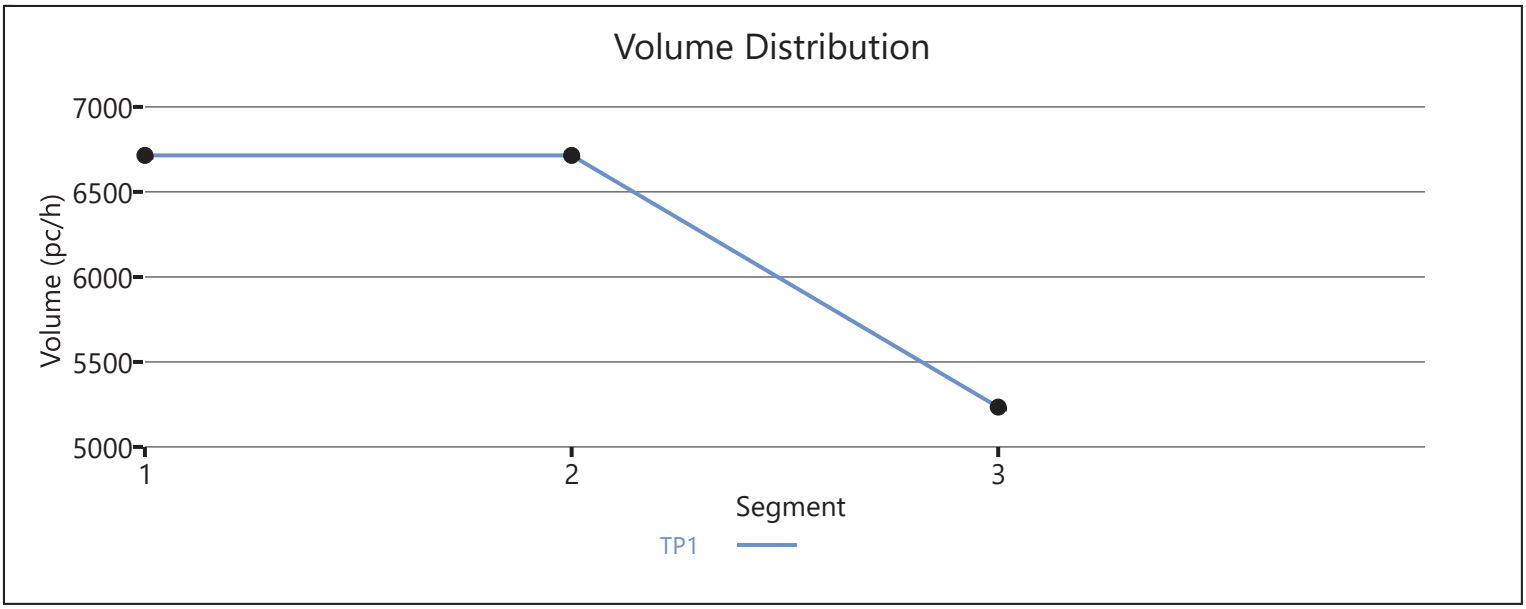
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	5234	9572	0.55	69.2	18.9	C

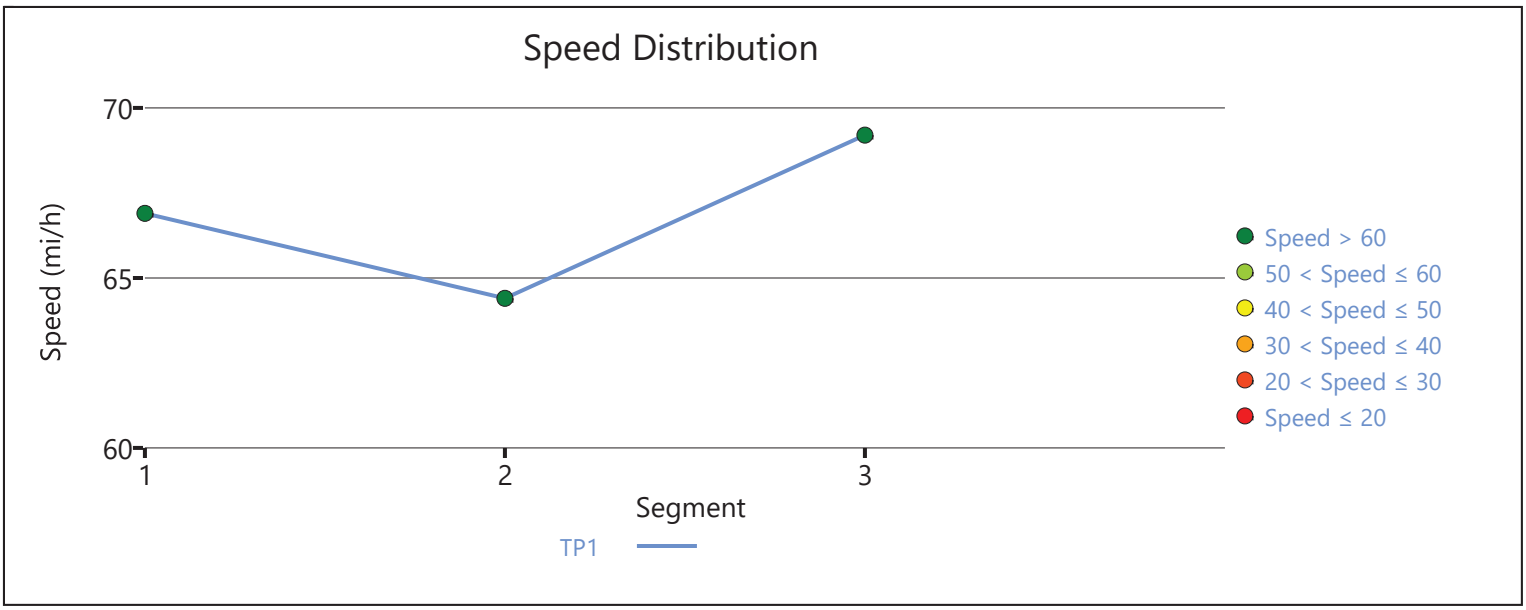
Facility Time Period Results

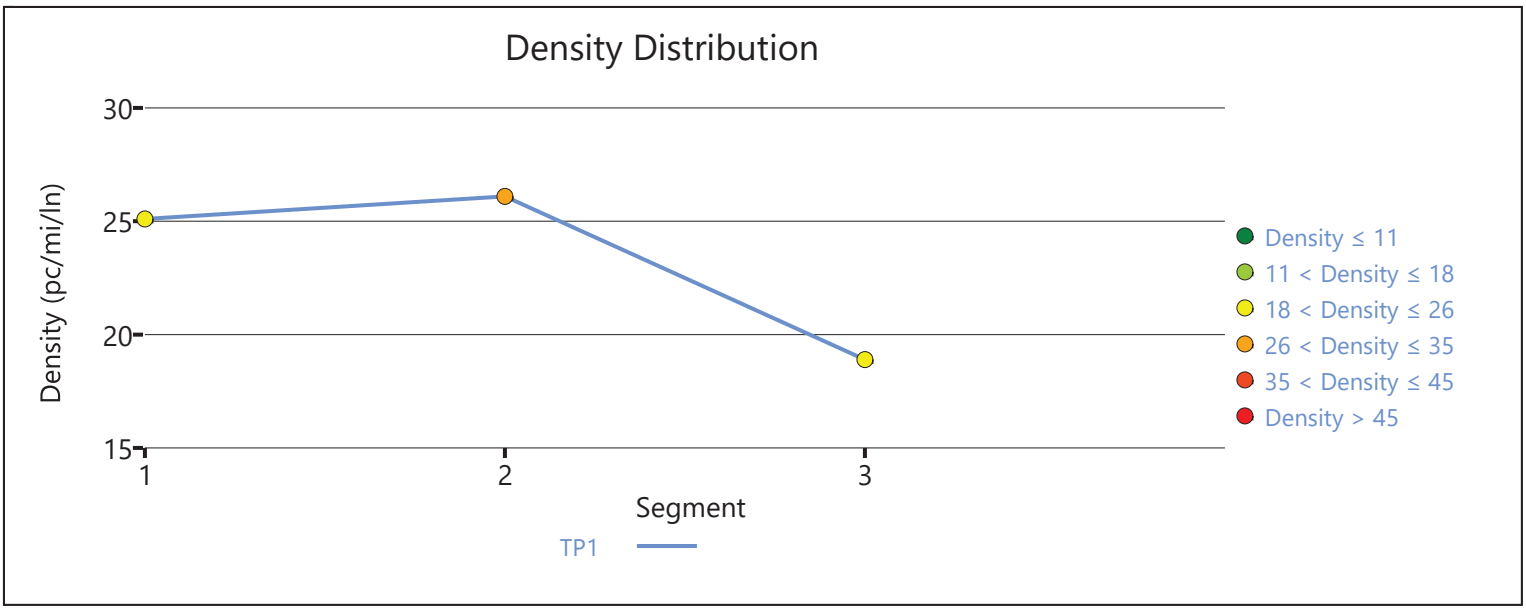
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.8	21.3	20.3	1.7	C

Facility Overall Results

Space Mean Speed, mi/h	67.8	Density, veh/mi/ln	20.3
Average Travel Time, min	1.7	Density, pc/mi/ln	21.3







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APPENDIX 6.8:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.943	4753	7146	0.67	67.0	23.6	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.943	0.833	4753	987	7200	2100	0.66	0.47	63.4	59.2	25.0	31.1	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	3769	7146	0.53	68.2	18.4	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	4362	593	7200	1900	0.61	0.31	61.9	59.7	23.5	25.0	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4363	7146	0.61	67.8	21.4	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.840	4551	188	7200	2100	0.63	0.09	62.3	60.5	24.3	23.9	C

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4568	7146	0.64	67.4	22.6	C

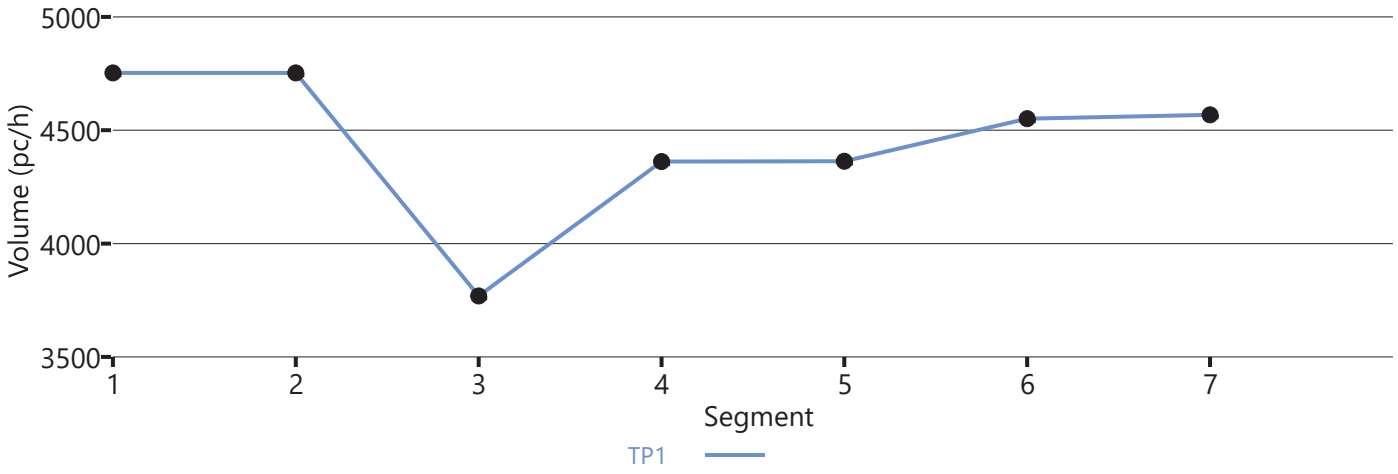
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.4	23.2	22.1	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	66.4	Density, veh/mi/ln	22.1
Average Travel Time, min	5.0	Density, pc/mi/ln	23.2

Volume Distribution



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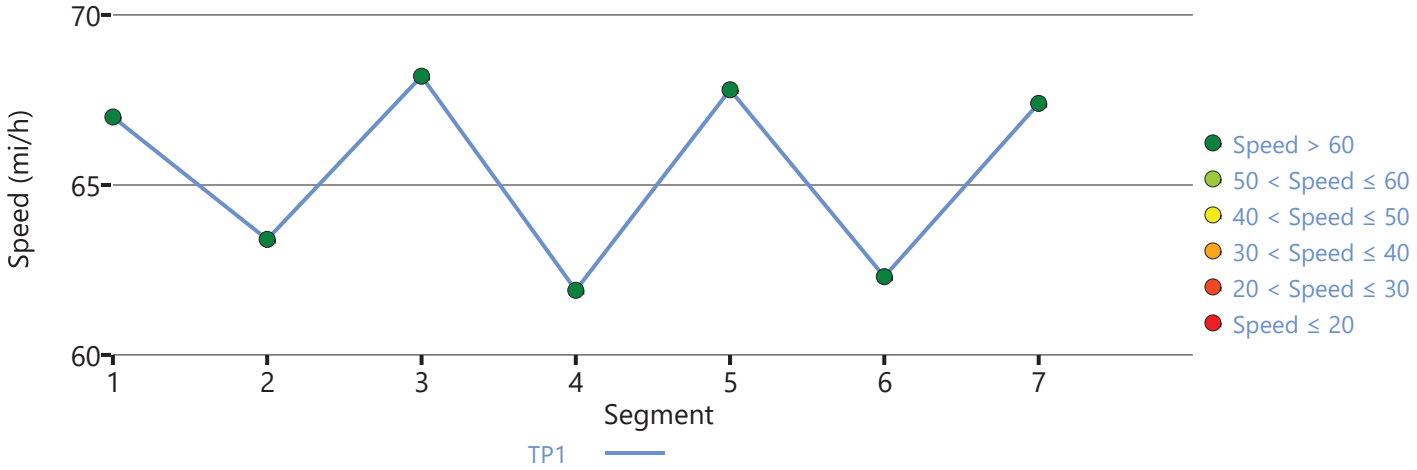
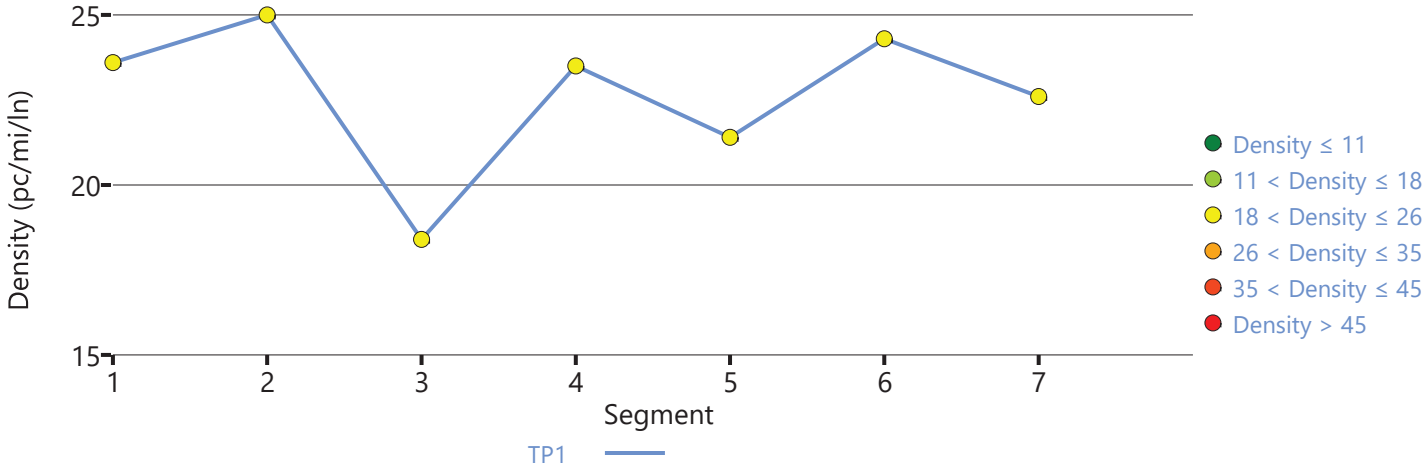


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	3790	7179	0.53	69.3	18.2	C

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.847	5026	1236	9600	2100	0.39	0.59	70.0	-	13.5	-	B

Segment 3: Basic

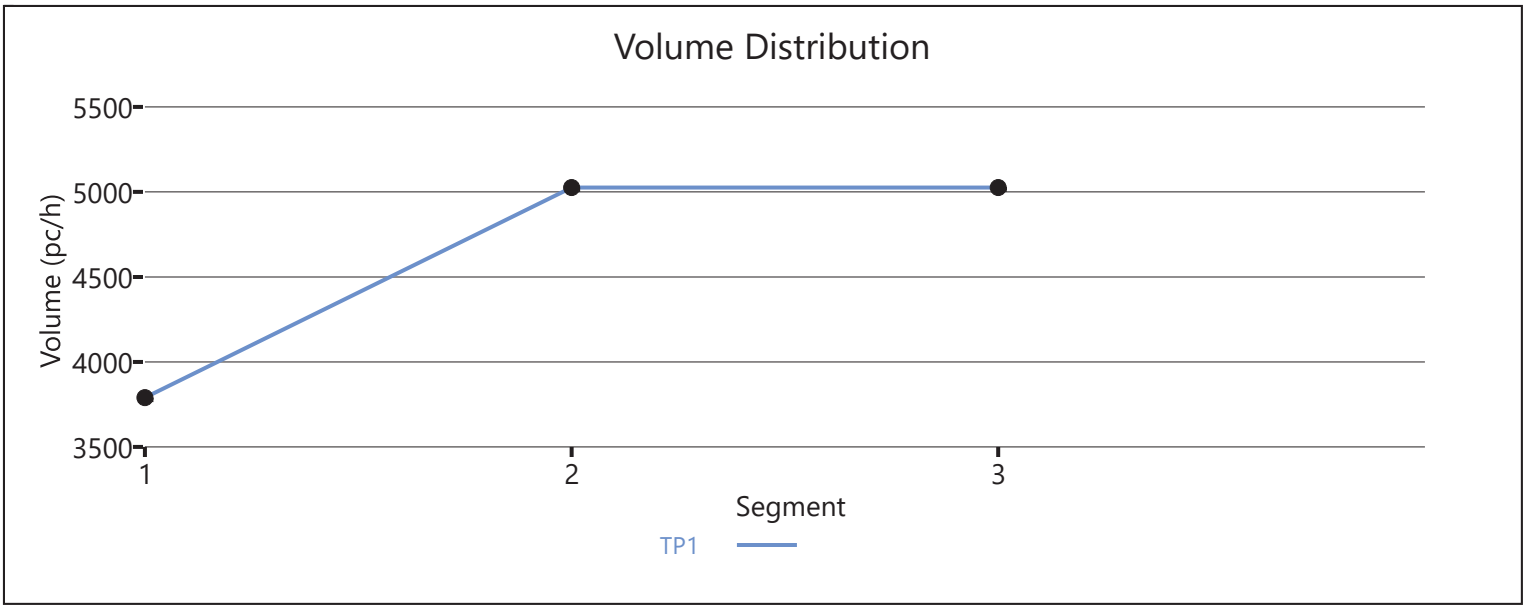
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	5026	9572	0.53	69.3	18.1	C

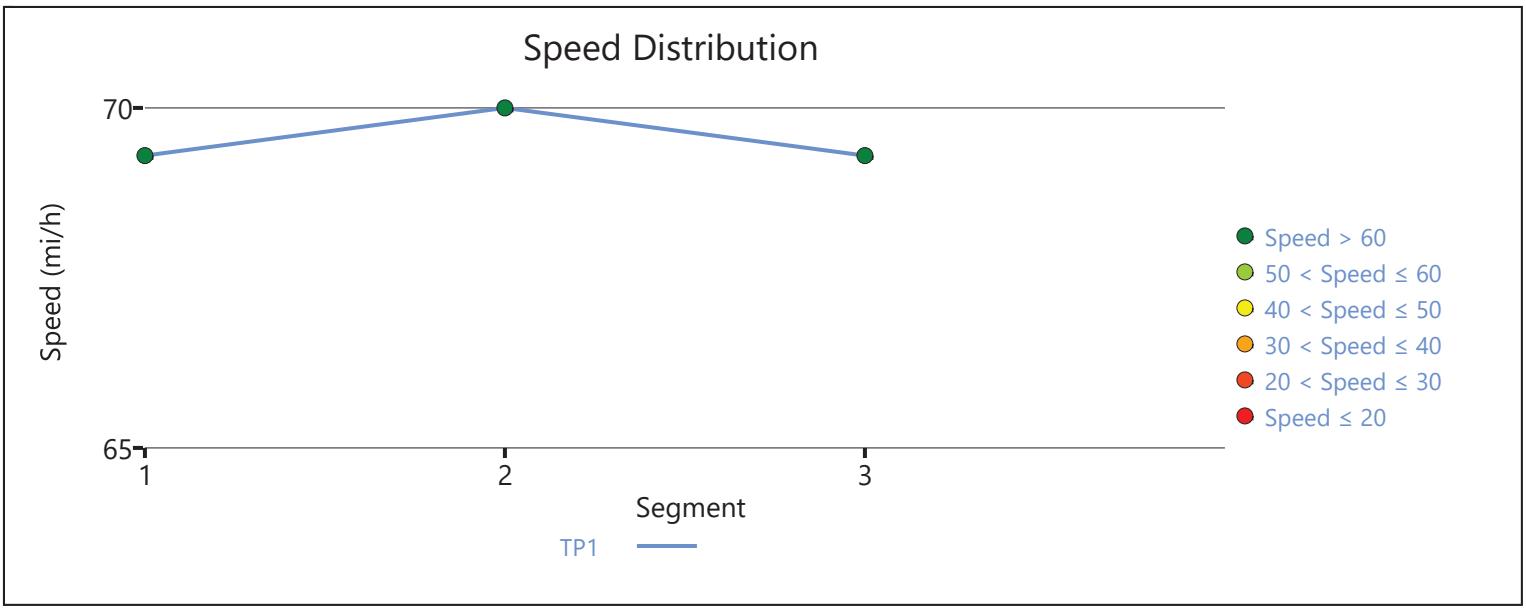
Facility Time Period Results

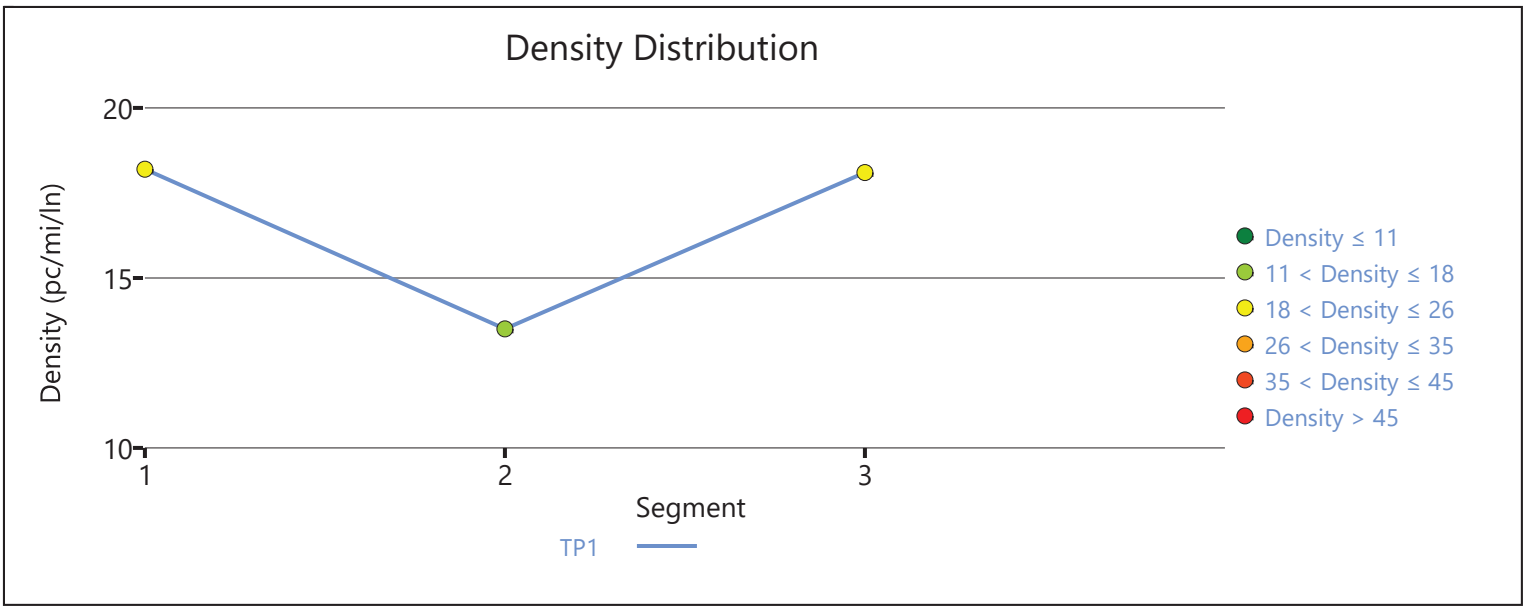
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.4	17.4	16.3	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	69.4	Density, veh/mi/ln	16.3
Average Travel Time, min	1.6	Density, pc/mi/ln	17.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	4113	7146	0.58	68.1	20.1	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.833	4113	1084	7200	2100	0.57	0.52	63.0	58.9	21.8	28.1	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	3036	7146	0.42	68.2	14.8	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.917	3446	410	7200	1900	0.48	0.22	62.9	60.7	18.3	19.4	B

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3451	7146	0.48	68.2	16.9	B

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	3988	537	7200	2100	0.55	0.26	62.6	60.6	21.2	22.8	C

Segment 7: Basic

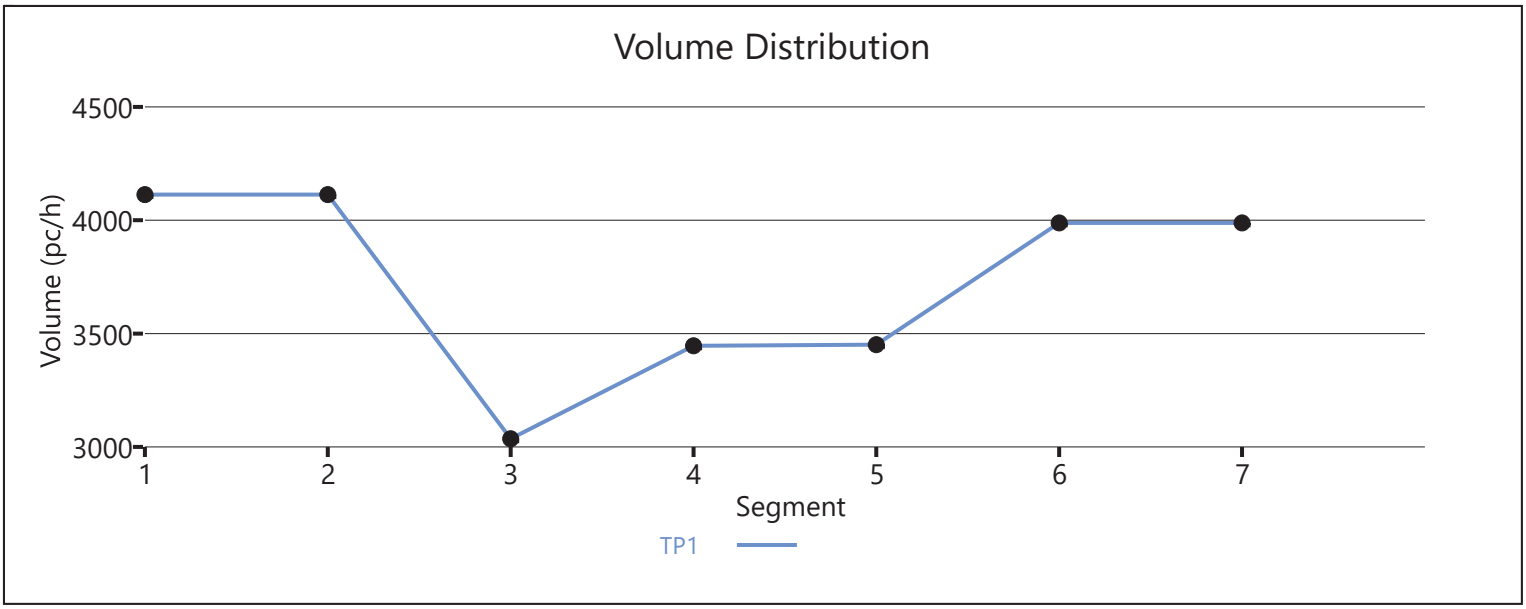
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3988	7146	0.56	68.2	19.5	C

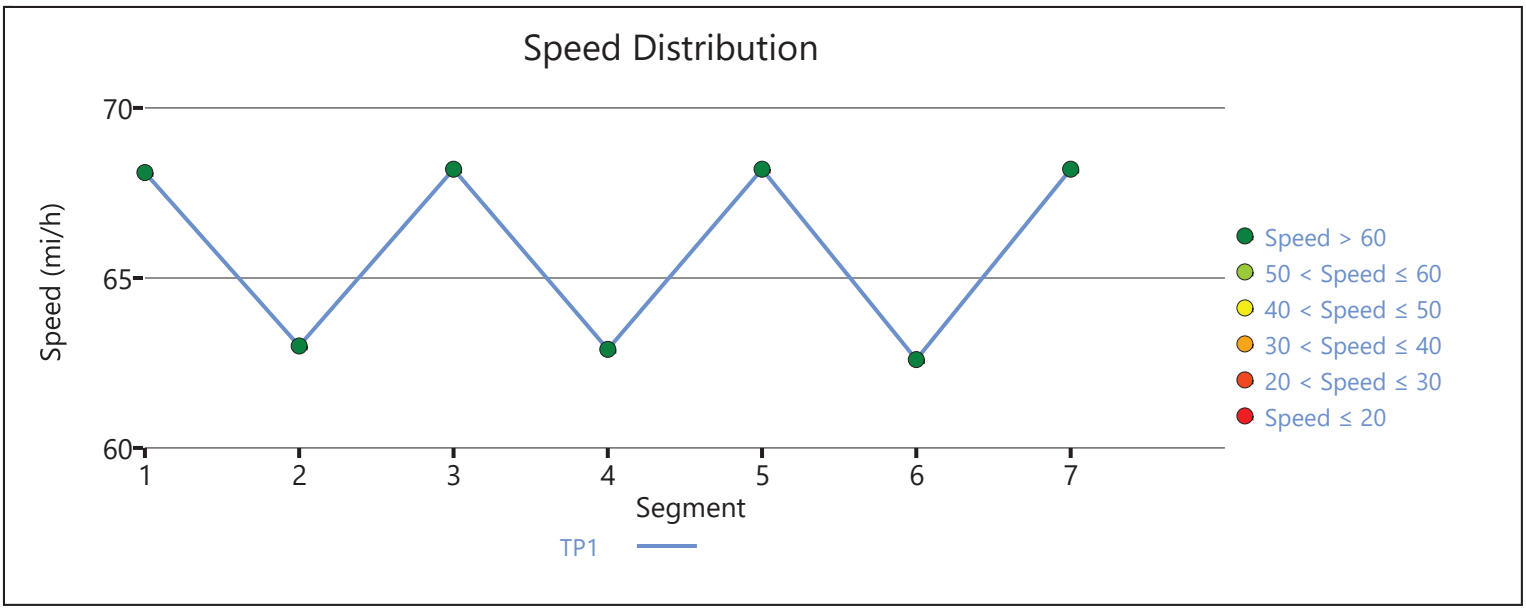
Facility Time Period Results

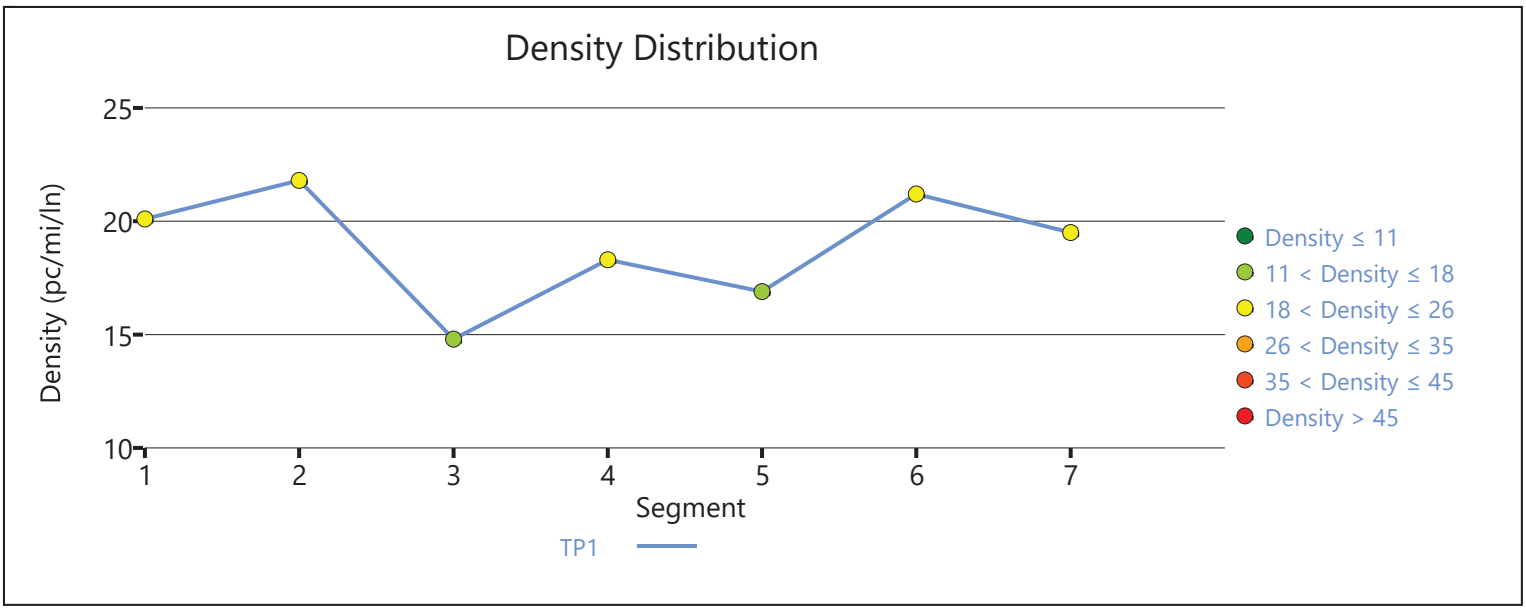
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.3	19.5	18.8	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	67.3	Density, veh/mi/ln	18.8
Average Travel Time, min	5.0	Density, pc/mi/ln	19.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.917	4867	9572	0.51	69.3	17.6	B

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.917	0.840	4867	1035	9600	2100	0.51	0.49	65.7	59.1	18.5	22.3	C

Segment 3: Basic

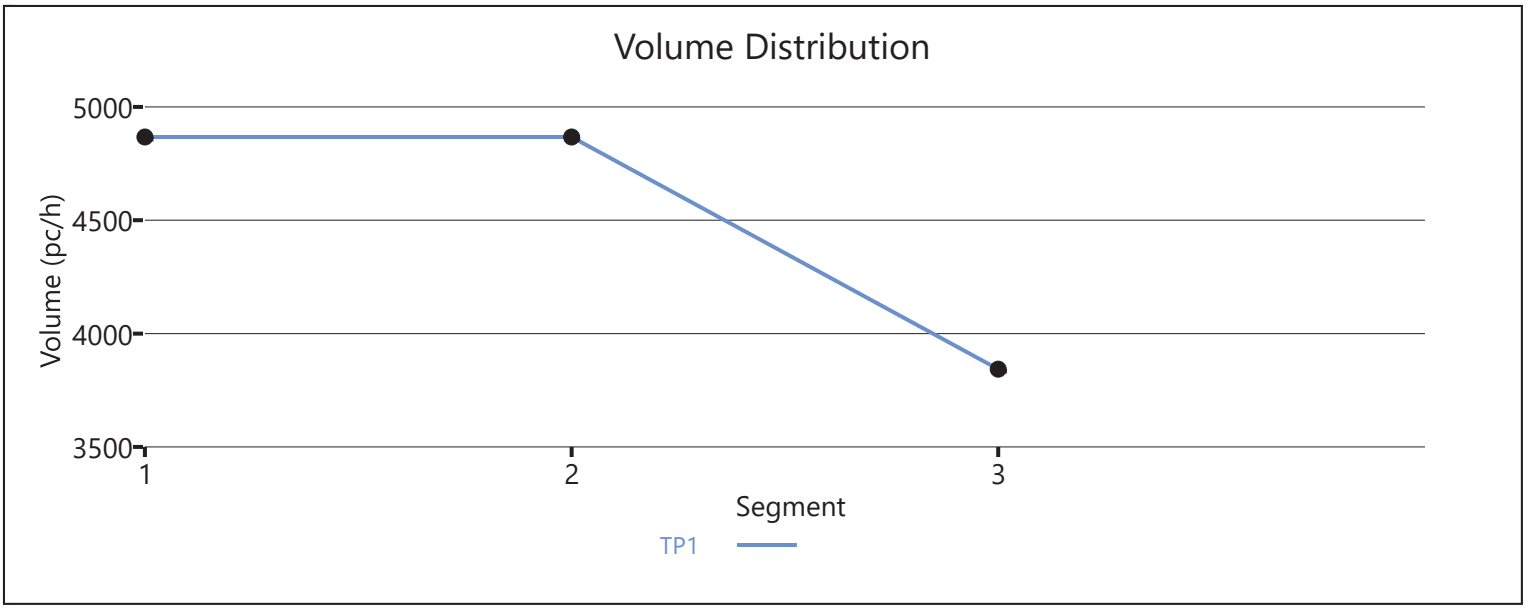
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	3843	9572	0.40	69.3	13.9	B

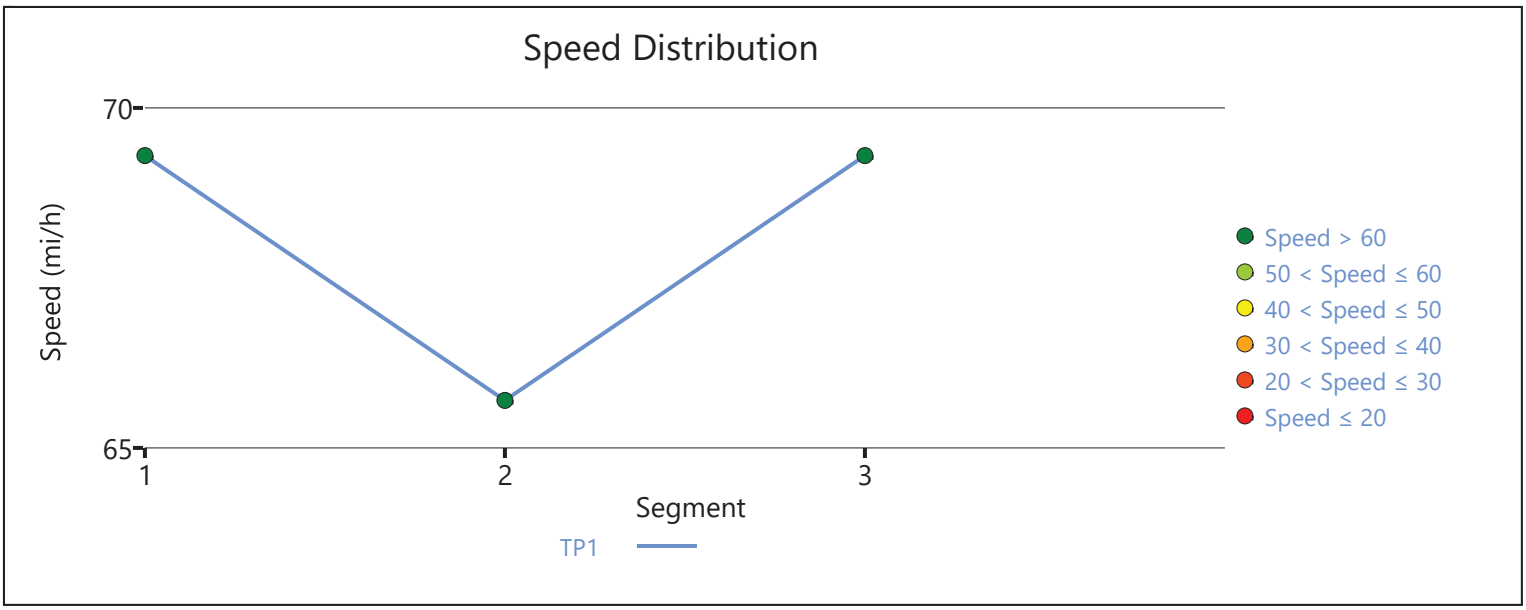
Facility Time Period Results

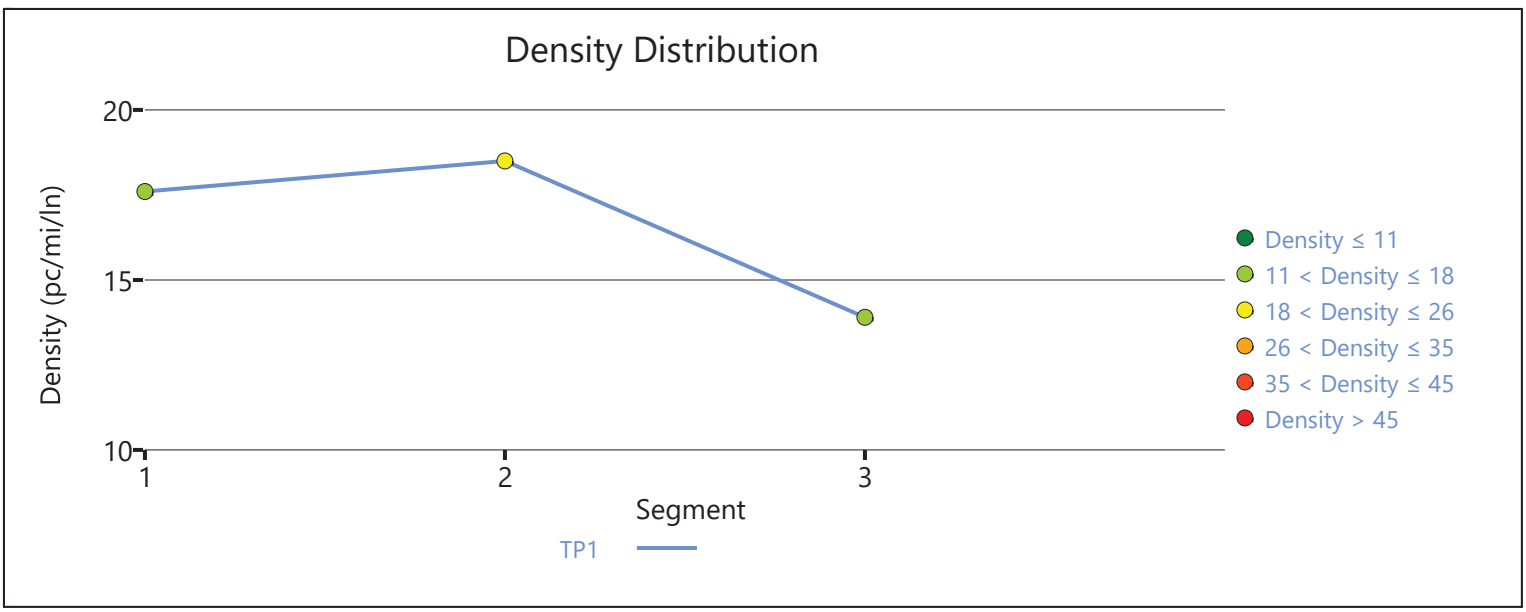
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	68.6	15.4	14.2	1.6	B

Facility Overall Results

Space Mean Speed, mi/h	68.6	Density, veh/mi/ln	14.2
Average Travel Time, min	1.6	Density, pc/mi/ln	15.4







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4723	7146	0.66	67.1	23.5	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	4723	1076	7200	2100	0.66	0.51	63.2	58.9	24.9	31.1	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	3659	7146	0.51	68.2	17.9	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.952	4071	412	7200	1900	0.57	0.22	62.3	60.1	21.8	23.1	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	4067	7146	0.57	68.1	19.9	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.787	4648	581	7200	2100	0.65	0.28	62.0	60.1	25.0	25.5	C

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.943	4633	7146	0.65	67.3	22.9	C

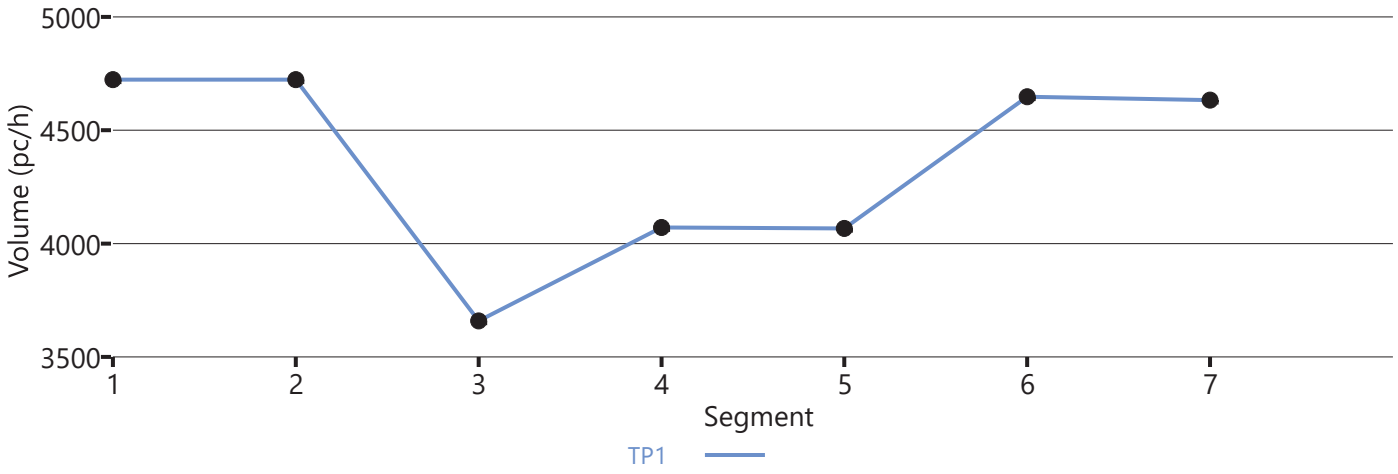
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.5	23.1	22.1	5.0	C

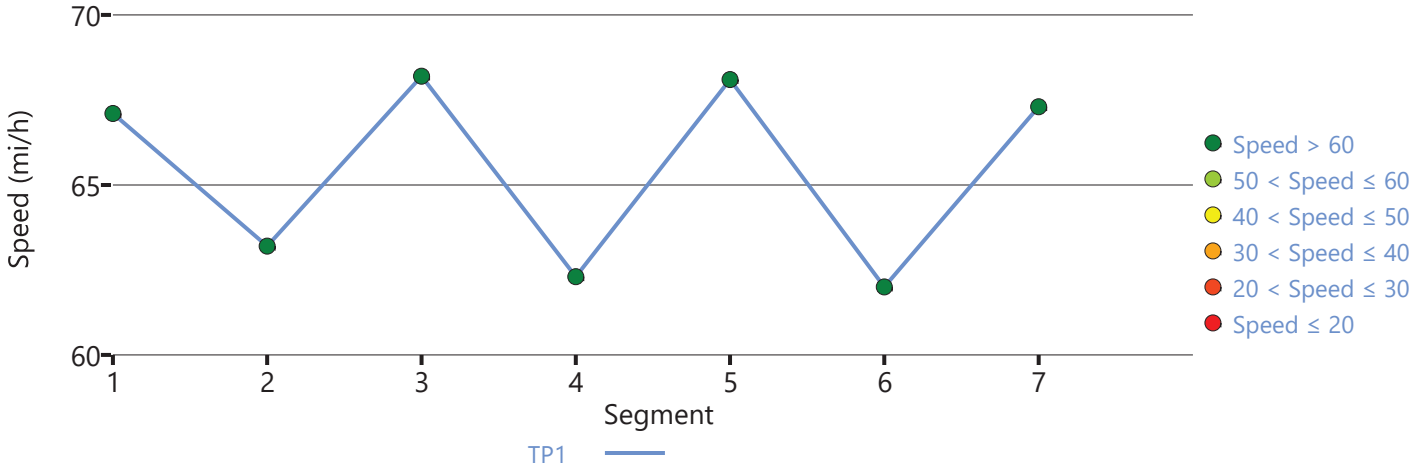
Facility Overall Results

Space Mean Speed, mi/h	66.5	Density, veh/mi/ln	22.1
Average Travel Time, min	5.0	Density, pc/mi/ln	23.1

Volume Distribution



Speed Distribution



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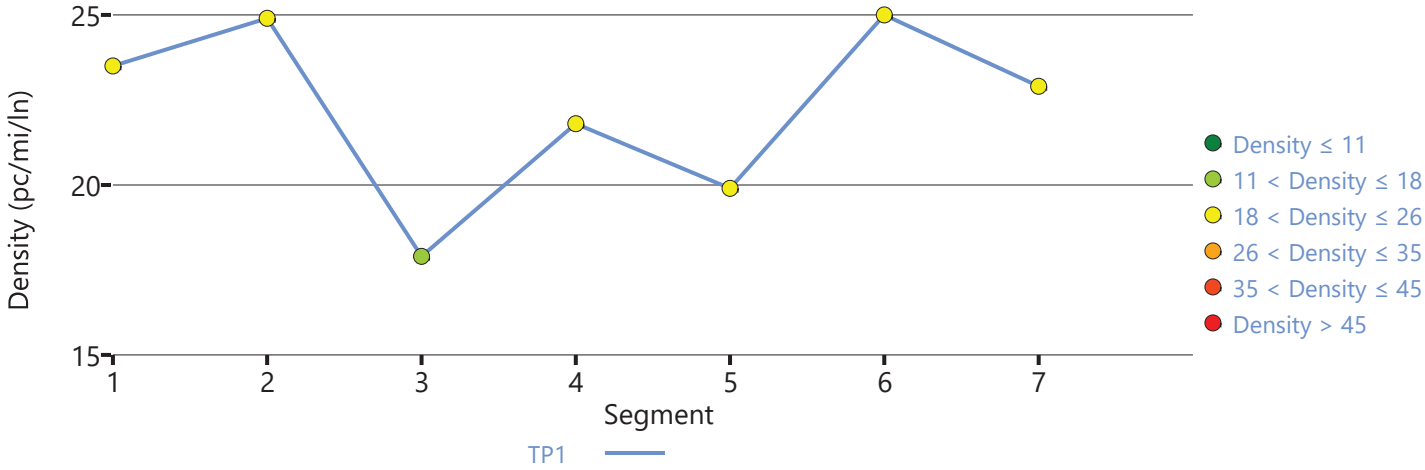

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	4348	7179	0.61	68.7	21.1	C

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.847	5507	1159	9600	2100	0.45	0.55	70.0	-	15.5	-	B

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.909	5509	9572	0.58	69.0	20.0	C

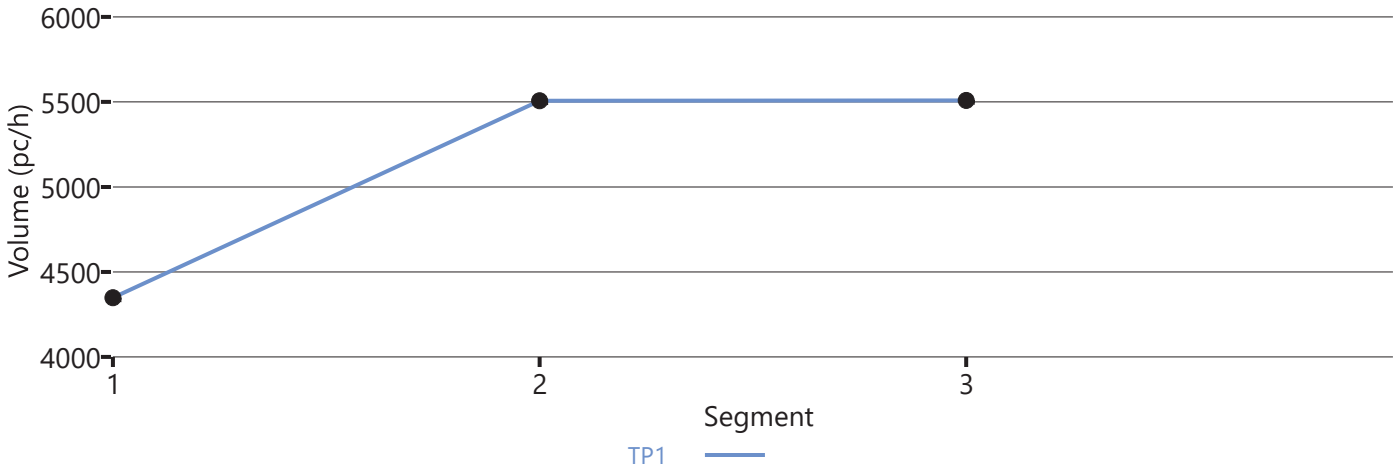
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	69.1	19.6	18.0	1.6	C

Facility Overall Results

Space Mean Speed, mi/h	69.1	Density, veh/mi/ln	18.0
Average Travel Time, min	1.6	Density, pc/mi/ln	19.6

Volume Distribution



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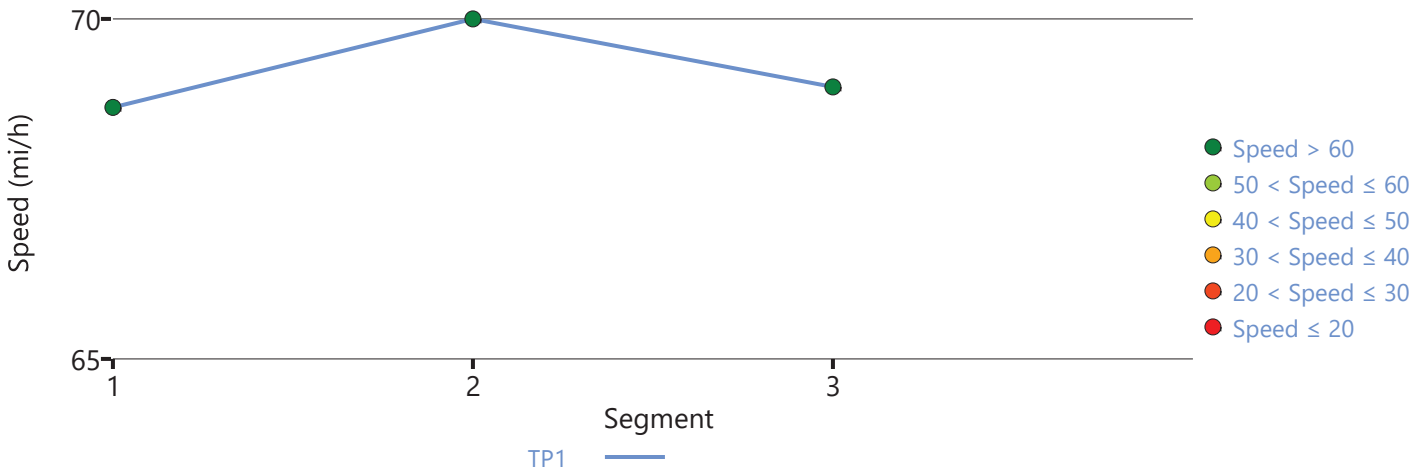
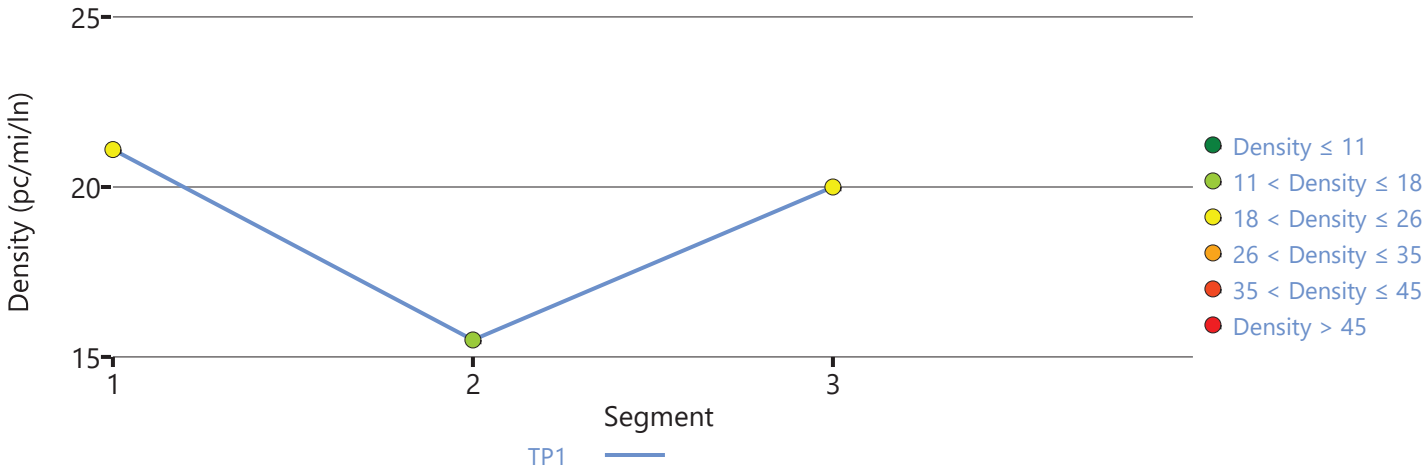


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6928	7146	0.97	54.9	42.1	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.917	6928	1271	7200	2100	0.96	0.61	62.5	58.5	36.9	39.6	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5675	7146	0.79	63.4	29.8	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.833	6382	707	7200	1900	0.89	0.37	58.0	55.3	36.7	33.8	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6394	7146	0.89	59.1	36.1	E

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6886	492	7200	2100	0.96	0.23	56.8	54.3	40.4	36.0	E

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6886	7146	0.96	55.2	41.6	E

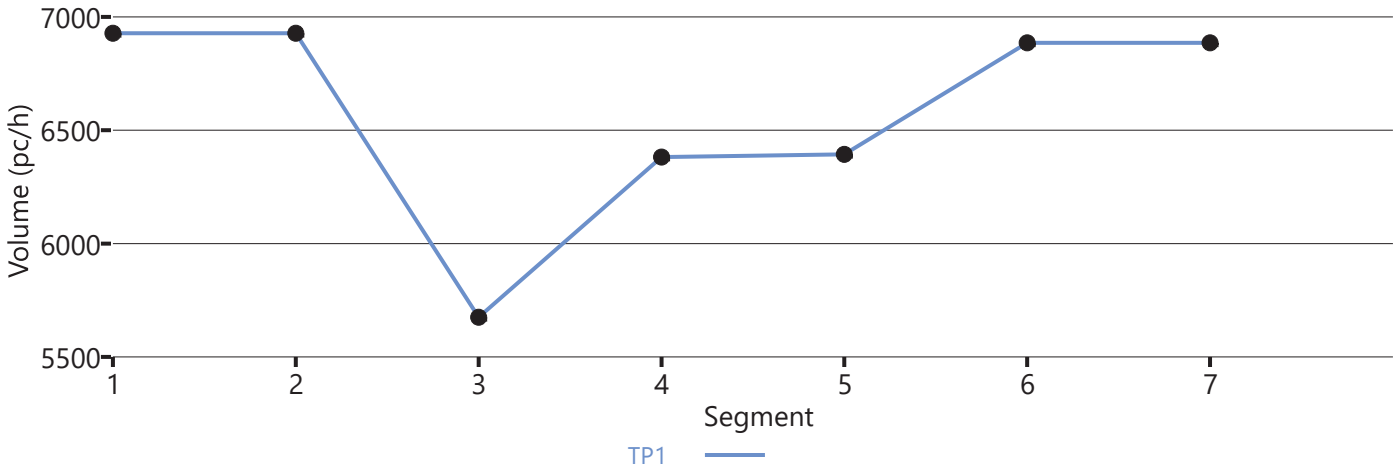
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	56.1	40.5	39.1	5.9	E

Facility Overall Results

Space Mean Speed, mi/h	56.1	Density, veh/mi/ln	39.1
Average Travel Time, min	5.9	Density, pc/mi/ln	40.5

Volume Distribution



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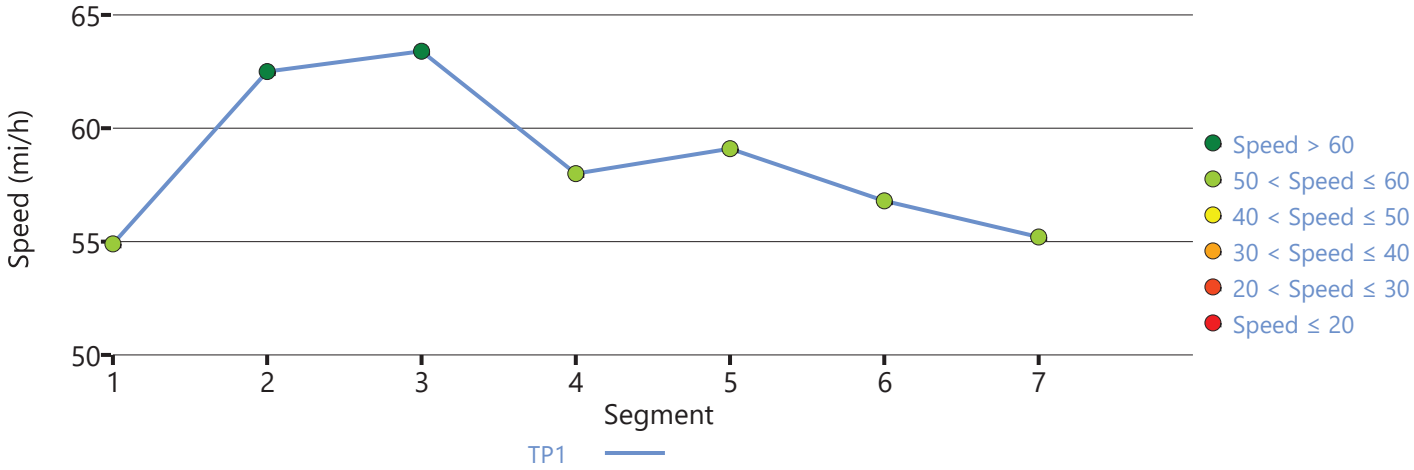
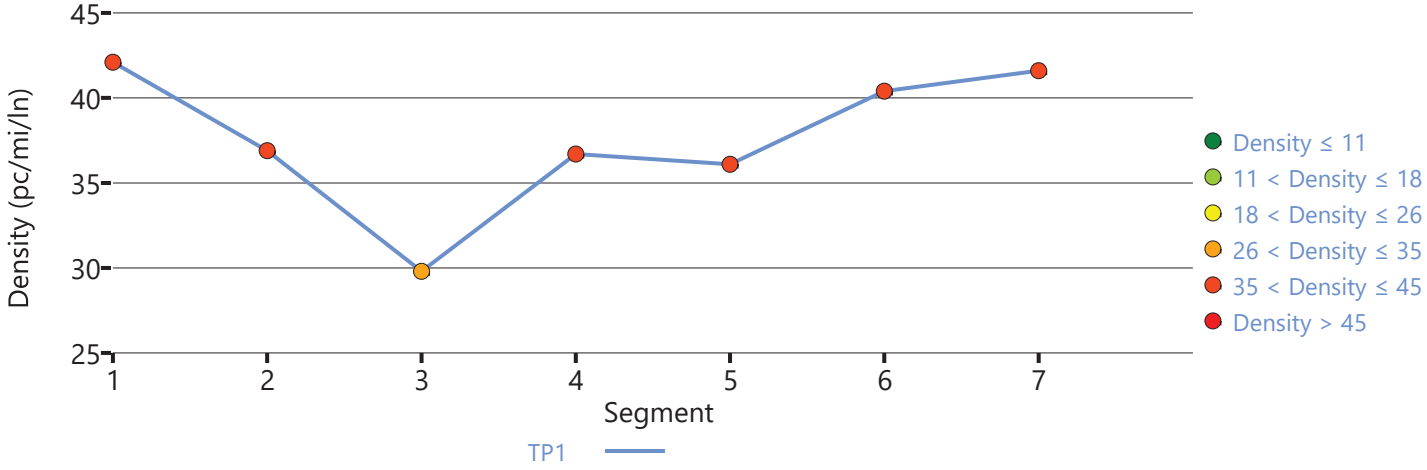


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Opening Year (2021) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6824	9572	0.71	66.6	25.6	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.885	6824	1502	9600	2100	0.71	0.72	64.3	57.9	26.5	31.9	D

Segment 3: Basic

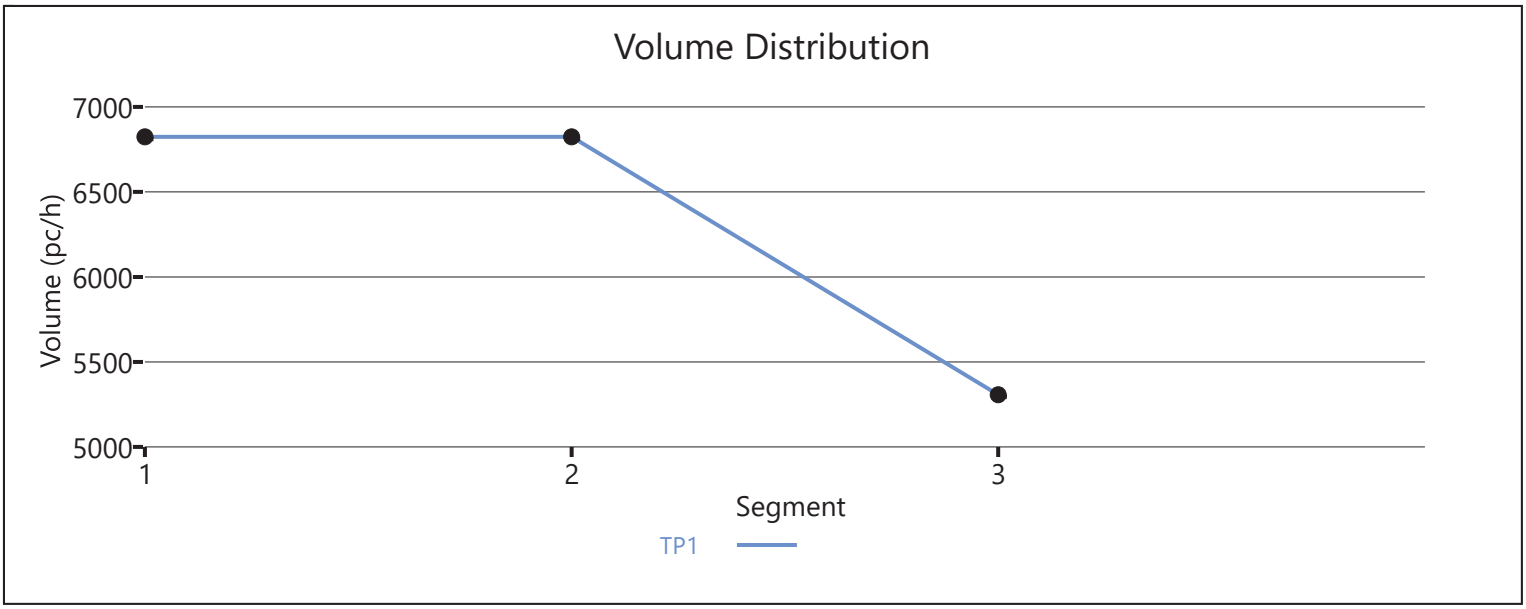
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	5307	9572	0.55	69.2	19.2	C

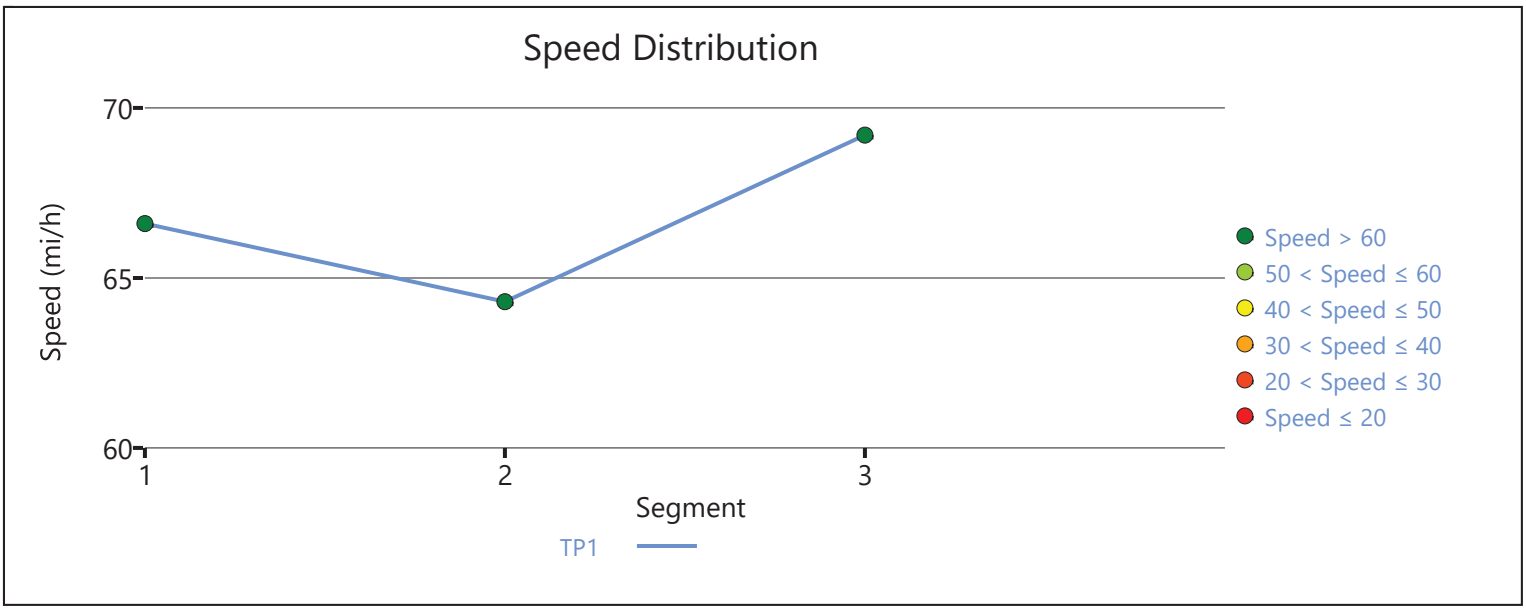
Facility Time Period Results

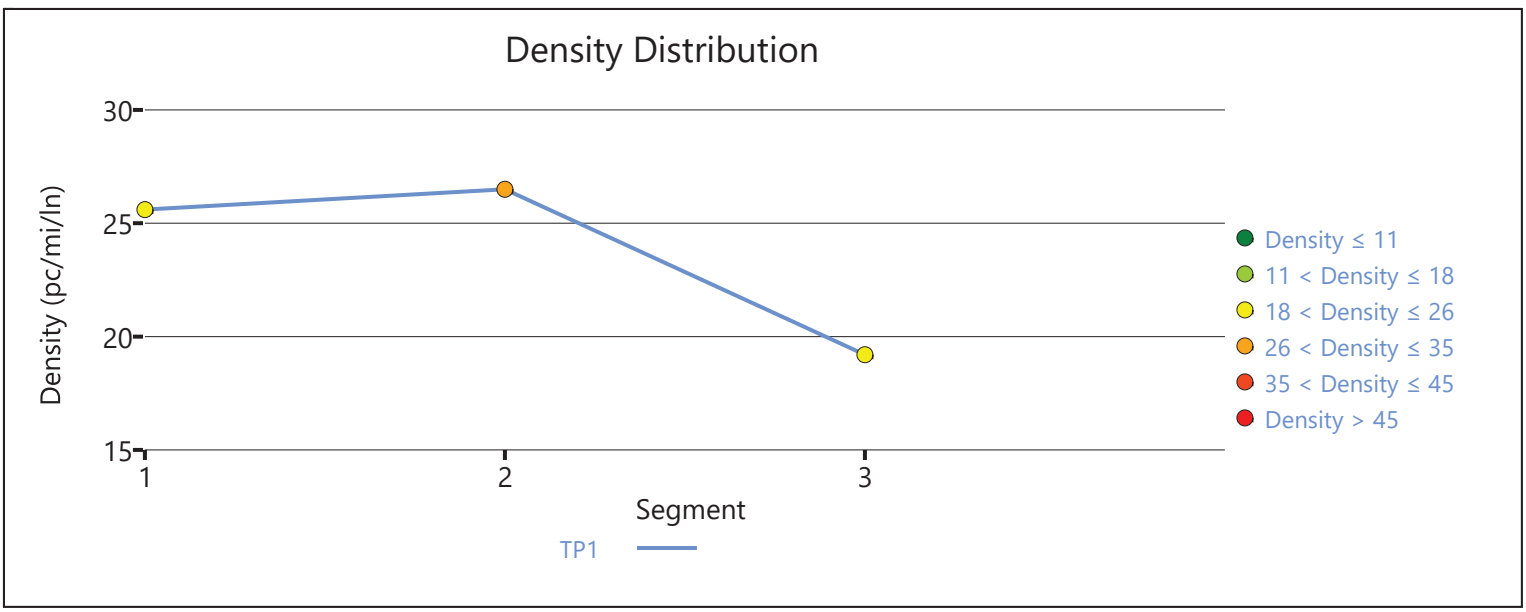
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.7	21.6	20.6	1.7	C

Facility Overall Results

Space Mean Speed, mi/h	67.7	Density, veh/mi/ln	20.6
Average Travel Time, min	1.7	Density, pc/mi/ln	21.6







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APPENDIX 6.9:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	3	1161	1399	0
Future Vol, veh/h	0	1	3	1161	1399	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1	3	1290	1554	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2205	777	1554	0	-	0
Stage 1	1554	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	39	344	432	-	-	-
Stage 1	163	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	38	344	432	-	-	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	159	-	-	-	-	-
Stage 2	486	-	-	-	-	-

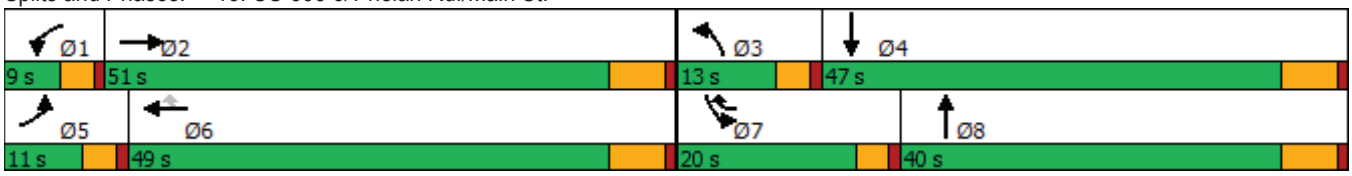
Approach	EB	NB	SB
HCM Control Delay, s	15.5	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	432	-	344	-	-
HCM Lane V/C Ratio	0.008	-	0.003	-	-
HCM Control Delay (s)	13.4	0.2	15.5	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	94	739	21	380	356	137	795	288	1047
Future Volume (vph)	94	739	21	380	356	137	795	288	1047
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	9.0	16.0	9.0	16.0
Total Split (s)	11.0	51.0	9.0	49.0	20.0	13.0	40.0	20.0	47.0
Total Split (%)	9.2%	42.5%	7.5%	40.8%	16.7%	10.8%	33.3%	16.7%	39.2%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.1	24.9	5.1	16.8	35.6	8.2	32.9	12.7	37.4
Actuated g/C Ratio	0.08	0.28	0.06	0.19	0.40	0.09	0.37	0.14	0.42
v/c Ratio	0.69	0.65	0.22	0.41	0.55	0.45	0.65	0.61	0.78
Control Delay	69.7	30.7	51.2	33.3	20.1	46.4	27.8	43.6	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	30.7	51.2	33.3	20.1	46.4	27.8	43.6	28.2
LOS	E	C	D	C	C	D	C	D	C
Approach Delay		34.4		27.6			30.5		31.4
Approach LOS		C		C			C		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	739	155	21	380	356	137	795	23	288	1047	74
Future Volume (veh/h)	94	739	155	21	380	356	137	795	23	288	1047	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	98	770	116	22	396	291	143	828	24	300	1091	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	126	1188	178	44	1118	530	223	1248	36	399	1369	92
Arrive On Green	0.07	0.26	0.26	0.02	0.22	0.22	0.06	0.35	0.35	0.11	0.40	0.40
Sat Flow, veh/h	1810	4554	681	1810	5187	1610	3510	3582	104	3510	3434	230
Grp Volume(v), veh/h	98	583	303	22	396	291	143	417	435	300	573	591
Grp Sat Flow(s),veh/h/ln	1810	1729	1777	1810	1729	1610	1755	1805	1881	1755	1805	1859
Q Serve(g_s), s	4.2	11.9	12.0	1.0	5.1	11.7	3.1	15.5	15.5	6.6	22.1	22.2
Cycle Q Clear(g_c), s	4.2	11.9	12.0	1.0	5.1	11.7	3.1	15.5	15.5	6.6	22.1	22.2
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.06	1.00		0.12
Lane Grp Cap(c), veh/h	126	902	464	44	1118	530	223	629	656	399	720	741
V/C Ratio(X)	0.78	0.65	0.65	0.50	0.35	0.55	0.64	0.66	0.66	0.75	0.80	0.80
Avail Cap(c_a), veh/h	160	1967	1011	114	2819	1058	399	776	809	710	935	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	26.0	26.0	38.1	26.3	21.7	36.2	21.8	21.8	34.0	21.0	21.0
Incr Delay (d2), s/veh	15.2	0.8	1.6	6.4	0.2	0.9	2.3	1.8	1.7	2.2	4.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.4	4.7	0.5	1.9	3.9	1.3	5.9	6.1	2.7	8.5	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	26.8	27.6	44.6	26.5	22.6	38.5	23.6	23.5	36.1	25.0	24.9
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		984			709			995			1464	
Approach Delay, s/veh		29.5			25.5			25.7			27.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	26.6	9.0	37.5	9.5	23.1	13.0	33.6
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	45.0	9.0	41.0	7.0	43.0	16.0	34.0
Max Q Clear Time (g_c+I1), s	3.0	14.0	5.1	24.2	6.2	13.7	8.6	17.5
Green Ext Time (p_c), s	0.0	5.5	0.1	7.4	0.0	3.4	0.4	5.0

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	947	17	25	1199
Future Vol, veh/h	10	9	947	17	25	1199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1018	18	27	1289

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1726	518	0	0	1036	0
Stage 1	1027	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	81	508	-	-	679	-
Stage 1	311	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	78	508	-	-	679	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	442	-	-	-	-	-

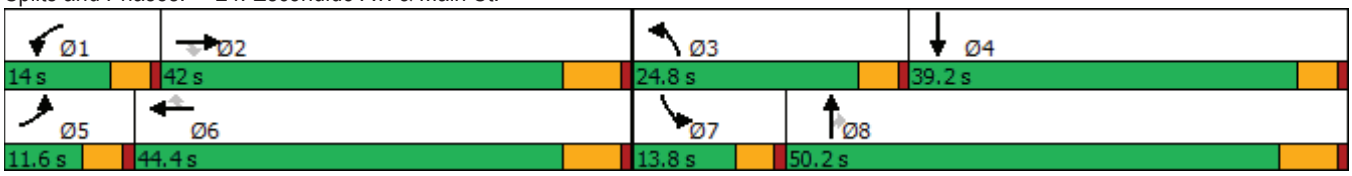
Approach	WB	NB	SB
HCM Control Delay, s	18.4	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	201	508	679	-
HCM Lane V/C Ratio	-	-	0.053	0.019	0.04	-
HCM Control Delay (s)	-	-	23.9	12.2	10.5	-
HCM Lane LOS	-	-	C	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	906	439	327	1104	3	740	22	345	1	3
Future Volume (vph)	4	906	439	327	1104	3	740	22	345	1	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	42.0	42.0	14.0	44.4	44.4	24.8	50.2	50.2	13.8	39.2
Total Split (%)	9.7%	35.0%	35.0%	11.7%	37.0%	37.0%	20.7%	41.8%	41.8%	11.5%	32.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.4	25.0	25.0	10.0	38.4	38.4	21.5	26.2	26.2	5.3	13.7
Actuated g/C Ratio	0.07	0.31	0.31	0.12	0.48	0.48	0.27	0.33	0.33	0.07	0.17
v/c Ratio	0.04	0.61	0.58	0.92	0.49	0.00	0.97	0.04	0.49	0.01	0.05
Control Delay	47.0	26.7	6.0	70.6	18.1	0.0	59.3	20.2	5.2	48.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	26.7	6.0	70.6	18.1	0.0	59.3	20.2	5.2	48.0	19.0
LOS	D	C	A	E	B	A	E	C	A	D	B
Approach Delay		20.0			30.1			41.6			20.8
Approach LOS		C			C			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 80.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 29.8	Intersection LOS: C
Intersection Capacity Utilization 75.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	906	439	327	1104	3	740	22	345	1	3	12
Future Volume (veh/h)	4	906	439	327	1104	3	740	22	345	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	934	339	337	1138	3	763	23	194	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1462	454	319	1967	611	686	621	526	2	39	142
Arrive On Green	0.01	0.30	0.30	0.11	0.40	0.40	0.23	0.35	0.35	0.00	0.11	0.11
Sat Flow, veh/h	1619	4914	1525	2956	4914	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	934	339	337	1138	3	763	23	194	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1638	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	14.4	17.5	9.4	15.7	0.1	20.2	0.7	8.3	0.1	0.0	0.7
Cycle Q Clear(g_c), s	0.2	14.4	17.5	9.4	15.7	0.1	20.2	0.7	8.3	0.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1462	454	319	1967	611	686	621	526	2	0	180
V/C Ratio(X)	0.47	0.64	0.75	1.06	0.58	0.00	1.11	0.04	0.37	0.45	0.00	0.08
Avail Cap(c_a), veh/h	130	2020	627	319	2156	669	686	910	771	171	0	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	26.5	27.6	38.8	20.4	15.7	33.4	18.9	21.4	43.4	0.0	34.4
Incr Delay (d2), s/veh	13.9	0.5	3.2	65.9	0.3	0.0	69.6	0.0	0.4	45.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.1	6.6	6.1	5.3	0.0	13.7	0.3	3.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	27.0	30.8	104.7	20.7	15.7	103.0	18.9	21.8	88.5	0.0	34.6
LnGrp LOS	E	C	C	F	C	B	F	B	C	F	A	C
Approach Vol, veh/h		1277			1478			980			15	
Approach Delay, s/veh		28.1			39.9			85.0			38.2	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	32.1	24.8	16.2	5.1	41.0	4.7	36.2
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	35.8	20.2	* 35	7.0	38.2	9.2	44.0
Max Q Clear Time (g_c+I1), s	11.4	19.5	22.2	2.7	2.2	17.7	2.1	10.3
Green Ext Time (p_c), s	0.0	6.4	0.0	0.0	0.0	7.3	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	47.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	4	8	1598	1281	4
Future Vol, veh/h	3	4	8	1598	1281	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	4	8	1665	1334	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2185	669	1338	0	-	0
Stage 1	1336	-	-	-	-	-
Stage 2	849	-	-	-	-	-
Critical Hdwy	6.8	6.9	4.1	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	40	405	522	-	-	-
Stage 1	213	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	32	405	522	-	-	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	170	-	-	-	-	-
Stage 2	385	-	-	-	-	-

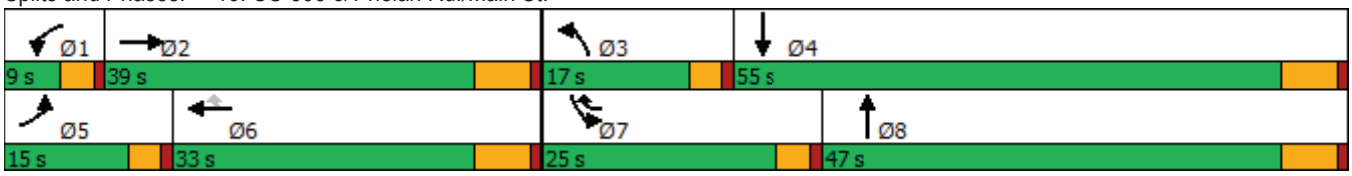
Approach	EB	NB	SB
HCM Control Delay, s	21	1.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	522	-	232	-	-
HCM Lane V/C Ratio	0.016	-	0.031	-	-
HCM Control Delay (s)	12	1.2	21	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	632	24	743	335	220	1210	321	895
Future Volume (vph)	90	632	24	743	335	220	1210	321	895
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	9.0	16.0	9.0	16.0
Total Split (s)	15.0	39.0	9.0	33.0	25.0	17.0	47.0	25.0	55.0
Total Split (%)	12.5%	32.5%	7.5%	27.5%	20.8%	14.2%	39.2%	20.8%	45.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.4	26.7	5.1	20.8	42.2	11.3	41.7	15.2	45.7
Actuated g/C Ratio	0.09	0.25	0.05	0.20	0.40	0.11	0.40	0.14	0.44
v/c Ratio	0.59	0.55	0.29	0.69	0.50	0.62	0.88	0.67	0.64
Control Delay	64.1	34.1	61.8	43.2	19.2	54.4	39.6	50.4	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	34.1	61.8	43.2	19.2	54.4	39.6	50.4	26.8
LOS	E	C	E	D	B	D	D	D	C
Approach Delay		37.3		36.3			41.8		32.6
Approach LOS		D		D			D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.9	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 37.2	Intersection LOS: D
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	632	114	24	743	335	220	1210	47	321	895	99
Future Volume (veh/h)	90	632	114	24	743	335	220	1210	47	321	895	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	665	63	25	782	269	232	1274	33	338	942	82
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	122	1257	118	46	1160	523	309	1464	38	425	1482	129
Arrive On Green	0.07	0.25	0.25	0.03	0.20	0.20	0.09	0.40	0.40	0.12	0.43	0.43
Sat Flow, veh/h	1810	5125	481	1810	5700	1610	3510	3687	95	3510	3446	300
Grp Volume(v), veh/h	95	491	237	25	782	269	232	656	651	338	519	505
Grp Sat Flow(s),veh/h/ln	1810	1900	1806	1810	1900	1610	1755	1900	1883	1755	1900	1846
Q Serve(g_s), s	4.9	10.6	10.8	1.3	12.0	12.8	6.1	30.1	30.2	8.9	20.3	20.3
Cycle Q Clear(g_c), s	4.9	10.6	10.8	1.3	12.0	12.8	6.1	30.1	30.2	8.9	20.3	20.3
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.05	1.00		0.16
Lane Grp Cap(c), veh/h	122	932	443	46	1160	523	309	754	747	425	817	794
V/C Ratio(X)	0.78	0.53	0.53	0.54	0.67	0.51	0.75	0.87	0.87	0.79	0.64	0.64
Avail Cap(c_a), veh/h	210	1324	629	96	1625	654	482	823	815	778	983	955
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	31.0	31.0	45.6	34.8	25.9	42.2	26.3	26.3	40.5	21.2	21.2
Incr Delay (d2), s/veh	7.8	0.5	1.0	7.2	0.7	0.8	2.8	9.6	9.8	2.6	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.5	4.4	0.6	5.2	4.6	2.6	13.9	13.8	3.7	8.1	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	31.4	32.0	52.8	35.5	26.7	44.9	35.9	36.1	43.0	22.3	22.3
LnGrp LOS	D	C	C	D	D	C	D	D	D	D	C	C
Approach Vol, veh/h		823			1076			1539			1362	
Approach Delay, s/veh		33.9			33.7			37.3			27.5	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	29.2	12.3	46.7	10.4	25.3	15.5	43.6
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	33.0	13.0	49.0	11.0	27.0	21.0	41.0
Max Q Clear Time (g_c+I1), s	3.3	12.8	8.1	22.3	6.9	14.8	10.9	32.2
Green Ext Time (p_c), s	0.0	3.9	0.2	7.6	0.0	4.4	0.6	5.4

Intersection Summary	
HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1452	33	11	1026
Future Vol, veh/h	14	24	1452	33	11	1026
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1482	34	11	1047

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2045	758	0	0	1516	0
Stage 1	1499	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	50	354	-	-	446	-
Stage 1	190	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	49	354	-	-	446	-
Mov Cap-2 Maneuver	145	-	-	-	-	-
Stage 1	190	-	-	-	-	-
Stage 2	536	-	-	-	-	-

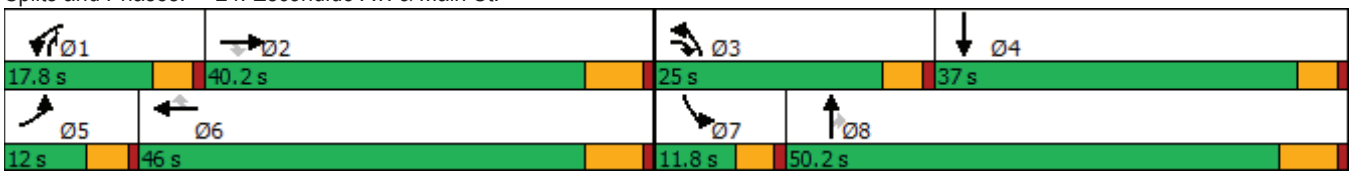
Approach	WB	NB	SB
HCM Control Delay, s	22	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	145	354	446	-
HCM Lane V/C Ratio	-	-	0.099	0.069	0.025	-
HCM Control Delay (s)	-	-	32.5	15.9	13.3	-
HCM Lane LOS	-	-	D	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	55	1557	724	458	1198	10	713	52	240	57	38
Future Volume (vph)	55	1557	724	458	1198	10	713	52	240	57	38
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	40.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	36.6
Total Split (s)	12.0	40.2	25.0	17.8	46.0	46.0	25.0	50.2	17.8	11.8	37.0
Total Split (%)	10.0%	33.5%	20.8%	14.8%	38.3%	38.3%	20.8%	41.8%	14.8%	9.8%	30.8%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.8	34.5	56.8	13.4	43.4	43.4	20.7	24.9	44.6	6.7	13.8
Actuated g/C Ratio	0.07	0.35	0.57	0.14	0.44	0.44	0.21	0.25	0.45	0.07	0.14
v/c Ratio	0.52	0.86	0.64	1.16	0.53	0.01	1.17	0.12	0.34	0.54	0.35
Control Delay	64.9	37.4	4.5	136.8	24.2	0.0	130.1	29.2	13.9	66.5	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	37.4	4.5	136.8	24.2	0.0	130.1	29.2	13.9	66.5	22.0
LOS	E	D	A	F	C	A	F	C	B	E	C
Approach Delay		27.9			55.0			97.2			38.9
Approach LOS		C			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 92.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1557	724	458	1198	10	713	52	240	57	38	54
Future Volume (veh/h)	55	1557	724	458	1198	10	713	52	240	57	38	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	57	1622	567	477	1248	8	743	54	193	59	40	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1855	844	415	2355	651	642	454	592	73	85	60
Arrive On Green	0.04	0.34	0.34	0.14	0.44	0.44	0.21	0.25	0.25	0.05	0.09	0.09
Sat Flow, veh/h	1619	5400	1523	3048	5400	1494	3048	1800	1525	1619	986	690
Grp Volume(v), veh/h	57	1622	567	477	1248	8	743	54	193	59	0	68
Grp Sat Flow(s),veh/h/ln	1619	1800	1523	1524	1800	1494	1524	1800	1525	1619	0	1676
Q Serve(g_s), s	3.4	27.3	25.6	13.2	16.4	0.3	20.4	2.2	8.6	3.5	0.0	3.7
Cycle Q Clear(g_c), s	3.4	27.3	25.6	13.2	16.4	0.3	20.4	2.2	8.6	3.5	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	71	1855	844	415	2355	651	642	454	592	73	0	145
V/C Ratio(X)	0.81	0.87	0.67	1.15	0.53	0.01	1.16	0.12	0.33	0.81	0.00	0.47
Avail Cap(c_a), veh/h	124	1895	856	415	2355	651	642	818	901	120	0	561
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.9	29.8	15.3	41.8	20.0	15.5	38.2	27.9	20.7	45.8	0.0	42.1
Incr Delay (d2), s/veh	7.8	4.8	2.0	91.4	0.2	0.0	87.6	0.1	0.3	7.5	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	11.5	8.9	9.9	6.2	0.1	15.4	1.0	3.1	1.6	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	34.7	17.4	133.2	20.3	15.5	125.8	28.0	21.1	53.4	0.0	44.4
LnGrp LOS	D	C	B	F	C	B	F	C	C	D	A	D
Approach Vol, veh/h		2246			1733			990			127	
Approach Delay, s/veh		30.8			51.3			100.1			48.6	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	39.5	25.0	14.6	8.8	48.4	9.0	30.6
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	13.2	34.0	20.4	* 32	7.4	39.8	7.2	44.0
Max Q Clear Time (g_c+I1), s	15.2	29.3	22.4	5.7	5.4	18.4	5.5	10.6
Green Ext Time (p_c), s	0.0	3.9	0.0	0.3	0.0	8.3	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.10:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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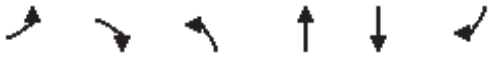
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	324	1161	1399
Future Volume (vph)	19	74	324	1161	1399
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	26.6	26.6	35.0	93.4	58.4
Total Split (%)	22.2%	22.2%	29.2%	77.8%	48.7%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	12.2	12.2	24.6	89.0	58.2
Actuated g/C Ratio	0.11	0.11	0.23	0.83	0.54
v/c Ratio	0.10	0.32	0.87	0.43	0.87
Control Delay	44.3	13.0	61.8	4.3	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	13.0	61.8	4.3	30.0
LOS	D	B	E	A	C
Approach Delay	19.4			16.9	30.0
Approach LOS	B			B	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 23.4	Intersection LOS: C
Intersection Capacity Utilization 81.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	324	1161	1399	111
Future Volume (veh/h)	19	74	324	1161	1399	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	60	360	1290	1554	123
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	154	137	391	2929	1872	147
Arrive On Green	0.08	0.08	0.22	0.81	0.55	0.55
Sat Flow, veh/h	1810	1610	1810	3705	3486	266
Grp Volume(v), veh/h	21	60	360	1290	822	855
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1805	1805	1852
Q Serve(g_s), s	1.2	3.8	20.8	11.2	40.1	41.1
Cycle Q Clear(g_c), s	1.2	3.8	20.8	11.2	40.1	41.1
Prop In Lane	1.00	1.00	1.00			0.14
Lane Grp Cap(c), veh/h	154	137	391	2929	997	1023
V/C Ratio(X)	0.14	0.44	0.92	0.44	0.82	0.84
Avail Cap(c_a), veh/h	372	331	514	2929	997	1023
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	46.6	41.1	3.0	19.7	20.0
Incr Delay (d2), s/veh	0.4	2.2	16.3	0.5	7.8	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	10.4	1.8	16.2	17.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.8	48.8	57.4	3.4	27.5	28.0
LnGrp LOS	D	D	E	A	C	C
Approach Vol, veh/h	81			1650	1677	
Approach Delay, s/veh	48.0			15.2	27.8	
Approach LOS	D			B	C	

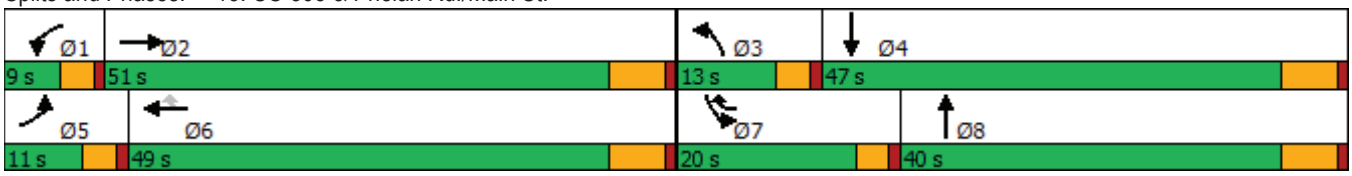
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.4		13.7	27.8	65.6
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		86.9		22.0	30.4	51.9
Max Q Clear Time (g_c+I1), s		13.2		5.8	22.8	43.1
Green Ext Time (p_c), s		11.3		0.2	0.3	6.1

Intersection Summary		
HCM 6th Ctrl Delay		22.2
HCM 6th LOS		C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	94	848	21	1134	591	223	881	346	1062
Future Volume (vph)	94	848	21	1134	591	223	881	346	1062
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	9.0	16.0	9.0	16.0
Total Split (s)	11.0	51.0	9.0	49.0	20.0	13.0	40.0	20.0	47.0
Total Split (%)	9.2%	42.5%	7.5%	40.8%	16.7%	10.8%	33.3%	16.7%	39.2%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.0	40.3	5.0	32.6	53.3	9.0	34.5	14.7	40.1
Actuated g/C Ratio	0.06	0.37	0.05	0.30	0.49	0.08	0.32	0.13	0.37
v/c Ratio	0.84	0.56	0.27	0.76	0.75	0.80	0.83	0.76	0.90
Control Delay	102.9	28.0	61.1	38.1	26.1	71.0	42.8	57.6	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.9	28.0	61.1	38.1	26.1	71.0	42.8	57.6	43.0
LOS	F	C	E	D	C	E	D	E	D
Approach Delay		34.3		34.3			48.3		46.4
Approach LOS		C		C			D		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 40.5	Intersection LOS: D
Intersection Capacity Utilization 81.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	848	170	21	1134	591	223	881	23	346	1062	74
Future Volume (veh/h)	94	848	170	21	1134	591	223	881	23	346	1062	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	98	883	132	22	1181	536	232	918	24	360	1106	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	110	1729	257	40	1766	742	275	1095	29	422	1192	79
Arrive On Green	0.06	0.38	0.38	0.02	0.34	0.34	0.08	0.30	0.30	0.12	0.35	0.35
Sat Flow, veh/h	1810	4558	678	1810	5187	1610	3510	3594	94	3510	3437	227
Grp Volume(v), veh/h	98	669	346	22	1181	536	232	461	481	360	580	599
Grp Sat Flow(s),veh/h/ln	1810	1729	1778	1810	1729	1610	1755	1805	1883	1755	1805	1859
Q Serve(g_s), s	6.2	17.1	17.3	1.4	22.4	31.0	7.5	27.4	27.4	11.6	35.6	35.7
Cycle Q Clear(g_c), s	6.2	17.1	17.3	1.4	22.4	31.0	7.5	27.4	27.4	11.6	35.6	35.7
Prop In Lane	1.00		0.38	1.00		1.00	1.00		0.05	1.00		0.12
Lane Grp Cap(c), veh/h	110	1312	674	40	1766	742	275	550	574	422	626	644
V/C Ratio(X)	0.89	0.51	0.51	0.55	0.67	0.72	0.84	0.84	0.84	0.85	0.93	0.93
Avail Cap(c_a), veh/h	110	1353	695	79	1939	795	275	550	574	488	643	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	27.5	27.5	55.7	32.4	25.1	52.3	37.3	37.3	49.6	36.2	36.2
Incr Delay (d2), s/veh	52.4	0.3	0.6	8.7	0.8	3.0	20.4	11.2	10.8	11.8	19.7	19.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	6.6	6.9	0.7	8.8	11.2	3.9	13.0	13.5	5.5	17.9	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.0	27.8	28.1	64.4	33.2	28.1	72.7	48.5	48.1	61.4	55.9	55.6
LnGrp LOS	F	C	C	E	C	C	E	D	D	E	E	E
Approach Vol, veh/h		1113			1739			1174			1539	
Approach Delay, s/veh		34.8			32.0			53.1			57.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	49.6	13.0	45.9	11.0	45.2	17.8	41.1
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	45.0	9.0	41.0	7.0	43.0	16.0	34.0
Max Q Clear Time (g_c+I1), s	3.4	19.3	9.5	37.7	8.2	33.0	13.6	29.4
Green Ext Time (p_c), s	0.0	6.2	0.0	2.2	0.0	6.2	0.2	2.4

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	9	1118	17	25	1228
Future Vol, veh/h	10	9	1118	17	25	1228
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	10	1202	18	27	1320

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1925	610	0	0	1220	0
Stage 1	1211	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	60	442	-	-	579	-
Stage 1	249	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	57	442	-	-	579	-
Mov Cap-2 Maneuver	168	-	-	-	-	-
Stage 1	249	-	-	-	-	-
Stage 2	431	-	-	-	-	-

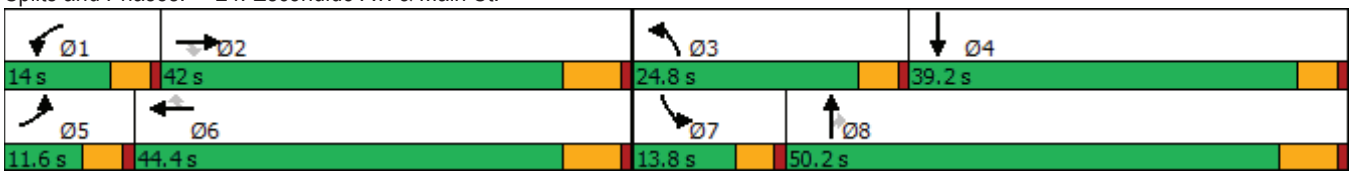
Approach	WB	NB	SB
HCM Control Delay, s	21	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	168	442	579	-
HCM Lane V/C Ratio	-	-	0.064	0.022	0.046	-
HCM Control Delay (s)	-	-	27.9	13.3	11.5	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	4	915	445	327	1155	3	774	22	345	1	3
Future Volume (vph)	4	915	445	327	1155	3	774	22	345	1	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	5	2		1	6		3	8		7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	41.2	41.2	9.6	31.2	31.2	9.6	49.2	49.2	9.6	37.6
Total Split (s)	11.6	42.0	42.0	14.0	44.4	44.4	24.8	50.2	50.2	13.8	39.2
Total Split (%)	9.7%	35.0%	35.0%	11.7%	37.0%	37.0%	20.7%	41.8%	41.8%	11.5%	32.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.4	25.1	25.1	10.0	38.5	38.5	21.4	26.2	26.2	5.3	13.7
Actuated g/C Ratio	0.07	0.31	0.31	0.12	0.48	0.48	0.27	0.33	0.33	0.07	0.17
v/c Ratio	0.04	0.62	0.58	0.92	0.51	0.00	1.02	0.04	0.49	0.01	0.05
Control Delay	47.0	26.8	6.0	71.1	18.4	0.0	69.9	20.2	5.2	48.0	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	26.8	6.0	71.1	18.4	0.0	69.9	20.2	5.2	48.0	19.0
LOS	D	C	A	E	B	A	E	C	A	D	B
Approach Delay		20.1			30.0			49.4			20.8
Approach LOS		C			C			D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 80.6	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 32.1	Intersection LOS: C
Intersection Capacity Utilization 76.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	915	445	327	1155	3	774	22	345	1	3	12
Future Volume (veh/h)	4	915	445	327	1155	3	774	22	345	1	3	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	4	943	345	337	1191	3	798	23	194	1	3	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	9	1478	459	318	1980	615	683	618	524	2	38	141
Arrive On Green	0.01	0.30	0.30	0.11	0.40	0.40	0.23	0.34	0.34	0.00	0.11	0.11
Sat Flow, veh/h	1619	4914	1525	2956	4914	1525	2956	1800	1525	1619	338	1239
Grp Volume(v), veh/h	4	943	345	337	1191	3	798	23	194	1	0	14
Grp Sat Flow(s),veh/h/ln	1619	1638	1525	1478	1638	1525	1478	1800	1525	1619	0	1577
Q Serve(g_s), s	0.2	14.5	17.9	9.4	16.7	0.1	20.2	0.7	8.4	0.1	0.0	0.7
Cycle Q Clear(g_c), s	0.2	14.5	17.9	9.4	16.7	0.1	20.2	0.7	8.4	0.1	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.79
Lane Grp Cap(c), veh/h	9	1478	459	318	1980	615	683	618	524	2	0	180
V/C Ratio(X)	0.47	0.64	0.75	1.06	0.60	0.00	1.17	0.04	0.37	0.45	0.00	0.08
Avail Cap(c_a), veh/h	130	2011	624	318	2146	666	683	905	767	170	0	624
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	26.5	27.6	39.0	20.6	15.6	33.6	19.1	21.6	43.6	0.0	34.6
Incr Delay (d2), s/veh	13.9	0.5	3.4	67.5	0.4	0.0	91.2	0.0	0.4	45.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.2	6.8	6.2	5.7	0.0	15.8	0.3	3.0	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	26.9	31.1	106.5	21.0	15.6	124.9	19.1	22.0	88.7	0.0	34.8
LnGrp LOS	E	C	C	F	C	B	F	B	C	F	A	C
Approach Vol, veh/h		1292			1531			1015			15	
Approach Delay, s/veh		28.1			39.8			102.8			38.4	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	32.5	24.8	16.2	5.1	41.4	4.7	36.2
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	35.8	20.2	* 35	7.0	38.2	9.2	44.0
Max Q Clear Time (g_c+I1), s	11.4	19.9	22.2	2.7	2.2	18.7	2.1	10.4
Green Ext Time (p_c), s	0.0	6.4	0.0	0.0	0.0	7.5	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

Notes

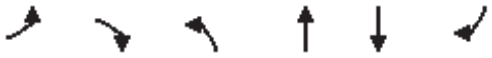
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	110	413	71	1598	1281
Future Volume (vph)	110	413	71	1598	1281
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	29.0	29.0	15.0	91.0	76.0
Total Split (%)	24.2%	24.2%	12.5%	75.8%	63.3%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	22.6	22.6	8.6	84.5	73.5
Actuated g/C Ratio	0.19	0.19	0.07	0.71	0.62
v/c Ratio	0.33	0.94	0.57	0.64	0.61
Control Delay	44.1	56.6	70.3	10.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	56.6	70.3	10.6	16.4
LOS	D	E	E	B	B
Approach Delay	54.0			13.2	16.4
Approach LOS	D			B	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 118.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	413	71	1598	1281	27
Future Volume (veh/h)	110	413	71	1598	1281	27
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	115	356	74	1665	1334	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	368	327	95	2542	2218	47
Arrive On Green	0.20	0.20	0.05	0.70	0.61	0.61
Sat Flow, veh/h	1810	1610	1810	3705	3711	76
Grp Volume(v), veh/h	115	356	74	1665	666	696
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1805	1805	1886
Q Serve(g_s), s	6.5	24.4	4.8	30.4	27.1	27.1
Cycle Q Clear(g_c), s	6.5	24.4	4.8	30.4	27.1	27.1
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	368	327	95	2542	1107	1157
V/C Ratio(X)	0.31	1.09	0.78	0.65	0.60	0.60
Avail Cap(c_a), veh/h	368	327	157	2542	1107	1157
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	47.8	56.2	9.7	14.2	14.2
Incr Delay (d2), s/veh	0.5	75.1	5.2	1.3	2.4	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	26.4	2.3	9.5	10.1	10.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	122.9	61.3	11.1	16.6	16.5
LnGrp LOS	D	F	E	B	B	B
Approach Vol, veh/h	471			1739	1362	
Approach Delay, s/veh	103.0			13.2	16.6	
Approach LOS	F			B	B	

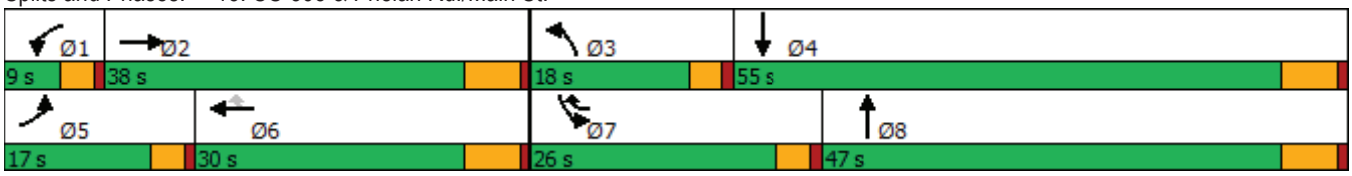
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.0		29.0	10.9	80.1
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		84.5		24.4	10.4	69.5
Max Q Clear Time (g_c+I1), s		32.4		26.4	6.8	29.1
Green Ext Time (p_c), s		17.4		0.0	0.0	10.2

Intersection Summary		
HCM 6th Ctrl Delay		26.3
HCM 6th LOS		C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	90	1244	24	895	379	238	1228	646	979
Future Volume (vph)	90	1244	24	895	379	238	1228	646	979
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	3	8	7	4
Permitted Phases					6				
Detector Phase	5	2	1	6	7	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	9.0	16.0	9.0	16.0
Total Split (s)	17.0	38.0	9.0	30.0	26.0	18.0	47.0	26.0	55.0
Total Split (%)	14.2%	31.7%	7.5%	25.0%	21.7%	15.0%	39.2%	21.7%	45.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.5	33.1	5.0	23.8	51.9	12.3	41.0	22.0	50.7
Actuated g/C Ratio	0.09	0.28	0.04	0.20	0.44	0.10	0.35	0.19	0.43
v/c Ratio	0.59	0.95	0.32	0.81	0.52	0.66	1.01	1.01	0.70
Control Delay	66.6	55.3	67.3	51.4	20.4	59.8	66.6	84.0	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.6	55.3	67.3	51.4	20.4	59.8	66.6	84.0	30.4
LOS	E	E	E	D	C	E	E	F	C
Approach Delay		56.0		42.7			65.6		50.5
Approach LOS		E		D			E		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 54.0	Intersection LOS: D
Intersection Capacity Utilization 103.2%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1244	198	24	895	379	238	1228	47	646	979	99
Future Volume (veh/h)	90	1244	198	24	895	379	238	1228	47	646	979	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	95	1309	82	25	942	273	251	1293	23	680	1031	67
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	120	1423	89	43	1288	666	315	1301	23	679	1589	103
Arrive On Green	0.07	0.27	0.27	0.02	0.23	0.23	0.09	0.35	0.35	0.19	0.45	0.45
Sat Flow, veh/h	1810	5303	332	1810	5700	1610	3619	3722	66	3619	3529	229
Grp Volume(v), veh/h	95	938	453	25	942	273	251	660	656	680	555	543
Grp Sat Flow(s),veh/h/ln	1810	1900	1835	1810	1900	1610	1810	1900	1888	1810	1900	1859
Q Serve(g_s), s	6.1	28.1	28.1	1.6	18.0	14.0	8.0	40.6	40.6	22.0	26.6	26.6
Cycle Q Clear(g_c), s	6.1	28.1	28.1	1.6	18.0	14.0	8.0	40.6	40.6	22.0	26.6	26.6
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.04	1.00		0.12
Lane Grp Cap(c), veh/h	120	1020	493	43	1288	666	315	664	660	679	856	837
V/C Ratio(X)	0.79	0.92	0.92	0.58	0.73	0.41	0.80	0.99	0.99	1.00	0.65	0.65
Avail Cap(c_a), veh/h	201	1037	501	77	1288	666	432	664	660	679	856	837
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.0	41.7	41.7	56.7	42.1	24.3	52.5	38.0	38.0	47.6	25.0	25.0
Incr Delay (d2), s/veh	8.5	12.7	22.1	8.9	2.2	0.4	6.2	33.1	33.4	34.9	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	14.1	14.9	0.8	8.2	5.0	3.7	23.5	23.4	12.7	11.3	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	54.4	63.8	65.6	44.2	24.7	58.7	71.1	71.4	82.5	26.9	26.9
LnGrp LOS	E	D	E	E	D	C	E	E	E	F	C	C
Approach Vol, veh/h		1486			1240			1567			1778	
Approach Delay, s/veh		57.8			40.4			69.3			48.2	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	37.5	14.2	58.8	11.8	32.5	26.0	47.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	32.0	14.0	49.0	13.0	24.0	22.0	41.0
Max Q Clear Time (g_c+I1), s	3.6	30.1	10.0	28.6	8.1	20.0	24.0	42.6
Green Ext Time (p_c), s	0.0	1.4	0.2	7.5	0.1	2.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	24	1489	33	11	1194
Future Vol, veh/h	14	24	1489	33	11	1194
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	24	1519	34	11	1218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2167	777	0	0	1553	0
Stage 1	1536	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.6	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	41	344	-	-	432	-
Stage 1	182	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	40	344	-	-	432	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	182	-	-	-	-	-
Stage 2	486	-	-	-	-	-

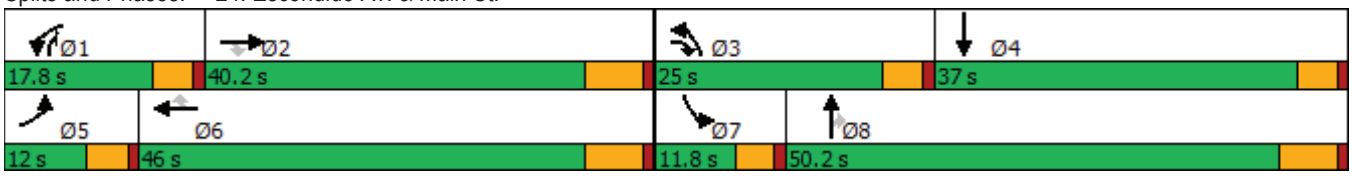
Approach	WB	NB	SB
HCM Control Delay, s	23.1	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	135	344	432	-
HCM Lane V/C Ratio	-	-	0.106	0.071	0.026	-
HCM Control Delay (s)	-	-	34.8	16.3	13.6	-
HCM Lane LOS	-	-	D	C	B	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	55	1607	758	458	1209	10	720	52	240	57	38
Future Volume (vph)	55	1607	758	458	1209	10	720	52	240	57	38
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	40.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	36.6
Total Split (s)	12.0	40.2	25.0	17.8	46.0	46.0	25.0	50.2	17.8	11.8	37.0
Total Split (%)	10.0%	33.5%	20.8%	14.8%	38.3%	38.3%	20.8%	41.8%	14.8%	9.8%	30.8%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.8	34.5	56.8	13.4	43.4	43.4	20.7	24.9	44.6	6.7	13.8
Actuated g/C Ratio	0.07	0.35	0.57	0.14	0.44	0.44	0.21	0.25	0.45	0.07	0.14
v/c Ratio	0.52	0.89	0.68	1.16	0.53	0.01	1.18	0.12	0.34	0.54	0.35
Control Delay	64.9	39.1	5.3	136.8	24.3	0.0	134.2	29.2	13.9	66.5	22.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	39.1	5.3	136.8	24.3	0.0	134.2	29.2	13.9	66.5	22.0
LOS	E	D	A	F	C	A	F	C	B	E	C
Approach Delay		29.1			54.9			100.3			38.9
Approach LOS		C			D			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 99.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 51.3	Intersection LOS: D
Intersection Capacity Utilization 93.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	1607	758	458	1209	10	720	52	240	57	38	54
Future Volume (veh/h)	55	1607	758	458	1209	10	720	52	240	57	38	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1800	1800	1600	1800	1800	1600	1800	1800	1700	1800	1800
Adj Flow Rate, veh/h	57	1674	603	477	1259	8	750	54	193	59	40	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	71	1866	846	414	2364	654	640	452	590	73	85	60
Arrive On Green	0.04	0.35	0.35	0.14	0.44	0.44	0.21	0.25	0.25	0.05	0.09	0.09
Sat Flow, veh/h	1619	5400	1523	3048	5400	1494	3048	1800	1525	1619	986	690
Grp Volume(v), veh/h	57	1674	603	477	1259	8	750	54	193	59	0	68
Grp Sat Flow(s),veh/h/ln	1619	1800	1523	1524	1800	1494	1524	1800	1525	1619	0	1676
Q Serve(g_s), s	3.4	28.6	28.3	13.2	16.6	0.3	20.4	2.3	8.6	3.5	0.0	3.8
Cycle Q Clear(g_c), s	3.4	28.6	28.3	13.2	16.6	0.3	20.4	2.3	8.6	3.5	0.0	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	71	1866	846	414	2364	654	640	452	590	73	0	145
V/C Ratio(X)	0.81	0.90	0.71	1.15	0.53	0.01	1.17	0.12	0.33	0.81	0.00	0.47
Avail Cap(c_a), veh/h	123	1889	853	414	2364	654	640	815	898	120	0	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.1	30.2	15.9	42.0	20.0	15.4	38.4	28.1	20.9	46.0	0.0	42.3
Incr Delay (d2), s/veh	7.8	6.1	2.8	92.8	0.2	0.0	93.4	0.1	0.3	7.5	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	12.3	10.0	10.0	6.3	0.1	15.9	1.0	3.1	1.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	36.3	18.7	134.8	20.3	15.5	131.8	28.2	21.2	53.5	0.0	44.6
LnGrp LOS	D	D	B	F	C	B	F	C	C	D	A	D
Approach Vol, veh/h		2334			1744			997			127	
Approach Delay, s/veh		32.2			51.6			104.8			48.7	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	39.8	25.0	14.6	8.8	48.7	9.0	30.6
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	13.2	34.0	20.4	* 32	7.4	39.8	7.2	44.0
Max Q Clear Time (g_c+I1), s	15.2	30.6	22.4	5.8	5.4	18.6	5.5	10.6
Green Ext Time (p_c), s	0.0	3.0	0.0	0.3	0.0	8.3	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	53.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.11:

OPENING YEAR CUMULATIVE (2021) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	931	22	396	371	143	852	300	1168
v/c Ratio	0.69	0.65	0.22	0.41	0.55	0.45	0.65	0.61	0.78
Control Delay	69.7	30.7	51.2	33.3	20.1	46.4	27.8	43.6	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	30.7	51.2	33.3	20.1	46.4	27.8	43.6	28.2
Queue Length 50th (ft)	55	165	12	77	140	40	192	83	271
Queue Length 95th (ft)	#160	236	41	106	211	80	339	142	457
Internal Link Dist (ft)		1117		1265			3985		1763
Turn Bay Length (ft)	340		250		200	280		250	
Base Capacity (vph)	143	2597	102	2527	740	357	1417	635	1664
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.36	0.22	0.16	0.50	0.40	0.60	0.47	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	70	271	186	2	47	245	933	114	23	1160	132
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.44	0.12	0.27	0.77	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	15.3	2.9	63.3	33.9	6.7
Queue Length 50th (ft)	40	1	135	1	0	178	217	0	17	390	6
Queue Length 95th (ft)	79	63	#269	8	0	263	290	28	46	#583	50
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	468	708	248	619	598	437	2117	974	84	1508	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.75	0.00	0.08	0.56	0.44	0.12	0.27	0.77	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	785	25	782	353	232	1323	338	1046
v/c Ratio	0.59	0.55	0.29	0.69	0.50	0.62	0.88	0.67	0.64
Control Delay	64.1	34.1	61.8	43.2	19.2	54.4	39.6	50.4	26.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	34.1	61.8	43.2	19.2	54.4	39.6	50.4	26.8
Queue Length 50th (ft)	63	151	17	169	129	79	427	115	285
Queue Length 95th (ft)	130	201	49	224	212	132	#678	173	395
Internal Link Dist (ft)		1117		1265			3985		1763
Turn Bay Length (ft)	340		250		200	280		250	
Base Capacity (vph)	192	1801	87	1492	797	441	1503	712	1784
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.44	0.29	0.52	0.44	0.53	0.88	0.47	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	264	135	4	34	214	1402	156	35	923	103
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.62	0.15	0.39	0.53	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	15.7	2.9	65.3	22.4	3.4
Queue Length 50th (ft)	48	1	~98	2	0	141	309	2	24	220	0
Queue Length 95th (ft)	91	63	#193	11	0	241	507	35	#66	372	28
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	495	731	230	657	635	374	2264	1046	89	1727	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.59	0.01	0.05	0.57	0.62	0.15	0.39	0.53	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 6.12:

OPENING YEAR CUMULATIVE (2021) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	98	1060	22	1181	616	232	942	360	1183
v/c Ratio	0.84	0.56	0.27	0.76	0.75	0.80	0.83	0.76	0.90
Control Delay	102.9	28.0	61.1	38.1	26.1	71.0	42.8	57.6	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.9	28.0	61.1	38.1	26.1	71.0	42.8	57.6	43.0
Queue Length 50th (ft)	70	196	15	276	300	84	325	126	404
Queue Length 95th (ft)	#184	272	46	327	439	#163	#487	#194	#607
Internal Link Dist (ft)		1117		1265			3985		1763
Turn Bay Length (ft)	340		250		200	280		250	
Base Capacity (vph)	116	2121	83	2056	843	290	1141	516	1354
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.50	0.27	0.57	0.73	0.80	0.83	0.70	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	70	271	186	2	47	245	1118	114	23	1191	132
v/c Ratio	0.19	0.45	0.97	0.00	0.10	0.79	0.53	0.12	0.27	0.79	0.18
Control Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	100.3	30.5	0.4	62.1	16.7	2.9	63.3	34.7	6.7
Queue Length 50th (ft)	40	1	135	1	0	178	280	0	17	405	6
Queue Length 95th (ft)	79	63	#269	8	0	263	367	28	46	#611	50
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	468	708	248	619	598	437	2117	974	84	1508	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.38	0.75	0.00	0.08	0.56	0.53	0.12	0.27	0.79	0.18

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	1517	25	942	399	251	1342	680	1135
v/c Ratio	0.64	0.93	0.32	0.76	0.51	0.71	1.01	1.08	0.71
Control Delay	72.0	51.4	67.2	47.8	19.7	62.5	66.0	106.4	30.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	51.4	67.2	47.8	19.7	62.5	66.0	106.4	30.9
Queue Length 50th (ft)	72	383	19	227	160	97	~559	~310	363
Queue Length 95th (ft)	130	#481	49	273	253	142	#693	#429	442
Internal Link Dist (ft)		1117		1265			3985		1763
Turn Bay Length (ft)	340		250		200	280		250	
Base Capacity (vph)	169	1630	77	1314	778	388	1326	627	1608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.93	0.32	0.72	0.51	0.65	1.01	1.08	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	264	135	4	34	214	1440	156	35	1095	103
v/c Ratio	0.29	0.49	1.02	0.01	0.08	0.78	0.64	0.15	0.39	0.63	0.12
Control Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.5	123.6	31.8	0.4	62.5	16.1	3.0	65.3	24.5	3.4
Queue Length 50th (ft)	48	1	~98	2	0	141	323	3	24	278	0
Queue Length 95th (ft)	91	63	#193	11	0	241	530	37	#66	465	28
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	495	731	230	657	635	374	2264	1045	89	1727	834
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.36	0.59	0.01	0.05	0.57	0.64	0.15	0.39	0.63	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.1:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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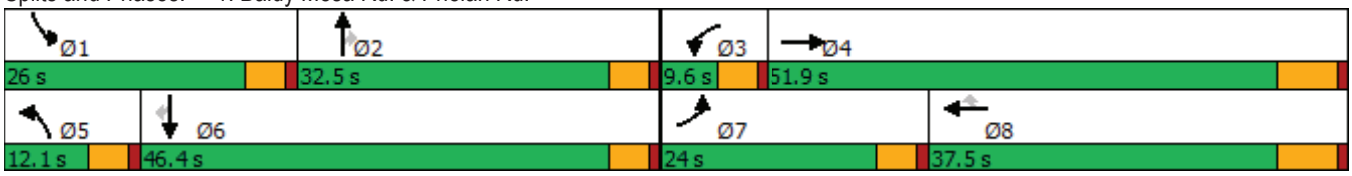
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	218	812	16	517	200	51	102	73	257	69	261
Future Volume (vph)	218	812	16	517	200	51	102	73	257	69	261
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	17.6	49.9	5.0	31.2	31.2	6.8	13.9	13.9	20.3	29.6	29.6
Actuated g/C Ratio	0.17	0.48	0.05	0.30	0.30	0.07	0.13	0.13	0.20	0.29	0.29
v/c Ratio	0.81	0.53	0.20	0.52	0.35	0.49	0.44	0.20	0.83	0.14	0.43
Control Delay	64.9	22.0	57.3	33.4	7.4	64.8	47.0	1.2	62.8	29.7	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	22.0	57.3	33.4	7.4	64.8	47.0	1.2	62.8	29.7	5.5
LOS	E	C	E	C	A	E	D	A	E	C	A
Approach Delay		30.8		26.8			36.2			33.4	
Approach LOS		C		C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 30.7	Intersection LOS: C
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	812	33	16	517	200	51	102	73	257	69	261
Future Volume (veh/h)	218	812	33	16	517	200	51	102	73	257	69	261
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	237	883	26	17	562	165	55	111	53	279	75	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	268	1650	49	87	1281	571	70	193	163	310	460	390
Arrive On Green	0.16	0.46	0.46	0.05	0.35	0.35	0.04	0.10	0.10	0.18	0.24	0.24
Sat Flow, veh/h	1714	3581	105	1714	3610	1610	1714	1900	1610	1714	1900	1610
Grp Volume(v), veh/h	237	445	464	17	562	165	55	111	53	279	75	184
Grp Sat Flow(s),veh/h/ln	1714	1805	1881	1714	1805	1610	1714	1900	1610	1714	1900	1610
Q Serve(g_s), s	13.3	17.4	17.4	0.9	11.7	7.3	3.1	5.5	3.0	15.7	3.1	9.6
Cycle Q Clear(g_c), s	13.3	17.4	17.4	0.9	11.7	7.3	3.1	5.5	3.0	15.7	3.1	9.6
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	832	867	87	1281	571	70	193	163	310	460	390
V/C Ratio(X)	0.88	0.54	0.54	0.20	0.44	0.29	0.79	0.58	0.32	0.90	0.16	0.47
Avail Cap(c_a), veh/h	337	832	867	87	1281	571	130	538	456	372	806	683
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	19.0	19.0	44.8	24.3	22.9	46.9	42.2	41.1	39.5	29.5	32.0
Incr Delay (d2), s/veh	17.2	2.5	2.4	0.4	1.1	1.3	7.3	2.7	1.1	19.4	0.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	6.9	7.2	0.4	4.7	2.7	1.5	2.7	1.2	8.3	1.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	21.5	21.4	45.2	25.4	24.1	54.1	44.9	42.3	58.9	29.6	32.9
LnGrp LOS	E	C	C	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		1146			744			219			538	
Approach Delay, s/veh		29.0			25.6			46.6			45.9	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.4	14.6	9.6	51.9	8.6	28.4	20.0	41.5
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	17.7	7.5	2.9	19.4	5.1	11.6	15.3	13.7
Green Ext Time (p_c), s	0.2	0.7	0.0	5.2	0.0	1.1	0.1	3.5

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1150	8	6	628	0	23	0	26	8	0	13
Future Vol, veh/h	4	1150	8	6	628	0	23	0	26	8	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	1250	9	7	683	0	25	0	28	9	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	683	0	0	1259	0	0	1962	1955	1250	1974	1964	683
Stage 1	-	-	-	-	-	-	1258	1258	-	697	697	-
Stage 2	-	-	-	-	-	-	704	697	-	1277	1267	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.8	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	919	-	-	559	-	-	47	65	213	47	64	453
Stage 1	-	-	-	-	-	-	203	245	-	435	446	-
Stage 2	-	-	-	-	-	-	407	446	-	206	242	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	919	-	-	559	-	-	45	64	213	40	63	453
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	169	-	126	165	-
Stage 1	-	-	-	-	-	-	202	244	-	433	440	-
Stage 2	-	-	-	-	-	-	389	440	-	178	241	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	35.6	22.5
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	170	919	-	-	559	-	-	228
HCM Lane V/C Ratio	0.313	0.005	-	-	0.012	-	-	0.1
HCM Control Delay (s)	35.6	8.9	-	-	11.5	-	-	22.5
HCM Lane LOS	E	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1.3	0	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1219	14	4	654	20	8
Future Vol, veh/h	1219	14	4	654	20	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1325	15	4	711	22	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1340	0	2052	1333
Stage 1	-	-	-	-	1333	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	521	-	62	190
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	521	-	62	190
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	482	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	29.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	178	-	-	521	-
HCM Lane V/C Ratio	0.171	-	-	0.008	-
HCM Control Delay (s)	29.4	-	-	12	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	1205	658	23	22	11
Future Vol, veh/h	11	1205	658	23	22	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	12	1310	715	25	24	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	740	0	-	0	1407	370
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	679	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	876	-	-	-	132	633
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	471	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	876	-	-	-	130	633
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	876	-	-	-	330
HCM Lane V/C Ratio	0.014	-	-	-	0.109
HCM Control Delay (s)	9.2	-	-	-	17.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	172	127	98	129	63	1126	61	297	1755	118
Future Volume (vph)	69	172	127	98	129	63	1126	61	297	1755	118
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	39.0	39.0	39.0	39.0	39.0	6.0	41.5	41.5	24.5	60.0	60.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.05	0.35	0.35	0.20	0.50	0.50
v/c Ratio	1.15	0.30	0.23	0.31	0.86	0.76	0.98	0.11	0.88	1.06	0.15
Control Delay	198.9	32.0	9.2	33.4	44.3	101.0	61.0	3.1	70.3	68.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.2	33.4	44.3	101.0	61.0	3.1	70.3	68.2	3.1
LOS	F	C	A	C	D	F	E	A	E	E	A
Approach Delay		55.4			42.5		60.2			64.9	
Approach LOS		E			D		E			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 59.7	Intersection LOS: E
Intersection Capacity Utilization 107.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	172	127	98	129	372	63	1126	61	297	1755	118
Future Volume (veh/h)	69	172	127	98	129	372	63	1126	61	297	1755	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	75	187	105	107	140	338	68	1224	50	323	1908	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	619	524	354	161	388	87	1282	569	351	1808	807
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.36	0.36	0.19	0.50	0.50
Sat Flow, veh/h	982	1900	1610	1166	493	1190	1810	3610	1603	1810	3610	1610
Grp Volume(v), veh/h	75	187	105	107	0	478	68	1224	50	323	1908	110
Grp Sat Flow(s),veh/h/ln	982	1900	1610	1166	0	1683	1810	1805	1603	1810	1805	1610
Q Serve(g_s), s	7.0	8.8	5.6	9.1	0.0	32.0	4.5	39.6	2.5	21.0	60.0	4.4
Cycle Q Clear(g_c), s	39.0	8.8	5.6	17.9	0.0	32.0	4.5	39.6	2.5	21.0	60.0	4.4
Prop In Lane	1.00		1.00	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	619	524	354	0	548	87	1282	569	351	1808	807
V/C Ratio(X)	0.64	0.30	0.20	0.30	0.00	0.87	0.78	0.95	0.09	0.92	1.06	0.14
Avail Cap(c_a), veh/h	117	619	524	354	0	548	91	1282	569	408	1808	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	30.2	29.1	36.9	0.0	38.0	56.4	37.7	25.7	47.4	29.9	16.0
Incr Delay (d2), s/veh	8.7	0.1	0.1	0.2	0.0	13.8	31.9	16.4	0.3	23.2	37.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.0	2.2	2.6	0.0	14.8	2.7	19.1	0.9	11.2	32.2	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	30.3	29.2	37.1	0.0	51.9	88.3	54.1	26.0	70.6	67.3	16.4
LnGrp LOS	E	C	C	D	A	D	F	D	C	E	F	B
Approach Vol, veh/h		367			585			1342			2341	
Approach Delay, s/veh		37.3			49.2			54.8			65.4	
Approach LOS		D			D			D			E	

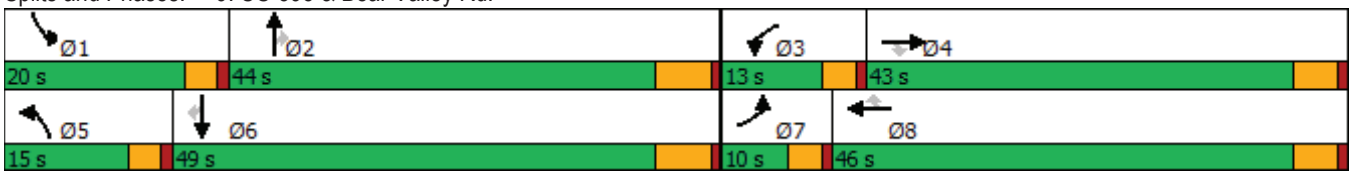
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.2	48.5		44.0	9.8	66.0		44.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	23.0	41.6		41.0	6.5	62.0		34.0				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	0.0		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		58.0	
HCM 6th LOS		E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	464	317	217	347	138	148	1043	134	310	1726	47
Future Volume (vph)	80	464	317	217	347	138	148	1043	134	310	1726	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	20.4	20.4	9.1	23.4	23.4	11.1	38.3	38.3	16.1	43.3	43.3
Actuated g/C Ratio	0.06	0.20	0.20	0.09	0.23	0.23	0.11	0.37	0.37	0.16	0.42	0.42
v/c Ratio	0.78	0.67	0.66	1.42	0.44	0.30	0.79	0.80	0.20	1.13	1.17	0.07
Control Delay	93.0	42.4	19.2	256.3	35.1	6.6	74.5	35.7	6.1	136.2	114.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	42.4	19.2	256.3	35.1	6.6	74.5	35.7	6.1	136.2	114.2	0.8
LOS	F	D	B	F	D	A	E	D	A	F	F	A
Approach Delay		38.5			97.9			37.1			115.0	
Approach LOS		D			F			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 78.6	Intersection LOS: E
Intersection Capacity Utilization 96.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	464	317	217	347	138	148	1043	134	310	1726	47
Future Volume (veh/h)	80	464	317	217	347	138	148	1043	134	310	1726	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	478	246	224	358	108	153	1075	111	320	1779	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	105	673	300	162	786	351	184	1361	607	287	1567	699
Arrive On Green	0.06	0.19	0.19	0.09	0.22	0.22	0.10	0.38	0.38	0.16	0.43	0.43
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	82	478	246	224	358	108	153	1075	111	320	1779	42
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.5	12.5	14.8	9.0	8.7	5.7	8.4	26.6	4.6	16.0	43.8	1.5
Cycle Q Clear(g_c), s	4.5	12.5	14.8	9.0	8.7	5.7	8.4	26.6	4.6	16.0	43.8	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	673	300	162	786	351	184	1361	607	287	1567	699
V/C Ratio(X)	0.78	0.71	0.82	1.39	0.46	0.31	0.83	0.79	0.18	1.11	1.14	0.06
Avail Cap(c_a), veh/h	108	1361	607	162	1468	655	197	1361	607	287	1567	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	38.4	39.4	45.9	34.2	33.1	44.4	27.9	21.0	42.4	28.5	16.6
Incr Delay (d2), s/veh	28.4	0.5	2.1	207.4	0.2	0.2	23.1	4.7	0.7	87.3	69.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.2	5.6	13.1	3.6	2.1	4.7	11.2	1.7	13.6	31.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	39.0	41.5	253.3	34.4	33.2	67.6	32.6	21.7	129.7	97.8	16.7
LnGrp LOS	E	D	D	F	C	C	E	C	C	F	F	B
Approach Vol, veh/h		806			690			1339			2141	
Approach Delay, s/veh		43.4			105.3			35.7			101.0	
Approach LOS		D			F			D			F	

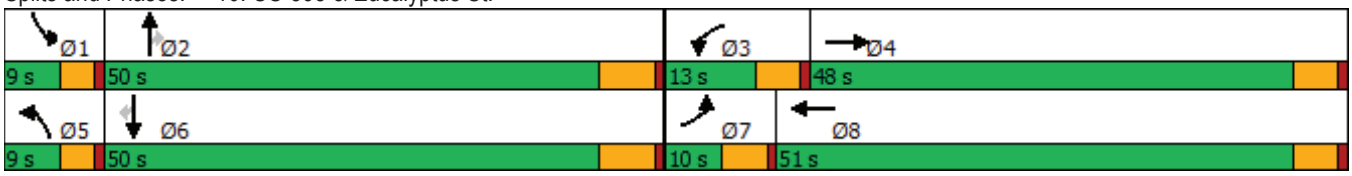
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	44.0	13.0	23.8	14.2	49.8	9.9	26.9
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	18.0	28.6	11.0	16.8	10.4	45.8	6.5	10.7
Green Ext Time (p_c), s	0.0	3.3	0.0	2.0	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	74.7
HCM 6th LOS	E

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	7	105	8	9	1186	81	9	2254	11
Future Volume (vph)	13	7	105	8	9	1186	81	9	2254	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.7	18.2	5.2	50.9	50.9	5.2	50.9	50.9
Actuated g/C Ratio	0.06	0.18	0.12	0.22	0.06	0.61	0.61	0.06	0.61	0.61
v/c Ratio	0.12	0.08	0.54	0.11	0.09	0.58	0.08	0.09	1.10	0.01
Control Delay	46.5	15.5	48.7	10.7	46.0	16.1	3.6	46.0	71.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	15.5	48.7	10.7	46.0	16.1	3.6	46.0	71.8	0.0
LOS	D	B	D	B	D	B	A	D	E	A
Approach Delay		26.3		38.6		15.5			71.3	
Approach LOS		C		D		B			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 84.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	7	17	105	8	30	9	1186	81	9	2254	11
Future Volume (veh/h)	13	7	17	105	8	30	9	1186	81	9	2254	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	14	8	10	113	9	21	10	1275	83	10	2424	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	30	76	95	144	82	191	23	2008	896	23	2008	896
Arrive On Green	0.02	0.10	0.10	0.08	0.16	0.16	0.01	0.56	0.56	0.01	0.56	0.56
Sat Flow, veh/h	1810	768	960	1810	506	1180	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	14	0	18	113	0	30	10	1275	83	10	2424	11
Grp Sat Flow(s),veh/h/ln	1810	0	1727	1810	0	1685	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.6	0.0	0.8	4.9	0.0	1.2	0.4	19.2	1.9	0.4	44.0	0.2
Cycle Q Clear(g_c), s	0.6	0.0	0.8	4.9	0.0	1.2	0.4	19.2	1.9	0.4	44.0	0.2
Prop In Lane	1.00		0.56	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	30	0	171	144	0	273	23	2008	896	23	2008	896
V/C Ratio(X)	0.46	0.00	0.11	0.79	0.00	0.11	0.44	0.64	0.09	0.44	1.21	0.01
Avail Cap(c_a), veh/h	114	0	939	183	0	980	114	2008	896	114	2008	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	32.4	35.7	0.0	28.3	38.8	12.0	8.2	38.8	17.6	7.8
Incr Delay (d2), s/veh	4.0	0.0	0.3	12.1	0.0	0.2	5.0	1.5	0.2	5.0	98.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	2.5	0.0	0.5	0.2	6.1	0.6	0.2	43.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	0.0	32.7	47.8	0.0	28.5	43.8	13.6	8.4	43.8	115.8	7.9
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	F	A
Approach Vol, veh/h		32			143			1368			2445	
Approach Delay, s/veh		37.0			43.8			13.5			115.0	
Approach LOS		D			D			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	50.0	11.3	12.8	5.0	50.0	6.3	17.8
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.4	21.2	6.9	2.8	2.4	46.0	2.6	3.2
Green Ext Time (p_c), s	0.0	9.1	0.0	0.1	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	77.0
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	1	9	0	1	4	1920	81	6	2656	0
Future Vol, veh/h	0	0	1	9	0	1	4	1920	81	6	2656	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	0	1	10	0	1	4	2087	88	7	2887	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	5041	5084	2887	5041	5040	2131	2887	0	0	2175	0	0
Stage 1	2901	2901	-	2139	2139	-	-	-	-	-	-	-
Stage 2	2140	2183	-	2902	2901	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	1	22	0	1	63	130	-	-	248	-	-
Stage 1	23	36	-	65	90	-	-	-	-	-	-	-
Stage 2	65	85	-	23	36	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	0	1	22	0	1	63	130	-	-	248	-	-
Mov Cap-2 Maneuver	0	1	-	0	1	-	-	-	-	-	-	-
Stage 1	23	36	-	65	90	-	-	-	-	-	-	-
Stage 2	64	85	-	22	36	-	-	-	-	-	-	-

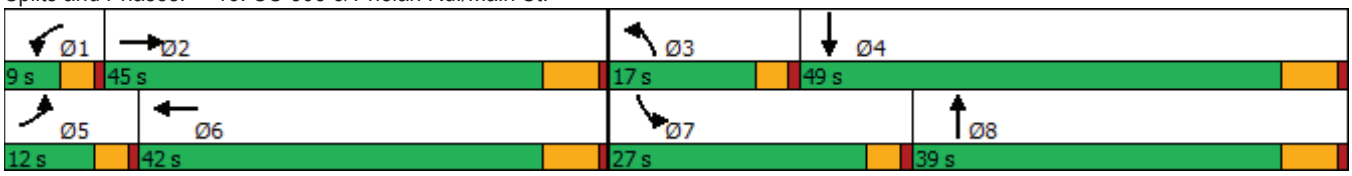
Approach	EB	WB	NB	SB
HCM Control Delay, s	177	73.7	0.1	0
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	130	-	-	22	63	248	-	-
HCM Lane V/C Ratio	0.033	-	-	0.049	0.173	0.026	-	-
HCM Control Delay (s)	33.6	0	-	177	73.7	19.9	0	-
HCM Lane LOS	D	A	-	F	F	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.6	0.1	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	103	921	23	449	151	1485	317	2268
Future Volume (vph)	103	921	23	449	151	1485	317	2268
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.0	39.4	5.0	32.6	12.4	33.1	22.7	43.4
Actuated g/C Ratio	0.07	0.34	0.04	0.28	0.11	0.28	0.20	0.37
v/c Ratio	0.86	0.97	0.31	0.83	0.82	1.54	0.94	1.83
Control Delay	105.8	58.2	66.3	37.9	82.8	278.7	82.1	400.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.8	58.2	66.3	37.9	82.8	278.7	82.1	400.9
LOS	F	E	E	D	F	F	F	F
Approach Delay		62.2		38.7		261.0		363.0
Approach LOS		E		D		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.83	
Intersection Signal Delay: 234.7	Intersection LOS: F
Intersection Capacity Utilization 126.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	921	203	23	449	416	151	1485	26	317	2268	82
Future Volume (veh/h)	103	921	203	23	449	416	151	1485	26	317	2268	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	107	959	166	24	468	353	157	1547	27	330	2362	81
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	123	1011	175	42	556	418	185	1022	18	355	1338	46
Arrive On Green	0.07	0.33	0.33	0.02	0.28	0.28	0.10	0.28	0.28	0.20	0.38	0.38
Sat Flow, veh/h	1810	3077	532	1810	1963	1476	1810	3630	63	1810	3562	121
Grp Volume(v), veh/h	107	562	563	24	430	391	157	768	806	330	1190	1253
Grp Sat Flow(s),veh/h/ln	1810	1805	1804	1810	1805	1634	1810	1805	1889	1810	1805	1878
Q Serve(g_s), s	6.9	35.6	35.7	1.5	26.3	26.4	10.0	33.0	33.0	21.0	44.0	44.0
Cycle Q Clear(g_c), s	6.9	35.6	35.7	1.5	26.3	26.4	10.0	33.0	33.0	21.0	44.0	44.0
Prop In Lane	1.00		0.29	1.00		0.90	1.00		0.03	1.00		0.06
Lane Grp Cap(c), veh/h	123	593	593	42	512	463	185	508	532	355	678	706
V/C Ratio(X)	0.87	0.95	0.95	0.57	0.84	0.84	0.85	1.51	1.52	0.93	1.75	1.78
Avail Cap(c_a), veh/h	123	601	600	77	554	502	201	508	532	355	678	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	38.4	38.4	56.7	39.5	39.6	51.8	42.1	42.1	46.3	36.6	36.6
Incr Delay (d2), s/veh	42.8	24.4	24.7	8.9	10.5	11.7	25.5	240.4	241.5	30.2	345.8	354.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	18.6	18.7	0.8	12.4	11.4	5.6	47.6	50.0	11.9	82.8	87.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.9	62.8	63.1	65.5	50.0	51.3	77.3	282.5	283.6	76.5	382.4	391.2
LnGrp LOS	F	E	E	E	D	D	E	F	F	E	F	F
Approach Vol, veh/h		1232			845			1731			2773	
Approach Delay, s/veh		65.9			51.1			264.4			350.0	
Approach LOS		E			D			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	44.5	16.0	50.0	12.0	39.2	27.0	39.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	3.5	37.7	12.0	46.0	8.9	28.4	23.0	35.0
Green Ext Time (p_c), s	0.0	0.8	0.0	0.0	0.0	2.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	235.9
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	18.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	432	1230	68	565	1929
Future Vol, veh/h	122	432	1230	68	565	1929
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	131	465	1323	73	608	2074

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4650	698	0	0	1396	0
Stage 1	1360	-	-	-	-	-
Stage 2	3290	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 388	-	-	~ 496	-
Stage 1	207	-	-	-	-	-
Stage 2	~ 25	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 388	-	-	~ 496	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	207	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	32.6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	388	~ 496	-
HCM Lane V/C Ratio	-	-	-	1.197	1.225	-
HCM Control Delay (s)	-	-	-	142.1	143.8	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	18.8	23.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1	232	2	58	247	1170	142	44	1874	133
Future Volume (vph)	70	1	232	2	58	247	1170	142	44	1874	133
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	15.0	69.0	69.0	12.0	66.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	12.5%	57.5%	57.5%	10.0%	55.0%	55.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	33.0	33.0	33.0	33.0	33.0	10.0	65.5	65.5	6.5	60.0	60.0
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.08	0.55	0.55	0.05	0.50	0.50
v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.65	0.17	0.49	1.13	0.17
Control Delay	34.9	26.8	198.3	31.5	6.6	411.4	21.6	2.7	72.5	95.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	26.8	198.3	31.5	6.6	411.4	21.6	2.7	72.5	95.2	8.0
LOS	C	C	F	C	A	F	C	A	E	F	A
Approach Delay		28.4		159.2			81.6			89.0	
Approach LOS		C		F			F			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 86.2	Intersection LOS: F
Intersection Capacity Utilization 114.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1	273	232	2	58	247	1170	142	44	1874	133
Future Volume (veh/h)	70	1	273	232	2	58	247	1170	142	44	1874	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	76	1	260	252	2	54	268	1272	142	48	2037	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	455	2	441	222	522	442	151	1982	883	62	1805	805
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.08	0.55	0.55	0.03	0.50	0.50
Sat Flow, veh/h	1442	6	1605	1199	1900	1607	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	76	0	261	252	2	54	268	1272	142	48	2037	124
Grp Sat Flow(s),veh/h/ln	1442	0	1611	1199	1900	1607	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.8	0.0	16.8	16.2	0.1	3.0	10.0	29.4	5.2	3.2	60.0	5.0
Cycle Q Clear(g_c), s	4.9	0.0	16.8	33.0	0.1	3.0	10.0	29.4	5.2	3.2	60.0	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	0	443	222	523	442	151	1982	883	62	1805	805
V/C Ratio(X)	0.17	0.00	0.59	1.14	0.00	0.12	1.78	0.64	0.16	0.77	1.13	0.15
Avail Cap(c_a), veh/h	455	0	443	222	523	442	151	1982	883	106	1805	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	37.6	54.1	31.6	32.6	55.0	18.8	13.4	57.5	30.0	16.3
Incr Delay (d2), s/veh	0.1	0.0	1.4	102.1	0.0	0.0	375.2	1.6	0.4	7.4	65.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	6.8	13.0	0.0	1.2	20.1	11.3	1.8	1.5	39.3	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	39.0	156.2	31.6	32.7	430.2	20.5	13.8	64.8	95.6	16.7
LnGrp LOS	C	A	D	F	C	C	F	C	B	E	F	B
Approach Vol, veh/h		337			308			1682			2209	
Approach Delay, s/veh		37.8			133.8			85.2			90.5	
Approach LOS		D			F			F			F	

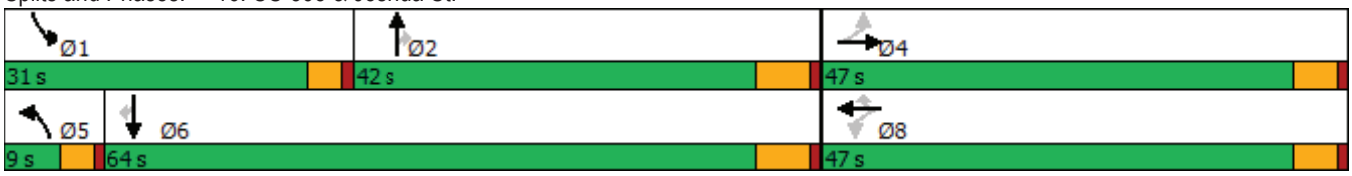
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	71.9		39.0	15.0	66.0		39.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	63.0		33.0	10.0	60.0		33.0				
Max Q Clear Time (g_c+I1), s	5.2	31.4		18.8	12.0	62.0		35.0				
Green Ext Time (p_c), s	0.0	10.4		1.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		87.5	
HCM 6th LOS		F	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	74	129	89	238	13	1260	83	272	1870	237
Future Volume (vph)	62	74	129	89	238	13	1260	83	272	1870	237
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	42.0	42.0	31.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	35.0%	35.0%	25.8%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	18.4	18.4	18.4	18.4	18.4	5.1	40.8	40.8	18.8	62.3	62.3
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.06	0.45	0.45	0.21	0.69	0.69
v/c Ratio	0.25	0.22	0.52	0.25	0.49	0.14	0.84	0.12	0.79	0.82	0.22
Control Delay	31.5	29.4	38.1	30.7	6.9	50.3	30.6	5.8	50.7	16.7	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	29.4	38.1	30.7	6.9	50.3	30.6	5.8	50.7	16.7	4.5
LOS	C	C	D	C	A	D	C	A	D	B	A
Approach Delay		30.4		20.3			29.2			19.4	
Approach LOS		C		C			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 22.9	Intersection LOS: C
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	74	4	129	89	238	13	1260	83	272	1870	237
Future Volume (veh/h)	62	74	4	129	89	238	13	1260	83	272	1870	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	67	80	1	140	97	205	14	1370	76	296	2033	253
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	235	334	4	280	339	286	30	1810	807	337	2423	1081
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.18	0.02	0.50	0.50	0.19	0.67	0.67
Sat Flow, veh/h	1154	1872	23	1413	1900	1607	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	67	0	81	140	97	205	14	1370	76	296	2033	253
Grp Sat Flow(s),veh/h/ln	1154	0	1896	1413	1900	1607	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.8	0.0	3.3	8.4	4.0	10.7	0.7	27.3	2.2	14.2	37.9	5.5
Cycle Q Clear(g_c), s	8.7	0.0	3.3	11.7	4.0	10.7	0.7	27.3	2.2	14.2	37.9	5.5
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	235	0	338	280	339	286	30	1810	807	337	2423	1081
V/C Ratio(X)	0.28	0.00	0.24	0.50	0.29	0.72	0.47	0.76	0.09	0.88	0.84	0.23
Avail Cap(c_a), veh/h	585	0	912	708	914	773	101	1810	807	547	2423	1081
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	0.0	31.5	36.6	31.8	34.6	43.6	17.9	11.7	35.4	11.1	5.7
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.5	0.2	1.3	8.4	3.0	0.2	7.7	3.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.5	2.9	1.8	4.2	0.4	10.0	0.7	6.5	10.9	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	31.7	37.1	32.0	35.9	51.9	20.9	11.9	43.1	14.8	6.2
LnGrp LOS	D	A	C	D	C	D	D	C	B	D	B	A
Approach Vol, veh/h		148			442			1460			2582	
Approach Delay, s/veh		33.6			35.4			20.8			17.2	
Approach LOS		C			D			C			B	

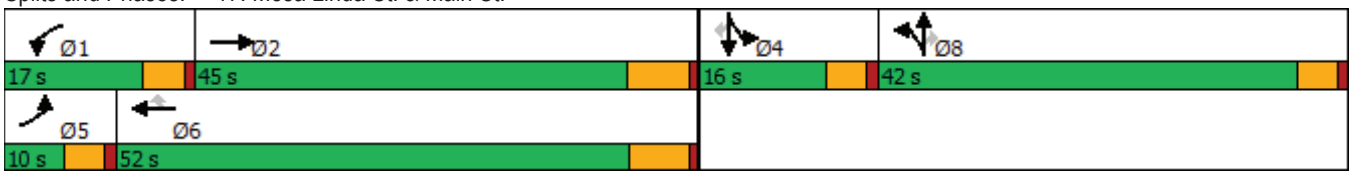
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.7	48.8		19.9	5.5	64.0		19.9				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	16.2	29.3		10.7	2.7	39.9		13.7				
Green Ext Time (p_c), s	0.4	5.7		0.4	0.0	17.0		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		20.6	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	1210	121	803	24	3	177	3	20
Future Volume (vph)	7	1210	121	803	24	3	177	3	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.3	39.5	10.8	53.8	53.8	14.3	14.3	10.5	10.5
Actuated g/C Ratio	0.06	0.43	0.12	0.58	0.58	0.16	0.16	0.11	0.11
v/c Ratio	0.08	0.59	0.66	0.29	0.03	0.01	0.47	0.36	0.07
Control Delay	50.0	24.2	58.5	12.9	0.0	32.3	8.8	48.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	24.2	58.5	12.9	0.0	32.3	8.8	48.0	0.4
LOS	D	C	E	B	A	C	A	D	A
Approach Delay		24.3		18.4		9.2		37.2	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 55.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1210	4	121	803	24	0	3	177	66	3	20
Future Volume (veh/h)	7	1210	4	121	803	24	0	3	177	66	3	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	8	1315	4	132	873	18	0	3	172	72	3	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	17	2356	7	163	2729	847	0	250	212	173	7	160
Arrive On Green	0.01	0.44	0.44	0.09	0.53	0.53	0.00	0.13	0.13	0.10	0.10	0.10
Sat Flow, veh/h	1714	5339	16	1714	5187	1610	0	1900	1610	1740	73	1610
Grp Volume(v), veh/h	8	852	467	132	873	18	0	3	172	75	0	9
Grp Sat Flow(s),veh/h/ln	1714	1729	1897	1714	1729	1610	0	1900	1610	1813	0	1610
Q Serve(g_s), s	0.4	15.9	15.9	6.6	8.4	0.5	0.0	0.1	9.1	3.4	0.0	0.4
Cycle Q Clear(g_c), s	0.4	15.9	15.9	6.6	8.4	0.5	0.0	0.1	9.1	3.4	0.0	0.4
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	17	1526	837	163	2729	847	0	250	212	181	0	160
V/C Ratio(X)	0.46	0.56	0.56	0.81	0.32	0.02	0.00	0.01	0.81	0.42	0.00	0.06
Avail Cap(c_a), veh/h	106	1526	837	244	2729	847	0	814	690	237	0	210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	18.1	18.1	38.7	11.8	9.9	0.0	33.0	36.8	36.9	0.0	35.6
Incr Delay (d2), s/veh	7.0	1.5	2.7	6.9	0.3	0.0	0.0	0.0	7.3	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.7	6.5	2.9	2.8	0.2	0.0	0.1	4.0	1.6	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	19.5	20.8	45.6	12.1	10.0	0.0	33.0	44.2	38.4	0.0	35.7
LnGrp LOS	D	B	C	D	B	A	A	C	D	D	A	D
Approach Vol, veh/h		1327			1023			175			84	
Approach Delay, s/veh		20.2			16.4			44.0			38.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	45.0		13.3	5.5	52.4		16.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	8.6	17.9		5.4	2.4	10.4		11.1				
Green Ext Time (p_c), s	0.0	7.8		0.1	0.0	6.2		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		20.8
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	1152	310	284	890	24	179	15	154	47	15	36
Future Volume (vph)	78	1152	310	284	890	24	179	15	154	47	15	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	34.8	34.8	10.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	26.8%	26.8%	7.7%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	30.6	30.6	5.8	29.5	29.5	14.9	14.9	14.9	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.37	0.37	0.07	0.36	0.36	0.18	0.18	0.18	0.17	0.17	0.17
v/c Ratio	0.60	0.65	0.43	1.42	0.52	0.04	0.36	0.34	0.39	0.17	0.05	0.11
Control Delay	61.1	27.5	7.2	244.2	26.5	0.1	34.9	34.3	8.1	33.0	31.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	27.5	7.2	244.2	26.5	0.1	34.9	34.3	8.1	33.0	31.6	0.6
LOS	E	C	A	F	C	A	C	C	A	C	C	A
Approach Delay		25.1			77.7			22.9			20.9	
Approach LOS		C			E			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 82.8	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 44.5	Intersection LOS: D
Intersection Capacity Utilization 56.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1152	310	284	890	24	179	15	154	47	15	36
Future Volume (veh/h)	78	1152	310	284	890	24	179	15	154	47	15	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	85	1252	330	309	967	19	206	0	147	51	16	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	108	2055	637	235	2117	657	489	0	229	188	208	176
Arrive On Green	0.06	0.40	0.40	0.07	0.41	0.41	0.14	0.00	0.14	0.11	0.11	0.11
Sat Flow, veh/h	1714	5187	1609	3141	5187	1609	3429	0	1607	1714	1900	1610
Grp Volume(v), veh/h	85	1252	330	309	967	19	206	0	147	51	16	11
Grp Sat Flow(s),veh/h/ln	1714	1729	1609	1570	1729	1609	1714	0	1607	1714	1900	1610
Q Serve(g_s), s	3.5	13.9	11.2	5.4	9.8	0.5	4.0	0.0	6.2	2.0	0.5	0.4
Cycle Q Clear(g_c), s	3.5	13.9	11.2	5.4	9.8	0.5	4.0	0.0	6.2	2.0	0.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	2055	637	235	2117	657	489	0	229	188	208	176
V/C Ratio(X)	0.79	0.61	0.52	1.32	0.46	0.03	0.42	0.00	0.64	0.27	0.08	0.06
Avail Cap(c_a), veh/h	152	2055	637	235	2117	657	1852	0	868	879	974	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	17.3	16.6	33.4	15.5	12.8	28.2	0.0	29.2	29.5	28.9	28.8
Incr Delay (d2), s/veh	10.7	1.4	3.0	168.7	0.7	0.1	0.6	0.0	3.0	0.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	4.7	3.9	7.4	3.3	0.2	1.6	0.0	2.5	0.8	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	18.7	19.5	202.1	16.3	12.9	28.8	0.0	32.2	30.3	29.0	29.0
LnGrp LOS	D	B	B	F	B	B	C	A	C	C	C	C
Approach Vol, veh/h		1667			1295			353			78	
Approach Delay, s/veh		20.2			60.6			30.2			29.8	
Approach LOS		C			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	34.8		12.5	9.1	35.7		14.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	28.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	7.4	15.9		4.0	5.5	11.8		8.2				
Green Ext Time (p_c), s	0.0	7.0		0.2	0.0	5.5		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		36.9	
HCM 6th LOS		D	

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	1219	17	194	1039	15	16	110	522	37
Future Volume (vph)	42	1219	17	194	1039	15	16	110	522	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	7.3	41.5	41.5	17.6	53.9	41.5	41.5	41.5	41.5	41.5
Actuated g/C Ratio	0.06	0.36	0.36	0.15	0.46	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.40	0.67	0.03	0.76	0.58	0.03	0.02	0.17	1.11	0.10
Control Delay	64.4	34.3	0.1	66.1	23.0	26.2	25.9	5.6	110.7	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	34.3	0.1	66.1	23.3	26.2	25.9	5.6	110.7	17.4
LOS	E	C	A	E	C	C	C	A	F	B
Approach Delay		34.8			28.6		10.0			100.6
Approach LOS		C			C		B			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 42.0	Intersection LOS: D
Intersection Capacity Utilization 84.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1219	17	194	1039	316	15	16	110	522	37	26
Future Volume (veh/h)	42	1219	17	194	1039	316	15	16	110	522	37	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	43	1244	14	198	1060	288	15	16	52	533	38	22
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	56	1925	597	226	1910	519	527	688	583	546	409	237
Arrive On Green	0.03	0.37	0.37	0.13	0.47	0.47	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1714	5187	1608	1714	4058	1102	1364	1900	1609	1353	1129	654
Grp Volume(v), veh/h	43	1244	14	198	903	445	15	16	52	533	0	60
Grp Sat Flow(s),veh/h/ln	1714	1729	1608	1714	1729	1702	1364	1900	1609	1353	0	1782
Q Serve(g_s), s	2.8	22.7	0.6	13.0	21.4	21.4	0.8	0.6	2.4	40.8	0.0	2.5
Cycle Q Clear(g_c), s	2.8	22.7	0.6	13.0	21.4	21.4	3.4	0.6	2.4	41.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.65	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	56	1925	597	226	1627	801	527	688	583	546	0	645
V/C Ratio(X)	0.77	0.65	0.02	0.87	0.56	0.56	0.03	0.02	0.09	0.98	0.00	0.09
Avail Cap(c_a), veh/h	141	1925	597	366	1627	801	527	688	583	546	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	29.7	22.8	48.7	21.7	21.7	25.2	23.5	24.0	38.7	0.0	24.1
Incr Delay (d2), s/veh	8.0	1.7	0.1	7.6	1.4	2.8	0.0	0.0	0.1	32.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	9.1	0.2	5.8	8.3	8.5	0.3	0.3	1.0	20.4	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	31.4	22.9	56.3	23.1	24.5	25.2	23.5	24.1	71.2	0.0	24.1
LnGrp LOS	E	C	C	E	C	C	C	C	C	E	A	C
Approach Vol, veh/h		1301			1546			83			593	
Approach Delay, s/veh		32.4			27.7			24.2			66.5	
Approach LOS		C			C			C			E	

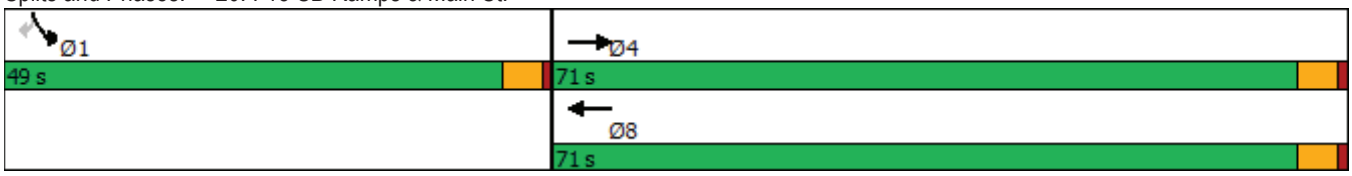
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.7	48.6		46.0	8.3	60.0		46.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	15.0	24.7		43.4	4.8	23.4		5.4				
Green Ext Time (p_c), s	0.2	6.7		0.0	0.0	10.0		0.3				

Intersection Summary												
HCM 6th Ctrl Delay			35.9									
HCM 6th LOS			D									

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1388	35	1146	23	434	293
Future Volume (vph)	1388	35	1146	23	434	293
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	71.0		71.0		49.0	49.0
Total Split (%)	59.2%		59.2%		40.8%	40.8%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	25.9	51.1	25.9	51.1	15.4	15.4
Actuated g/C Ratio	0.51	1.00	0.51	1.00	0.30	0.30
v/c Ratio	0.56	0.02	0.46	0.01	0.43	0.58
Control Delay	9.9	0.0	9.0	0.0	16.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	0.0	9.0	0.0	16.4	18.0
LOS	A	A	A	A	B	B
Approach Delay	9.7		8.9			
Approach LOS	A		A			

Intersection Summary			
Cycle Length: 120			
Actuated Cycle Length: 51.1			
Natural Cycle: 40			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1388	35	0	1146	23	0	0	0	434	0	293
Future Volume (veh/h)	0	1388	35	0	1146	23	0	0	0	434	0	293
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1461	0	0	1206	0				457	0	227
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2833		0	2833					828	0	380
Arrive On Green	0.00	0.55	0.00	0.00	0.55	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1461	0	0	1206	0				457	0	227
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	7.5	0.0	0.0	5.8	0.0				4.8	0.0	5.3
Cycle Q Clear(g_c), s	0.0	7.5	0.0	0.0	5.8	0.0				4.8	0.0	5.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2833		0	2833					828	0	380
V/C Ratio(X)	0.00	0.52		0.00	0.43					0.55	0.00	0.60
Avail Cap(c_a), veh/h	0	8159		0	8159					3692	0	1694
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.1	0.0	0.0	5.7	0.0				14.2	0.0	14.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.0				0.6	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0	0.0	0.8	0.0				1.7	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	6.2	0.0	0.0	5.8	0.0				14.7	0.0	15.9
LnGrp LOS	A	A		A	A					B	A	B
Approach Vol, veh/h		1461	A		1206	A					684	
Approach Delay, s/veh		6.2			5.8						15.1	
Approach LOS		A			A						B	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		27.7		14.6		27.7
Change Period (Y+Rc), s		4.6		4.6		4.6
Max Green Setting (Gmax), s		66.4		44.4		66.4
Max Q Clear Time (g_c+I1), s		9.5		7.3		7.8
Green Ext Time (p_c), s		13.5		2.7		10.0

Intersection Summary	
HCM 6th Ctrl Delay	7.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1410	411	1741	670	161	8	547
Future Volume (vph)	1410	411	1741	670	161	8	547
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	52.8	52.8	52.8	52.8	22.1	22.1	22.1
Actuated g/C Ratio	0.62	0.62	0.62	0.62	0.26	0.26	0.26
v/c Ratio	0.45	0.36	0.55	0.54	0.35	0.65	0.66
Control Delay	9.5	1.8	10.6	2.5	30.2	32.6	33.1
Queue Delay	0.0	0.0	0.1	0.3	0.0	0.0	0.0
Total Delay	9.5	1.8	10.7	2.8	30.2	32.6	33.1
LOS	A	A	B	A	C	C	C
Approach Delay	7.8		8.5			32.3	
Approach LOS	A		A			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1410	411	0	1741	670	161	8	547	0	0	0
Future Volume (veh/h)	0	1410	411	0	1741	670	161	8	547	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1439	0	0	1777	652	164	0	353			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	3541		0	3541	1099	304	0	540			
Arrive On Green	0.00	0.68	0.00	0.00	0.68	0.68	0.17	0.00	0.17			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1439	0	0	1777	652	164	0	353			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	7.5	0.0	0.0	10.2	13.3	5.1	0.0	6.3			
Cycle Q Clear(g_c), s	0.0	7.5	0.0	0.0	10.2	13.3	5.1	0.0	6.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3541		0	3541	1099	304	0	540			
V/C Ratio(X)	0.00	0.41		0.00	0.50	0.59	0.54	0.00	0.65			
Avail Cap(c_a), veh/h	0	6187		0	6187	1921	1100	0	1957			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.3	0.0	0.0	4.7	5.2	23.4	0.0	23.9			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.5	1.5	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.0	0.0	1.5	2.0	2.2	0.0	2.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.4	0.0	0.0	4.8	5.7	24.9	0.0	25.3			
LnGrp LOS	A	A		A	A	A	C	A	C			
Approach Vol, veh/h		1439	A		2429			517				
Approach Delay, s/veh		4.4			5.1			25.2				
Approach LOS		A			A			C				

Timer - Assigned Phs	2			6		8			
Phs Duration (G+Y+Rc), s	46.6			46.6		14.9			
Change Period (Y+Rc), s	4.6			4.6		4.6			
Max Green Setting (Gmax), s	73.4			73.4		37.4			
Max Q Clear Time (g_c+I1), s	9.5			15.3		8.3			
Green Ext Time (p_c), s	13.4			26.7		2.0			

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

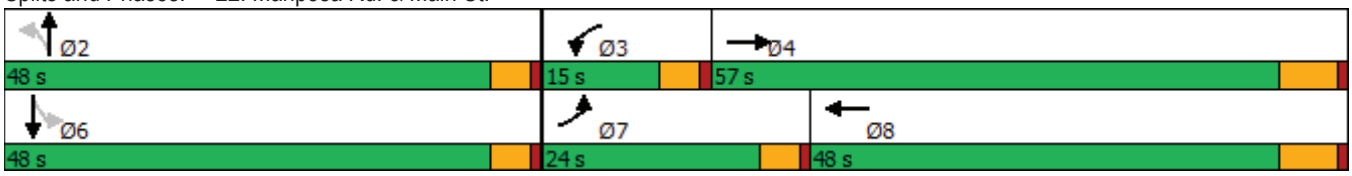
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	179	1638	61	2063	105	55	49	68
Future Volume (vph)	179	1638	61	2063	105	55	49	68
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	14.7	51.3	10.5	47.1	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.15	0.52	0.11	0.48	0.22	0.22	0.22	0.22
v/c Ratio	0.76	0.57	0.36	0.73	1.28	0.27	0.20	0.67
Control Delay	60.8	18.3	51.0	25.0	225.0	20.8	31.6	23.3
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	18.9	51.0	25.0	225.0	20.8	31.6	23.3
LOS	E	B	D	C	F	C	C	C
Approach Delay		22.8		25.8		123.3		24.4
Approach LOS		C		C		F		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 28.8	Intersection LOS: C
Intersection Capacity Utilization 84.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1638	140	61	2063	40	105	55	49	49	68	242
Future Volume (veh/h)	179	1638	140	61	2063	40	105	55	49	49	68	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	192	1761	138	66	2218	42	113	59	31	53	73	177
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	223	3082	242	174	3104	59	212	297	156	354	125	302
Arrive On Green	0.13	0.50	0.50	0.10	0.47	0.47	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1714	6226	488	1714	6653	126	1148	1173	616	1327	492	1193
Grp Volume(v), veh/h	192	1386	513	66	1634	626	113	0	90	53	0	250
Grp Sat Flow(s),veh/h/ln	1714	1634	1812	1714	1634	1877	1148	0	1789	1327	0	1685
Q Serve(g_s), s	11.3	20.4	20.4	3.7	27.4	27.4	9.8	0.0	4.1	3.4	0.0	13.3
Cycle Q Clear(g_c), s	11.3	20.4	20.4	3.7	27.4	27.4	23.2	0.0	4.1	7.4	0.0	13.3
Prop In Lane	1.00		0.27	1.00		0.07	1.00		0.34	1.00		0.71
Lane Grp Cap(c), veh/h	223	2427	897	174	2287	876	212	0	454	354	0	427
V/C Ratio(X)	0.86	0.57	0.57	0.38	0.71	0.71	0.53	0.00	0.20	0.15	0.00	0.59
Avail Cap(c_a), veh/h	324	2427	897	174	2287	876	406	0	757	579	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	18.2	18.2	43.1	21.9	21.9	43.7	0.0	30.1	33.0	0.0	33.6
Incr Delay (d2), s/veh	10.8	1.0	2.6	6.2	1.1	2.8	2.1	0.0	0.2	0.2	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	7.1	8.2	1.8	9.6	11.4	2.9	0.0	1.8	1.1	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	19.2	20.9	49.3	23.0	24.7	45.8	0.0	30.3	33.2	0.0	34.8
LnGrp LOS	D	B	C	D	C	C	D	A	C	C	A	C
Approach Vol, veh/h		2091			2326			203			303	
Approach Delay, s/veh		22.9			24.2			38.9			34.6	
Approach LOS		C			C			D			C	

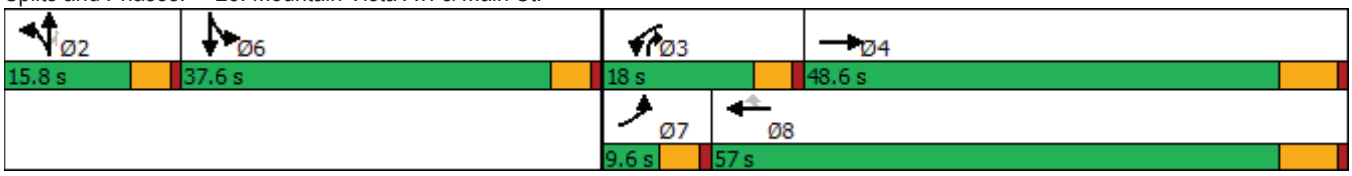
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.6	15.0	57.0		30.6	17.9	54.1				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		25.2	5.7	22.4		15.3	13.3	29.4				
Green Ext Time (p_c), s		0.8	0.0	14.8		1.9	0.1	9.8				

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	22	1504	101	2018	81	22	1	41	69	3
Future Volume (vph)	22	1504	101	2018	81	22	1	41	69	3
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	51.5	9.6	60.1	60.1	10.4	10.4	12.9	13.8	13.8
Actuated g/C Ratio	0.06	0.59	0.11	0.68	0.68	0.12	0.12	0.15	0.16	0.16
v/c Ratio	0.12	0.41	0.56	0.59	0.08	0.06	0.03	0.09	0.17	0.16
Control Delay	48.2	16.5	52.7	14.9	3.1	44.2	43.2	1.9	35.6	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	16.5	52.7	14.9	3.1	44.2	43.2	1.9	35.6	27.1
LOS	D	B	D	B	A	D	D	A	D	C
Approach Delay		16.9		16.2			17.1			31.4
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.59	
Intersection Signal Delay: 16.8	Intersection LOS: B
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1504	29	101	2018	81	22	1	41	69	3	13
Future Volume (veh/h)	22	1504	29	101	2018	81	22	1	41	69	3	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1800
Adj Flow Rate, veh/h	23	1551	29	104	2080	81	23	1	22	80	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	3468	65	131	2972	922	262	145	492	345	191	0
Arrive On Green	0.02	0.52	0.52	0.08	0.57	0.57	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	3141	6655	124	1714	5187	1609	3429	1900	3220	3429	1900	0
Grp Volume(v), veh/h	23	1142	438	104	2080	81	23	1	22	80	0	0
Grp Sat Flow(s),veh/h/ln	1570	1634	1877	1714	1729	1609	1714	1900	1610	1714	1900	0
Q Serve(g_s), s	0.6	12.9	12.9	5.3	25.3	2.0	0.6	0.0	0.5	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.6	12.9	12.9	5.3	25.3	2.0	0.6	0.0	0.5	1.9	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	77	2554	978	131	2972	922	262	145	492	345	191	0
V/C Ratio(X)	0.30	0.45	0.45	0.79	0.70	0.09	0.09	0.01	0.04	0.23	0.00	0.00
Avail Cap(c_a), veh/h	177	2554	978	259	2972	922	433	240	653	1276	707	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.5	13.3	13.3	40.3	13.5	8.5	38.1	37.8	32.0	36.7	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.6	1.5	4.1	1.4	0.2	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.1	5.0	2.2	8.2	0.6	0.2	0.0	0.2	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	13.8	14.7	44.3	14.9	8.7	38.2	37.8	32.1	37.1	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1603			2265			46			80	
Approach Delay, s/veh		14.5			16.0			35.3			37.1	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.4	11.4	52.4		13.5	6.8	57.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		11.2	13.4	42.4		33.0	5.0	50.8				
Max Q Clear Time (g_c+I1), s		2.6	7.3	14.9		3.9	2.6	27.3				
Green Ext Time (p_c), s		0.1	0.0	11.5		0.2	0.0	16.0				

Intersection Summary		
HCM 6th Ctrl Delay		16.1
HCM 6th LOS		B

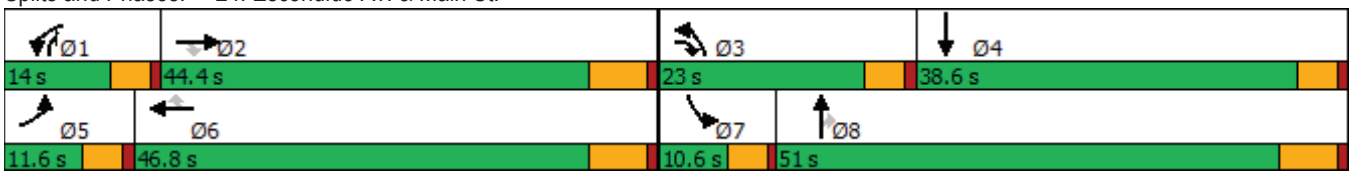
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	6	1103	505	359	1369	4	814	30	379	1	4
Future Volume (vph)	6	1103	505	359	1369	4	814	30	379	1	4
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	44.4	23.0	14.0	46.8	46.8	23.0	51.0	14.0	10.6	38.6
Total Split (%)	9.7%	37.0%	19.2%	11.7%	39.0%	39.0%	19.2%	42.5%	11.7%	8.8%	32.2%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	5.3	29.5	54.5	9.6	42.1	42.1	18.7	34.1	50.0	5.1	13.7
Actuated g/C Ratio	0.06	0.32	0.59	0.10	0.46	0.46	0.20	0.37	0.54	0.06	0.15
v/c Ratio	0.06	0.68	0.45	1.13	0.85	0.00	1.31	0.04	0.41	0.01	0.08
Control Delay	48.2	30.2	2.4	130.9	30.1	0.0	183.9	20.5	9.4	49.0	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	30.2	2.4	130.9	30.1	0.0	183.9	20.5	9.4	49.0	17.1
LOS	D	C	A	F	C	A	F	C	A	D	B
Approach Delay		21.5			50.9			125.8			18.5
Approach LOS		C			D			F			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.31	
Intersection Signal Delay: 60.4	Intersection LOS: E
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1103	505	359	1369	4	814	30	379	1	4	17
Future Volume (veh/h)	6	1103	505	359	1369	4	814	30	379	1	4	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	6	1137	407	370	1411	4	839	31	229	1	4	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	1739	871	330	1562	697	647	601	679	2	35	150
Arrive On Green	0.01	0.34	0.34	0.11	0.43	0.43	0.21	0.32	0.32	0.00	0.11	0.11
Sat Flow, veh/h	1714	5187	1610	3141	3610	1610	3141	1900	1610	1714	316	1342
Grp Volume(v), veh/h	6	1137	407	370	1411	4	839	31	229	1	0	21
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1570	1805	1610	1570	1900	1610	1714	0	1658
Q Serve(g_s), s	0.3	16.7	13.9	9.4	32.5	0.1	18.4	1.0	8.6	0.1	0.0	1.0
Cycle Q Clear(g_c), s	0.3	16.7	13.9	9.4	32.5	0.1	18.4	1.0	8.6	0.1	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	13	1739	871	330	1562	697	647	601	679	2	0	186
V/C Ratio(X)	0.45	0.65	0.47	1.12	0.90	0.01	1.30	0.05	0.34	0.43	0.00	0.11
Avail Cap(c_a), veh/h	134	2218	1020	330	1640	732	647	953	977	115	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.1	25.3	12.6	40.0	23.6	14.4	35.5	21.2	17.4	44.6	0.0	35.7
Incr Delay (d2), s/veh	8.7	0.5	0.4	85.8	7.2	0.0	144.9	0.0	0.3	39.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.2	4.8	7.3	13.5	0.0	20.0	0.5	3.2	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	25.7	13.0	125.8	30.8	14.4	180.4	21.3	17.7	84.0	0.0	36.0
LnGrp LOS	D	C	B	F	C	B	F	C	B	F	A	D
Approach Vol, veh/h		1550			1785			1099			22	
Approach Delay, s/veh		22.5			50.5			142.0			38.1	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	36.1	23.0	16.2	5.3	44.9	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	11.4	18.7	20.4	3.0	2.3	34.5	2.1	10.6
Green Ext Time (p_c), s	0.0	8.7	0.0	0.1	0.0	4.1	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	63.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	5.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	293	1121	45	122	693
Future Vol, veh/h	33	293	1121	45	122	693
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	36	318	1218	49	133	753

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1886	634	0	0	1267	0
Stage 1	1243	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	64	427	-	-	555	-
Stage 1	239	-	-	-	-	-
Stage 2	491	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	49	427	-	-	555	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	239	-	-	-	-	-
Stage 2	373	-	-	-	-	-

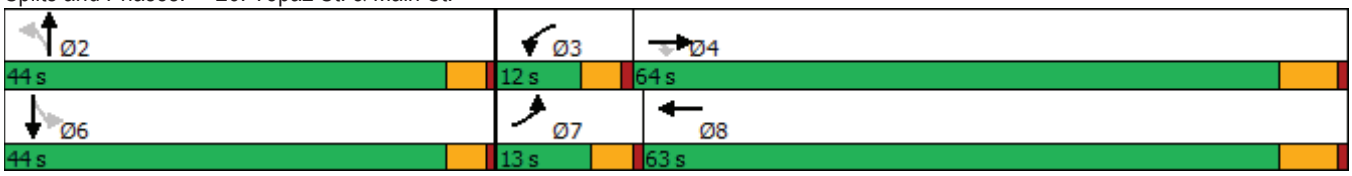
Approach	WB	NB	SB
HCM Control Delay, s	34.4	0	2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	154	427	555	-
HCM Lane V/C Ratio	-	-	0.233	0.746	0.239	-
HCM Control Delay (s)	-	-	35.3	34.3	13.5	-
HCM Lane LOS	-	-	E	D	B	-
HCM 95th %tile Q(veh)	-	-	0.9	6.1	0.9	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	60	1357	114	45	1362	233	113	134	87
Future Volume (vph)	60	1357	114	45	1362	233	113	134	87
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.4	52.5	52.5	7.6	55.5	32.8	32.8	32.8	32.8
Actuated g/C Ratio	0.07	0.48	0.48	0.07	0.51	0.30	0.30	0.30	0.30
v/c Ratio	0.56	0.85	0.15	0.41	0.89	0.89	0.38	0.52	0.37
Control Delay	72.1	30.8	5.4	64.5	33.9	70.4	28.0	40.0	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.1	30.8	5.4	64.5	33.9	70.4	28.0	40.0	24.5
LOS	E	C	A	E	C	E	C	D	C
Approach Delay		30.6			34.8		51.1		30.9
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 34.6	Intersection LOS: C
Intersection Capacity Utilization 87.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1357	114	45	1362	131	233	113	81	134	87	104
Future Volume (veh/h)	60	1357	114	45	1362	131	233	113	81	134	87	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	65	1475	111	49	1480	139	253	123	70	146	95	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	83	1726	754	123	1674	156	357	341	194	330	314	218
Arrive On Green	0.05	0.48	0.48	0.07	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1714	3610	1577	1714	3337	311	1245	1135	646	1207	1044	725
Grp Volume(v), veh/h	65	1475	111	49	796	823	253	0	193	146	0	161
Grp Sat Flow(s),veh/h/ln	1714	1805	1577	1714	1805	1844	1245	0	1781	1207	0	1769
Q Serve(g_s), s	3.9	37.2	4.1	2.8	40.5	41.4	20.2	0.0	8.8	11.1	0.0	7.2
Cycle Q Clear(g_c), s	3.9	37.2	4.1	2.8	40.5	41.4	27.4	0.0	8.8	19.9	0.0	7.2
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.36	1.00		0.41
Lane Grp Cap(c), veh/h	83	1726	754	123	906	925	357	0	536	330	0	532
V/C Ratio(X)	0.79	0.85	0.15	0.40	0.88	0.89	0.71	0.00	0.36	0.44	0.00	0.30
Avail Cap(c_a), veh/h	140	2025	885	123	995	1016	459	0	681	429	0	677
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.5	23.7	15.1	45.7	22.9	23.1	38.3	0.0	28.3	36.1	0.0	27.7
Incr Delay (d2), s/veh	6.1	3.4	0.1	9.3	8.5	9.3	3.5	0.0	0.4	0.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	14.7	1.3	1.5	17.0	18.0	6.5	0.0	3.8	3.4	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	27.1	15.2	55.0	31.4	32.4	41.8	0.0	28.7	37.0	0.0	28.0
LnGrp LOS	D	C	B	E	C	C	D	A	C	D	A	C
Approach Vol, veh/h		1651			1668			446			307	
Approach Delay, s/veh		27.4			32.6			36.1			32.3	
Approach LOS		C			C			D			C	

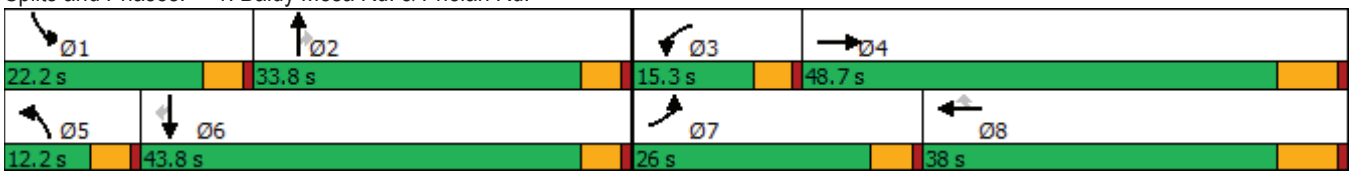
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.6	12.0	55.5		35.6	9.6	57.9				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		29.4	4.8	39.2		21.9	5.9	43.4				
Green Ext Time (p_c), s		1.5	0.0	10.1		1.4	0.0	8.3				

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	213	760	81	793	201	53	41	37	165	52	190
Future Volume (vph)	213	760	81	793	201	53	41	37	165	52	190
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	16.6	44.7	8.7	33.9	33.9	6.9	13.1	13.1	14.3	19.1	19.1
Actuated g/C Ratio	0.18	0.47	0.09	0.36	0.36	0.07	0.14	0.14	0.15	0.20	0.20
v/c Ratio	0.77	0.52	0.56	0.66	0.32	0.46	0.17	0.10	0.69	0.15	0.42
Control Delay	56.9	22.8	59.8	32.0	8.4	59.9	40.3	0.5	55.7	32.7	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	22.8	59.8	32.0	8.4	59.9	40.3	0.5	55.7	32.7	7.2
LOS	E	C	E	C	A	E	D	A	E	C	A
Approach Delay		29.8		29.7			36.9			30.1	
Approach LOS		C		C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.8	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 30.2	Intersection LOS: C
Intersection Capacity Utilization 67.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	760	52	81	793	201	53	41	37	165	52	190
Future Volume (veh/h)	213	760	52	81	793	201	53	41	37	165	52	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	229	817	47	87	853	176	57	44	29	177	56	142
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	264	1616	93	123	1386	614	72	219	184	211	373	316
Arrive On Green	0.15	0.47	0.47	0.07	0.38	0.38	0.04	0.12	0.12	0.12	0.20	0.20
Sat Flow, veh/h	1714	3470	200	1714	3610	1600	1714	1900	1596	1714	1900	1610
Grp Volume(v), veh/h	229	425	439	87	853	176	57	44	29	177	56	142
Grp Sat Flow(s),veh/h/ln	1714	1805	1864	1714	1805	1600	1714	1900	1596	1714	1900	1610
Q Serve(g_s), s	11.8	14.9	14.9	4.5	17.3	6.9	3.0	1.9	1.5	9.1	2.2	7.0
Cycle Q Clear(g_c), s	11.8	14.9	14.9	4.5	17.3	6.9	3.0	1.9	1.5	9.1	2.2	7.0
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	841	868	123	1386	614	72	219	184	211	373	316
V/C Ratio(X)	0.87	0.51	0.51	0.70	0.62	0.29	0.79	0.20	0.16	0.84	0.15	0.45
Avail Cap(c_a), veh/h	405	841	868	202	1386	614	144	612	514	333	822	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	16.9	16.9	41.1	22.5	19.3	43.0	36.3	36.1	38.8	30.2	32.1
Incr Delay (d2), s/veh	7.9	2.2	2.1	2.7	2.1	1.2	7.1	0.4	0.4	5.7	0.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	5.7	5.9	1.9	6.8	2.5	1.4	0.9	0.6	4.2	1.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	19.1	19.0	43.8	24.6	20.5	50.1	36.8	36.5	44.5	30.3	33.1
LnGrp LOS	D	B	B	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		1093			1116			130			375	
Approach Delay, s/veh		24.6			25.4			42.5			38.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	15.0	11.1	48.7	8.4	22.4	18.6	41.3
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	11.1	3.9	6.5	16.9	5.0	9.0	13.8	19.3
Green Ext Time (p_c), s	0.1	0.3	0.0	4.8	0.0	0.8	0.2	4.5

Intersection Summary	
HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	936	6	40	1092	7	4	0	20	8	0	4
Future Vol, veh/h	6	936	6	40	1092	7	4	0	20	8	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	985	6	42	1149	7	4	0	21	8	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1156	0	0	991	0	0	2236	2237	985	2244	2236	1149
Stage 1	-	-	-	-	-	-	997	997	-	1233	1233	-
Stage 2	-	-	-	-	-	-	1239	1240	-	1011	1003	-
Critical Hdwy	4.1	-	-	4.1	-	-	6.8	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.3	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	612	-	-	706	-	-	38	43	304	30	43	244
Stage 1	-	-	-	-	-	-	307	325	-	219	251	-
Stage 2	-	-	-	-	-	-	224	249	-	291	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	612	-	-	706	-	-	35	40	304	26	40	244
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	139	-	113	134	-
Stage 1	-	-	-	-	-	-	304	322	-	217	236	-
Stage 2	-	-	-	-	-	-	207	234	-	268	319	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	21.3	33.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	246	612	-	-	706	-	-	138
HCM Lane V/C Ratio	0.103	0.01	-	-	0.06	-	-	0.092
HCM Control Delay (s)	21.3	10.9	-	-	10.4	-	-	33.7
HCM Lane LOS	C	B	-	-	B	-	-	D
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.3

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1006	3	6	1281	8	6
Future Vol, veh/h	1006	3	6	1281	8	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1048	3	6	1334	8	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1051	0	2396	1050
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	1346	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	670	-	38	278
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	245	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	670	-	38	278
Mov Cap-2 Maneuver	-	-	-	-	146	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	243	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	26.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	183	-	-	670	-
HCM Lane V/C Ratio	0.08	-	-	0.009	-
HCM Control Delay (s)	26.4	-	-	10.4	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	990	1287	25	23	12
Future Vol, veh/h	13	990	1287	25	23	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	14	1076	1399	27	25	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1426	0	-	0	1979	713
Stage 1	-	-	-	-	1413	-
Stage 2	-	-	-	-	566	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	483	-	-	-	55	379
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	483	-	-	-	53	379
Mov Cap-2 Maneuver	-	-	-	-	145	-
Stage 1	-	-	-	-	188	-
Stage 2	-	-	-	-	537	-

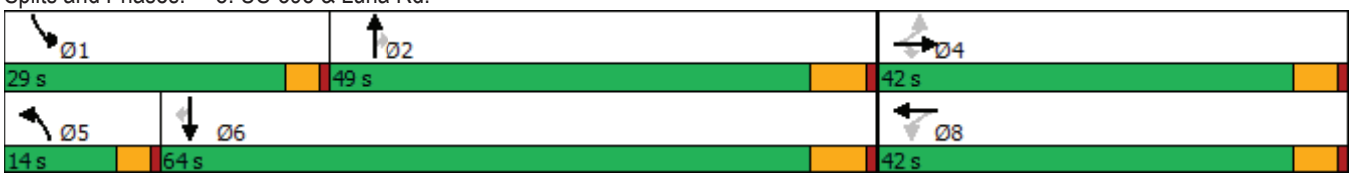
Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	29.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	483	-	-	-	184
HCM Lane V/C Ratio	0.029	-	-	-	0.207
HCM Control Delay (s)	12.7	-	-	-	29.6
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	102	98	82	69	148	119	1867	123	302	1439	122
Future Volume (vph)	102	98	82	69	148	119	1867	123	302	1439	122
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.0	37.0	37.0	37.0	37.0	9.8	44.5	44.5	23.4	58.0	58.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.08	0.37	0.37	0.20	0.48	0.48
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.45	0.19	0.89	0.86	0.15
Control Delay	175.7	31.4	4.9	31.9	43.5	95.4	238.7	7.0	74.8	33.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	31.9	43.5	95.4	238.7	7.0	74.8	33.5	3.3
LOS	F	C	A	C	D	F	F	A	E	C	A
Approach Delay		75.9			42.0		217.1			38.3	
Approach LOS		E			D		F			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.45	
Intersection Signal Delay: 119.8	Intersection LOS: F
Intersection Capacity Utilization 120.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	98	82	69	148	311	119	1867	123	302	1439	122
Future Volume (veh/h)	102	98	82	69	148	311	119	1867	123	302	1439	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	106	102	66	72	154	262	124	1945	103	315	1499	108
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	149	586	497	412	195	331	150	1362	608	342	1746	779
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.08	0.38	0.38	0.19	0.48	0.48
Sat Flow, veh/h	1040	1900	1610	1305	631	1074	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	106	102	66	72	0	416	124	1945	103	315	1499	108
Grp Sat Flow(s),veh/h/ln	1040	1900	1610	1305	0	1705	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	10.2	4.7	3.5	5.1	0.0	26.8	8.1	45.3	5.1	20.5	44.0	4.5
Cycle Q Clear(g_c), s	37.0	4.7	3.5	9.8	0.0	26.8	8.1	45.3	5.1	20.5	44.0	4.5
Prop In Lane	1.00		1.00	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	586	497	412	0	526	150	1362	608	342	1746	779
V/C Ratio(X)	0.71	0.17	0.13	0.17	0.00	0.79	0.83	1.43	0.17	0.92	0.86	0.14
Avail Cap(c_a), veh/h	149	586	497	412	0	526	151	1362	608	377	1746	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	30.3	29.9	33.9	0.0	37.9	54.2	37.3	24.8	47.7	27.3	17.1
Incr Delay (d2), s/veh	12.8	0.1	0.0	0.1	0.0	7.4	29.3	196.9	0.6	25.7	5.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.1	1.4	1.6	0.0	11.9	4.8	55.5	1.9	11.2	18.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	30.4	29.9	34.0	0.0	45.3	83.5	234.2	25.4	73.4	33.1	17.5
LnGrp LOS	E	C	C	C	A	D	F	F	C	E	C	B
Approach Vol, veh/h		274			488			2172			1922	
Approach Delay, s/veh		45.0			43.6			215.7			38.8	
Approach LOS		D			D			F			D	

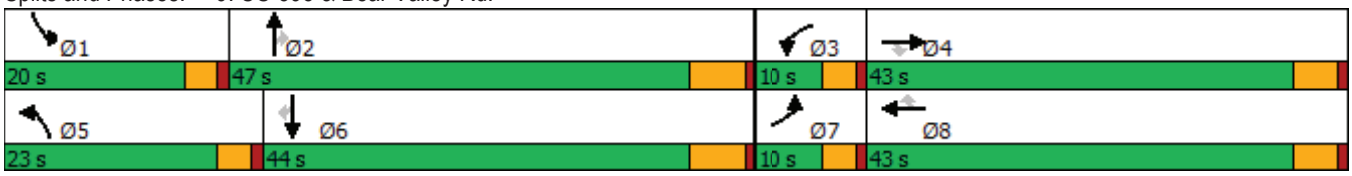
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.7	51.3		42.0	13.9	64.0		42.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	22.5	47.3		39.0	10.1	46.0		28.8				
Green Ext Time (p_c), s	0.2	0.0		0.0	0.0	6.5		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		118.8	
HCM 6th LOS		F	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	440	188	149	510	209	406	1751	285	229	1327	95
Future Volume (vph)	111	440	188	149	510	209	406	1751	285	229	1327	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	21.7	21.7	6.0	21.7	21.7	19.1	41.3	41.3	16.1	38.2	38.2
Actuated g/C Ratio	0.06	0.21	0.21	0.06	0.21	0.21	0.18	0.40	0.40	0.15	0.37	0.37
v/c Ratio	1.12	0.62	0.40	1.51	0.72	0.44	1.29	1.29	0.40	0.87	1.06	0.16
Control Delay	171.6	40.6	6.9	306.6	43.5	7.0	188.2	165.1	12.2	73.5	73.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	171.6	40.6	6.9	306.6	43.5	7.0	188.2	165.1	12.2	73.5	73.9	7.4
LOS	F	D	A	F	D	A	F	F	B	E	E	A
Approach Delay		51.7			79.9			151.1			70.0	
Approach LOS		D			E			F			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.51	
Intersection Signal Delay: 103.9	Intersection LOS: F
Intersection Capacity Utilization 98.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	440	188	149	510	209	406	1751	285	229	1327	95
Future Volume (veh/h)	111	440	188	149	510	209	406	1751	285	229	1327	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	117	463	116	157	537	151	427	1843	239	241	1397	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	108	678	303	108	678	302	340	1494	666	272	1359	605
Arrive On Green	0.06	0.19	0.19	0.06	0.19	0.19	0.19	0.41	0.41	0.15	0.38	0.38
Sat Flow, veh/h	1810	3610	1610	1810	3610	1605	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	117	463	116	157	537	151	427	1843	239	241	1397	87
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1605	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	6.0	12.1	6.4	6.0	14.3	8.5	19.0	41.8	10.3	13.2	38.0	3.6
Cycle Q Clear(g_c), s	6.0	12.1	6.4	6.0	14.3	8.5	19.0	41.8	10.3	13.2	38.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	678	303	108	678	302	340	1494	666	272	1359	605
V/C Ratio(X)	1.09	0.68	0.38	1.46	0.79	0.50	1.25	1.23	0.36	0.88	1.03	0.14
Avail Cap(c_a), veh/h	108	1359	606	108	1359	604	340	1494	666	287	1359	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	38.2	35.9	47.5	39.1	36.8	41.0	29.6	20.4	42.0	31.5	20.8
Incr Delay (d2), s/veh	112.5	0.5	0.3	250.9	0.8	0.5	136.2	111.1	1.5	25.0	31.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.0	2.4	10.0	6.0	3.2	20.7	38.9	3.8	7.4	20.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.0	38.6	36.2	298.4	39.9	37.2	177.2	140.7	21.9	67.0	63.4	21.3
LnGrp LOS	F	D	D	F	D	D	F	F	C	E	F	C
Approach Vol, veh/h		696			845			2509			1725	
Approach Delay, s/veh		58.6			87.5			135.6			61.8	
Approach LOS		E			F			F			E	

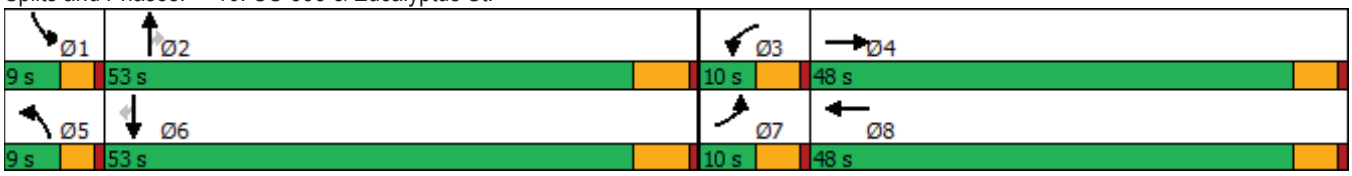
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	47.8	10.0	24.0	23.0	44.0	10.0	24.0
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	15.2	43.8	8.0	14.1	21.0	40.0	8.0	16.3
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	97.2
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	0	62	3	12	2451	120	16	1510	16
Future Volume (vph)	8	0	62	3	12	2451	120	16	1510	16
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.1	9.6	15.1	5.2	56.9	56.9	5.2	56.9	56.9
Actuated g/C Ratio	0.06	0.18	0.11	0.18	0.06	0.66	0.66	0.06	0.66	0.66
v/c Ratio	0.07	0.01	0.32	0.06	0.12	1.08	0.11	0.16	0.67	0.02
Control Delay	44.9	0.0	44.2	14.2	45.5	62.7	4.8	46.2	15.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	0.0	44.2	14.2	45.5	62.7	4.8	46.2	15.3	0.0
LOS	D	A	D	B	D	E	A	D	B	A
Approach Delay		29.9		38.0		60.0			15.5	
Approach LOS		C		D		E			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 43.2	Intersection LOS: D
Intersection Capacity Utilization 87.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	4	62	3	13	12	2451	120	16	1510	16
Future Volume (veh/h)	8	0	4	62	3	13	12	2451	120	16	1510	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	0	1	65	3	6	13	2580	123	17	1589	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	18	0	105	88	59	117	29	2194	979	36	2209	985
Arrive On Green	0.01	0.00	0.07	0.05	0.10	0.10	0.02	0.61	0.61	0.02	0.61	0.61
Sat Flow, veh/h	1810	0	1610	1810	565	1131	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	8	0	1	65	0	9	13	2580	123	17	1589	16
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1696	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.3	0.0	0.0	2.7	0.0	0.4	0.6	47.0	2.5	0.7	23.6	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.7	0.0	0.4	0.6	47.0	2.5	0.7	23.6	0.3
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	0	105	88	0	176	29	2194	979	36	2209	985
V/C Ratio(X)	0.43	0.00	0.01	0.74	0.00	0.05	0.46	1.18	0.13	0.47	0.72	0.02
Avail Cap(c_a), veh/h	117	0	895	117	0	943	117	2194	979	117	2209	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	33.8	36.3	0.0	31.2	37.7	15.2	6.4	37.5	10.4	5.9
Incr Delay (d2), s/veh	5.8	0.0	0.0	9.7	0.0	0.1	4.2	84.2	0.3	3.6	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.4	0.0	0.1	0.3	38.1	0.7	0.4	8.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	0.0	33.9	46.0	0.0	31.4	41.9	99.4	6.7	41.1	12.5	5.9
LnGrp LOS	D	A	C	D	A	C	D	F	A	D	B	A
Approach Vol, veh/h		9			74			2716			1622	
Approach Delay, s/veh		42.8			44.2			94.9			12.7	
Approach LOS		D			D			F			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	53.0	8.8	10.0	5.2	53.3	5.8	13.0
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.7	49.0	4.7	2.0	2.6	25.6	2.3	2.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	13.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.8
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	0	6	31	0	3	11	2789	28	2	2005	6
Future Vol, veh/h	4	0	6	31	0	3	11	2789	28	2	2005	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	0	6	32	0	3	11	2905	29	2	2089	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	5039	5052	2092	5041	5041	2920	2095	0	0	2934	0	0
Stage 1	2096	2096	-	2942	2942	-	-	-	-	-	-	-
Stage 2	2943	2956	-	2099	2099	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	1	67	0	1	21	267	-	-	125	-	-
Stage 1	69	94	-	~ 21	34	-	-	-	-	-	-	-
Stage 2	21	34	-	69	94	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	0	1	67	0	1	21	267	-	-	125	-	-
Mov Cap-2 Maneuver	0	1	-	0	1	-	-	-	-	-	-	-
Stage 1	69	94	-	~ 21	34	-	-	-	-	-	-	-
Stage 2	18	34	-	63	94	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	68.4	$ 723.3	0.1	0
HCM LOS	F	F		

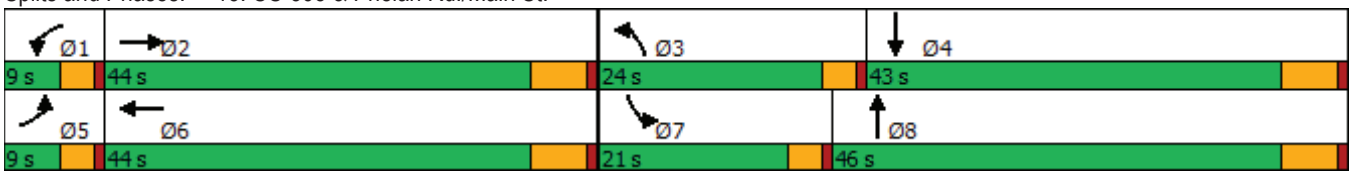
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	267	-	-	67	21	125	-	-
HCM Lane V/C Ratio	0.043	-	-	0.155	1.687	0.017	-	-
HCM Control Delay (s)	19.1	0	-	68.4	$ 723.3	34.3	0	-
HCM Lane LOS	C	A	-	F	F	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	4.7	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	99	787	27	925	278	2369	382	1551
Future Volume (vph)	99	787	27	925	278	2369	382	1551
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	41.6	5.0	38.0	20.0	40.0	17.0	37.0
Actuated g/C Ratio	0.04	0.35	0.04	0.32	0.17	0.33	0.14	0.31
v/c Ratio	1.39	0.78	0.37	1.20	0.98	2.48	1.58	1.58
Control Delay	279.2	40.6	70.2	133.6	96.6	687.6	312.1	296.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	40.6	70.2	133.6	96.6	687.6	312.1	296.0
LOS	F	D	E	F	F	F	F	F
Approach Delay		63.9		132.3		634.0		299.0
Approach LOS		E		F		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.48	
Intersection Signal Delay: 375.9	Intersection LOS: F
Intersection Capacity Utilization 159.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	787	126	27	925	360	278	2369	423	382	1551	109
Future Volume (veh/h)	99	787	126	27	925	360	278	2369	423	382	1551	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	104	828	105	28	974	295	293	2494	438	402	1633	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	75	1070	136	46	865	261	302	1028	175	256	1066	65
Arrive On Green	0.04	0.33	0.33	0.03	0.32	0.32	0.17	0.33	0.33	0.14	0.31	0.31
Sat Flow, veh/h	1810	3214	408	1810	2733	824	1810	3084	526	1810	3457	210
Grp Volume(v), veh/h	104	465	468	28	642	627	293	1428	1504	402	848	885
Grp Sat Flow(s),veh/h/ln	1810	1805	1816	1810	1805	1752	1810	1805	1805	1810	1805	1862
Q Serve(g_s), s	5.0	27.8	27.8	1.8	38.0	38.0	19.3	40.0	40.0	17.0	37.0	37.0
Cycle Q Clear(g_c), s	5.0	27.8	27.8	1.8	38.0	38.0	19.3	40.0	40.0	17.0	37.0	37.0
Prop In Lane	1.00		0.22	1.00		0.47	1.00		0.29	1.00		0.11
Lane Grp Cap(c), veh/h	75	601	605	46	572	555	302	602	602	256	557	574
V/C Ratio(X)	1.38	0.77	0.77	0.61	1.12	1.13	0.97	2.37	2.50	1.57	1.52	1.54
Avail Cap(c_a), veh/h	75	601	605	75	572	555	302	602	602	256	557	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	36.0	36.0	57.9	41.0	41.0	49.7	40.0	40.0	51.5	41.5	41.5
Incr Delay (d2), s/veh	234.0	6.2	6.2	9.4	76.1	79.6	43.8	623.5	679.3	273.8	244.5	252.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	12.5	12.5	0.9	27.8	27.5	12.0	120.6	130.0	26.8	53.1	56.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	291.5	42.2	42.1	67.3	117.1	120.6	93.6	663.5	719.3	325.3	286.0	294.0
LnGrp LOS	F	D	D	E	F	F	F	F	F	F	F	F
Approach Vol, veh/h		1037			1297			3225			2135	
Approach Delay, s/veh		67.2			117.7			637.7			296.7	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	46.0	24.0	43.0	9.0	44.0	21.0	46.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	3.8	29.8	21.3	39.0	7.0	40.0	19.0	42.0
Green Ext Time (p_c), s	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	378.5
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	94.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	762	2308	188	512	1191
Future Vol, veh/h	91	762	2308	188	512	1191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	778	2355	192	522	1215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4710	1274	0	0	2547	0
Stage 1	2451	-	-	-	-	-
Stage 2	2259	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 161	-	-	~ 177	-
Stage 1	~ 52	-	-	-	-	-
Stage 2	~ 86	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 161	-	-	~ 177	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	~ 52	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	280.6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	161	~ 177	-
HCM Lane V/C Ratio	-	-	-	4.83	2.952	-
HCM Control Delay (s)	-	-	$ 1778.4	$ 933.4		-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	80.7	47.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	88	1	229	8	175	231	2233	208	68	1103	111
Future Volume (vph)	88	1	229	8	175	231	2233	208	68	1103	111
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0	29.0	79.0	79.0	10.0	60.0	60.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%	24.2%	65.8%	65.8%	8.3%	50.0%	50.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0	19.4	73.0	73.0	5.0	58.6	58.6
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.16	0.61	0.61	0.04	0.49	0.49
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	1.04	0.21	0.92	0.64	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	54.0	3.8	141.0	25.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	64.1	3.8	141.0	25.6	3.5
LOS	D	A	F	D	B	E	E	A	F	C	A
Approach Delay		16.5		293.9			59.8			29.8	
Approach LOS		B		F			E			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.02	
Intersection Signal Delay: 68.7	Intersection LOS: E
Intersection Capacity Utilization 115.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1	284	229	8	175	231	2233	208	68	1103	111
Future Volume (veh/h)	88	1	284	229	8	175	231	2233	208	68	1103	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	90	1	198	234	8	113	236	2279	161	69	1126	77
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	339	2	334	183	396	335	264	2196	979	75	1819	811
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.15	0.61	0.61	0.04	0.50	0.50
Sat Flow, veh/h	1362	8	1603	1269	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	90	0	199	234	8	113	236	2279	161	69	1126	77
Grp Sat Flow(s),veh/h/ln	1362	0	1611	1269	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	6.7	0.0	13.4	11.6	0.4	7.2	15.4	73.0	5.2	4.6	27.0	3.0
Cycle Q Clear(g_c), s	7.2	0.0	13.4	25.0	0.4	7.2	15.4	73.0	5.2	4.6	27.0	3.0
Prop In Lane	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	336	183	396	335	264	2196	979	75	1819	811
V/C Ratio(X)	0.27	0.00	0.59	1.28	0.02	0.34	0.89	1.04	0.16	0.92	0.62	0.09
Avail Cap(c_a), veh/h	339	0	336	183	396	335	362	2196	979	75	1819	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	42.9	56.1	37.8	40.4	50.3	23.5	10.2	57.3	21.5	15.5
Incr Delay (d2), s/veh	0.2	0.0	1.9	161.1	0.0	0.2	15.4	29.8	0.4	74.0	1.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.5	13.7	0.2	2.9	7.8	34.4	1.7	3.6	10.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	0.0	44.8	217.2	37.8	40.7	65.8	53.3	10.6	131.3	23.1	15.7
LnGrp LOS	D	A	D	F	D	D	E	F	B	F	C	B
Approach Vol, veh/h		289			355			2676			1272	
Approach Delay, s/veh		43.6			157.0			51.8			28.5	
Approach LOS		D			F			D			C	

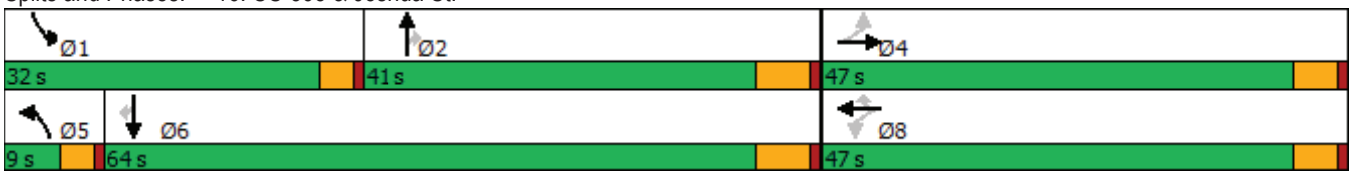
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	79.0		31.0	22.5	66.5		31.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	73.0		25.0	24.0	54.0		25.0				
Max Q Clear Time (g_c+I1), s	6.6	75.0		15.4	17.4	29.0		27.0				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.2	8.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		53.0	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	405	149	114	76	473	35	1794	122	200	1349	66
Future Volume (vph)	405	149	114	76	473	35	1794	122	200	1349	66
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	41.0	41.0	32.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	34.2%	34.2%	26.7%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.8	37.8	37.8	37.8	37.8	5.0	43.9	43.9	17.6	60.6	60.6
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34	0.04	0.39	0.39	0.16	0.54	0.54
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	1.30	0.18	0.72	0.71	0.08
Control Delay	62.7	27.2	30.3	26.2	7.1	72.5	170.9	10.0	60.1	23.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.1	72.5	170.9	10.0	60.1	23.3	5.5
LOS	E	C	C	C	A	E	F	A	E	C	A
Approach Delay		52.3		13.3			159.1			27.1	
Approach LOS		D		B			F			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 81.8	Intersection LOS: F
Intersection Capacity Utilization 111.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	149	18	114	76	473	35	1794	122	200	1349	66
Future Volume (veh/h)	405	149	18	114	76	473	35	1794	122	200	1349	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	418	154	16	118	78	430	36	1849	114	206	1391	61
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	382	614	64	451	690	584	53	1462	652	237	1828	815
Arrive On Green	0.36	0.36	0.35	0.36	0.36	0.36	0.03	0.40	0.40	0.13	0.51	0.51
Sat Flow, veh/h	956	1693	176	1303	1900	1609	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	418	0	170	118	78	430	36	1849	114	206	1391	61
Grp Sat Flow(s),veh/h/ln	956	0	1868	1303	1900	1609	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	39.8	0.0	7.6	8.3	3.2	27.5	2.3	48.0	5.4	13.2	36.7	2.3
Cycle Q Clear(g_c), s	43.0	0.0	7.6	15.8	3.2	27.5	2.3	48.0	5.4	13.2	36.7	2.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	0	678	451	690	584	53	1462	652	237	1828	815
V/C Ratio(X)	1.10	0.00	0.25	0.26	0.11	0.74	0.68	1.27	0.17	0.87	0.76	0.07
Avail Cap(c_a), veh/h	382	0	678	451	690	584	76	1462	652	428	1828	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	26.5	32.0	25.1	32.8	56.9	35.3	22.6	50.5	23.5	15.0
Incr Delay (d2), s/veh	74.3	0.0	0.1	0.1	0.0	4.3	10.7	124.9	0.6	7.2	3.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.3	0.0	3.4	2.6	1.5	11.3	1.2	44.5	2.0	6.2	14.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.8	0.0	26.6	32.1	25.1	37.1	67.7	160.2	23.2	57.7	26.5	15.2
LnGrp LOS	F	A	C	C	C	D	E	F	C	E	C	B
Approach Vol, veh/h		588			626			1999			1658	
Approach Delay, s/veh		90.7			34.7			150.7			30.0	
Approach LOS		F			C			F			C	

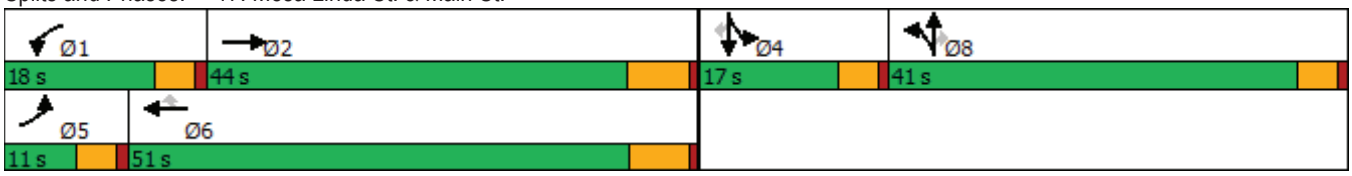
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.5	52.0		47.0	7.5	64.0		47.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	35.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	15.2	50.0		45.0	4.3	38.7		29.5				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	14.3		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		87.5	
HCM 6th LOS		F	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	1072	98	1280	76	10	114	0	4
Future Volume (vph)	7	1072	98	1280	76	10	114	0	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	44.0	18.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	36.7%	15.0%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	40.9	9.4	51.2	51.2	14.2	14.2	10.6	10.6
Actuated g/C Ratio	0.06	0.47	0.11	0.59	0.59	0.16	0.16	0.12	0.12
v/c Ratio	0.07	0.46	0.55	0.43	0.08	0.08	0.30	0.21	0.01
Control Delay	48.4	20.3	52.2	13.9	3.1	32.9	4.0	43.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	20.3	52.2	13.9	3.1	32.9	4.0	43.3	0.0
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		20.5		15.9		8.8		39.9	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.3	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 17.8	Intersection LOS: B
Intersection Capacity Utilization 54.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1072	8	98	1280	76	13	10	114	44	0	4
Future Volume (veh/h)	7	1072	8	98	1280	76	13	10	114	44	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	7	1117	7	102	1333	71	14	10	60	46	0	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	15	2592	16	129	2872	892	113	81	169	148	0	131
Arrive On Green	0.01	0.49	0.49	0.08	0.55	0.55	0.10	0.10	0.10	0.08	0.00	0.08
Sat Flow, veh/h	1714	5319	33	1714	5187	1610	1077	769	1610	1810	0	1610
Grp Volume(v), veh/h	7	726	398	102	1333	71	24	0	60	46	0	2
Grp Sat Flow(s),veh/h/ln	1714	1729	1894	1714	1729	1610	1846	0	1610	1810	0	1610
Q Serve(g_s), s	0.3	11.0	11.0	4.7	12.5	1.7	1.0	0.0	2.8	1.9	0.0	0.1
Cycle Q Clear(g_c), s	0.3	11.0	11.0	4.7	12.5	1.7	1.0	0.0	2.8	1.9	0.0	0.1
Prop In Lane	1.00		0.02	1.00		1.00	0.58		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	15	1685	923	129	2872	892	194	0	169	148	0	131
V/C Ratio(X)	0.45	0.43	0.43	0.79	0.46	0.08	0.12	0.00	0.36	0.31	0.00	0.02
Avail Cap(c_a), veh/h	136	1685	923	284	2872	892	831	0	724	277	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.9	13.5	13.5	36.8	10.8	8.4	32.8	0.0	33.7	35.0	0.0	34.2
Incr Delay (d2), s/veh	7.6	0.8	1.5	4.0	0.5	0.2	0.3	0.0	1.3	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.6	4.2	2.0	3.9	0.5	0.4	0.0	1.1	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	14.3	14.9	40.8	11.4	8.6	33.1	0.0	34.9	36.2	0.0	34.2
LnGrp LOS	D	B	B	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		1131			1506			84			48	
Approach Delay, s/veh		14.7			13.2			34.4			36.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	45.9		11.2	5.3	51.3		13.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	13.4	37.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	6.7	13.0		3.9	2.3	14.5		4.8				
Green Ext Time (p_c), s	0.1	6.9		0.1	0.0	10.6		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		14.9
HCM 6th LOS		B

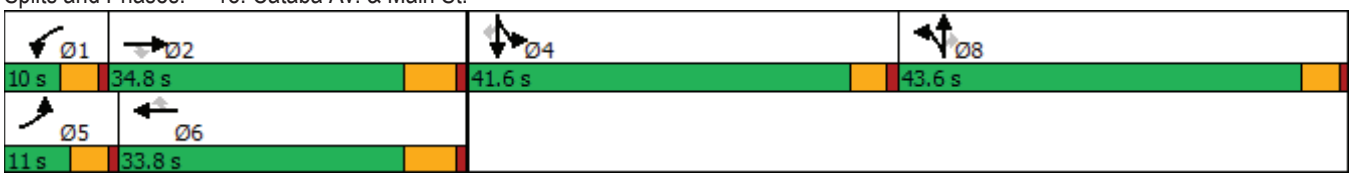
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	981	124	324	1078	61	218	71	193	98	41	156
Future Volume (vph)	108	981	124	324	1078	61	218	71	193	98	41	156
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	34.8	34.8	10.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	26.8%	26.8%	7.7%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	29.9	29.9	5.7	28.9	28.9	16.4	16.4	16.4	14.4	14.4	14.4
Actuated g/C Ratio	0.08	0.34	0.34	0.07	0.33	0.33	0.19	0.19	0.19	0.16	0.16	0.16
v/c Ratio	0.84	0.56	0.20	1.64	0.64	0.11	0.47	0.45	0.43	0.35	0.13	0.40
Control Delay	89.6	28.1	7.1	337.1	29.8	3.7	37.0	36.1	7.8	36.6	33.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.6	28.1	7.1	337.1	29.8	3.7	37.0	36.1	7.8	36.6	33.0	8.7
LOS	F	C	A	F	C	A	D	D	A	D	C	A
Approach Delay		31.4			96.9			25.0			21.3	
Approach LOS		C			F			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 87.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 57.4	Intersection LOS: E
Intersection Capacity Utilization 62.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	981	124	324	1078	61	218	71	193	98	41	156
Future Volume (veh/h)	108	981	124	324	1078	61	218	71	193	98	41	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	110	1001	88	331	1100	50	147	177	94	100	42	69
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	138	1957	607	224	1908	591	270	299	251	223	248	210
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.16	0.16	0.16	0.13	0.13	0.13
Sat Flow, veh/h	1714	5187	1609	3141	5187	1608	1714	1900	1595	1714	1900	1610
Grp Volume(v), veh/h	110	1001	88	331	1100	50	147	177	94	100	42	69
Grp Sat Flow(s),veh/h/ln	1714	1729	1609	1570	1729	1608	1714	1900	1595	1714	1900	1610
Q Serve(g_s), s	4.8	11.3	2.7	5.4	12.9	1.5	6.0	6.6	4.0	4.1	1.5	3.0
Cycle Q Clear(g_c), s	4.8	11.3	2.7	5.4	12.9	1.5	6.0	6.6	4.0	4.1	1.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	1957	607	224	1908	591	270	299	251	223	248	210
V/C Ratio(X)	0.80	0.51	0.14	1.48	0.58	0.08	0.54	0.59	0.37	0.45	0.17	0.33
Avail Cap(c_a), veh/h	145	1957	607	224	1908	591	882	977	820	837	927	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	18.2	15.6	35.2	19.2	15.6	29.4	29.7	28.6	30.4	29.3	30.0
Incr Delay (d2), s/veh	22.8	1.0	0.5	238.2	1.3	0.3	1.7	1.9	0.9	1.4	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	3.9	0.9	9.3	4.7	0.5	2.5	3.1	1.6	1.7	0.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	19.2	16.1	273.5	20.5	15.9	31.2	31.5	29.5	31.8	29.6	30.9
LnGrp LOS	E	B	B	F	C	B	C	C	C	C	C	C
Approach Vol, veh/h		1199			1481			418			211	
Approach Delay, s/veh		22.4			76.9			31.0			31.1	
Approach LOS		C			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	34.8		14.5	10.7	34.1		16.5				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	28.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	7.4	13.3		6.1	6.8	14.9		8.6				
Green Ext Time (p_c), s	0.0	5.6		0.8	0.0	5.6		1.9				

Intersection Summary		
HCM 6th Ctrl Delay		48.4
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	85	1275	34	303	1543	41	100	325	254	119
Future Volume (vph)	85	1275	34	303	1543	41	100	325	254	119
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	16.0	37.0	37.0	39.0	60.0	44.0	44.0	44.0	44.0	44.0
Total Split (%)	13.3%	30.8%	30.8%	32.5%	50.0%	36.7%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	9.1	38.4	38.4	23.0	54.9	26.6	26.6	26.6	26.6	26.6
Actuated g/C Ratio	0.09	0.37	0.37	0.22	0.53	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.58	0.68	0.05	0.82	0.82	0.16	0.21	0.51	0.81	0.35
Control Delay	65.1	32.6	0.1	56.6	25.4	31.4	31.3	6.2	56.8	30.2
Queue Delay	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0
Total Delay	65.1	32.6	0.1	56.6	27.0	31.4	31.3	6.2	56.8	30.2
LOS	E	C	A	E	C	C	C	A	E	C
Approach Delay		33.8			30.6		13.8			46.5
Approach LOS		C			C		B			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103.7	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 89.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	1275	34	303	1543	607	41	100	325	254	119	43
Future Volume (veh/h)	85	1275	34	303	1543	607	41	100	325	254	119	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	87	1301	31	309	1574	543	42	102	191	259	121	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	109	1867	580	339	1893	638	370	571	477	354	466	89
Arrive On Green	0.06	0.36	0.36	0.20	0.49	0.49	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1714	5187	1610	1714	3832	1292	1260	1900	1585	1102	1551	295
Grp Volume(v), veh/h	87	1301	31	309	1417	700	42	102	191	259	0	144
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1714	1729	1666	1260	1900	1585	1102	0	1846
Q Serve(g_s), s	5.4	23.3	1.4	19.2	38.2	39.9	2.8	4.3	10.4	24.7	0.0	6.4
Cycle Q Clear(g_c), s	5.4	23.3	1.4	19.2	38.2	39.9	9.3	4.3	10.4	29.0	0.0	6.4
Prop In Lane	1.00		1.00	1.00		0.78	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	109	1867	580	339	1709	823	370	571	477	354	0	555
V/C Ratio(X)	0.80	0.70	0.05	0.91	0.83	0.85	0.11	0.18	0.40	0.73	0.00	0.26
Avail Cap(c_a), veh/h	179	1867	580	542	1709	823	448	688	574	421	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.3	29.8	22.7	42.7	23.6	24.0	32.4	28.1	30.3	38.9	0.0	28.9
Incr Delay (d2), s/veh	4.9	2.2	0.2	9.3	4.8	10.7	0.1	0.1	0.5	5.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	9.4	0.5	8.6	15.0	16.3	0.9	2.0	4.1	7.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	31.9	22.9	52.0	28.4	34.8	32.5	28.3	30.8	44.1	0.0	29.1
LnGrp LOS	E	C	C	D	C	C	C	C	C	D	A	C
Approach Vol, veh/h		1419			2426			335			403	
Approach Delay, s/veh		33.2			33.2			30.3			38.8	
Approach LOS		C			C			C			D	

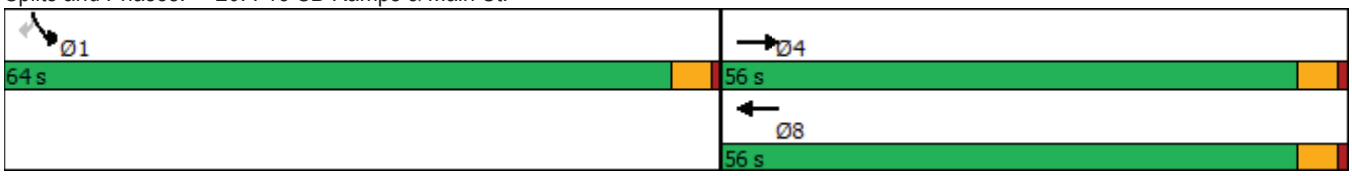
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.1	45.4		37.3	11.5	60.0		37.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	34.4	30.8		39.4	11.4	53.8		39.4				
Max Q Clear Time (g_c+I1), s	21.2	25.3		31.0	7.4	41.9		12.4				
Green Ext Time (p_c), s	0.3	3.5		1.3	0.0	9.3		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			33.5									
HCM 6th LOS			C									

Lane Group	EBT	WBT	SBL	SBR
Lane Configurations				
Traffic Volume (vph)	1753	1844	763	555
Future Volume (vph)	1753	1844	763	555
Turn Type	NA	NA	Prot	Perm
Protected Phases	4	8	1	
Permitted Phases				1
Detector Phase	4	8	1	1
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	5.0
Minimum Split (s)	9.6	22.6	9.6	9.6
Total Split (s)	56.0	56.0	64.0	64.0
Total Split (%)	46.7%	46.7%	53.3%	53.3%
Yellow Time (s)	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None
Act Effct Green (s)	45.0	45.0	41.8	41.8
Actuated g/C Ratio	0.47	0.47	0.43	0.43
v/c Ratio	0.75	0.79	0.52	0.81
Control Delay	24.6	25.8	21.4	33.7
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	24.8	25.8	21.4	33.7
LOS	C	C	C	C
Approach Delay	24.8	25.8		
Approach LOS	C	C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 96.5	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 77.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1753	0	0	1844	0	0	0	0	763	0	555
Future Volume (veh/h)	0	1753	0	0	1844	0	0	0	0	763	0	555
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1807	0	0	1901	0				787	0	459
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2692		0	2692					1258	0	577
Arrive On Green	0.00	0.52	0.00	0.00	0.52	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1807	0	0	1901	0				787	0	459
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	19.3	0.0	0.0	20.8	0.0				13.9	0.0	19.2
Cycle Q Clear(g_c), s	0.0	19.3	0.0	0.0	20.8	0.0				13.9	0.0	19.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2692		0	2692					1258	0	577
V/C Ratio(X)	0.00	0.67		0.00	0.71					0.63	0.00	0.80
Avail Cap(c_a), veh/h	0	3558		0	3558					2783	0	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	13.7	0.0				19.9	0.0	21.6
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.4	0.0				0.5	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	0.0	0.0	6.3	0.0				5.5	0.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.6	0.0	0.0	14.1	0.0				20.4	0.0	24.1
LnGrp LOS	A	B		A	B					C	A	C
Approach Vol, veh/h		1807	A		1901	A					1246	
Approach Delay, s/veh		13.6			14.1						21.8	
Approach LOS		B			B						C	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				43.5		31.4		43.5				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				51.4		59.4		51.4				
Max Q Clear Time (g_c+I1), s				21.3		21.2		22.8				
Green Ext Time (p_c), s				15.5		5.7		16.0				

Intersection Summary												
HCM 6th Ctrl Delay			15.9									
HCM 6th LOS			B									

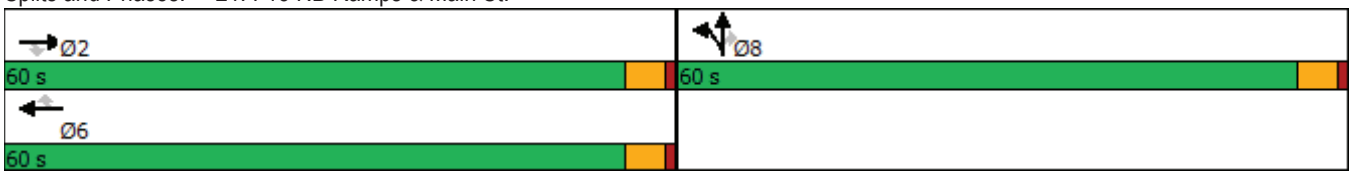
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2204	312	1847	560	253	0	1174
Future Volume (vph)	2204	312	1847	560	253	0	1174
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	55.6	55.6	55.6	55.6	51.2	51.2	51.2
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.44	0.44	0.44
v/c Ratio	0.91	0.36	0.77	0.56	0.33	0.88	0.88
Control Delay	35.7	6.8	28.2	5.4	22.2	44.9	44.9
Queue Delay	0.0	0.0	46.1	0.9	0.0	0.0	0.0
Total Delay	35.7	6.8	74.3	6.3	22.2	44.9	44.9
LOS	D	A	E	A	C	D	D
Approach Delay	32.1		58.5			40.8	
Approach LOS	C		E			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 44.1	Intersection LOS: D
Intersection Capacity Utilization 98.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↱	↱			
Traffic Volume (veh/h)	0	2204	312	0	1847	560	253	0	1174	0	0	0
Future Volume (veh/h)	0	2204	312	0	1847	560	253	0	1174	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	2272	0	0	1904	430	261	0	1063			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2706		0	2706	840	699	0	1243			
Arrive On Green	0.00	0.52	0.00	0.00	0.52	0.52	0.39	0.00	0.39			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	2272	0	0	1904	430	261	0	1063			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	37.2	0.0	0.0	27.7	17.4	10.3	0.0	30.2			
Cycle Q Clear(g_c), s	0.0	37.2	0.0	0.0	27.7	17.4	10.3	0.0	30.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2706		0	2706	840	699	0	1243			
V/C Ratio(X)	0.00	0.84		0.00	0.70	0.51	0.37	0.00	0.85			
Avail Cap(c_a), veh/h	0	2882		0	2882	895	1005	0	1789			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	20.3	0.0	0.0	18.0	15.6	22.0	0.0	28.0			
Incr Delay (d2), s/veh	0.0	2.3	0.0	0.0	0.7	0.5	0.3	0.0	3.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	13.3	0.0	0.0	9.7	5.7	4.4	0.0	11.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.6	0.0	0.0	18.8	16.1	22.3	0.0	31.0			
LnGrp LOS	A	C		A	B	B	C	A	C			
Approach Vol, veh/h		2272	A		2334			1324				
Approach Delay, s/veh		22.6			18.3			29.3				
Approach LOS		C			B			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		56.6				56.6		43.1				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		55.4				55.4		55.4				
Max Q Clear Time (g_c+I1), s		39.2				29.7		32.2				
Green Ext Time (p_c), s		12.8				17.0		6.3				

Intersection Summary		
HCM 6th Ctrl Delay	22.4	
HCM 6th LOS	C	

Notes

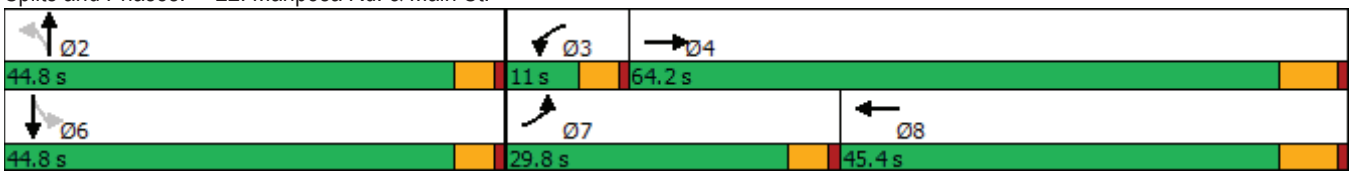
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	326	2827	119	1930	210	114	186	78
Future Volume (vph)	326	2827	119	1930	210	114	186	78
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	29.8	64.2	11.0	45.4	44.8	44.8	44.8	44.8
Total Split (%)	24.8%	53.5%	9.2%	37.8%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	24.6	58.0	6.4	39.8	40.2	40.2	40.2	40.2
Actuated g/C Ratio	0.20	0.48	0.05	0.33	0.34	0.34	0.34	0.34
v/c Ratio	0.95	0.99	1.33	0.98	1.02	0.35	0.60	0.53
Control Delay	84.5	45.6	249.2	55.3	107.8	26.2	42.6	20.8
Queue Delay	0.0	39.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	85.4	249.2	55.3	107.8	26.2	42.6	20.8
LOS	F	F	F	E	F	C	D	C
Approach Delay		85.3		65.8		66.9		28.4
Approach LOS		F		E		E		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 72.9	Intersection LOS: E
Intersection Capacity Utilization 101.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	326	2827	226	119	1930	144	210	114	97	186	78	266
Future Volume (veh/h)	326	2827	226	119	1930	144	210	114	97	186	78	266
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	333	2885	215	121	1969	131	214	116	72	190	80	200
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	356	3025	223	91	2074	138	286	365	227	371	161	403
Arrive On Green	0.21	0.48	0.48	0.05	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1714	6258	461	1714	6307	420	1117	1091	677	1214	481	1203
Grp Volume(v), veh/h	333	2252	848	121	1530	570	214	0	188	190	0	280
Grp Sat Flow(s),veh/h/ln	1714	1634	1817	1714	1634	1824	1117	0	1768	1214	0	1684
Q Serve(g_s), s	22.9	52.7	54.2	6.4	36.6	36.6	22.7	0.0	9.5	16.6	0.0	15.9
Cycle Q Clear(g_c), s	22.9	52.7	54.2	6.4	36.6	36.6	38.6	0.0	9.5	26.1	0.0	15.9
Prop In Lane	1.00		0.25	1.00		0.23	1.00		0.38	1.00		0.71
Lane Grp Cap(c), veh/h	356	2369	878	91	1612	600	286	0	592	371	0	564
V/C Ratio(X)	0.93	0.95	0.97	1.32	0.95	0.95	0.75	0.00	0.32	0.51	0.00	0.50
Avail Cap(c_a), veh/h	360	2369	878	91	1612	600	286	0	592	371	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.7	29.6	30.0	56.8	39.3	39.3	47.2	0.0	29.7	39.4	0.0	31.8
Incr Delay (d2), s/veh	30.6	10.1	23.0	203.2	12.4	24.8	10.4	0.0	0.3	1.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	20.8	27.0	7.8	15.7	19.6	7.2	0.0	4.1	5.1	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	39.7	53.1	260.0	51.7	64.1	57.6	0.0	30.0	40.6	0.0	32.5
LnGrp LOS	E	D	D	F	D	E	E	A	C	D	A	C
Approach Vol, veh/h		3433			2221			402			470	
Approach Delay, s/veh		46.6			66.3			44.7			35.8	
Approach LOS		D			E			D			D	

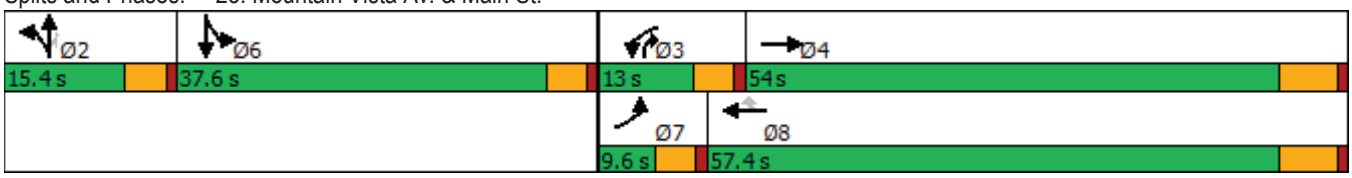
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		44.8	11.0	64.2		44.8	29.5	45.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		40.2	6.4	58.0		40.2	25.2	39.2				
Max Q Clear Time (g_c+I1), s		40.6	8.4	56.2		28.1	24.9	38.6				
Green Ext Time (p_c), s		0.0	0.0	1.7		2.1	0.0	0.6				

Intersection Summary	
HCM 6th Ctrl Delay	52.4
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	67	2437	86	1994	96	45	7	37	108	10
Future Volume (vph)	67	2437	86	1994	96	45	7	37	108	10
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.1	52.4	8.1	59.1	59.1	10.2	10.2	13.6	14.0	14.0
Actuated g/C Ratio	0.05	0.55	0.09	0.62	0.62	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.42	0.72	0.62	0.65	0.10	0.14	0.09	0.08	0.28	0.26
Control Delay	56.0	21.3	64.9	18.8	4.1	46.6	44.3	1.7	39.8	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	21.3	64.9	18.8	4.1	46.6	44.3	1.7	39.8	36.3
LOS	E	C	E	B	A	D	D	A	D	D
Approach Delay		22.2		19.9			27.0			38.0
Approach LOS		C		B			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 21.7	Intersection LOS: C
Intersection Capacity Utilization 65.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	2437	25	86	1994	96	45	7	37	108	10	8
Future Volume (veh/h)	67	2437	25	86	1994	96	45	7	37	108	10	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	71	2565	24	91	2099	86	47	7	24	128	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	141	3526	33	115	2833	879	318	176	514	353	195	0
Arrive On Green	0.04	0.52	0.52	0.07	0.55	0.55	0.09	0.09	0.09	0.10	0.00	0.00
Sat Flow, veh/h	3141	6726	63	1714	5187	1610	3429	1900	3220	3429	1900	0
Grp Volume(v), veh/h	71	1869	720	91	2099	86	47	7	24	128	0	0
Grp Sat Flow(s),veh/h/ln	1570	1634	1887	1714	1729	1610	1714	1900	1610	1714	1900	0
Q Serve(g_s), s	2.1	27.5	27.5	4.9	28.9	2.4	1.2	0.3	0.6	3.3	0.0	0.0
Cycle Q Clear(g_c), s	2.1	27.5	27.5	4.9	28.9	2.4	1.2	0.3	0.6	3.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	2570	989	115	2833	879	318	176	514	353	195	0
V/C Ratio(X)	0.50	0.73	0.73	0.79	0.74	0.10	0.15	0.04	0.05	0.36	0.00	0.00
Avail Cap(c_a), veh/h	168	2570	989	154	2833	879	395	219	586	1207	669	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.7	17.1	17.2	43.1	16.2	10.2	39.1	38.7	33.4	39.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	1.8	4.7	13.2	1.8	0.2	0.2	0.1	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.1	11.3	2.4	9.9	0.8	0.5	0.2	0.2	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	19.0	21.8	56.3	18.0	10.4	39.3	38.8	33.4	39.8	0.0	0.0
LnGrp LOS	D	B	C	E	B	B	D	D	C	D	A	A
Approach Vol, veh/h		2660			2276			78			128	
Approach Delay, s/veh		20.4			19.3			37.5			39.8	
Approach LOS		C			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.9	55.3		14.2	8.8	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		3.2	6.9	29.5		5.3	4.1	30.9				
Green Ext Time (p_c), s		0.1	0.0	14.8		0.4	0.0	14.5				

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

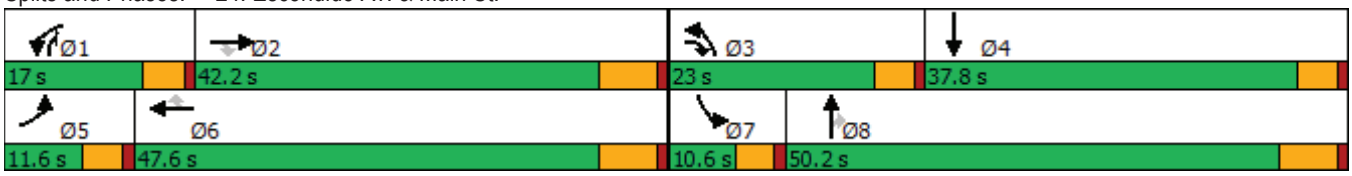
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	74	1712	796	504	1318	14	784	71	276	77	52
Future Volume (vph)	74	1712	796	504	1318	14	784	71	276	77	52
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.2	23.0	17.0	47.6	47.6	23.0	50.2	17.0	10.6	37.8
Total Split (%)	9.7%	35.2%	19.2%	14.2%	39.7%	39.7%	19.2%	41.8%	14.2%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.9	36.3	56.4	12.5	41.8	41.8	18.5	22.9	38.2	11.7	14.3
Actuated g/C Ratio	0.07	0.36	0.55	0.12	0.41	0.41	0.18	0.23	0.38	0.12	0.14
v/c Ratio	0.67	0.96	0.70	1.37	0.92	0.02	1.43	0.17	0.44	0.41	0.44
Control Delay	75.5	47.0	6.3	216.2	40.9	0.1	237.0	30.1	17.7	55.6	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	47.0	6.3	216.2	40.9	0.1	237.0	30.1	17.7	55.6	26.7
LOS	E	D	A	F	D	A	F	C	B	E	C
Approach Delay		35.3			88.7			170.4			37.7
Approach LOS		D			F			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.7	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.43	
Intersection Signal Delay: 79.0	Intersection LOS: E
Intersection Capacity Utilization 99.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1712	796	504	1318	14	784	71	276	77	52	73
Future Volume (veh/h)	74	1712	796	504	1318	14	784	71	276	77	52	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	77	1783	639	525	1373	13	817	74	207	80	54	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	97	1904	892	397	1576	688	589	432	570	101	72	98
Arrive On Green	0.06	0.37	0.37	0.13	0.44	0.44	0.19	0.23	0.23	0.06	0.10	0.10
Sat Flow, veh/h	1714	5187	1608	3141	3610	1577	3141	1900	1610	1714	732	990
Grp Volume(v), veh/h	77	1783	639	525	1373	13	817	74	207	80	0	127
Grp Sat Flow(s),veh/h/ln	1714	1729	1608	1570	1805	1577	1570	1900	1610	1714	0	1722
Q Serve(g_s), s	4.4	32.5	28.8	12.4	33.9	0.5	18.4	3.1	9.4	4.5	0.0	7.0
Cycle Q Clear(g_c), s	4.4	32.5	28.8	12.4	33.9	0.5	18.4	3.1	9.4	4.5	0.0	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	97	1904	892	397	1576	688	589	432	570	101	0	170
V/C Ratio(X)	0.79	0.94	0.72	1.32	0.87	0.02	1.39	0.17	0.36	0.79	0.00	0.75
Avail Cap(c_a), veh/h	122	1904	892	397	1576	688	589	852	926	105	0	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.7	29.9	16.1	42.8	25.1	15.7	39.8	30.5	23.5	45.6	0.0	43.0
Incr Delay (d2), s/veh	18.5	10.3	4.9	161.7	6.9	0.1	184.3	0.2	0.4	29.1	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	14.0	11.2	13.5	14.3	0.2	22.1	1.4	3.6	2.7	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	40.2	21.1	204.5	32.0	15.7	224.2	30.6	23.9	74.7	0.0	49.4
LnGrp LOS	E	D	C	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		2499			1911			1098			207	
Approach Delay, s/veh		36.0			79.3			173.4			59.2	
Approach LOS		D			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.9	10.2	49.0	10.4	28.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	34.5	20.4	9.0	6.4	35.9	6.5	11.4
Green Ext Time (p_c), s	0.0	1.4	0.0	0.7	0.0	3.7	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	77.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	179	772	23	335	1056
Future Vol, veh/h	23	179	772	23	335	1056
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	24	186	804	24	349	1100

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2068	418	0	0	832	0
Stage 1	820	-	-	-	-	-
Stage 2	1248	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	48	589	-	-	809	-
Stage 1	398	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	27	587	-	-	806	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	396	-	-	-	-	-
Stage 2	135	-	-	-	-	-

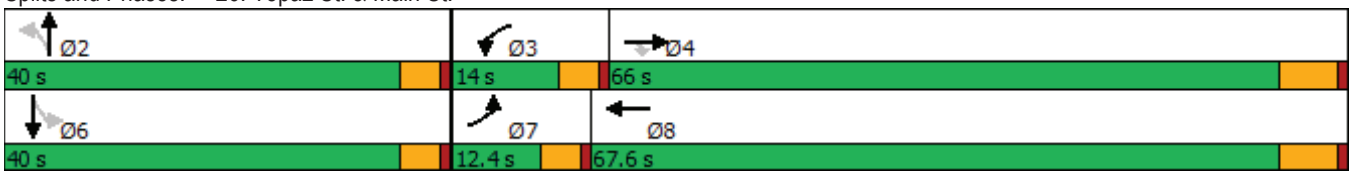
Approach	WB	NB	SB
HCM Control Delay, s	18.3	0	3.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	101	587	806	-
HCM Lane V/C Ratio	-	-	0.237	0.318	0.433	-
HCM Control Delay (s)	-	-	51.4	14	12.8	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	1.4	2.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	88	1958	305	144	1623	294	45	86	49
Future Volume (vph)	88	1958	305	144	1623	294	45	86	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	12.4	66.0	66.0	14.0	67.6	40.0	40.0	40.0	40.0
Total Split (%)	10.3%	55.0%	55.0%	11.7%	56.3%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.7	59.9	59.9	9.4	61.6	32.4	32.4	32.4	32.4
Actuated g/C Ratio	0.07	0.51	0.51	0.08	0.53	0.28	0.28	0.28	0.28
v/c Ratio	0.81	1.09	0.34	1.08	0.94	0.92	0.33	0.33	0.22
Control Delay	100.9	80.5	7.6	152.1	37.5	75.3	12.9	37.2	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	80.5	7.6	152.1	37.5	75.3	12.9	37.2	18.9
LOS	F	F	A	F	D	E	B	D	B
Approach Delay		71.8			46.4		51.9		26.9
Approach LOS		E			D		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 58.4	Intersection LOS: E
Intersection Capacity Utilization 109.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1958	305	144	1623	95	294	45	132	86	49	61
Future Volume (veh/h)	88	1958	305	144	1623	95	294	45	132	86	49	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	91	2019	242	148	1673	91	303	46	105	89	51	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	113	1834	818	137	1819	98	387	145	330	326	306	192
Arrive On Green	0.07	0.51	0.51	0.08	0.52	0.52	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1714	3610	1610	1714	3483	188	1325	514	1174	1256	1087	682
Grp Volume(v), veh/h	91	2019	242	148	862	902	303	0	151	89	0	83
Grp Sat Flow(s),veh/h/ln	1714	1805	1610	1714	1805	1866	1325	0	1689	1256	0	1769
Q Serve(g_s), s	6.2	59.8	10.2	9.4	51.4	52.6	26.3	0.0	8.3	7.1	0.0	4.2
Cycle Q Clear(g_c), s	6.2	59.8	10.2	9.4	51.4	52.6	30.5	0.0	8.3	15.4	0.0	4.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.70	1.00		0.39
Lane Grp Cap(c), veh/h	113	1834	818	137	943	974	387	0	475	326	0	497
V/C Ratio(X)	0.81	1.10	0.30	1.08	0.91	0.93	0.78	0.00	0.32	0.27	0.00	0.17
Avail Cap(c_a), veh/h	114	1834	818	137	943	974	413	0	508	350	0	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.2	28.9	16.8	54.1	25.7	26.0	43.4	0.0	33.4	39.5	0.0	31.9
Incr Delay (d2), s/veh	31.1	54.2	0.2	100.2	13.2	14.2	9.0	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	36.7	3.5	7.7	23.0	24.5	9.6	0.0	3.5	2.3	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.3	83.2	17.0	154.3	38.9	40.2	52.4	0.0	33.8	39.9	0.0	32.1
LnGrp LOS	F	F	B	F	D	D	D	A	C	D	A	C
Approach Vol, veh/h		2352			1912			454			172	
Approach Delay, s/veh		76.5			48.5			46.2			36.1	
Approach LOS		E			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		37.7	14.0	66.0		37.7	12.3	67.7				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		35.4	9.4	59.8		35.4	7.8	61.4				
Max Q Clear Time (g_c+I1), s		32.5	11.4	61.8		17.4	8.2	54.6				
Green Ext Time (p_c), s		0.6	0.0	0.0		0.7	0.0	5.2				

Intersection Summary												
HCM 6th Ctrl Delay			61.3									
HCM 6th LOS			E									

APPENDIX 7.2:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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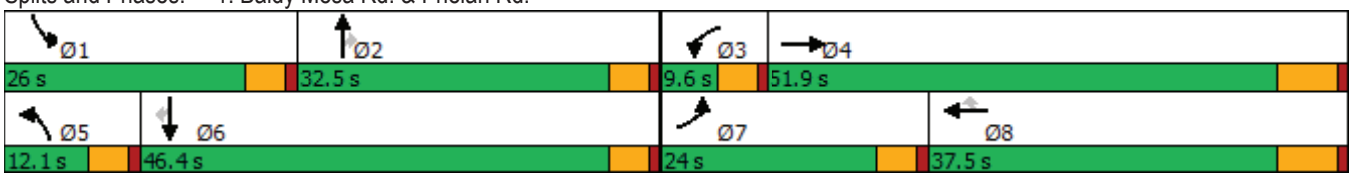
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	218	846	19	523	204	51	102	90	283	69	261
Future Volume (vph)	218	846	19	523	204	51	102	90	283	69	261
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	24.0	51.9	9.6	37.5	37.5	12.1	32.5	32.5	26.0	46.4	46.4
Total Split (%)	20.0%	43.3%	8.0%	31.3%	31.3%	10.1%	27.1%	27.1%	21.7%	38.7%	38.7%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	17.7	49.9	5.0	31.2	31.2	6.8	13.9	13.9	21.5	30.7	30.7
Actuated g/C Ratio	0.17	0.48	0.05	0.30	0.30	0.06	0.13	0.13	0.21	0.29	0.29
v/c Ratio	0.82	0.56	0.26	0.53	0.36	0.50	0.44	0.25	0.88	0.13	0.42
Control Delay	65.8	22.8	59.2	33.9	7.6	65.2	47.3	1.6	67.6	29.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	22.8	59.2	33.9	7.6	65.2	47.3	1.6	67.6	29.6	5.4
LOS	E	C	E	C	A	E	D	A	E	C	A
Approach Delay		31.3		27.4			34.0			36.9	
Approach LOS		C		C			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.7	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 64.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	846	33	19	523	204	51	102	90	283	69	261
Future Volume (veh/h)	218	846	33	19	523	204	51	102	90	283	69	261
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	237	920	26	21	568	170	55	111	72	308	75	184
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	268	1620	46	85	1247	556	70	189	160	337	486	412
Arrive On Green	0.16	0.45	0.45	0.05	0.35	0.35	0.04	0.10	0.10	0.20	0.26	0.26
Sat Flow, veh/h	1714	3585	101	1714	3610	1610	1714	1900	1610	1714	1900	1610
Grp Volume(v), veh/h	237	463	483	21	568	170	55	111	72	308	75	184
Grp Sat Flow(s),veh/h/ln	1714	1805	1882	1714	1805	1610	1714	1900	1610	1714	1900	1610
Q Serve(g_s), s	13.6	19.0	19.0	1.2	12.3	7.8	3.2	5.6	4.2	17.7	3.1	9.6
Cycle Q Clear(g_c), s	13.6	19.0	19.0	1.2	12.3	7.8	3.2	5.6	4.2	17.7	3.1	9.6
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	816	850	85	1247	556	70	189	160	337	486	412
V/C Ratio(X)	0.88	0.57	0.57	0.25	0.46	0.31	0.79	0.59	0.45	0.91	0.15	0.45
Avail Cap(c_a), veh/h	331	816	850	85	1247	556	128	528	447	365	790	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	20.3	20.3	45.9	25.5	24.1	47.8	43.3	42.6	39.5	29.0	31.4
Incr Delay (d2), s/veh	18.3	2.9	2.7	0.6	1.2	1.4	7.2	2.9	2.0	24.5	0.1	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	7.7	8.0	0.5	5.0	2.9	1.5	2.8	1.7	9.7	1.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	23.2	23.0	46.5	26.7	25.5	55.0	46.1	44.6	64.0	29.1	32.2
LnGrp LOS	E	C	C	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		1183			759			238			567	
Approach Delay, s/veh		30.4			27.0			47.7			49.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.4	14.6	9.6	51.9	8.7	30.3	20.3	41.2
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	21.4	27.9	5.0	45.4	7.5	41.8	19.4	31.0
Max Q Clear Time (g_c+I1), s	19.7	7.6	3.2	21.0	5.2	11.6	15.6	14.3
Green Ext Time (p_c), s	0.1	0.8	0.0	5.3	0.0	1.1	0.1	3.5

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1227	8	6	641	1	23	0	26	17	0	13
Future Vol, veh/h	4	1227	8	6	641	1	23	0	26	17	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	4	1334	9	7	697	1	25	0	28	18	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	698	0	0	1343	0	0	2061	2054	1334	2072	2062	697
Stage 1	-	-	-	-	-	-	1342	1342	-	711	711	-
Stage 2	-	-	-	-	-	-	719	712	-	1361	1351	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	908	-	-	520	-	-	41	56	190	40	55	444
Stage 1	-	-	-	-	-	-	190	223	-	427	439	-
Stage 2	-	-	-	-	-	-	423	439	-	185	221	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	908	-	-	520	-	-	39	55	190	34	54	444
Mov Cap-2 Maneuver	-	-	-	-	-	-	132	156	-	113	152	-
Stage 1	-	-	-	-	-	-	189	222	-	425	433	-
Stage 2	-	-	-	-	-	-	404	433	-	157	220	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	39	31.7
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	158	908	-	-	520	-	-	167
HCM Lane V/C Ratio	0.337	0.005	-	-	0.013	-	-	0.195
HCM Control Delay (s)	39	9	-	-	12	-	-	31.7
HCM Lane LOS	E	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	1.4	0	-	-	0	-	-	0.7

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1305	14	4	669	20	8
Future Vol, veh/h	1305	14	4	669	20	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1418	15	4	727	22	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1433	0	2161	1426
Stage 1	-	-	-	-	1426	-
Stage 2	-	-	-	-	735	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	480	-	53	168
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	478	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	480	-	53	168
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	474	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	32.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	161	-	-	480	-
HCM Lane V/C Ratio	0.189	-	-	0.009	-
HCM Control Delay (s)	32.5	-	-	12.6	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑	↱	↰	
Traffic Vol, veh/h	0	1313	665	400	12	7
Future Vol, veh/h	0	1313	665	400	12	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1427	723	435	13	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	2150	362
Stage 1	-	-	-	-	723	-
Stage 2	-	-	-	-	1427	-
Critical Hdwy	-	-	-	-	6.6	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	48	641
Stage 1	0	-	-	-	447	-
Stage 2	0	-	-	-	224	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	48	641
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	224	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	260
HCM Lane V/C Ratio	-	-	-	0.079
HCM Control Delay (s)	-	-	-	20
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1	0	161	4	0	42
Future Vol, veh/h	1	0	161	4	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	175	4	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	355	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1635	-	647	1090
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	715	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1635	-	578	1090
Mov Cap-2 Maneuver	-	-	-	-	578	-
Stage 1	-	-	-	-	1028	-
Stage 2	-	-	-	-	638	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.3	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1090	-	-	1635	-
HCM Lane V/C Ratio	0.042	-	-	0.107	-
HCM Control Delay (s)	8.4	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	0	271	165	0	50
Future Vol, veh/h	43	0	271	165	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	47	0	295	179	0	54

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	47	0	816	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	769	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1573	-	349	1028
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1573	-	283	1028
Mov Cap-2 Maneuver	-	-	-	-	332	-
Stage 1	-	-	-	-	981	-
Stage 2	-	-	-	-	374	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1028	-	-	1573	-
HCM Lane V/C Ratio	0.053	-	-	0.187	-
HCM Control Delay (s)	8.7	-	-	7.8	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	97	1217	1058	134
Future Volume (vph)	97	1217	1058	134
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	13.0	90.0	77.0	30.0
Total Split (%)	10.8%	75.0%	64.2%	25.0%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	8.4	83.6	70.6	15.4
Actuated g/C Ratio	0.08	0.76	0.64	0.14
v/c Ratio	0.81	0.48	0.51	0.66
Control Delay	91.6	6.1	10.4	55.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	91.6	6.1	10.4	55.9
LOS	F	A	B	E
Approach Delay		12.4	10.4	55.9
Approach LOS		B	B	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.1	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 13.6	Intersection LOS: B
Intersection Capacity Utilization 58.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	97	1217	1058	463	134	18
Future Volume (veh/h)	97	1217	1058	463	134	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	105	1323	1150	503	146	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	130	2826	2349	1025	176	24
Arrive On Green	0.08	0.78	0.66	0.66	0.11	0.11
Sat Flow, veh/h	1714	3705	3708	1543	1559	214
Grp Volume(v), veh/h	105	1323	1124	529	167	0
Grp Sat Flow(s),veh/h/ln	1714	1805	1729	1622	1784	0
Q Serve(g_s), s	6.4	13.4	17.3	17.3	9.8	0.0
Cycle Q Clear(g_c), s	6.4	13.4	17.3	17.3	9.8	0.0
Prop In Lane	1.00			0.95	0.87	0.12
Lane Grp Cap(c), veh/h	130	2826	2297	1078	202	0
V/C Ratio(X)	0.81	0.47	0.49	0.49	0.83	0.00
Avail Cap(c_a), veh/h	135	2826	2297	1078	425	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.5	4.0	8.9	8.9	46.3	0.0
Incr Delay (d2), s/veh	26.8	0.6	0.7	1.6	8.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	2.7	5.2	5.1	4.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	75.3	4.5	9.7	10.5	54.7	0.0
LnGrp LOS	E	A	A	B	D	A
Approach Vol, veh/h		1428	1653		167	
Approach Delay, s/veh		9.7	9.9		54.7	
Approach LOS		A	A		D	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			90.0		16.7	12.7	77.3
Change Period (Y+Rc), s			6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s			83.5		25.4	8.4	70.5
Max Q Clear Time (g_c+I1), s			15.4		11.8	8.4	19.3
Green Ext Time (p_c), s			11.7		0.4	0.0	15.2

Intersection Summary	
HCM 6th Ctrl Delay	12.1
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	69	172	127	107	129	63	1133	62	297	1797	118
Future Volume (vph)	69	172	127	107	129	63	1133	62	297	1797	118
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	39.0	39.0	39.0	39.0	39.0	6.0	41.5	41.5	24.5	60.0	60.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.05	0.35	0.35	0.20	0.50	0.50
v/c Ratio	1.15	0.30	0.23	0.33	0.86	0.76	0.99	0.11	0.88	1.08	0.15
Control Delay	198.9	32.0	9.3	34.0	44.3	101.0	62.5	3.1	70.3	77.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.3	34.0	44.3	101.0	62.5	3.1	70.3	77.1	3.2
LOS	F	C	A	C	D	F	E	A	E	E	A
Approach Delay		55.5			42.5		61.5			72.2	
Approach LOS		E			D		E			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 63.7	Intersection LOS: E
Intersection Capacity Utilization 108.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	172	127	107	129	372	63	1133	62	297	1797	118
Future Volume (veh/h)	69	172	127	107	129	372	63	1133	62	297	1797	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	75	187	105	116	140	338	68	1232	51	323	1953	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	619	524	354	161	388	87	1282	569	351	1808	807
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.36	0.36	0.19	0.50	0.50
Sat Flow, veh/h	982	1900	1610	1166	493	1190	1810	3610	1603	1810	3610	1610
Grp Volume(v), veh/h	75	187	105	116	0	478	68	1232	51	323	1953	110
Grp Sat Flow(s),veh/h/ln	982	1900	1610	1166	0	1683	1810	1805	1603	1810	1805	1610
Q Serve(g_s), s	7.0	8.8	5.6	9.9	0.0	32.0	4.5	40.0	2.5	21.0	60.0	4.4
Cycle Q Clear(g_c), s	39.0	8.8	5.6	18.7	0.0	32.0	4.5	40.0	2.5	21.0	60.0	4.4
Prop In Lane	1.00		1.00	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	619	524	354	0	548	87	1282	569	351	1808	807
V/C Ratio(X)	0.64	0.30	0.20	0.33	0.00	0.87	0.78	0.96	0.09	0.92	1.08	0.14
Avail Cap(c_a), veh/h	117	619	524	354	0	548	91	1282	569	408	1808	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	30.2	29.1	37.2	0.0	38.0	56.4	37.8	25.7	47.4	29.9	16.0
Incr Delay (d2), s/veh	8.7	0.1	0.1	0.2	0.0	13.8	31.9	17.4	0.3	23.2	46.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.0	2.2	2.8	0.0	14.8	2.7	19.4	1.0	11.2	34.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	30.3	29.2	37.4	0.0	51.9	88.3	55.2	26.0	70.6	76.3	16.4
LnGrp LOS	E	C	C	D	A	D	F	E	C	E	F	B
Approach Vol, veh/h		367			594			1351			2386	
Approach Delay, s/veh		37.3			49.0			55.8			72.8	
Approach LOS		D			D			E			E	

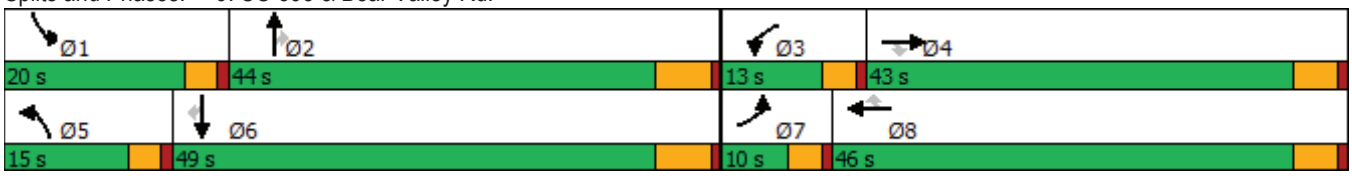
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.2	48.5		44.0	9.8	66.0		44.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	23.0	42.0		41.0	6.5	62.0		34.0				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	0.0		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		62.1
HCM 6th LOS		E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	464	317	251	347	138	148	1052	140	310	1777	47
Future Volume (vph)	80	464	317	251	347	138	148	1052	140	310	1777	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	20.4	20.4	9.1	23.4	23.4	11.1	38.3	38.3	16.1	43.3	43.3
Actuated g/C Ratio	0.06	0.20	0.20	0.09	0.23	0.23	0.11	0.37	0.37	0.16	0.42	0.42
v/c Ratio	0.78	0.67	0.66	1.64	0.44	0.30	0.79	0.81	0.21	1.13	1.21	0.07
Control Delay	93.0	42.4	19.4	345.3	35.1	6.6	74.5	36.0	6.2	136.2	128.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	42.4	19.4	345.3	35.1	6.6	74.5	36.0	6.2	136.2	128.7	0.8
LOS	F	D	B	F	D	A	E	D	A	F	F	A
Approach Delay		38.6			135.6			37.2			127.0	
Approach LOS		D			F			D			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 103	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 89.5	Intersection LOS: F
Intersection Capacity Utilization 99.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	464	317	251	347	138	148	1052	140	310	1777	47
Future Volume (veh/h)	80	464	317	251	347	138	148	1052	140	310	1777	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	478	246	259	358	108	153	1085	117	320	1832	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	105	673	300	162	786	351	184	1361	607	287	1567	699
Arrive On Green	0.06	0.19	0.19	0.09	0.22	0.22	0.10	0.38	0.38	0.16	0.43	0.43
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	82	478	246	259	358	108	153	1085	117	320	1832	42
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.5	12.5	14.8	9.0	8.7	5.7	8.4	27.0	4.9	16.0	43.8	1.5
Cycle Q Clear(g_c), s	4.5	12.5	14.8	9.0	8.7	5.7	8.4	27.0	4.9	16.0	43.8	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	673	300	162	786	351	184	1361	607	287	1567	699
V/C Ratio(X)	0.78	0.71	0.82	1.60	0.46	0.31	0.83	0.80	0.19	1.11	1.17	0.06
Avail Cap(c_a), veh/h	108	1361	607	162	1468	655	197	1361	607	287	1567	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.8	38.4	39.4	45.9	34.2	33.1	44.4	28.0	21.1	42.4	28.5	16.6
Incr Delay (d2), s/veh	28.4	0.5	2.1	298.3	0.2	0.2	23.1	4.9	0.7	87.3	83.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	5.2	5.6	17.2	3.6	2.1	4.7	11.3	1.8	13.6	34.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	39.0	41.5	344.2	34.4	33.2	67.6	32.9	21.8	129.7	111.8	16.7
LnGrp LOS	E	D	D	F	C	C	E	C	C	F	F	B
Approach Vol, veh/h		806			725			1355			2194	
Approach Delay, s/veh		43.4			144.9			35.9			112.6	
Approach LOS		D			F			D			F	

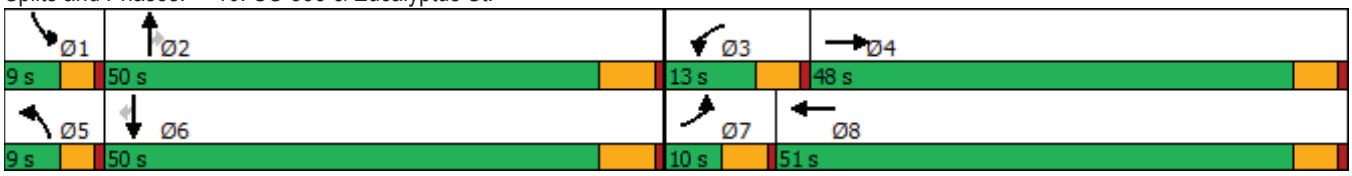
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	44.0	13.0	23.8	14.2	49.8	9.9	26.9
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	18.0	29.0	11.0	16.8	10.4	45.8	6.5	10.7
Green Ext Time (p_c), s	0.0	3.2	0.0	2.0	0.0	0.0	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	85.8
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	7	122	8	10	1200	84	9	2339	11
Future Volume (vph)	13	7	122	8	10	1200	84	9	2339	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.2	21.1	5.2	49.9	49.9	5.2	49.9	49.9
Actuated g/C Ratio	0.06	0.18	0.11	0.25	0.06	0.59	0.59	0.06	0.59	0.59
v/c Ratio	0.13	0.11	0.67	0.09	0.10	0.61	0.09	0.09	1.19	0.01
Control Delay	47.8	13.7	57.9	10.4	47.2	17.7	3.9	47.1	111.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	13.7	57.9	10.4	47.2	17.7	3.9	47.1	111.2	0.0
LOS	D	B	E	B	D	B	A	D	F	A
Approach Delay		23.2		46.6		17.0			110.5	
Approach LOS		C		D		B			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 75.5	Intersection LOS: E
Intersection Capacity Utilization 88.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	7	26	122	8	30	10	1200	84	9	2339	11
Future Volume (veh/h)	13	7	26	122	8	30	10	1200	84	9	2339	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	14	8	20	131	9	21	11	1290	86	10	2515	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	30	50	125	164	90	210	24	1969	878	23	1965	876
Arrive On Green	0.02	0.10	0.10	0.09	0.18	0.18	0.01	0.55	0.55	0.01	0.54	0.54
Sat Flow, veh/h	1810	481	1203	1810	506	1180	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	14	0	28	131	0	30	11	1290	86	10	2515	11
Grp Sat Flow(s),veh/h/ln	1810	0	1684	1810	0	1685	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.6	0.0	1.2	5.7	0.0	1.2	0.5	20.4	2.1	0.4	44.0	0.3
Cycle Q Clear(g_c), s	0.6	0.0	1.2	5.7	0.0	1.2	0.5	20.4	2.1	0.4	44.0	0.3
Prop In Lane	1.00		0.71	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	30	0	175	164	0	300	24	1969	878	23	1965	876
V/C Ratio(X)	0.46	0.00	0.16	0.80	0.00	0.10	0.45	0.66	0.10	0.44	1.28	0.01
Avail Cap(c_a), veh/h	112	0	896	179	0	959	112	1969	878	112	1965	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	0.0	33.0	36.0	0.0	27.8	39.6	13.0	8.8	39.6	18.4	8.5
Incr Delay (d2), s/veh	4.1	0.0	0.4	18.3	0.0	0.1	4.7	1.7	0.2	5.0	130.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	3.2	0.0	0.5	0.2	6.7	0.7	0.2	51.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	33.4	54.3	0.0	27.9	44.3	14.7	9.0	44.7	148.5	8.5
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	F	A
Approach Vol, veh/h		42			161			1387			2536	
Approach Delay, s/veh		36.8			49.4			14.6			147.5	
Approach LOS		D			D			B			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	50.1	12.3	13.4	5.1	50.0	6.3	19.4
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.4	22.4	7.7	3.2	2.5	46.0	2.6	3.2
Green Ext Time (p_c), s	0.0	9.0	0.0	0.1	0.0	0.0	0.0	0.1

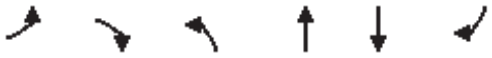
Intersection Summary	
HCM 6th Ctrl Delay	97.8
HCM 6th LOS	F

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	325	1920	2656
Future Volume (vph)	19	74	325	1920	2656
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	26.6	26.6	9.6	93.4	83.8
Total Split (%)	22.2%	22.2%	8.0%	77.8%	69.8%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	12.2	12.2	5.0	89.0	77.8
Actuated g/C Ratio	0.11	0.11	0.05	0.83	0.72
v/c Ratio	0.10	0.33	4.20	1.33	2.20
Control Delay	44.3	17.5	1482.4	168.9	559.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	17.5	1482.4	168.9	559.6
LOS	D	B	F	F	F
Approach Delay	23.1			359.0	559.6
Approach LOS	C			F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.20	
Intersection Signal Delay: 461.6	Intersection LOS: F
Intersection Capacity Utilization 185.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	325	1920	2656	111
Future Volume (veh/h)	19	74	325	1920	2656	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	80	353	2087	2887	121
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	160	142	84	1536	1302	55
Arrive On Green	0.09	0.09	0.05	0.81	0.72	0.72
Sat Flow, veh/h	1810	1610	1810	1900	1810	76
Grp Volume(v), veh/h	21	80	353	2087	0	3008
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1886
Q Serve(g_s), s	1.2	5.1	5.0	86.9	0.0	77.3
Cycle Q Clear(g_c), s	1.2	5.1	5.0	86.9	0.0	77.3
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	160	142	84	1536	0	1356
V/C Ratio(X)	0.13	0.56	4.19	1.36	0.00	2.22
Avail Cap(c_a), veh/h	370	329	84	1536	0	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.2	47.0	51.3	10.3	0.0	15.1
Incr Delay (d2), s/veh	0.4	3.4	1465.1	165.8	0.0	550.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	36.4	84.7	0.0	228.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.6	50.4	1516.4	176.1	0.0	565.5
LnGrp LOS	D	D	F	F	A	F
Approach Vol, veh/h	101			2440	3008	
Approach Delay, s/veh	49.4			370.0	565.5	
Approach LOS	D			F	F	

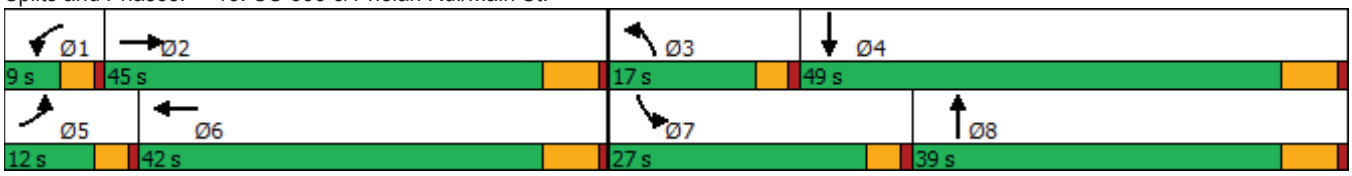
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.4		14.1	9.6	83.8
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		86.9		22.0	5.0	77.3
Max Q Clear Time (g_c+I1), s		88.9		7.1	7.0	79.3
Green Ext Time (p_c), s		0.0		0.2	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		470.2
HCM 6th LOS		F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	103	1030	23	1203	237	1571	375	2283
Future Volume (vph)	103	1030	23	1203	237	1571	375	2283
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	12.0	45.0	9.0	42.0	17.0	39.0	27.0	49.0
Total Split (%)	10.0%	37.5%	7.5%	35.0%	14.2%	32.5%	22.5%	40.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.0	42.6	5.0	36.0	13.0	33.0	23.0	43.0
Actuated g/C Ratio	0.07	0.36	0.04	0.30	0.11	0.28	0.19	0.36
v/c Ratio	0.89	1.03	0.32	1.78	1.27	1.68	1.13	1.91
Control Delay	113.0	71.4	67.3	381.6	197.5	339.4	133.8	438.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.0	71.4	67.3	381.6	197.5	339.4	133.8	438.2
LOS	F	E	E	F	F	F	F	F
Approach Delay		74.6		377.7		321.1		396.5
Approach LOS		E		F		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.91	
Intersection Signal Delay: 318.5	Intersection LOS: F
Intersection Capacity Utilization 155.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Future Volume (veh/h)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	107	1073	182	24	1253	598	247	1636	27	391	2378	81
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	121	1062	180	42	727	326	196	999	16	347	1277	43
Arrive On Green	0.07	0.34	0.34	0.02	0.30	0.30	0.11	0.28	0.28	0.19	0.36	0.36
Sat Flow, veh/h	1810	3088	523	1810	2425	1085	1810	3634	60	1810	3563	121
Grp Volume(v), veh/h	107	626	629	24	912	939	247	811	852	391	1198	1261
Grp Sat Flow(s),veh/h/ln	1810	1805	1806	1810	1805	1705	1810	1805	1889	1810	1805	1878
Q Serve(g_s), s	7.0	41.2	41.2	1.6	36.0	36.0	13.0	33.0	33.0	23.0	43.0	43.0
Cycle Q Clear(g_c), s	7.0	41.2	41.2	1.6	36.0	36.0	13.0	33.0	33.0	23.0	43.0	43.0
Prop In Lane	1.00		0.29	1.00		0.64	1.00		0.03	1.00		0.06
Lane Grp Cap(c), veh/h	121	620	621	42	542	511	196	496	520	347	647	673
V/C Ratio(X)	0.89	1.01	1.01	0.58	1.68	1.84	1.26	1.63	1.64	1.13	1.85	1.87
Avail Cap(c_a), veh/h	121	620	621	75	542	511	196	496	520	347	647	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	39.4	39.4	58.0	42.0	42.0	53.5	43.5	43.5	48.5	38.5	38.5
Incr Delay (d2), s/veh	48.5	38.4	39.5	9.1	315.5	384.3	151.4	294.6	296.3	87.4	389.4	398.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	23.5	23.7	0.8	62.4	68.7	13.9	54.4	57.2	18.2	87.5	92.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.1	77.8	78.8	67.1	357.5	426.3	204.9	338.1	339.8	135.9	427.9	437.3
LnGrp LOS	F	F	F	E	F	F	F	F	F	F	F	F
Approach Vol, veh/h		1362			1875			1910			2850	
Approach Delay, s/veh		80.3			388.2			321.6			392.0	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	47.2	17.0	49.0	12.0	42.0	27.0	39.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	39.0	13.0	43.0	8.0	36.0	23.0	33.0
Max Q Clear Time (g_c+I1), s	3.6	43.2	15.0	45.0	9.0	38.0	25.0	35.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	321.2
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	29.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	432	1401	68	565	1958
Future Vol, veh/h	122	432	1401	68	565	1958
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	131	465	1506	73	608	2105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4864	790	0	0	1579	0
Stage 1	1543	-	-	-	-	-
Stage 2	3321	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 337	-	-	~ 422	-
Stage 1	165	-	-	-	-	-
Stage 2	~ 24	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 337	-	-	~ 422	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	165	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	52.9
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	337	~ 422	-
HCM Lane V/C Ratio	-	-	-	1.378	1.44	-
HCM Control Delay (s)	-	-	-	218.6	236.2	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	23.4	30.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1	232	2	58	247	1341	142	44	1903	133
Future Volume (vph)	70	1	232	2	58	247	1341	142	44	1903	133
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0	15.0	69.0	69.0	12.0	66.0	66.0
Total Split (%)	32.5%	32.5%	32.5%	32.5%	32.5%	12.5%	57.5%	57.5%	10.0%	55.0%	55.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	33.0	33.0	33.0	33.0	33.0	10.0	65.5	65.5	6.5	60.0	60.0
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28	0.08	0.55	0.55	0.05	0.50	0.50
v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.74	0.17	0.49	1.15	0.17
Control Delay	34.9	26.8	198.3	31.5	6.6	411.4	24.3	3.5	72.5	102.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	26.8	198.3	31.5	6.6	411.4	24.3	3.5	72.5	102.2	8.1
LOS	C	C	F	C	A	F	C	A	E	F	A
Approach Delay		28.4		159.2			77.8			95.5	
Approach LOS		C		F			E			F	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.79	
Intersection Signal Delay: 87.6	Intersection LOS: F
Intersection Capacity Utilization 115.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1	273	232	2	58	247	1341	142	44	1903	133
Future Volume (veh/h)	70	1	273	232	2	58	247	1341	142	44	1903	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	76	1	260	252	2	54	268	1458	142	48	2068	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	455	2	441	222	522	442	151	1982	883	62	1805	805
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.08	0.55	0.55	0.03	0.50	0.50
Sat Flow, veh/h	1442	6	1605	1199	1900	1607	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	76	0	261	252	2	54	268	1458	142	48	2068	124
Grp Sat Flow(s),veh/h/ln	1442	0	1611	1199	1900	1607	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	4.8	0.0	16.8	16.2	0.1	3.0	10.0	36.7	5.2	3.2	60.0	5.0
Cycle Q Clear(g_c), s	4.9	0.0	16.8	33.0	0.1	3.0	10.0	36.7	5.2	3.2	60.0	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	455	0	443	222	523	442	151	1982	883	62	1805	805
V/C Ratio(X)	0.17	0.00	0.59	1.14	0.00	0.12	1.78	0.74	0.16	0.77	1.15	0.15
Avail Cap(c_a), veh/h	455	0	443	222	523	442	151	1982	883	106	1805	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	37.6	54.1	31.6	32.6	55.0	20.5	13.4	57.5	30.0	16.3
Incr Delay (d2), s/veh	0.1	0.0	1.4	102.1	0.0	0.0	375.2	2.5	0.4	7.4	72.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	6.8	13.0	0.0	1.2	20.1	14.2	1.8	1.5	41.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	39.0	156.2	31.6	32.7	430.2	22.9	13.8	64.8	102.6	16.7
LnGrp LOS	C	A	D	F	C	C	F	C	B	E	F	B
Approach Vol, veh/h		337			308			1868			2240	
Approach Delay, s/veh		37.8			133.8			80.7			97.1	
Approach LOS		D			F			F			F	

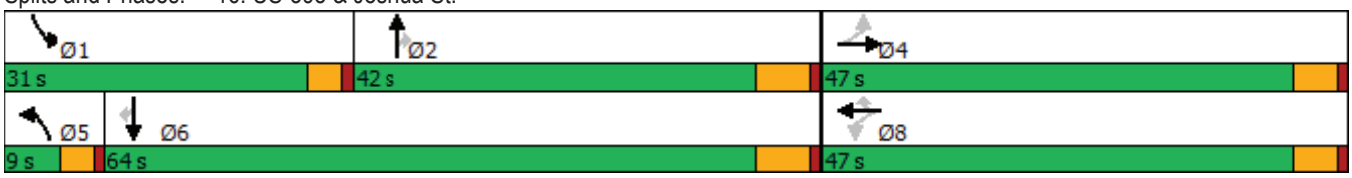
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	71.9		39.0	15.0	66.0		39.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	63.0		33.0	10.0	60.0		33.0				
Max Q Clear Time (g_c+I1), s	5.2	38.7		18.8	12.0	62.0		35.0				
Green Ext Time (p_c), s	0.0	11.3		1.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		88.8	
HCM 6th LOS		F	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	74	129	89	272	13	1397	83	278	1894	237
Future Volume (vph)	62	74	129	89	272	13	1397	83	278	1894	237
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	42.0	42.0	31.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	35.0%	35.0%	25.8%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	18.4	18.4	18.4	18.4	18.4	5.1	40.6	40.6	19.1	62.5	62.5
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20	0.06	0.45	0.45	0.21	0.69	0.69
v/c Ratio	0.25	0.22	0.52	0.25	0.53	0.14	0.94	0.12	0.79	0.83	0.22
Control Delay	31.6	29.5	38.2	30.8	7.0	50.5	38.5	5.8	50.8	17.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	29.5	38.2	30.8	7.0	50.5	38.5	5.8	50.8	17.1	4.5
LOS	C	C	D	C	A	D	D	A	D	B	A
Approach Delay		30.5		19.6			36.8			19.7	
Approach LOS		C		B			D			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 90.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	74	4	129	89	272	13	1397	83	278	1894	237
Future Volume (veh/h)	62	74	4	129	89	272	13	1397	83	278	1894	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	67	80	1	140	97	242	14	1518	76	302	2059	253
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	243	357	4	297	362	306	30	1762	786	342	2386	1064
Arrive On Green	0.19	0.19	0.18	0.19	0.19	0.19	0.02	0.49	0.49	0.19	0.66	0.66
Sat Flow, veh/h	1116	1872	23	1413	1900	1608	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	67	0	81	140	97	242	14	1518	76	302	2059	253
Grp Sat Flow(s),veh/h/ln	1116	0	1896	1413	1900	1608	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	4.9	0.0	3.3	8.4	4.0	13.0	0.7	33.7	2.3	14.7	40.9	5.7
Cycle Q Clear(g_c), s	8.9	0.0	3.3	11.7	4.0	13.0	0.7	33.7	2.3	14.7	40.9	5.7
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	0	361	297	362	306	30	1762	786	342	2386	1064
V/C Ratio(X)	0.28	0.00	0.22	0.47	0.27	0.79	0.47	0.86	0.10	0.88	0.86	0.24
Avail Cap(c_a), veh/h	559	0	898	697	900	762	100	1762	786	538	2386	1064
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	0.0	31.1	36.0	31.3	35.0	44.3	20.5	12.5	35.8	12.1	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.1	1.7	8.4	5.8	0.2	8.9	4.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.5	2.9	1.8	5.1	0.4	13.1	0.8	6.8	12.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	0.0	31.2	36.5	31.5	36.8	52.7	26.3	12.7	44.7	16.6	6.7
LnGrp LOS	D	A	C	D	C	D	D	C	B	D	B	A
Approach Vol, veh/h		148			479			1608			2614	
Approach Delay, s/veh		33.1			35.6			25.9			18.9	
Approach LOS		C			D			C			B	

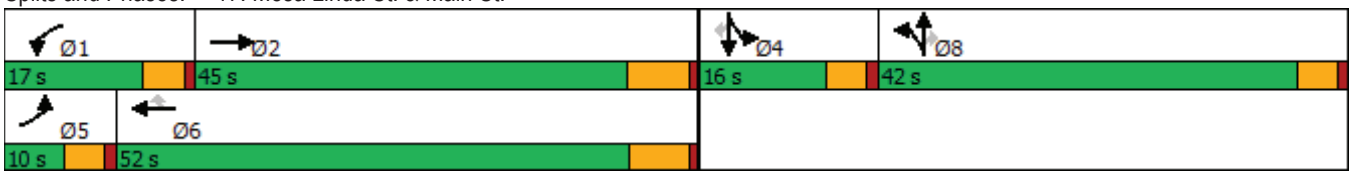
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.2	48.3		21.3	5.5	64.0		21.3				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	36.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	16.7	35.7		10.9	2.7	42.9		15.0				
Green Ext Time (p_c), s	0.4	0.3		0.4	0.0	14.4		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		23.3	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	1377	121	1792	24	3	177	3	20
Future Volume (vph)	7	1377	121	1792	24	3	177	3	20
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	10.0	45.0	17.0	52.0	52.0	42.0	42.0	16.0	16.0
Total Split (%)	8.3%	37.5%	14.2%	43.3%	43.3%	35.0%	35.0%	13.3%	13.3%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.3	39.5	10.8	53.8	53.8	14.3	14.3	10.5	10.5
Actuated g/C Ratio	0.06	0.43	0.12	0.58	0.58	0.16	0.16	0.11	0.11
v/c Ratio	0.08	0.68	0.66	0.64	0.03	0.01	0.47	0.36	0.07
Control Delay	50.0	25.8	58.5	17.7	0.0	32.3	8.8	48.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	25.8	58.5	17.7	0.0	32.3	8.8	48.0	0.4
LOS	D	C	E	B	A	C	A	D	A
Approach Delay		25.9		20.0		9.2		37.2	
Approach LOS		C		C		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 92.2	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	1377	4	121	1792	24	0	3	177	66	3	20
Future Volume (veh/h)	7	1377	4	121	1792	24	0	3	177	66	3	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	8	1497	4	132	1948	18	0	3	172	72	3	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	17	2357	6	163	2729	847	0	250	212	173	7	160
Arrive On Green	0.01	0.44	0.44	0.09	0.53	0.53	0.00	0.13	0.13	0.10	0.10	0.10
Sat Flow, veh/h	1714	5341	14	1714	5187	1610	0	1900	1610	1740	73	1610
Grp Volume(v), veh/h	8	969	532	132	1948	18	0	3	172	75	0	9
Grp Sat Flow(s),veh/h/ln	1714	1729	1897	1714	1729	1610	0	1900	1610	1813	0	1610
Q Serve(g_s), s	0.4	19.0	19.0	6.6	24.9	0.5	0.0	0.1	9.1	3.4	0.0	0.4
Cycle Q Clear(g_c), s	0.4	19.0	19.0	6.6	24.9	0.5	0.0	0.1	9.1	3.4	0.0	0.4
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	17	1526	837	163	2729	847	0	250	212	181	0	160
V/C Ratio(X)	0.46	0.64	0.64	0.81	0.71	0.02	0.00	0.01	0.81	0.42	0.00	0.06
Avail Cap(c_a), veh/h	106	1526	837	244	2729	847	0	814	690	237	0	210
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.9	18.9	18.9	38.7	15.7	9.9	0.0	33.0	36.8	36.9	0.0	35.6
Incr Delay (d2), s/veh	7.0	2.0	3.7	6.9	1.6	0.0	0.0	0.0	7.3	1.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.8	7.9	2.9	8.4	0.2	0.0	0.1	4.0	1.6	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	21.0	22.6	45.6	17.3	10.0	0.0	33.0	44.2	38.4	0.0	35.7
LnGrp LOS	D	C	C	D	B	A	A	C	D	D	A	D
Approach Vol, veh/h		1509			2098			175			84	
Approach Delay, s/veh		21.7			19.0			44.0			38.1	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	45.0		13.3	5.5	52.4		16.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	12.4	38.5		11.4	5.4	* 46		37.4				
Max Q Clear Time (g_c+I1), s	8.6	21.0		5.4	2.4	26.9		11.1				
Green Ext Time (p_c), s	0.0	8.4		0.1	0.0	12.7		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		21.6
HCM 6th LOS		C

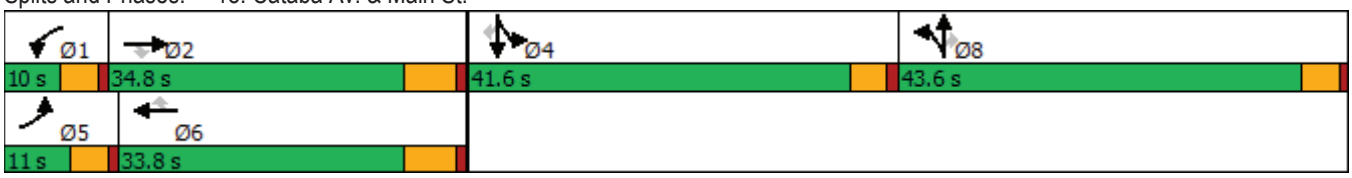
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	1319	310	284	1879	24	179	15	154	47	15	36
Future Volume (vph)	78	1319	310	284	1879	24	179	15	154	47	15	36
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	34.8	34.8	10.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	26.8%	26.8%	7.7%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.9	30.6	30.6	5.8	29.5	29.5	14.9	14.9	14.9	14.1	14.1	14.1
Actuated g/C Ratio	0.08	0.37	0.37	0.07	0.36	0.36	0.18	0.18	0.18	0.17	0.17	0.17
v/c Ratio	0.60	0.75	0.44	1.42	1.10	0.04	0.36	0.34	0.39	0.17	0.05	0.11
Control Delay	61.1	29.2	9.3	244.2	83.3	0.1	34.9	34.3	8.1	33.0	31.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	29.2	9.3	244.2	83.3	0.1	34.9	34.3	8.1	33.0	31.6	0.6
LOS	E	C	A	F	F	A	C	C	A	C	C	A
Approach Delay		27.1			103.3			22.9			20.9	
Approach LOS		C			F			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 82.8	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.42	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	1319	310	284	1879	24	179	15	154	47	15	36
Future Volume (veh/h)	78	1319	310	284	1879	24	179	15	154	47	15	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	85	1434	330	309	2042	19	206	0	147	51	16	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	108	2055	637	235	2117	657	489	0	229	188	208	176
Arrive On Green	0.06	0.40	0.40	0.07	0.41	0.41	0.14	0.00	0.14	0.11	0.11	0.11
Sat Flow, veh/h	1714	5187	1609	3141	5187	1609	3429	0	1607	1714	1900	1610
Grp Volume(v), veh/h	85	1434	330	309	2042	19	206	0	147	51	16	11
Grp Sat Flow(s),veh/h/ln	1714	1729	1609	1570	1729	1609	1714	0	1607	1714	1900	1610
Q Serve(g_s), s	3.5	16.7	11.2	5.4	27.7	0.5	4.0	0.0	6.2	2.0	0.5	0.4
Cycle Q Clear(g_c), s	3.5	16.7	11.2	5.4	27.7	0.5	4.0	0.0	6.2	2.0	0.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	2055	637	235	2117	657	489	0	229	188	208	176
V/C Ratio(X)	0.79	0.70	0.52	1.32	0.96	0.03	0.42	0.00	0.64	0.27	0.08	0.06
Avail Cap(c_a), veh/h	152	2055	637	235	2117	657	1852	0	868	879	974	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	18.2	16.6	33.4	20.8	12.8	28.2	0.0	29.2	29.5	28.9	28.8
Incr Delay (d2), s/veh	10.7	2.0	3.0	168.7	12.8	0.1	0.6	0.0	3.0	0.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	5.7	3.9	7.4	11.6	0.2	1.6	0.0	2.5	0.8	0.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	20.2	19.5	202.1	33.6	12.9	28.8	0.0	32.2	30.3	29.0	29.0
LnGrp LOS	D	C	B	F	C	B	C	A	C	C	C	C
Approach Vol, veh/h		1849			2370			353			78	
Approach Delay, s/veh		21.2			55.4			30.2			29.8	
Approach LOS		C			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	34.8		12.5	9.1	35.7		14.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	28.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	7.4	18.7		4.0	5.5	29.7		8.2				
Green Ext Time (p_c), s	0.0	6.5		0.2	0.0	0.0		1.3				

Intersection Summary		
HCM 6th Ctrl Delay		39.5
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	42	1386	17	194	2028	15	16	110	522	37
Future Volume (vph)	42	1386	17	194	2028	15	16	110	522	37
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	14.0	45.0	45.0	29.0	60.0	46.0	46.0	46.0	46.0	46.0
Total Split (%)	11.7%	37.5%	37.5%	24.2%	50.0%	38.3%	38.3%	38.3%	38.3%	38.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	7.3	41.5	41.5	17.6	53.9	41.5	41.5	41.5	41.5	41.5
Actuated g/C Ratio	0.06	0.36	0.36	0.15	0.46	0.36	0.36	0.36	0.36	0.36
v/c Ratio	0.40	0.76	0.03	0.76	1.01	0.03	0.02	0.17	1.11	0.10
Control Delay	64.4	36.8	0.1	66.1	51.0	26.2	25.9	5.6	110.7	17.4
Queue Delay	0.0	0.0	0.0	0.0	36.4	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	36.8	0.1	66.1	87.3	26.2	25.9	5.6	110.7	17.4
LOS	E	D	A	E	F	C	C	A	F	B
Approach Delay		37.2			85.7		10.0			100.6
Approach LOS		D			F		B			F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 70.4	Intersection LOS: E
Intersection Capacity Utilization 100.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	1386	17	194	2028	316	15	16	110	522	37	26
Future Volume (veh/h)	42	1386	17	194	2028	316	15	16	110	522	37	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	43	1414	14	198	2069	288	15	16	52	533	38	22
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	56	1925	597	226	2171	297	527	688	583	546	409	237
Arrive On Green	0.03	0.37	0.37	0.13	0.47	0.47	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1714	5187	1608	1714	4613	631	1364	1900	1609	1353	1129	654
Grp Volume(v), veh/h	43	1414	14	198	1542	815	15	16	52	533	0	60
Grp Sat Flow(s),veh/h/ln	1714	1729	1608	1714	1729	1786	1364	1900	1609	1353	0	1782
Q Serve(g_s), s	2.8	26.9	0.6	13.0	48.7	50.8	0.8	0.6	2.4	40.8	0.0	2.5
Cycle Q Clear(g_c), s	2.8	26.9	0.6	13.0	48.7	50.8	3.4	0.6	2.4	41.4	0.0	2.5
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		0.37
Lane Grp Cap(c), veh/h	56	1925	597	226	1627	841	527	688	583	546	0	645
V/C Ratio(X)	0.77	0.73	0.02	0.87	0.95	0.97	0.03	0.02	0.09	0.98	0.00	0.09
Avail Cap(c_a), veh/h	141	1925	597	366	1627	841	527	688	583	546	0	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	31.1	22.8	48.7	28.9	29.5	25.2	23.5	24.0	38.7	0.0	24.1
Incr Delay (d2), s/veh	8.0	2.5	0.1	7.6	12.9	24.5	0.0	0.0	0.1	32.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	10.9	0.2	5.8	21.1	25.2	0.3	0.3	1.0	20.4	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.9	33.6	22.9	56.3	41.8	53.9	25.2	23.5	24.1	71.2	0.0	24.1
LnGrp LOS	E	C	C	E	D	D	C	C	C	E	A	C
Approach Vol, veh/h		1471			2555			83			593	
Approach Delay, s/veh		34.4			46.8			24.2			66.5	
Approach LOS		C			D			C			E	

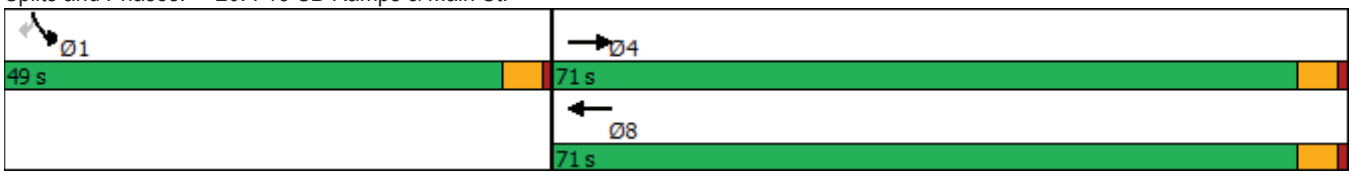
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.7	48.6		46.0	8.3	60.0		46.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	24.4	38.8		41.4	9.4	53.8		41.4				
Max Q Clear Time (g_c+I1), s	15.0	28.9		43.4	4.8	52.8		5.4				
Green Ext Time (p_c), s	0.2	5.9		0.0	0.0	1.0		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		45.0	
HCM 6th LOS		D	

Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1477	113	1696	23	434	732
Future Volume (vph)	1477	113	1696	23	434	732
Turn Type	NA	Free	NA	Free	Prot	Perm
Protected Phases	4		8		1	
Permitted Phases		Free		Free		1
Detector Phase	4		8		1	1
Switch Phase						
Minimum Initial (s)	5.0		5.0		5.0	5.0
Minimum Split (s)	9.6		22.6		9.6	9.6
Total Split (s)	71.0		71.0		49.0	49.0
Total Split (%)	59.2%		59.2%		40.8%	40.8%
Yellow Time (s)	3.6		3.6		3.6	3.6
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0
Total Lost Time (s)	4.6		4.6		4.6	4.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		None		None	None
Act Effct Green (s)	46.2	100.2	46.2	100.2	44.7	44.7
Actuated g/C Ratio	0.46	1.00	0.46	1.00	0.45	0.45
v/c Ratio	0.65	0.07	0.75	0.01	0.29	1.06
Control Delay	21.8	0.1	24.0	0.0	19.7	78.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	0.1	24.0	0.0	19.7	78.9
LOS	C	A	C	A	B	E
Approach Delay	20.3		23.7			
Approach LOS	C		C			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.2	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	1477	113	0	1696	23	0	0	0	434	0	732
Future Volume (veh/h)	0	1477	113	0	1696	23	0	0	0	434	0	732
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	1555	0	0	1785	0				457	0	690
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2418		0	2418					1551	0	711
Arrive On Green	0.00	0.47	0.00	0.00	0.47	0.00				0.44	0.00	0.44
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	1555	0	0	1785	0				457	0	690
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	22.8	0.0	0.0	28.0	0.0				8.4	0.0	41.8
Cycle Q Clear(g_c), s	0.0	22.8	0.0	0.0	28.0	0.0				8.4	0.0	41.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2418		0	2418					1551	0	711
V/C Ratio(X)	0.00	0.64		0.00	0.74					0.29	0.00	0.97
Avail Cap(c_a), veh/h	0	3445		0	3445					1559	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.3	0.0	0.0	21.7	0.0				17.9	0.0	27.3
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.5	0.0				0.1	0.0	26.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.2	0.0	0.0	10.1	0.0				3.4	0.0	20.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	20.6	0.0	0.0	22.2	0.0				18.0	0.0	53.5
LnGrp LOS	A	C		A	C					B	A	D
Approach Vol, veh/h		1555	A		1785	A					1147	
Approach Delay, s/veh		20.6			22.2						39.4	
Approach LOS		C			C						D	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				51.2		48.8		51.2				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				66.4		44.4		66.4				
Max Q Clear Time (g_c+I1), s				24.8		43.8		30.0				
Green Ext Time (p_c), s				14.1		0.3		16.6				

Intersection Summary												
HCM 6th Ctrl Delay			26.1									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	1425	485	1827	670	625	8	547
Future Volume (vph)	1425	485	1827	670	625	8	547
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	78.0	78.0	78.0	78.0	42.0	42.0	42.0
Total Split (%)	65.0%	65.0%	65.0%	65.0%	35.0%	35.0%	35.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	61.6	61.6	61.6	61.6	37.8	37.8	37.8
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.35	0.35	0.35
v/c Ratio	0.50	0.44	0.63	0.56	1.02	0.50	0.51
Control Delay	14.5	2.2	16.7	2.7	77.5	29.1	29.4
Queue Delay	0.0	0.0	0.6	0.6	0.0	0.0	0.0
Total Delay	14.5	2.2	17.3	3.3	77.5	29.1	29.4
LOS	B	A	B	A	E	C	C
Approach Delay	11.3		13.5			54.8	
Approach LOS	B		B			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.7	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 21.5	Intersection LOS: C
Intersection Capacity Utilization 77.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	1425	485	0	1827	670	625	8	547	0	0	0
Future Volume (veh/h)	0	1425	485	0	1827	670	625	8	547	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	1454	0	0	1864	652	638	0	353			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2861		0	2861	888	651	0	1159			
Arrive On Green	0.00	0.55	0.00	0.00	0.55	0.55	0.36	0.00	0.36			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	1454	0	0	1864	652	638	0	353			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	18.2	0.0	0.0	26.1	31.7	36.2	0.0	8.2			
Cycle Q Clear(g_c), s	0.0	18.2	0.0	0.0	26.1	31.7	36.2	0.0	8.2			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2861		0	2861	888	651	0	1159			
V/C Ratio(X)	0.00	0.51		0.00	0.65	0.73	0.98	0.00	0.30			
Avail Cap(c_a), veh/h	0	3663		0	3663	1137	651	0	1159			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	14.5	0.0	0.0	16.3	17.6	32.9	0.0	23.9			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.3	1.8	30.1	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	6.2	0.0	0.0	8.9	10.5	21.0	0.0	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.7	0.0	0.0	16.6	19.4	63.0	0.0	24.1			
LnGrp LOS	A	B		A	B	B	E	A	C			
Approach Vol, veh/h		1454	A		2516			991				
Approach Delay, s/veh		14.7			17.3			49.1				
Approach LOS		B			B			D				

Timer - Assigned Phs	2			6		8			
Phs Duration (G+Y+Rc), s	61.9			61.9		42.0			
Change Period (Y+Rc), s	4.6			4.6		4.6			
Max Green Setting (Gmax), s	73.4			73.4		37.4			
Max Q Clear Time (g_c+I1), s	20.2			33.7		38.2			
Green Ext Time (p_c), s	13.3			23.6		0.0			

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

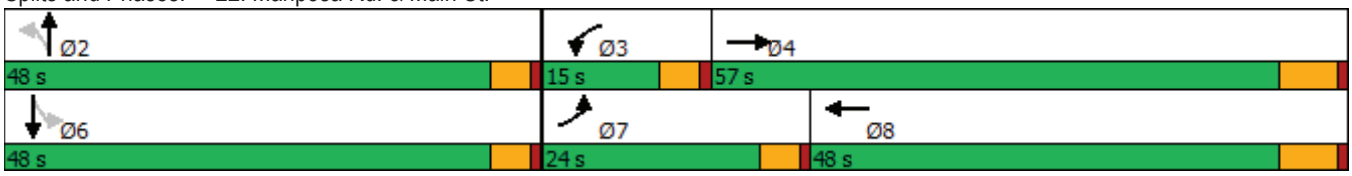
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	179	1653	61	2149	105	55	49	68
Future Volume (vph)	179	1653	61	2149	105	55	49	68
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	24.0	57.0	15.0	48.0	48.0	48.0	48.0	48.0
Total Split (%)	20.0%	47.5%	12.5%	40.0%	40.0%	40.0%	40.0%	40.0%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	14.7	51.3	10.5	47.1	21.6	21.6	21.6	21.6
Actuated g/C Ratio	0.15	0.52	0.11	0.48	0.22	0.22	0.22	0.22
v/c Ratio	0.76	0.57	0.36	0.76	1.28	0.27	0.20	0.67
Control Delay	60.8	18.4	51.0	25.8	225.0	20.8	31.6	23.3
Queue Delay	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	19.0	51.0	25.8	225.0	20.8	31.6	23.3
LOS	E	B	D	C	F	C	C	C
Approach Delay		22.8		26.5		123.3		24.4
Approach LOS		C		C		F		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.28	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	179	1653	140	61	2149	40	105	55	49	49	68	242
Future Volume (veh/h)	179	1653	140	61	2149	40	105	55	49	49	68	242
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	192	1777	138	66	2311	42	113	59	31	53	73	177
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	223	3085	240	174	3107	56	212	297	156	354	125	302
Arrive On Green	0.13	0.50	0.50	0.10	0.47	0.47	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1714	6231	484	1714	6659	121	1148	1173	616	1327	492	1193
Grp Volume(v), veh/h	192	1398	517	66	1701	652	113	0	90	53	0	250
Grp Sat Flow(s),veh/h/ln	1714	1634	1813	1714	1634	1878	1148	0	1789	1327	0	1685
Q Serve(g_s), s	11.3	20.7	20.7	3.7	29.1	29.1	9.8	0.0	4.1	3.4	0.0	13.3
Cycle Q Clear(g_c), s	11.3	20.7	20.7	3.7	29.1	29.1	23.2	0.0	4.1	7.4	0.0	13.3
Prop In Lane	1.00		0.27	1.00		0.06	1.00		0.34	1.00		0.71
Lane Grp Cap(c), veh/h	223	2427	898	174	2287	876	212	0	454	354	0	427
V/C Ratio(X)	0.86	0.58	0.58	0.38	0.74	0.74	0.53	0.00	0.20	0.15	0.00	0.59
Avail Cap(c_a), veh/h	324	2427	898	174	2287	876	406	0	757	579	0	713
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	18.3	18.3	43.1	22.4	22.4	43.7	0.0	30.1	33.0	0.0	33.6
Incr Delay (d2), s/veh	10.8	1.0	2.7	6.2	1.4	3.5	2.1	0.0	0.2	0.2	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	7.1	8.3	1.8	10.2	12.3	2.9	0.0	1.8	1.1	0.0	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.5	19.3	21.0	49.3	23.7	25.8	45.8	0.0	30.3	33.2	0.0	34.8
LnGrp LOS	D	B	C	D	C	C	D	A	C	C	A	C
Approach Vol, veh/h		2107			2419			203			303	
Approach Delay, s/veh		22.9			25.0			38.9			34.6	
Approach LOS		C			C			D			C	

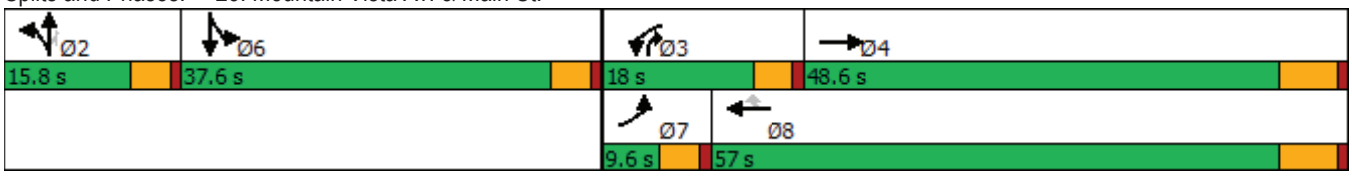
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.6	15.0	57.0		30.6	17.9	54.1				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		43.4	10.4	50.8		43.4	19.4	41.8				
Max Q Clear Time (g_c+I1), s		25.2	5.7	22.7		15.3	13.3	31.1				
Green Ext Time (p_c), s		0.8	0.0	14.9		1.9	0.1	8.8				

Intersection Summary	
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	22	1519	101	2104	81	22	1	41	69	3
Future Volume (vph)	22	1519	101	2104	81	22	1	41	69	3
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	48.6	18.0	57.0	57.0	15.8	15.8	18.0	37.6	37.6
Total Split (%)	8.0%	40.5%	15.0%	47.5%	47.5%	13.2%	13.2%	15.0%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.2	51.5	9.6	60.1	60.1	10.4	10.4	12.9	13.8	13.8
Actuated g/C Ratio	0.06	0.59	0.11	0.68	0.68	0.12	0.12	0.15	0.16	0.16
v/c Ratio	0.12	0.42	0.56	0.61	0.08	0.06	0.03	0.09	0.17	0.16
Control Delay	48.2	16.5	52.7	15.3	3.1	44.2	43.2	1.9	35.6	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	16.5	52.7	15.3	3.1	44.2	43.2	1.9	35.6	27.1
LOS	D	B	D	B	A	D	D	A	D	C
Approach Delay		17.0		16.6			17.1			31.4
Approach LOS		B		B			B			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 88	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 67.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1519	29	101	2104	81	22	1	41	69	3	13
Future Volume (veh/h)	22	1519	29	101	2104	81	22	1	41	69	3	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1800
Adj Flow Rate, veh/h	23	1566	29	104	2169	81	23	1	22	80	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	77	3468	64	131	2972	922	262	145	492	345	191	0
Arrive On Green	0.02	0.52	0.52	0.08	0.57	0.57	0.08	0.08	0.08	0.10	0.00	0.00
Sat Flow, veh/h	3141	6656	123	1714	5187	1609	3429	1900	3220	3429	1900	0
Grp Volume(v), veh/h	23	1153	442	104	2169	81	23	1	22	80	0	0
Grp Sat Flow(s),veh/h/ln	1570	1634	1878	1714	1729	1609	1714	1900	1610	1714	1900	0
Q Serve(g_s), s	0.6	13.1	13.1	5.3	27.2	2.0	0.6	0.0	0.5	1.9	0.0	0.0
Cycle Q Clear(g_c), s	0.6	13.1	13.1	5.3	27.2	2.0	0.6	0.0	0.5	1.9	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	77	2554	978	131	2972	922	262	145	492	345	191	0
V/C Ratio(X)	0.30	0.45	0.45	0.79	0.73	0.09	0.09	0.01	0.04	0.23	0.00	0.00
Avail Cap(c_a), veh/h	177	2554	978	259	2972	922	433	240	653	1276	707	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	42.5	13.3	13.3	40.3	13.9	8.5	38.1	37.8	32.0	36.7	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.6	1.5	4.1	1.6	0.2	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	4.2	5.0	2.2	8.8	0.6	0.2	0.0	0.2	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	13.9	14.8	44.3	15.5	8.7	38.2	37.8	32.1	37.1	0.0	0.0
LnGrp LOS	D	B	B	D	B	A	D	D	C	D	A	A
Approach Vol, veh/h		1618			2354			46			80	
Approach Delay, s/veh		14.5			16.5			35.3			37.1	
Approach LOS		B			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.4	11.4	52.4		13.5	6.8	57.0				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		11.2	13.4	42.4		33.0	5.0	50.8				
Max Q Clear Time (g_c+I1), s		2.6	7.3	15.1		3.9	2.6	29.2				
Green Ext Time (p_c), s		0.1	0.0	11.6		0.2	0.0	15.7				

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

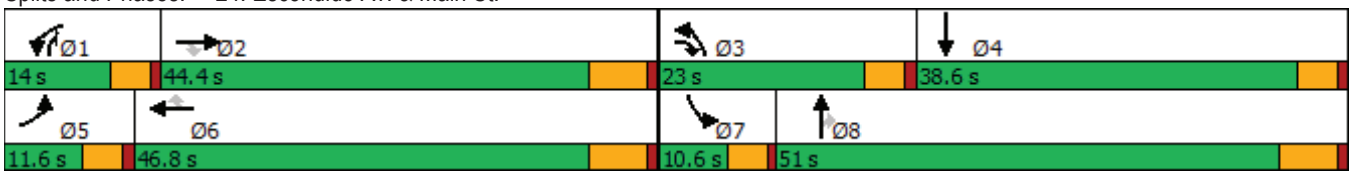
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	6	1112	511	359	1420	4	848	30	379	1	4
Future Volume (vph)	6	1112	511	359	1420	4	848	30	379	1	4
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	44.4	23.0	14.0	46.8	46.8	23.0	51.0	14.0	10.6	38.6
Total Split (%)	9.7%	37.0%	19.2%	11.7%	39.0%	39.0%	19.2%	42.5%	11.7%	8.8%	32.2%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	5.3	29.5	54.5	9.6	42.1	42.1	18.7	34.0	49.9	5.1	13.7
Actuated g/C Ratio	0.06	0.32	0.59	0.10	0.46	0.46	0.20	0.37	0.54	0.06	0.15
v/c Ratio	0.06	0.69	0.45	1.13	0.89	0.00	1.37	0.04	0.41	0.01	0.08
Control Delay	48.2	30.3	2.4	131.2	32.0	0.0	206.8	20.5	9.4	49.0	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	30.3	2.4	131.2	32.0	0.0	206.8	20.5	9.4	49.0	17.1
LOS	D	C	A	F	C	A	F	C	A	D	B
Approach Delay		21.6			51.9			142.8			18.5
Approach LOS		C			D			F			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 91.9	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.37	
Intersection Signal Delay: 65.6	Intersection LOS: E
Intersection Capacity Utilization 91.3%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1112	511	359	1420	4	848	30	379	1	4	17
Future Volume (veh/h)	6	1112	511	359	1420	4	848	30	379	1	4	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	6	1146	413	370	1464	4	874	31	229	1	4	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	1773	879	327	1582	706	640	595	672	2	35	149
Arrive On Green	0.01	0.34	0.34	0.10	0.44	0.44	0.20	0.31	0.31	0.00	0.11	0.11
Sat Flow, veh/h	1714	5187	1610	3141	3610	1610	3141	1900	1610	1714	316	1342
Grp Volume(v), veh/h	6	1146	413	370	1464	4	874	31	229	1	0	21
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1570	1805	1610	1570	1900	1610	1714	0	1658
Q Serve(g_s), s	0.3	16.8	14.1	9.4	34.6	0.1	18.4	1.0	8.7	0.1	0.0	1.0
Cycle Q Clear(g_c), s	0.3	16.8	14.1	9.4	34.6	0.1	18.4	1.0	8.7	0.1	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	13	1773	879	327	1582	706	640	595	672	2	0	184
V/C Ratio(X)	0.45	0.65	0.47	1.13	0.93	0.01	1.36	0.05	0.34	0.43	0.00	0.11
Avail Cap(c_a), veh/h	133	2196	1010	327	1624	724	640	943	967	114	0	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	25.1	12.5	40.4	24.0	14.3	35.9	21.6	17.8	45.0	0.0	36.1
Incr Delay (d2), s/veh	8.7	0.5	0.4	90.0	9.3	0.0	174.1	0.0	0.3	39.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.3	4.9	7.5	14.7	0.0	22.4	0.5	3.2	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	25.6	12.9	130.4	33.3	14.3	210.0	21.7	18.1	84.5	0.0	36.4
LnGrp LOS	D	C	B	F	C	B	F	C	B	F	A	D
Approach Vol, veh/h		1565			1838			1134			22	
Approach Delay, s/veh		22.3			52.8			166.1			38.6	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	37.0	23.0	16.2	5.3	45.7	4.7	34.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	38.2	18.4	* 34	7.0	40.6	6.0	44.8
Max Q Clear Time (g_c+I1), s	11.4	18.8	20.4	3.0	2.3	36.6	2.1	10.7
Green Ext Time (p_c), s	0.0	8.8	0.0	0.1	0.0	3.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	70.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	6.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	310	1138	45	125	696
Future Vol, veh/h	33	310	1138	45	125	696
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	36	337	1237	49	136	757

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1913	643	0	0	1286	0
Stage 1	1262	-	-	-	-	-
Stage 2	651	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	61	421	-	-	546	-
Stage 1	234	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	46	421	-	-	546	-
Mov Cap-2 Maneuver	150	-	-	-	-	-
Stage 1	234	-	-	-	-	-
Stage 2	365	-	-	-	-	-

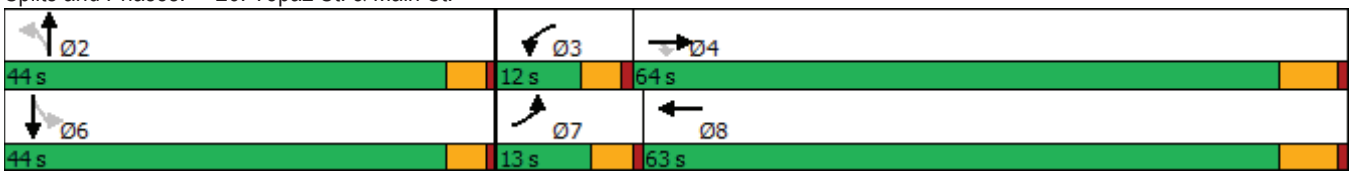
Approach	WB	NB	SB
HCM Control Delay, s	39.7	0	2.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	150	421	546	-
HCM Lane V/C Ratio	-	-	0.239	0.8	0.249	-
HCM Control Delay (s)	-	-	36.4	40	13.8	-
HCM Lane LOS	-	-	E	E	B	-
HCM 95th %tile Q(veh)	-	-	0.9	7.2	1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	61	1361	117	45	1388	250	113	134	87
Future Volume (vph)	61	1361	117	45	1388	250	113	134	87
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.5	53.2	53.2	7.5	55.8	35.7	35.7	35.7	35.7
Actuated g/C Ratio	0.07	0.47	0.47	0.07	0.50	0.32	0.32	0.32	0.32
v/c Ratio	0.58	0.86	0.16	0.43	0.93	0.92	0.36	0.48	0.37
Control Delay	74.8	32.9	5.4	66.2	38.5	74.4	27.4	38.2	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	32.9	5.4	66.2	38.5	74.4	27.4	38.2	23.9
LOS	E	C	A	E	D	E	C	D	C
Approach Delay		32.5			39.3		53.9		29.7
Approach LOS		C			D		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 112.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 37.4	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1361	117	45	1388	131	250	113	81	134	87	113
Future Volume (veh/h)	61	1361	117	45	1388	131	250	113	81	134	87	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	66	1479	114	49	1509	139	272	123	70	146	95	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	84	1717	750	116	1653	151	365	359	205	347	309	247
Arrive On Green	0.05	0.48	0.48	0.07	0.49	0.49	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	1714	3610	1577	1714	3344	306	1233	1135	646	1207	977	782
Grp Volume(v), veh/h	66	1479	114	49	809	839	272	0	193	146	0	171
Grp Sat Flow(s),veh/h/ln	1714	1805	1577	1714	1805	1845	1233	0	1782	1207	0	1759
Q Serve(g_s), s	4.2	39.9	4.5	3.0	45.1	46.3	23.5	0.0	9.1	11.6	0.0	8.1
Cycle Q Clear(g_c), s	4.2	39.9	4.5	3.0	45.1	46.3	31.6	0.0	9.1	20.7	0.0	8.1
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.36	1.00		0.44
Lane Grp Cap(c), veh/h	84	1717	750	116	892	912	365	0	564	347	0	557
V/C Ratio(X)	0.79	0.86	0.15	0.42	0.91	0.92	0.74	0.00	0.34	0.42	0.00	0.31
Avail Cap(c_a), veh/h	131	1901	830	116	934	955	418	0	640	399	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.6	25.5	16.3	49.1	25.4	25.7	40.4	0.0	28.7	36.7	0.0	28.4
Incr Delay (d2), s/veh	6.4	4.0	0.1	11.0	12.1	13.4	6.2	0.0	0.4	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	16.2	1.5	1.6	20.0	21.3	7.7	0.0	4.0	3.5	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	29.5	16.3	60.1	37.5	39.1	46.5	0.0	29.1	37.5	0.0	28.7
LnGrp LOS	E	C	B	E	D	D	D	A	C	D	A	C
Approach Vol, veh/h		1659			1697			465			317	
Approach Delay, s/veh		29.8			38.9			39.3			32.7	
Approach LOS		C			D			D			C	

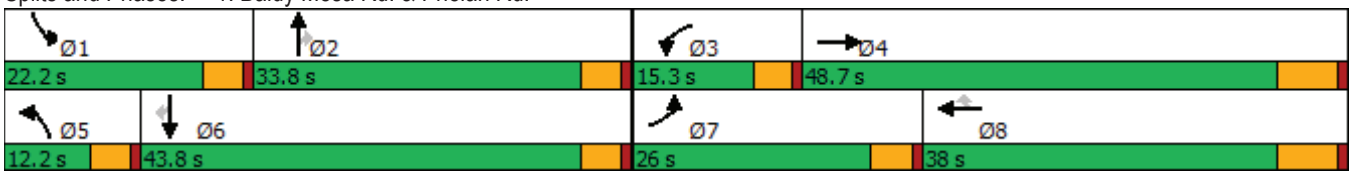
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		39.3	12.0	58.4		39.3	10.0	60.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		33.6	5.0	41.9		22.7	6.2	48.3				
Green Ext Time (p_c), s		1.1	0.0	9.2		1.4	0.0	6.0				

Intersection Summary												
HCM 6th Ctrl Delay			34.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	213	767	98	827	226	53	41	41	171	52	190
Future Volume (vph)	213	767	98	827	226	53	41	41	171	52	190
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	30.5	9.6	37.5	37.5	9.6	31.6	31.6	9.6	40.6	40.6
Total Split (s)	26.0	48.7	15.3	38.0	38.0	12.2	33.8	33.8	22.2	43.8	43.8
Total Split (%)	21.7%	40.6%	12.8%	31.7%	31.7%	10.2%	28.2%	28.2%	18.5%	36.5%	36.5%
Yellow Time (s)	3.6	5.5	3.6	5.5	5.5	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.5	6.5	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	16.8	43.2	9.5	35.8	35.8	6.8	13.0	13.0	14.6	19.5	19.5
Actuated g/C Ratio	0.17	0.44	0.10	0.37	0.37	0.07	0.13	0.13	0.15	0.20	0.20
v/c Ratio	0.78	0.55	0.63	0.67	0.35	0.47	0.17	0.11	0.72	0.15	0.42
Control Delay	58.4	24.1	63.2	32.3	10.2	61.3	40.8	0.6	57.9	32.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	24.1	63.2	32.3	10.2	61.3	40.8	0.6	57.9	32.8	7.2
LOS	E	C	E	C	B	E	D	A	E	C	A
Approach Delay		31.2		30.6			36.7			31.5	
Approach LOS		C		C			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 97.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 68.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Baldy Mesa Rd. & Phelan Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	767	52	98	827	226	53	41	41	171	52	190
Future Volume (veh/h)	213	767	52	98	827	226	53	41	41	171	52	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	229	825	47	105	889	203	57	44	33	184	56	142
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	263	1589	91	140	1394	618	72	215	181	218	376	319
Arrive On Green	0.15	0.46	0.46	0.08	0.39	0.39	0.04	0.11	0.11	0.13	0.20	0.20
Sat Flow, veh/h	1714	3472	198	1714	3610	1600	1714	1900	1596	1714	1900	1610
Grp Volume(v), veh/h	229	429	443	105	889	203	57	44	33	184	56	142
Grp Sat Flow(s),veh/h/ln	1714	1805	1864	1714	1805	1600	1714	1900	1596	1714	1900	1610
Q Serve(g_s), s	12.0	15.6	15.6	5.5	18.5	8.2	3.0	1.9	1.7	9.7	2.2	7.2
Cycle Q Clear(g_c), s	12.0	15.6	15.6	5.5	18.5	8.2	3.0	1.9	1.7	9.7	2.2	7.2
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	826	853	140	1394	618	72	215	181	218	376	319
V/C Ratio(X)	0.87	0.52	0.52	0.75	0.64	0.33	0.79	0.20	0.18	0.85	0.15	0.45
Avail Cap(c_a), veh/h	398	826	853	199	1394	618	141	602	505	327	808	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	17.8	17.8	41.4	23.1	19.9	43.8	37.1	37.0	39.4	30.5	32.5
Incr Delay (d2), s/veh	8.7	2.3	2.3	4.8	2.2	1.4	7.1	0.5	0.5	7.9	0.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	6.1	6.3	2.4	7.4	3.0	1.4	0.9	0.7	4.5	1.1	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	20.1	20.0	46.2	25.3	21.3	50.8	37.6	37.5	47.3	30.7	33.5
LnGrp LOS	D	C	C	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		1101			1197			134			382	
Approach Delay, s/veh		25.6			26.5			43.2			39.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.3	15.0	12.2	48.7	8.5	22.9	18.8	42.1
Change Period (Y+Rc), s	4.6	4.6	4.6	6.5	4.6	4.6	4.6	6.5
Max Green Setting (Gmax), s	17.6	29.2	10.7	42.2	7.6	39.2	21.4	31.5
Max Q Clear Time (g_c+I1), s	11.7	3.9	7.5	17.6	5.0	9.2	14.0	20.5
Green Ext Time (p_c), s	0.1	0.3	0.0	4.8	0.0	0.8	0.2	4.5

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	953	6	40	1168	15	4	0	20	10	0	4
Future Vol, veh/h	6	953	6	40	1168	15	4	0	20	10	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	105	110	-	110	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	6	1003	6	42	1229	16	4	0	21	11	0	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1245	0	0	1009	0	0	2338	2344	1003	2342	2334	1229
Stage 1	-	-	-	-	-	-	1015	1015	-	1313	1313	-
Stage 2	-	-	-	-	-	-	1323	1329	-	1029	1021	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	566	-	-	695	-	-	26	37	297	26	37	219
Stage 1	-	-	-	-	-	-	290	318	-	197	230	-
Stage 2	-	-	-	-	-	-	194	226	-	285	316	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	566	-	-	695	-	-	24	34	297	23	34	219
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	128	-	105	125	-
Stage 1	-	-	-	-	-	-	287	315	-	195	216	-
Stage 2	-	-	-	-	-	-	179	212	-	262	313	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.3	22.5	38.2
HCM LOS			C	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	231	566	-	-	695	-	-	123
HCM Lane V/C Ratio	0.109	0.011	-	-	0.061	-	-	0.12
HCM Control Delay (s)	22.5	11.4	-	-	10.5	-	-	38.2
HCM Lane LOS	C	B	-	-	B	-	-	E
HCM 95th %tile Q(veh)	0.4	0	-	-	0.2	-	-	0.4

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1024	3	6	1365	8	6
Future Vol, veh/h	1024	3	6	1365	8	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	110	-	0	-
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1067	3	6	1422	8	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1070	0	2503	1069
Stage 1	-	-	-	-	1069	-
Stage 2	-	-	-	-	1434	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	659	-	32	272
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	222	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	659	-	32	272
Mov Cap-2 Maneuver	-	-	-	-	135	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	220	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	27.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	172	-	-	659	-
HCM Lane V/C Ratio	0.085	-	-	0.009	-
HCM Control Delay (s)	27.9	-	-	10.5	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑	↱	↰	
Traffic Vol, veh/h	0	1031	1329	82	65	42
Future Vol, veh/h	0	1031	1329	82	65	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	0	0	-
Veh in Median Storage, #	-	0	0	-	2	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1121	1445	89	71	46

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	2566	723
Stage 1	-	-	-	-	1445	-
Stage 2	-	-	-	-	1121	-
Critical Hdwy	-	-	-	-	5.5	6
Critical Hdwy Stg 1	-	-	-	-	5.5	-
Critical Hdwy Stg 2	-	-	-	-	5.5	-
Follow-up Hdwy	-	-	-	-	3	3
Pot Cap-1 Maneuver	0	-	-	-	~ 58	479
Stage 1	0	-	-	-	227	-
Stage 2	0	-	-	-	333	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	~ 58	479
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	227	-
Stage 2	-	-	-	-	333	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32.5
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	244
HCM Lane V/C Ratio	-	-	-	0.477
HCM Control Delay (s)	-	-	-	32.5
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	0	32	17	0	236
Future Vol, veh/h	10	0	32	17	0	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	0	35	18	0	257

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	11	0	99	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1621	-	905	1076
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	940	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1621	-	885	1076
Mov Cap-2 Maneuver	-	-	-	-	885	-
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	919	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1076	-	-	1621	-
HCM Lane V/C Ratio	0.238	-	-	0.021	-
HCM Control Delay (s)	9.4	-	-	7.3	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	246	0	54	49	0	280
Future Vol, veh/h	246	0	54	49	0	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	267	0	59	53	0	304

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	267	0	438	267
Stage 1	-	-	-	-	267	-
Stage 2	-	-	-	-	171	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1308	-	580	777
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	864	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1308	-	554	777
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	825	-

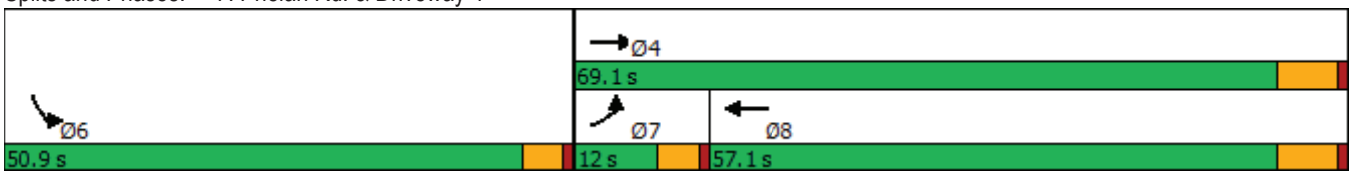
Approach	EB	WB	NB
HCM Control Delay, s	0	4.1	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	777	-	-	1308	-
HCM Lane V/C Ratio	0.392	-	-	0.045	-
HCM Control Delay (s)	12.6	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	-	-	0.1	-

Lane Group	EBL	EBT	WBT	SBL
Lane Configurations				
Traffic Volume (vph)	31	1055	1369	654
Future Volume (vph)	31	1055	1369	654
Turn Type	Prot	NA	NA	Prot
Protected Phases	7	4	8	6
Permitted Phases				
Detector Phase	7	4	8	6
Switch Phase				
Minimum Initial (s)	5.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	23.5	26.6
Total Split (s)	12.0	69.1	57.1	50.9
Total Split (%)	10.0%	57.6%	47.6%	42.4%
Yellow Time (s)	3.6	5.5	5.5	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	6.5	4.6
Lead/Lag	Lead		Lag	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None	Max	Max	None
Act Effct Green (s)	6.4	62.6	55.5	46.3
Actuated g/C Ratio	0.05	0.52	0.46	0.39
v/c Ratio	0.37	0.61	0.68	1.11
Control Delay	66.1	21.9	27.6	102.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	66.1	21.9	27.6	102.3
LOS	E	C	C	F
Approach Delay		23.1	27.6	102.3
Approach LOS		C	C	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 42.3	Intersection LOS: D
Intersection Capacity Utilization 77.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Phelan Rd. & Driveway 4





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	1055	1369	113	654	54
Future Volume (veh/h)	31	1055	1369	113	654	54
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	1147	1488	123	711	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	48	1883	2222	184	659	34
Arrive On Green	0.03	0.52	0.46	0.46	0.39	0.39
Sat Flow, veh/h	1714	3705	5053	403	1707	89
Grp Volume(v), veh/h	34	1147	1054	557	749	0
Grp Sat Flow(s),veh/h/ln	1714	1805	1729	1827	1799	0
Q Serve(g_s), s	2.4	26.7	28.7	28.7	46.3	0.0
Cycle Q Clear(g_c), s	2.4	26.7	28.7	28.7	46.3	0.0
Prop In Lane	1.00			0.22	0.95	0.05
Lane Grp Cap(c), veh/h	48	1883	1574	832	694	0
V/C Ratio(X)	0.70	0.61	0.67	0.67	1.08	0.00
Avail Cap(c_a), veh/h	106	1883	1574	832	694	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	57.8	20.1	25.6	25.6	36.9	0.0
Incr Delay (d2), s/veh	6.7	1.5	2.3	4.3	57.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	10.4	11.2	12.3	31.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	64.5	21.6	27.9	29.9	94.4	0.0
LnGrp LOS	E	C	C	C	F	A
Approach Vol, veh/h		1181	1611		749	
Approach Delay, s/veh		22.8	28.6		94.4	
Approach LOS		C	C		F	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	69.1	50.9	8.0	61.1
Change Period (Y+Rc), s	6.5	4.6	4.6	6.5
Max Green Setting (Gmax), s	62.6	46.3	7.4	50.6
Max Q Clear Time (g_c+I1), s	28.7	48.3	4.4	30.7
Green Ext Time (p_c), s	8.6	0.0	0.0	9.9

Intersection Summary	
HCM 6th Ctrl Delay	40.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	102	98	82	71	148	119	1907	131	302	1447	122
Future Volume (vph)	102	98	82	71	148	119	1907	131	302	1447	122
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4			8	5	2		1	6	
Permitted Phases	4		4	8				2			6
Detector Phase	4	4	4	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.0	37.0	37.0	37.0	37.0	9.8	44.5	44.5	23.4	58.0	58.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.08	0.37	0.37	0.20	0.48	0.48
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.48	0.20	0.89	0.86	0.15
Control Delay	175.7	31.4	4.9	32.0	43.5	95.4	251.9	7.2	74.8	33.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	32.0	43.5	95.4	251.9	7.2	74.8	33.8	3.3
LOS	F	C	A	C	D	F	F	A	E	C	A
Approach Delay		75.9			42.0		228.4			38.5	
Approach LOS		E			D		F			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.48	
Intersection Signal Delay: 125.7	Intersection LOS: F
Intersection Capacity Utilization 121.5%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	98	82	71	148	311	119	1907	131	302	1447	122
Future Volume (veh/h)	102	98	82	71	148	311	119	1907	131	302	1447	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	106	102	66	74	154	262	124	1986	111	315	1507	108
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	149	586	497	412	195	331	150	1362	608	342	1746	779
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.08	0.38	0.38	0.19	0.48	0.48
Sat Flow, veh/h	1040	1900	1610	1305	631	1074	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	106	102	66	74	0	416	124	1986	111	315	1507	108
Grp Sat Flow(s),veh/h/ln	1040	1900	1610	1305	0	1705	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	10.2	4.7	3.5	5.3	0.0	26.8	8.1	45.3	5.5	20.5	44.4	4.5
Cycle Q Clear(g_c), s	37.0	4.7	3.5	10.0	0.0	26.8	8.1	45.3	5.5	20.5	44.4	4.5
Prop In Lane	1.00		1.00	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	586	497	412	0	526	150	1362	608	342	1746	779
V/C Ratio(X)	0.71	0.17	0.13	0.18	0.00	0.79	0.83	1.46	0.18	0.92	0.86	0.14
Avail Cap(c_a), veh/h	149	586	497	412	0	526	151	1362	608	377	1746	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	30.3	29.9	33.9	0.0	37.9	54.2	37.3	25.0	47.7	27.4	17.1
Incr Delay (d2), s/veh	12.8	0.1	0.0	0.1	0.0	7.4	29.3	210.2	0.7	25.7	5.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.1	1.4	1.7	0.0	11.9	4.8	58.1	2.1	11.2	18.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	30.4	29.9	34.0	0.0	45.3	83.5	247.6	25.6	73.4	33.4	17.5
LnGrp LOS	E	C	C	C	A	D	F	F	C	E	C	B
Approach Vol, veh/h		274			490			2221			1930	
Approach Delay, s/veh		45.0			43.6			227.3			39.0	
Approach LOS		D			D			F			D	

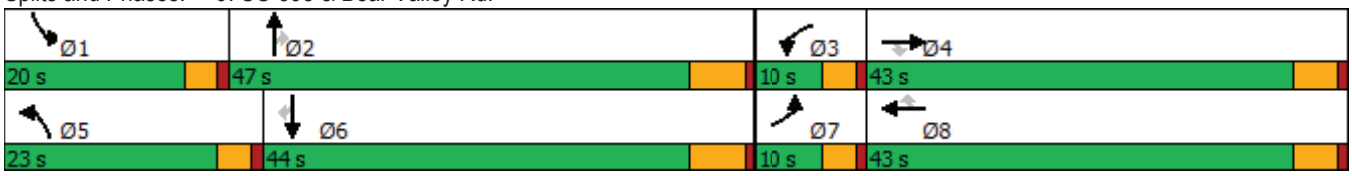
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.7	51.3		42.0	13.9	64.0		42.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	22.5	47.3		39.0	10.1	46.4		28.8				
Green Ext Time (p_c), s	0.2	0.0		0.0	0.0	6.4		1.2				

Intersection Summary												
HCM 6th Ctrl Delay			124.9									
HCM 6th LOS			F									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	440	188	156	510	209	406	1799	319	229	1337	95
Future Volume (vph)	111	440	188	156	510	209	406	1799	319	229	1337	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.0	21.7	21.7	6.0	21.7	21.7	19.1	41.3	41.3	16.1	38.2	38.2
Actuated g/C Ratio	0.06	0.21	0.21	0.06	0.21	0.21	0.18	0.40	0.40	0.15	0.37	0.37
v/c Ratio	1.12	0.62	0.40	1.58	0.72	0.44	1.29	1.33	0.45	0.87	1.06	0.16
Control Delay	171.6	40.6	6.9	333.2	43.5	7.0	188.2	180.4	12.9	73.5	76.4	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	171.6	40.6	6.9	333.2	43.5	7.0	188.2	180.4	12.9	73.5	76.4	7.4
LOS	F	D	A	F	D	A	F	F	B	E	E	A
Approach Delay		51.7			86.4			160.5			72.0	
Approach LOS		D			F			F			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 104.2	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.58	
Intersection Signal Delay: 110.1	Intersection LOS: F
Intersection Capacity Utilization 99.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	440	188	156	510	209	406	1799	319	229	1337	95
Future Volume (veh/h)	111	440	188	156	510	209	406	1799	319	229	1337	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	117	463	116	164	537	151	427	1894	275	241	1407	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	108	678	303	108	678	302	340	1494	666	272	1359	605
Arrive On Green	0.06	0.19	0.19	0.06	0.19	0.19	0.19	0.41	0.41	0.15	0.38	0.38
Sat Flow, veh/h	1810	3610	1610	1810	3610	1605	1810	3610	1610	1810	3610	1609
Grp Volume(v), veh/h	117	463	116	164	537	151	427	1894	275	241	1407	87
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1605	1810	1805	1610	1810	1805	1609
Q Serve(g_s), s	6.0	12.1	6.4	6.0	14.3	8.5	19.0	41.8	12.2	13.2	38.0	3.6
Cycle Q Clear(g_c), s	6.0	12.1	6.4	6.0	14.3	8.5	19.0	41.8	12.2	13.2	38.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	678	303	108	678	302	340	1494	666	272	1359	605
V/C Ratio(X)	1.09	0.68	0.38	1.53	0.79	0.50	1.25	1.27	0.41	0.88	1.04	0.14
Avail Cap(c_a), veh/h	108	1359	606	108	1359	604	340	1494	666	287	1359	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	38.2	35.9	47.5	39.1	36.8	41.0	29.6	20.9	42.0	31.5	20.8
Incr Delay (d2), s/veh	112.5	0.5	0.3	277.7	0.8	0.5	136.2	125.9	1.9	25.0	34.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	5.0	2.4	10.8	6.0	3.2	20.7	42.0	4.5	7.4	21.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.0	38.6	36.2	325.2	39.9	37.2	177.2	155.5	22.8	67.0	65.6	21.3
LnGrp LOS	F	D	D	F	D	D	F	F	C	E	F	C
Approach Vol, veh/h		696			852			2596			1735	
Approach Delay, s/veh		58.6			94.4			145.0			63.6	
Approach LOS		E			F			F			E	

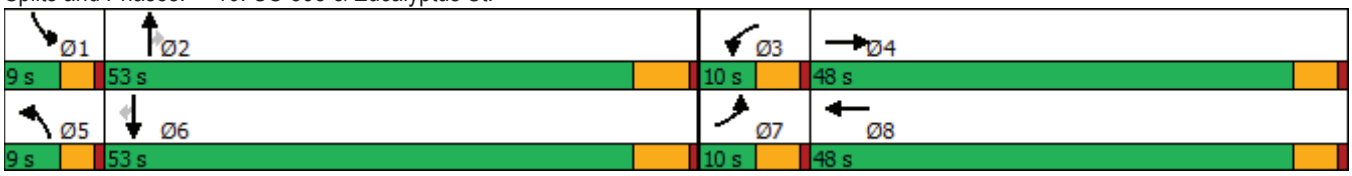
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.2	47.8	10.0	24.0	23.0	44.0	10.0	24.0
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	15.2	43.8	8.0	14.1	21.0	40.0	8.0	16.3
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	103.4
HCM 6th LOS	F

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	0	66	3	20	2533	137	16	1527	16
Future Volume (vph)	8	0	66	3	20	2533	137	16	1527	16
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.1	9.7	15.1	5.2	56.4	56.4	5.2	56.4	56.4
Actuated g/C Ratio	0.06	0.18	0.11	0.18	0.06	0.66	0.66	0.06	0.66	0.66
v/c Ratio	0.07	0.02	0.34	0.06	0.19	1.12	0.13	0.16	0.68	0.02
Control Delay	44.8	0.0	44.2	14.1	46.6	78.7	5.3	45.9	15.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	0.0	44.2	14.1	46.6	78.7	5.3	45.9	15.5	0.0
LOS	D	A	D	B	D	E	A	D	B	A
Approach Delay		25.6		38.2		74.7			15.7	
Approach LOS		C		D		E			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.6	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 52.7	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	6	66	3	13	20	2533	137	16	1527	16
Future Volume (veh/h)	8	0	6	66	3	13	20	2533	137	16	1527	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	0	3	69	3	6	21	2666	141	17	1607	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	18	0	107	90	60	120	42	2192	978	36	2178	972
Arrive On Green	0.01	0.00	0.07	0.05	0.11	0.11	0.02	0.61	0.61	0.02	0.60	0.60
Sat Flow, veh/h	1810	0	1610	1810	565	1131	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	8	0	3	69	0	9	21	2666	141	17	1607	16
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1696	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	0.3	0.0	0.1	2.9	0.0	0.4	0.9	47.3	2.9	0.7	24.8	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.1	2.9	0.0	0.4	0.9	47.3	2.9	0.7	24.8	0.3
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	0	107	90	0	180	42	2192	978	36	2178	972
V/C Ratio(X)	0.43	0.00	0.03	0.77	0.00	0.05	0.50	1.22	0.14	0.48	0.74	0.02
Avail Cap(c_a), veh/h	116	0	889	116	0	937	116	2192	978	116	2178	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	0.0	34.0	36.6	0.0	31.3	37.6	15.3	6.6	37.8	11.0	6.2
Incr Delay (d2), s/veh	5.8	0.0	0.1	14.6	0.0	0.1	3.3	101.8	0.3	3.6	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	1.6	0.0	0.2	0.4	43.5	0.9	0.4	9.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	0.0	34.1	51.1	0.0	31.4	40.9	117.1	6.9	41.4	13.3	6.2
LnGrp LOS	D	A	C	D	A	C	D	F	A	D	B	A
Approach Vol, veh/h		11			78			2828			1640	
Approach Delay, s/veh		41.4			48.8			111.0			13.5	
Approach LOS		D			D			F			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	53.3	8.9	10.2	5.8	53.0	5.8	13.3
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.7	49.3	4.9	2.1	2.9	26.8	2.3	2.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0

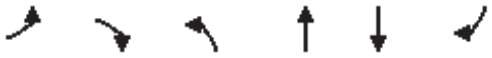
Intersection Summary	
HCM 6th Ctrl Delay	74.7
HCM 6th LOS	E

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	111	415	74	2789	2005
Future Volume (vph)	111	415	74	2789	2005
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	11.5	14.6	23.5
Total Split (s)	26.6	26.6	11.5	93.4	81.9
Total Split (%)	22.2%	22.2%	9.6%	77.8%	68.3%
Yellow Time (s)	3.6	3.6	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.5	4.6	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	22.0	22.0	5.0	88.8	75.4
Actuated g/C Ratio	0.18	0.18	0.04	0.74	0.63
v/c Ratio	0.35	1.20	1.03	2.07	1.78
Control Delay	46.3	150.1	167.9	500.9	375.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	150.1	167.9	500.9	375.8
LOS	D	F	F	F	F
Approach Delay	128.1			492.3	375.8
Approach LOS	F			F	F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.07	
Intersection Signal Delay: 413.3	Intersection LOS: F
Intersection Capacity Utilization 162.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	415	74	2789	2005	29
Future Volume (veh/h)	111	415	74	2789	2005	29
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	116	432	77	2905	2089	30
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	327	291	74	1384	1185	17
Arrive On Green	0.18	0.18	0.04	0.73	0.63	0.63
Sat Flow, veh/h	1810	1610	1810	1900	1868	27
Grp Volume(v), veh/h	116	432	77	2905	0	2119
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1900	0	1895
Q Serve(g_s), s	6.8	22.0	5.0	88.8	0.0	77.3
Cycle Q Clear(g_c), s	6.8	22.0	5.0	88.8	0.0	77.3
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	327	291	74	1384	0	1202
V/C Ratio(X)	0.36	1.49	1.04	2.10	0.00	1.76
Avail Cap(c_a), veh/h	327	291	74	1384	0	1202
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.7	50.0	58.5	16.5	0.0	22.3
Incr Delay (d2), s/veh	0.7	236.5	115.2	497.0	0.0	346.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	37.0	4.6	217.5	0.0	143.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.4	286.4	173.6	513.5	0.0	369.2
LnGrp LOS	D	F	F	F	A	F
Approach Vol, veh/h	548			2982	2119	
Approach Delay, s/veh	235.2			504.7	369.2	
Approach LOS	F			F	F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.3		26.6	11.5	83.8
Change Period (Y+Rc), s		* 6.5		4.6	6.5	6.5
Max Green Setting (Gmax), s		* 89		22.0	5.0	75.4
Max Q Clear Time (g_c+I1), s		90.8		24.0	7.0	79.3
Green Ext Time (p_c), s		0.0		0.0	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		427.7
HCM 6th LOS		F

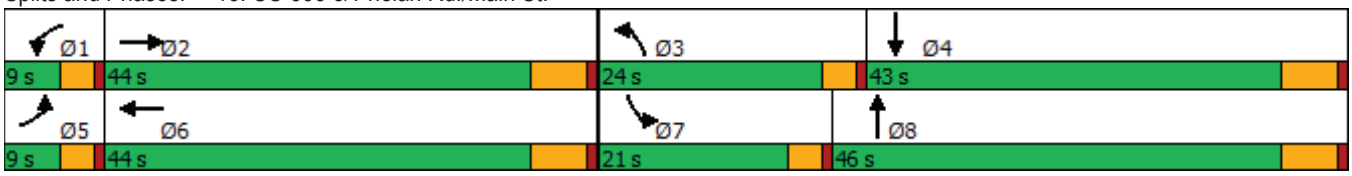
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	99	1399	27	1077	296	2387	707	1635
Future Volume (vph)	99	1399	27	1077	296	2387	707	1635
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	3	8	7	4
Permitted Phases								
Detector Phase	5	2	1	6	3	8	7	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	9.0	16.0	9.0	16.0	9.0	16.0	9.0	16.0
Total Split (s)	9.0	44.0	9.0	44.0	24.0	46.0	21.0	43.0
Total Split (%)	7.5%	36.7%	7.5%	36.7%	20.0%	38.3%	17.5%	35.8%
Yellow Time (s)	3.0	5.0	3.0	5.0	3.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	41.6	5.0	38.0	20.0	40.0	17.0	37.0
Actuated g/C Ratio	0.04	0.35	0.04	0.32	0.17	0.33	0.14	0.31
v/c Ratio	1.39	1.38	0.37	1.38	1.04	2.49	2.92	1.66
Control Delay	279.2	206.4	70.2	210.1	111.5	694.7	893.1	329.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	206.4	70.2	210.1	111.5	694.7	893.1	329.7
LOS	F	F	E	F	F	F	F	F
Approach Delay		210.6		207.6		639.0		492.2
Approach LOS		F		F		F		F

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.92	
Intersection Signal Delay: 440.5	Intersection LOS: F
Intersection Capacity Utilization 184.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Future Volume (veh/h)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	104	1473	193	28	1134	341	312	2513	438	744	1721	100
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	75	1068	138	46	869	258	302	1029	174	256	1070	62
Arrive On Green	0.04	0.33	0.33	0.03	0.32	0.32	0.17	0.33	0.33	0.14	0.31	0.31
Sat Flow, veh/h	1810	3205	415	1810	2744	814	1810	3088	523	1810	3469	200
Grp Volume(v), veh/h	104	821	845	28	741	734	312	1438	1513	744	889	932
Grp Sat Flow(s),veh/h/ln	1810	1805	1815	1810	1805	1753	1810	1805	1806	1810	1805	1864
Q Serve(g_s), s	5.0	40.0	40.0	1.8	38.0	38.0	20.0	40.0	40.0	17.0	37.0	37.0
Cycle Q Clear(g_c), s	5.0	40.0	40.0	1.8	38.0	38.0	20.0	40.0	40.0	17.0	37.0	37.0
Prop In Lane	1.00		0.23	1.00		0.46	1.00		0.29	1.00		0.11
Lane Grp Cap(c), veh/h	75	601	604	46	572	555	302	602	602	256	557	575
V/C Ratio(X)	1.38	1.37	1.40	0.61	1.30	1.32	1.03	2.39	2.51	2.90	1.60	1.62
Avail Cap(c_a), veh/h	75	601	604	75	572	555	302	602	602	256	557	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.5	40.0	40.0	57.9	41.0	41.0	50.0	40.0	40.0	51.5	41.5	41.5
Incr Delay (d2), s/veh	234.0	175.2	188.9	9.4	145.6	157.5	61.0	630.4	686.2	866.6	277.4	287.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	45.7	48.3	0.9	38.8	39.5	13.7	121.8	131.2	69.1	58.2	61.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	291.5	215.2	228.9	67.3	186.6	198.5	111.0	670.4	726.2	918.1	318.9	329.0
LnGrp LOS	F	F	F	E	F	F	F	F	F	F	F	F
Approach Vol, veh/h		1770			1503			3263			2565	
Approach Delay, s/veh		226.2			190.2			642.8			496.4	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	46.0	24.0	43.0	9.0	44.0	21.0	46.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	38.0	20.0	37.0	5.0	38.0	17.0	40.0
Max Q Clear Time (g_c+I1), s	3.8	42.0	22.0	39.0	7.0	40.0	19.0	42.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	445.8
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	95.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	762	2345	188	512	1359
Future Vol, veh/h	91	762	2345	188	512	1359
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	778	2393	192	522	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4920	1293	0	0	2585	0
Stage 1	2489	-	-	-	-	-
Stage 2	2431	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 156	-	-	~ 171	-
Stage 1	~ 50	-	-	-	-	-
Stage 2	~ 70	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 156	-	-	~ 171	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	~ 50	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	268.5
HCM LOS	-		

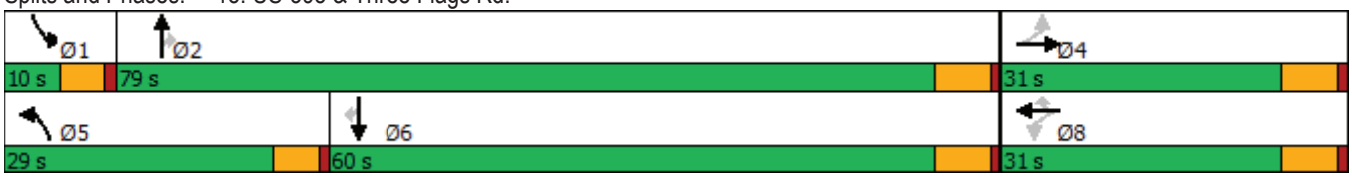
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	156	~ 171	-
HCM Lane V/C Ratio	-	-	-	4.984	3.055	-
HCM Control Delay (s)	-	-	$ 1849.4	$ 981.2		-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	81.3	48	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	88	1	229	8	175	231	2270	208	68	1271	111
Future Volume (vph)	88	1	229	8	175	231	2270	208	68	1271	111
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0	29.0	79.0	79.0	10.0	60.0	60.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%	24.2%	65.8%	65.8%	8.3%	50.0%	50.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0	19.4	73.0	73.0	5.0	58.6	58.6
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.16	0.61	0.61	0.04	0.49	0.49
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	1.05	0.21	0.92	0.74	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	59.7	3.9	141.0	28.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	70.1	3.9	141.0	28.4	3.5
LOS	D	A	F	D	B	E	E	A	F	C	A
Approach Delay		16.5		293.9			65.0			31.7	
Approach LOS		B		F			E			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.02	
Intersection Signal Delay: 70.7	Intersection LOS: E
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1	284	229	8	175	231	2270	208	68	1271	111
Future Volume (veh/h)	88	1	284	229	8	175	231	2270	208	68	1271	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	90	1	198	234	8	113	236	2316	161	69	1297	77
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	339	2	334	183	396	335	264	2196	979	75	1819	811
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.15	0.61	0.61	0.04	0.50	0.50
Sat Flow, veh/h	1362	8	1603	1269	1900	1610	1810	3610	1609	1810	3610	1610
Grp Volume(v), veh/h	90	0	199	234	8	113	236	2316	161	69	1297	77
Grp Sat Flow(s),veh/h/ln	1362	0	1611	1269	1900	1610	1810	1805	1609	1810	1805	1610
Q Serve(g_s), s	6.7	0.0	13.4	11.6	0.4	7.2	15.4	73.0	5.2	4.6	33.4	3.0
Cycle Q Clear(g_c), s	7.2	0.0	13.4	25.0	0.4	7.2	15.4	73.0	5.2	4.6	33.4	3.0
Prop In Lane	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	336	183	396	335	264	2196	979	75	1819	811
V/C Ratio(X)	0.27	0.00	0.59	1.28	0.02	0.34	0.89	1.05	0.16	0.92	0.71	0.09
Avail Cap(c_a), veh/h	339	0	336	183	396	335	362	2196	979	75	1819	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	42.9	56.1	37.8	40.4	50.3	23.5	10.2	57.3	23.0	15.5
Incr Delay (d2), s/veh	0.2	0.0	1.9	161.1	0.0	0.2	15.4	35.5	0.4	74.0	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.5	13.7	0.2	2.9	7.8	36.2	1.7	3.6	13.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	0.0	44.8	217.2	37.8	40.7	65.8	59.0	10.6	131.3	25.5	15.7
LnGrp LOS	D	A	D	F	D	D	E	F	B	F	C	B
Approach Vol, veh/h		289			355			2713			1443	
Approach Delay, s/veh		43.6			157.0			56.7			30.0	
Approach LOS		D			F			E			C	

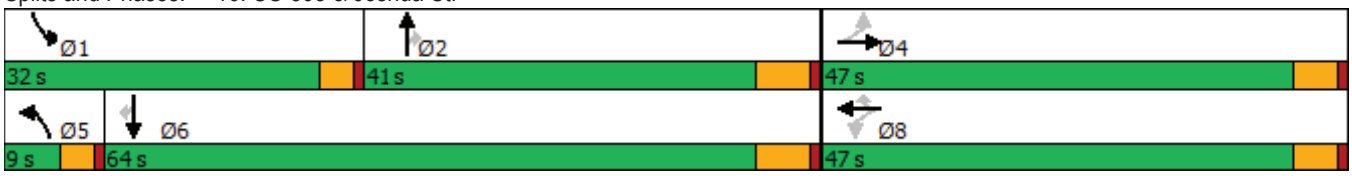
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	79.0		31.0	22.5	66.5		31.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	73.0		25.0	24.0	54.0		25.0				
Max Q Clear Time (g_c+I1), s	6.6	75.0		15.4	17.4	35.4		27.0				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.2	8.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		55.3	
HCM 6th LOS		E	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	405	149	114	76	480	35	1823	122	234	1484	66
Future Volume (vph)	405	149	114	76	480	35	1823	122	234	1484	66
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	41.0	41.0	32.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	34.2%	34.2%	26.7%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.8	37.8	37.8	37.8	37.8	5.0	41.8	41.8	19.7	60.6	60.6
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34	0.04	0.37	0.37	0.18	0.54	0.54
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	1.39	0.19	0.76	0.78	0.08
Control Delay	62.7	27.2	30.3	26.2	7.5	72.5	209.1	10.7	59.4	25.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.5	72.5	209.1	10.7	59.4	25.7	5.8
LOS	E	C	C	C	A	E	F	B	E	C	A
Approach Delay		52.3		13.5			194.4			29.4	
Approach LOS		D		B			F			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 95.1	Intersection LOS: F
Intersection Capacity Utilization 112.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	149	18	114	76	480	35	1823	122	234	1484	66
Future Volume (veh/h)	405	149	18	114	76	480	35	1823	122	234	1484	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	418	154	16	118	78	437	36	1879	114	241	1530	61
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	379	614	64	451	690	584	53	1392	621	272	1828	815
Arrive On Green	0.36	0.36	0.35	0.36	0.36	0.36	0.03	0.39	0.39	0.15	0.51	0.51
Sat Flow, veh/h	949	1693	176	1303	1900	1609	1810	3610	1610	1810	3610	1610
Grp Volume(v), veh/h	418	0	170	118	78	437	36	1879	114	241	1530	61
Grp Sat Flow(s),veh/h/ln	949	0	1868	1303	1900	1609	1810	1805	1610	1810	1805	1610
Q Serve(g_s), s	39.8	0.0	7.6	8.3	3.2	28.1	2.3	45.7	5.5	15.5	43.0	2.3
Cycle Q Clear(g_c), s	43.0	0.0	7.6	15.8	3.2	28.1	2.3	45.7	5.5	15.5	43.0	2.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	0	678	451	690	584	53	1392	621	272	1828	815
V/C Ratio(X)	1.10	0.00	0.25	0.26	0.11	0.75	0.68	1.35	0.18	0.89	0.84	0.07
Avail Cap(c_a), veh/h	379	0	678	451	690	584	76	1392	621	428	1828	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	26.5	32.0	25.1	33.0	56.9	36.4	24.1	49.3	25.0	15.0
Incr Delay (d2), s/veh	76.4	0.0	0.1	0.1	0.0	4.7	10.7	162.4	0.7	11.3	4.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.4	0.0	3.4	2.6	1.5	11.6	1.2	49.7	2.1	7.5	17.4	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.0	0.0	26.6	32.1	25.1	37.7	67.7	198.8	24.7	60.7	29.8	15.2
LnGrp LOS	F	A	C	C	C	D	E	F	C	E	C	B
Approach Vol, veh/h		588			633			2029			1832	
Approach Delay, s/veh		92.3			35.1			186.7			33.4	
Approach LOS		F			D			F			C	

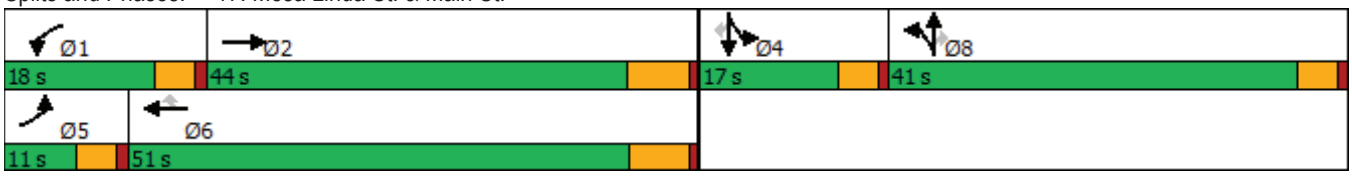
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.8	49.7		47.0	7.5	64.0		47.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	35.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	17.5	47.7		45.0	4.3	45.0		30.1				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	10.9		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		101.6	
HCM 6th LOS		F	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	7	2009	98	1476	76	10	114	0	4
Future Volume (vph)	7	2009	98	1476	76	10	114	0	4
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6		8		4	
Permitted Phases					6		8		4
Detector Phase	5	2	1	6	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	16.5	9.6	23.2	23.2	40.6	40.6	14.6	14.6
Total Split (s)	11.0	44.0	18.0	51.0	51.0	41.0	41.0	17.0	17.0
Total Split (%)	9.2%	36.7%	15.0%	42.5%	42.5%	34.2%	34.2%	14.2%	14.2%
Yellow Time (s)	3.6	5.5	3.6	5.2	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.5	4.6	6.2	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	None	Max	Max	None	None	None	None
Act Effct Green (s)	5.4	40.9	9.4	51.2	51.2	14.2	14.2	10.6	10.6
Actuated g/C Ratio	0.06	0.47	0.11	0.59	0.59	0.16	0.16	0.12	0.12
v/c Ratio	0.07	0.85	0.55	0.50	0.08	0.08	0.30	0.21	0.01
Control Delay	48.4	28.8	52.2	14.8	3.1	32.9	4.0	43.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.4	28.8	52.2	14.8	3.1	32.9	4.0	43.3	0.0
LOS	D	C	D	B	A	C	A	D	A
Approach Delay		28.9		16.5		8.8		39.9	
Approach LOS		C		B		A		D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 68.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 17: Mesa Linda St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	2009	8	98	1476	76	13	10	114	44	0	4
Future Volume (veh/h)	7	2009	8	98	1476	76	13	10	114	44	0	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	7	2093	7	102	1538	71	14	10	60	46	0	2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	15	2601	9	129	2872	892	113	81	169	148	0	131
Arrive On Green	0.01	0.49	0.49	0.08	0.55	0.55	0.10	0.10	0.10	0.08	0.00	0.08
Sat Flow, veh/h	1714	5337	18	1714	5187	1610	1077	769	1610	1810	0	1610
Grp Volume(v), veh/h	7	1356	744	102	1538	71	24	0	60	46	0	2
Grp Sat Flow(s),veh/h/ln	1714	1729	1897	1714	1729	1610	1846	0	1610	1810	0	1610
Q Serve(g_s), s	0.3	26.8	26.8	4.7	15.2	1.7	1.0	0.0	2.8	1.9	0.0	0.1
Cycle Q Clear(g_c), s	0.3	26.8	26.8	4.7	15.2	1.7	1.0	0.0	2.8	1.9	0.0	0.1
Prop In Lane	1.00		0.01	1.00		1.00	0.58		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	15	1685	924	129	2872	892	194	0	169	148	0	131
V/C Ratio(X)	0.45	0.80	0.80	0.79	0.54	0.08	0.12	0.00	0.36	0.31	0.00	0.02
Avail Cap(c_a), veh/h	136	1685	924	284	2872	892	831	0	724	277	0	247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.9	17.5	17.5	36.8	11.5	8.4	32.8	0.0	33.7	35.0	0.0	34.2
Incr Delay (d2), s/veh	7.6	4.2	7.4	4.0	0.7	0.2	0.3	0.0	1.3	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	9.3	11.1	2.0	4.7	0.5	0.4	0.0	1.1	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	21.7	24.9	40.8	12.2	8.6	33.1	0.0	34.9	36.2	0.0	34.2
LnGrp LOS	D	C	C	D	B	A	C	A	C	D	A	C
Approach Vol, veh/h		2107			1711			84			48	
Approach Delay, s/veh		22.9			13.7			34.4			36.1	
Approach LOS		C			B			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.7	45.9		11.2	5.3	51.3		13.1				
Change Period (Y+Rc), s	4.6	6.5		4.6	4.6	* 6.5		4.6				
Max Green Setting (Gmax), s	13.4	37.5		12.4	6.4	* 45		36.4				
Max Q Clear Time (g_c+I1), s	6.7	28.8		3.9	2.3	17.2		4.8				
Green Ext Time (p_c), s	0.1	6.9		0.1	0.0	12.3		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		19.3
HCM 6th LOS		B

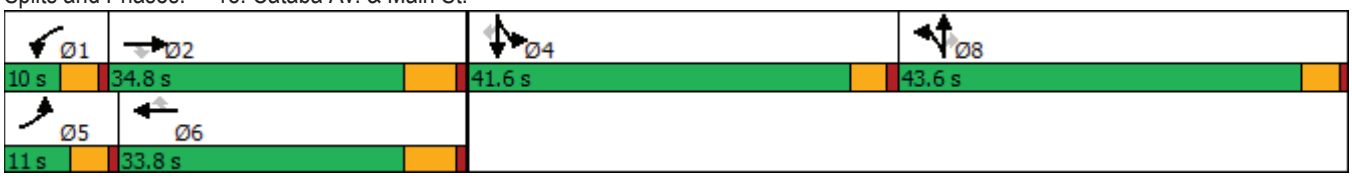
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	1918	124	324	1274	61	218	71	193	98	41	156
Future Volume (vph)	108	1918	124	324	1274	61	218	71	193	98	41	156
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	Perm	Split	NA	Perm
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	32.2	32.2	9.6	32.2	32.2	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (s)	11.0	34.8	34.8	10.0	33.8	33.8	43.6	43.6	43.6	41.6	41.6	41.6
Total Split (%)	8.5%	26.8%	26.8%	7.7%	26.0%	26.0%	33.5%	33.5%	33.5%	32.0%	32.0%	32.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	Max	Max	None	Max	Max	None	None	None	None	None	None
Act Effct Green (s)	6.7	29.9	29.9	5.7	28.9	28.9	16.4	16.4	16.4	14.4	14.4	14.4
Actuated g/C Ratio	0.08	0.34	0.34	0.07	0.33	0.33	0.19	0.19	0.19	0.16	0.16	0.16
v/c Ratio	0.84	1.10	0.21	1.64	0.76	0.11	0.47	0.45	0.43	0.35	0.13	0.40
Control Delay	89.6	83.8	11.8	337.1	32.1	3.7	37.0	36.1	7.8	36.6	33.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.6	83.8	11.8	337.1	32.1	3.7	37.0	36.1	7.8	36.6	33.0	8.7
LOS	F	F	B	F	C	A	D	D	A	D	C	A
Approach Delay		80.0			90.7			25.0			21.3	
Approach LOS		E			F			C			C	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 87.4	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 74.3	Intersection LOS: E
Intersection Capacity Utilization 77.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 18: Cataba Av. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	1918	124	324	1274	61	218	71	193	98	41	156
Future Volume (veh/h)	108	1918	124	324	1274	61	218	71	193	98	41	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	110	1957	88	331	1300	50	147	177	94	100	42	69
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	138	1957	607	224	1908	591	270	299	251	223	248	210
Arrive On Green	0.08	0.38	0.38	0.07	0.37	0.37	0.16	0.16	0.16	0.13	0.13	0.13
Sat Flow, veh/h	1714	5187	1609	3141	5187	1608	1714	1900	1595	1714	1900	1610
Grp Volume(v), veh/h	110	1957	88	331	1300	50	147	177	94	100	42	69
Grp Sat Flow(s),veh/h/ln	1714	1729	1609	1570	1729	1608	1714	1900	1595	1714	1900	1610
Q Serve(g_s), s	4.8	28.6	2.7	5.4	16.0	1.5	6.0	6.6	4.0	4.1	1.5	3.0
Cycle Q Clear(g_c), s	4.8	28.6	2.7	5.4	16.0	1.5	6.0	6.6	4.0	4.1	1.5	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	1957	607	224	1908	591	270	299	251	223	248	210
V/C Ratio(X)	0.80	1.00	0.14	1.48	0.68	0.08	0.54	0.59	0.37	0.45	0.17	0.33
Avail Cap(c_a), veh/h	145	1957	607	224	1908	591	882	977	820	837	927	786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	23.6	15.6	35.2	20.2	15.6	29.4	29.7	28.6	30.4	29.3	30.0
Incr Delay (d2), s/veh	22.8	20.4	0.5	238.2	2.0	0.3	1.7	1.9	0.9	1.4	0.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	13.2	0.9	9.3	5.9	0.5	2.5	3.1	1.6	1.7	0.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	44.0	16.1	273.5	22.2	15.9	31.2	31.5	29.5	31.8	29.6	30.9
LnGrp LOS	E	F	B	F	C	B	C	C	C	C	C	C
Approach Vol, veh/h		2155			1681			418			211	
Approach Delay, s/veh		43.5			71.5			31.0			31.1	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	34.8		14.5	10.7	34.1		16.5				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	28.6		37.0	6.4	27.6		39.0				
Max Q Clear Time (g_c+I1), s	7.4	30.6		6.1	6.8	18.0		8.6				
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	5.5		1.9				

Intersection Summary		
HCM 6th Ctrl Delay		52.3
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	85	2212	34	303	1739	41	100	325	254	119
Future Volume (vph)	85	2212	34	303	1739	41	100	325	254	119
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	Perm	NA
Protected Phases	5	2		1	6		8			4
Permitted Phases			2			8		8	4	
Detector Phase	5	2	2	1	6	8	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	29.2	29.2	9.6	30.2	38.6	38.6	38.6	41.6	41.6
Total Split (s)	12.0	55.4	55.4	23.0	66.4	41.6	41.6	41.6	41.6	41.6
Total Split (%)	10.0%	46.2%	46.2%	19.2%	55.3%	34.7%	34.7%	34.7%	34.7%	34.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	None	Max	Max	None	Max	None	None	None	None	None
Act Effct Green (s)	7.3	49.4	49.4	18.5	60.5	27.6	27.6	27.6	27.6	27.6
Actuated g/C Ratio	0.07	0.45	0.45	0.17	0.55	0.25	0.25	0.25	0.25	0.25
v/c Ratio	0.77	0.98	0.05	1.09	0.87	0.17	0.22	0.58	0.85	0.36
Control Delay	93.0	45.5	0.1	123.6	26.3	33.1	33.3	14.3	64.2	32.3
Queue Delay	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	45.5	0.1	123.6	40.6	33.1	33.3	14.3	64.2	32.3
LOS	F	D	A	F	D	C	C	B	E	C
Approach Delay		46.6			50.1		20.0			51.8
Approach LOS		D			D		C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 46.5	Intersection LOS: D
Intersection Capacity Utilization 101.6%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 19: Key Point Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	2212	34	303	1739	607	41	100	325	254	119	43
Future Volume (veh/h)	85	2212	34	303	1739	607	41	100	325	254	119	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	87	2257	31	309	1774	466	42	102	191	259	121	23
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	108	2171	674	268	2106	540	356	559	466	341	456	87
Arrive On Green	0.06	0.42	0.42	0.16	0.51	0.51	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1714	5187	1610	1714	4113	1054	1260	1900	1585	1102	1551	295
Grp Volume(v), veh/h	87	2257	31	309	1485	755	42	102	191	259	0	144
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1714	1729	1709	1260	1900	1585	1102	0	1846
Q Serve(g_s), s	5.9	49.2	1.3	18.4	43.2	45.4	3.1	4.7	11.4	26.9	0.0	7.0
Cycle Q Clear(g_c), s	5.9	49.2	1.3	18.4	43.2	45.4	10.1	4.7	11.4	31.7	0.0	7.0
Prop In Lane	1.00		1.00	1.00		0.62	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	108	2171	674	268	1771	875	356	559	466	341	0	543
V/C Ratio(X)	0.81	1.04	0.05	1.15	0.84	0.86	0.12	0.18	0.41	0.76	0.00	0.27
Avail Cap(c_a), veh/h	108	2171	674	268	1771	875	383	598	499	364	0	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.4	34.2	20.3	49.6	24.5	25.1	35.7	31.0	33.3	42.8	0.0	31.8
Incr Delay (d2), s/veh	32.5	30.6	0.1	102.3	4.9	11.0	0.1	0.2	0.6	8.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	25.1	0.5	15.2	17.0	19.1	1.0	2.2	4.5	8.2	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.9	64.8	20.4	151.8	29.5	36.1	35.8	31.1	33.9	51.2	0.0	32.0
LnGrp LOS	F	F	C	F	C	D	D	C	C	D	A	C
Approach Vol, veh/h		2375			2549			335			403	
Approach Delay, s/veh		65.0			46.3			33.3			44.4	
Approach LOS		E			D			C			D	

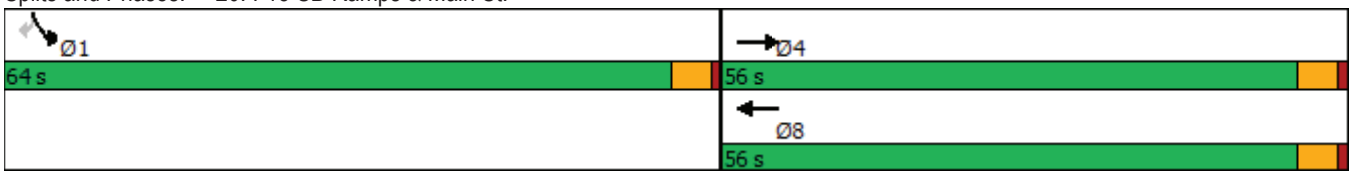
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	55.4		39.2	12.0	66.4		39.2				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	18.4	49.2		37.0	7.4	60.2		37.0				
Max Q Clear Time (g_c+I1), s	20.4	51.2		33.7	7.9	47.4		13.4				
Green Ext Time (p_c), s	0.0	0.0		0.7	0.0	10.2		1.4				

Intersection Summary												
HCM 6th Ctrl Delay			53.2									
HCM 6th LOS			D									

Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	2252	438	1953	763	642
Future Volume (vph)	2252	438	1953	763	642
Turn Type	NA	Free	NA	Prot	Perm
Protected Phases	4		8	1	
Permitted Phases		Free			1
Detector Phase	4		8	1	1
Switch Phase					
Minimum Initial (s)	5.0		5.0	5.0	5.0
Minimum Split (s)	9.6		22.6	9.6	9.6
Total Split (s)	56.0		56.0	64.0	64.0
Total Split (%)	46.7%		46.7%	53.3%	53.3%
Yellow Time (s)	3.6		3.6	3.6	3.6
All-Red Time (s)	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	4.6		4.6	4.6	4.6
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None		None	None	None
Act Effct Green (s)	51.8	110.8	51.8	49.7	49.7
Actuated g/C Ratio	0.47	1.00	0.47	0.45	0.45
v/c Ratio	0.96	0.28	0.83	0.50	0.90
Control Delay	40.9	0.4	31.0	22.4	44.3
Queue Delay	36.2	0.0	0.0	0.0	0.0
Total Delay	77.1	0.4	31.0	22.4	44.3
LOS	E	A	C	C	D
Approach Delay	64.6		31.0		
Approach LOS	E		C		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.8	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 46.3	Intersection LOS: D
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 20: I-15 SB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰↰		↱
Traffic Volume (veh/h)	0	2252	438	0	1953	0	0	0	0	763	0	642
Future Volume (veh/h)	0	2252	438	0	1953	0	0	0	0	763	0	642
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900				1900	0	1900
Adj Flow Rate, veh/h	0	2322	0	0	2013	0				787	0	549
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0				0	0	0
Cap, veh/h	0	2648		0	2648					1387	0	636
Arrive On Green	0.00	0.51	0.00	0.00	0.51	0.00				0.40	0.00	0.40
Sat Flow, veh/h	0	5358	1610	0	5358	1610				3510	0	1610
Grp Volume(v), veh/h	0	2322	0	0	2013	0				787	0	549
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610				1755	0	1610
Q Serve(g_s), s	0.0	38.7	0.0	0.0	30.3	0.0				17.0	0.0	30.5
Cycle Q Clear(g_c), s	0.0	38.7	0.0	0.0	30.3	0.0				17.0	0.0	30.5
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2648		0	2648					1387	0	636
V/C Ratio(X)	0.00	0.88		0.00	0.76					0.57	0.00	0.86
Avail Cap(c_a), veh/h	0	2734		0	2734					2138	0	981
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.1	0.0	0.0	19.1	0.0				23.0	0.0	27.1
Incr Delay (d2), s/veh	0.0	3.5	0.0	0.0	1.2	0.0				0.4	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.1	0.0	0.0	10.7	0.0				7.0	0.0	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.6	0.0	0.0	20.3	0.0				23.4	0.0	32.2
LnGrp LOS	A	C		A	C					C	A	C
Approach Vol, veh/h		2322	A		2013	A					1336	
Approach Delay, s/veh		24.6			20.3						27.0	
Approach LOS		C			C						C	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				54.4		43.1		54.4				
Change Period (Y+Rc), s				4.6		4.6		4.6				
Max Green Setting (Gmax), s				51.4		59.4		51.4				
Max Q Clear Time (g_c+I1), s				40.7		32.5		32.3				
Green Ext Time (p_c), s				9.1		6.0		13.2				

Intersection Summary												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									

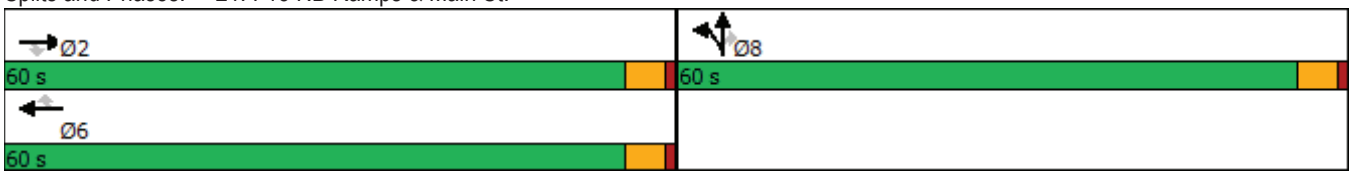
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Configurations							
Traffic Volume (vph)	2288	727	1865	560	344	0	1174
Future Volume (vph)	2288	727	1865	560	344	0	1174
Turn Type	NA	Perm	NA	Perm	Split	NA	Perm
Protected Phases	2		6		8	8	
Permitted Phases		2		6			8
Detector Phase	2	2	6	6	8	8	8
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.6	22.6	22.6	22.6	9.6	9.6	9.6
Total Split (s)	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	Min	Min	Min
Act Effct Green (s)	55.6	55.6	55.6	55.6	51.8	51.8	51.8
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.44	0.44	0.44
v/c Ratio	0.95	0.72	0.78	0.56	0.44	0.88	0.88
Control Delay	40.5	11.2	28.8	5.6	24.2	44.1	44.1
Queue Delay	0.0	0.0	47.5	0.9	0.0	0.0	0.0
Total Delay	40.5	11.2	76.3	6.5	24.2	44.1	44.1
LOS	D	B	E	A	C	D	D
Approach Delay	33.4		60.2			39.6	
Approach LOS	C		E			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 116.6	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 44.1	Intersection LOS: D
Intersection Capacity Utilization 100.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 21: I-15 NB Ramps & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↑	↱			
Traffic Volume (veh/h)	0	2288	727	0	1865	560	344	0	1174	0	0	0
Future Volume (veh/h)	0	2288	727	0	1865	560	344	0	1174	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900	1900	1900	1900			
Adj Flow Rate, veh/h	0	2359	0	0	1923	430	355	0	1063			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0			
Cap, veh/h	0	2711		0	2711	842	701	0	1247			
Arrive On Green	0.00	0.52	0.00	0.00	0.52	0.52	0.39	0.00	0.39			
Sat Flow, veh/h	0	5358	1610	0	5358	1610	1810	0	3220			
Grp Volume(v), veh/h	0	2359	0	0	1923	430	355	0	1063			
Grp Sat Flow(s),veh/h/ln	0	1729	1610	0	1729	1610	1810	0	1610			
Q Serve(g_s), s	0.0	40.7	0.0	0.0	28.7	17.8	15.3	0.0	30.8			
Cycle Q Clear(g_c), s	0.0	40.7	0.0	0.0	28.7	17.8	15.3	0.0	30.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2711		0	2711	842	701	0	1247			
V/C Ratio(X)	0.00	0.87		0.00	0.71	0.51	0.51	0.00	0.85			
Avail Cap(c_a), veh/h	0	2814		0	2814	873	982	0	1747			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	21.3	0.0	0.0	18.5	15.9	23.9	0.0	28.6			
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.0	0.8	0.5	0.6	0.0	3.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	14.9	0.0	0.0	10.1	5.8	6.6	0.0	12.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.5	0.0	0.0	19.3	16.4	24.4	0.0	31.7			
LnGrp LOS	A	C		A	B	B	C	A	C			
Approach Vol, veh/h		2359	A		2353			1418				
Approach Delay, s/veh		24.5			18.8			29.9				
Approach LOS		C			B			C				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		58.0				58.0		44.2				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		55.4				55.4		55.4				
Max Q Clear Time (g_c+I1), s		42.7				30.7		32.8				
Green Ext Time (p_c), s		10.7				16.7		6.7				

Intersection Summary												
HCM 6th Ctrl Delay			23.5									
HCM 6th LOS			C									

Notes

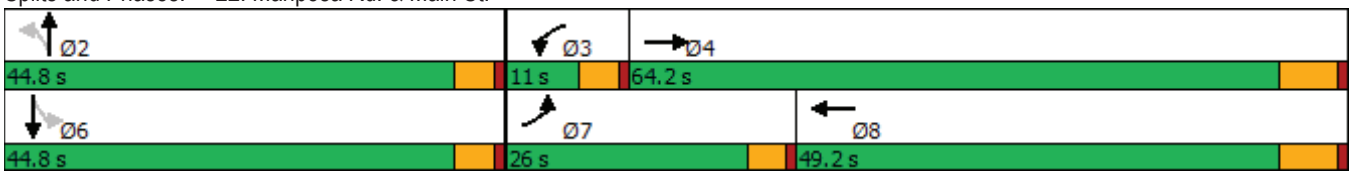
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	326	2911	119	1948	210	114	186	78
Future Volume (vph)	326	2911	119	1948	210	114	186	78
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.2	9.6	24.2	44.6	44.6	44.6	44.6
Total Split (s)	26.0	64.2	11.0	49.2	44.8	44.8	44.8	44.8
Total Split (%)	21.7%	53.5%	9.2%	41.0%	37.3%	37.3%	37.3%	37.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	21.4	58.0	6.4	43.0	40.2	40.2	40.2	40.2
Actuated g/C Ratio	0.18	0.48	0.05	0.36	0.34	0.34	0.34	0.34
v/c Ratio	1.10	1.02	1.33	0.92	1.02	0.35	0.60	0.53
Control Delay	125.6	52.6	249.2	44.0	107.8	26.2	42.6	20.8
Queue Delay	0.0	32.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.6	85.1	249.2	44.0	107.8	26.2	42.6	20.8
LOS	F	F	F	D	F	C	D	C
Approach Delay		88.9		55.0		66.9		28.4
Approach LOS		F		E		E		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 71.4	Intersection LOS: E
Intersection Capacity Utilization 102.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 22: Mariposa Rd. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	326	2911	226	119	1948	144	210	114	97	186	78	266
Future Volume (veh/h)	326	2911	226	119	1948	144	210	114	97	186	78	266
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	333	2970	215	121	1988	131	214	116	72	190	80	200
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	306	3032	217	91	2262	149	286	365	227	371	161	403
Arrive On Green	0.18	0.48	0.48	0.05	0.36	0.36	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1714	6273	448	1714	6311	416	1117	1091	677	1214	481	1203
Grp Volume(v), veh/h	333	2312	873	121	1544	575	214	0	188	190	0	280
Grp Sat Flow(s),veh/h/ln	1714	1634	1819	1714	1634	1825	1117	0	1768	1214	0	1684
Q Serve(g_s), s	21.4	55.3	57.2	6.4	35.4	35.4	22.7	0.0	9.5	16.6	0.0	15.9
Cycle Q Clear(g_c), s	21.4	55.3	57.2	6.4	35.4	35.4	38.6	0.0	9.5	26.1	0.0	15.9
Prop In Lane	1.00		0.25	1.00		0.23	1.00		0.38	1.00		0.71
Lane Grp Cap(c), veh/h	306	2369	879	91	1757	654	286	0	592	371	0	564
V/C Ratio(X)	1.09	0.98	0.99	1.32	0.88	0.88	0.75	0.00	0.32	0.51	0.00	0.50
Avail Cap(c_a), veh/h	306	2369	879	91	1757	654	286	0	592	371	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.3	30.3	30.8	56.8	36.1	36.1	47.2	0.0	29.7	39.4	0.0	31.8
Incr Delay (d2), s/veh	77.4	13.6	28.7	203.2	5.5	13.1	10.4	0.0	0.3	1.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	22.6	29.5	7.8	14.1	17.2	7.2	0.0	4.1	5.1	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	126.7	43.9	59.5	260.0	41.5	49.2	57.6	0.0	30.0	40.6	0.0	32.5
LnGrp LOS	F	D	E	F	D	D	E	A	C	D	A	C
Approach Vol, veh/h		3518			2240			402			470	
Approach Delay, s/veh		55.6			55.3			44.7			35.8	
Approach LOS		E			E			D			D	

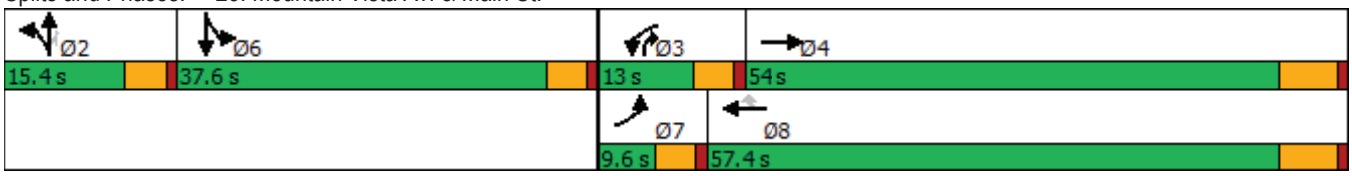
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		44.8	11.0	64.2		44.8	26.0	49.2				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		40.2	6.4	58.0		40.2	21.4	43.0				
Max Q Clear Time (g_c+I1), s		40.6	8.4	59.2		28.1	23.4	37.4				
Green Ext Time (p_c), s		0.0	0.0	0.0		2.1	0.0	4.7				

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	67	2521	86	2012	96	45	7	37	108	10
Future Volume (vph)	67	2521	86	2012	96	45	7	37	108	10
Turn Type	Prot	NA	Prot	NA	Perm	Split	NA	pm+ov	Split	NA
Protected Phases	7	4	3	8		2	2	3	6	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	2	2	3	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	43.2	9.6	32.2	32.2	14.6	14.6	9.6	37.6	37.6
Total Split (s)	9.6	54.0	13.0	57.4	57.4	15.4	15.4	13.0	37.6	37.6
Total Split (%)	8.0%	45.0%	10.8%	47.8%	47.8%	12.8%	12.8%	10.8%	31.3%	31.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	5.2	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	6.2	4.6	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag	Lag			Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes		
Recall Mode	None	Max	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	5.1	52.4	8.1	59.1	59.1	10.2	10.2	13.6	14.0	14.0
Actuated g/C Ratio	0.05	0.55	0.09	0.62	0.62	0.11	0.11	0.14	0.15	0.15
v/c Ratio	0.42	0.74	0.62	0.65	0.10	0.14	0.09	0.08	0.28	0.26
Control Delay	56.0	21.8	64.9	18.9	4.1	46.6	44.3	1.7	39.8	36.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	21.8	64.9	18.9	4.1	46.6	44.3	1.7	39.8	36.3
LOS	E	C	E	B	A	D	D	A	D	D
Approach Delay		22.7		20.1			27.0			38.0
Approach LOS		C		C			C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 22.0	Intersection LOS: C
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 23: Mountain Vista Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	2521	25	86	2012	96	45	7	37	108	10	8
Future Volume (veh/h)	67	2521	25	86	2012	96	45	7	37	108	10	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1700	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	71	2654	24	91	2118	86	47	7	24	128	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	141	3527	32	115	2833	879	318	176	514	353	195	0
Arrive On Green	0.04	0.52	0.52	0.07	0.55	0.55	0.09	0.09	0.09	0.10	0.00	0.00
Sat Flow, veh/h	3141	6729	61	1714	5187	1610	3429	1900	3220	3429	1900	0
Grp Volume(v), veh/h	71	1933	745	91	2118	86	47	7	24	128	0	0
Grp Sat Flow(s),veh/h/ln	1570	1634	1887	1714	1729	1610	1714	1900	1610	1714	1900	0
Q Serve(g_s), s	2.1	29.0	29.1	4.9	29.4	2.4	1.2	0.3	0.6	3.3	0.0	0.0
Cycle Q Clear(g_c), s	2.1	29.0	29.1	4.9	29.4	2.4	1.2	0.3	0.6	3.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	141	2570	989	115	2833	879	318	176	514	353	195	0
V/C Ratio(X)	0.50	0.75	0.75	0.79	0.75	0.10	0.15	0.04	0.05	0.36	0.00	0.00
Avail Cap(c_a), veh/h	168	2570	989	154	2833	879	395	219	586	1207	669	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	43.7	17.5	17.5	43.1	16.3	10.2	39.1	38.7	33.4	39.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	2.1	5.3	13.2	1.9	0.2	0.2	0.1	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	9.7	12.0	2.4	10.1	0.8	0.5	0.2	0.2	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	19.6	22.8	56.3	18.2	10.4	39.3	38.8	33.4	39.8	0.0	0.0
LnGrp LOS	D	B	C	E	B	B	D	D	C	D	A	A
Approach Vol, veh/h		2749			2295			78			128	
Approach Delay, s/veh		21.1			19.4			37.5			39.8	
Approach LOS		C			B			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.3	10.9	55.3		14.2	8.8	57.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		10.8	8.4	47.8		33.0	5.0	51.2				
Max Q Clear Time (g_c+I1), s		3.2	6.9	31.1		5.3	4.1	31.4				
Green Ext Time (p_c), s		0.1	0.0	14.0		0.4	0.0	14.4				

Intersection Summary		
HCM 6th Ctrl Delay		21.1
HCM 6th LOS		C

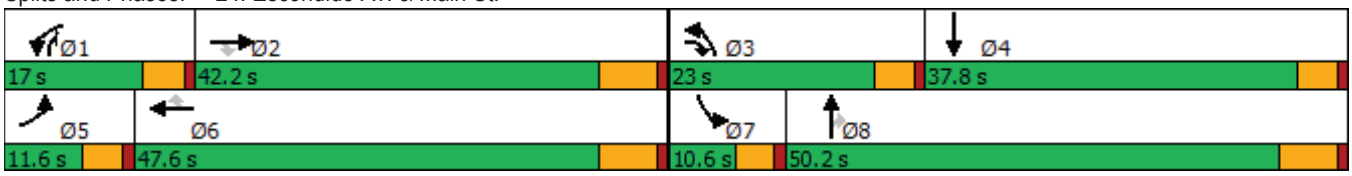
Notes

User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	74	1762	830	504	1329	14	791	71	276	77	52
Future Volume (vph)	74	1762	830	504	1329	14	791	71	276	77	52
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.2	23.0	17.0	47.6	47.6	23.0	50.2	17.0	10.6	37.8
Total Split (%)	9.7%	35.2%	19.2%	14.2%	39.7%	39.7%	19.2%	41.8%	14.2%	8.8%	31.5%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	None	None	Max	Max	None	None	None	None	None
Act Effct Green (s)	6.9	36.3	56.4	12.5	41.8	41.8	18.5	22.9	38.2	11.7	14.3
Actuated g/C Ratio	0.07	0.36	0.55	0.12	0.41	0.41	0.18	0.23	0.38	0.12	0.14
v/c Ratio	0.67	0.99	0.73	1.37	0.93	0.02	1.44	0.17	0.44	0.41	0.44
Control Delay	75.5	52.6	7.5	216.2	41.8	0.1	242.1	30.1	17.7	55.6	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	52.6	7.5	216.2	41.8	0.1	242.1	30.1	17.7	55.6	26.7
LOS	E	D	A	F	D	A	F	C	B	E	C
Approach Delay		39.2			89.1			174.4			37.7
Approach LOS		D			F			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.7	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.44	
Intersection Signal Delay: 81.2	Intersection LOS: F
Intersection Capacity Utilization 100.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1762	830	504	1329	14	791	71	276	77	52	73
Future Volume (veh/h)	74	1762	830	504	1329	14	791	71	276	77	52	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	77	1835	675	525	1384	13	824	74	207	80	54	73
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	97	1904	892	397	1576	688	589	432	570	101	72	98
Arrive On Green	0.06	0.37	0.37	0.13	0.44	0.44	0.19	0.23	0.23	0.06	0.10	0.10
Sat Flow, veh/h	1714	5187	1608	3141	3610	1577	3141	1900	1610	1714	732	990
Grp Volume(v), veh/h	77	1835	675	525	1384	13	824	74	207	80	0	127
Grp Sat Flow(s),veh/h/ln	1714	1729	1608	1570	1805	1577	1570	1900	1610	1714	0	1722
Q Serve(g_s), s	4.4	34.0	31.6	12.4	34.4	0.5	18.4	3.1	9.4	4.5	0.0	7.0
Cycle Q Clear(g_c), s	4.4	34.0	31.6	12.4	34.4	0.5	18.4	3.1	9.4	4.5	0.0	7.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.57
Lane Grp Cap(c), veh/h	97	1904	892	397	1576	688	589	432	570	101	0	170
V/C Ratio(X)	0.79	0.96	0.76	1.32	0.88	0.02	1.40	0.17	0.36	0.79	0.00	0.75
Avail Cap(c_a), veh/h	122	1904	892	397	1576	688	589	852	926	105	0	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.7	30.4	16.8	42.8	25.2	15.7	39.8	30.5	23.5	45.6	0.0	43.0
Incr Delay (d2), s/veh	18.5	13.7	6.0	161.7	7.3	0.1	189.5	0.2	0.4	29.1	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	15.2	12.5	13.5	14.6	0.2	22.6	1.4	3.6	2.7	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.2	44.1	22.7	204.5	32.5	15.7	229.3	30.6	23.9	74.7	0.0	49.4
LnGrp LOS	E	D	C	F	C	B	F	C	C	E	A	D
Approach Vol, veh/h		2587			1922			1105			207	
Approach Delay, s/veh		39.1			79.4			177.5			59.2	
Approach LOS		D			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	42.2	23.0	15.9	10.2	49.0	10.4	28.5
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	12.4	36.0	18.4	* 33	7.0	41.4	6.0	44.0
Max Q Clear Time (g_c+I1), s	14.4	36.0	20.4	9.0	6.4	36.4	6.5	11.4
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	3.5	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	79.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	183	776	23	352	1073
Future Vol, veh/h	23	183	776	23	352	1073
Conflicting Peds, #/hr	0	0	0	4	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	100	0	-	-	195	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	24	191	808	24	367	1118

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2117	420	0	0	836	0
Stage 1	824	-	-	-	-	-
Stage 2	1293	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	45	588	-	-	807	-
Stage 1	396	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	24	586	-	-	804	-
Mov Cap-2 Maneuver	93	-	-	-	-	-
Stage 1	394	-	-	-	-	-
Stage 2	122	-	-	-	-	-

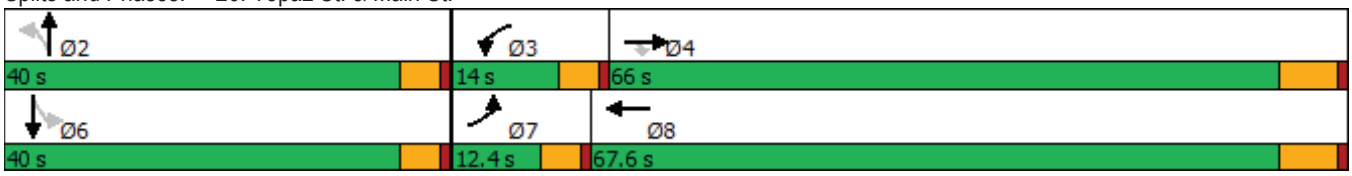
Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	3.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	93	586	804	-
HCM Lane V/C Ratio	-	-	0.258	0.325	0.456	-
HCM Control Delay (s)	-	-	56.6	14.1	13.2	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	1.4	2.4	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	96	1983	322	144	1629	298	45	86	49
Future Volume (vph)	96	1983	322	144	1629	298	45	86	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	12.4	66.0	66.0	14.0	67.6	40.0	40.0	40.0	40.0
Total Split (%)	10.3%	55.0%	55.0%	11.7%	56.3%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.8	59.9	59.9	9.4	61.5	32.8	32.8	32.8	32.8
Actuated g/C Ratio	0.07	0.51	0.51	0.08	0.52	0.28	0.28	0.28	0.28
v/c Ratio	0.88	1.11	0.36	1.09	0.95	0.93	0.32	0.32	0.22
Control Delay	111.2	87.6	7.9	153.2	39.0	76.8	12.8	37.1	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.2	87.6	7.9	153.2	39.0	76.8	12.8	37.1	18.8
LOS	F	F	A	F	D	E	B	D	B
Approach Delay		77.9			47.7		53.0		26.8
Approach LOS		E			D		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 62.0	Intersection LOS: E
Intersection Capacity Utilization 110.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1983	322	144	1629	95	298	45	132	86	49	63
Future Volume (veh/h)	96	1983	322	144	1629	95	298	45	132	86	49	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	99	2044	260	148	1679	91	307	46	105	89	51	34
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	113	1826	814	136	1809	97	389	146	334	330	301	201
Arrive On Green	0.07	0.51	0.51	0.08	0.52	0.52	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1714	3610	1610	1714	3484	188	1323	514	1174	1256	1059	706
Grp Volume(v), veh/h	99	2044	260	148	865	905	307	0	151	89	0	85
Grp Sat Flow(s),veh/h/ln	1714	1805	1610	1714	1805	1866	1323	0	1689	1256	0	1765
Q Serve(g_s), s	6.8	59.8	11.3	9.4	52.3	53.5	26.9	0.0	8.3	7.1	0.0	4.3
Cycle Q Clear(g_c), s	6.8	59.8	11.3	9.4	52.3	53.5	31.1	0.0	8.3	15.4	0.0	4.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.70	1.00		0.40
Lane Grp Cap(c), veh/h	113	1826	814	136	937	969	389	0	480	330	0	502
V/C Ratio(X)	0.88	1.12	0.32	1.09	0.92	0.93	0.79	0.00	0.31	0.27	0.00	0.17
Avail Cap(c_a), veh/h	113	1826	814	136	937	969	409	0	506	349	0	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	29.2	17.2	54.4	26.2	26.5	43.5	0.0	33.2	39.3	0.0	31.8
Incr Delay (d2), s/veh	46.9	61.8	0.2	101.9	14.3	15.5	9.5	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	38.7	3.9	7.8	23.7	25.3	9.8	0.0	3.5	2.3	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.6	91.0	17.4	156.4	40.5	42.0	53.0	0.0	33.6	39.7	0.0	32.0
LnGrp LOS	F	F	B	F	D	D	D	A	C	D	A	C
Approach Vol, veh/h		2403			1918			458			174	
Approach Delay, s/veh		83.5			50.1			46.6			35.9	
Approach LOS		F			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		38.2	14.0	66.0		38.2	12.4	67.6				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		35.4	9.4	59.8		35.4	7.8	61.4				
Max Q Clear Time (g_c+I1), s		33.1	11.4	61.8		17.4	8.8	55.5				
Green Ext Time (p_c), s		0.5	0.0	0.0		0.7	0.0	4.6				

Intersection Summary	
HCM 6th Ctrl Delay	65.5
HCM 6th LOS	E

APPENDIX 7.3:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

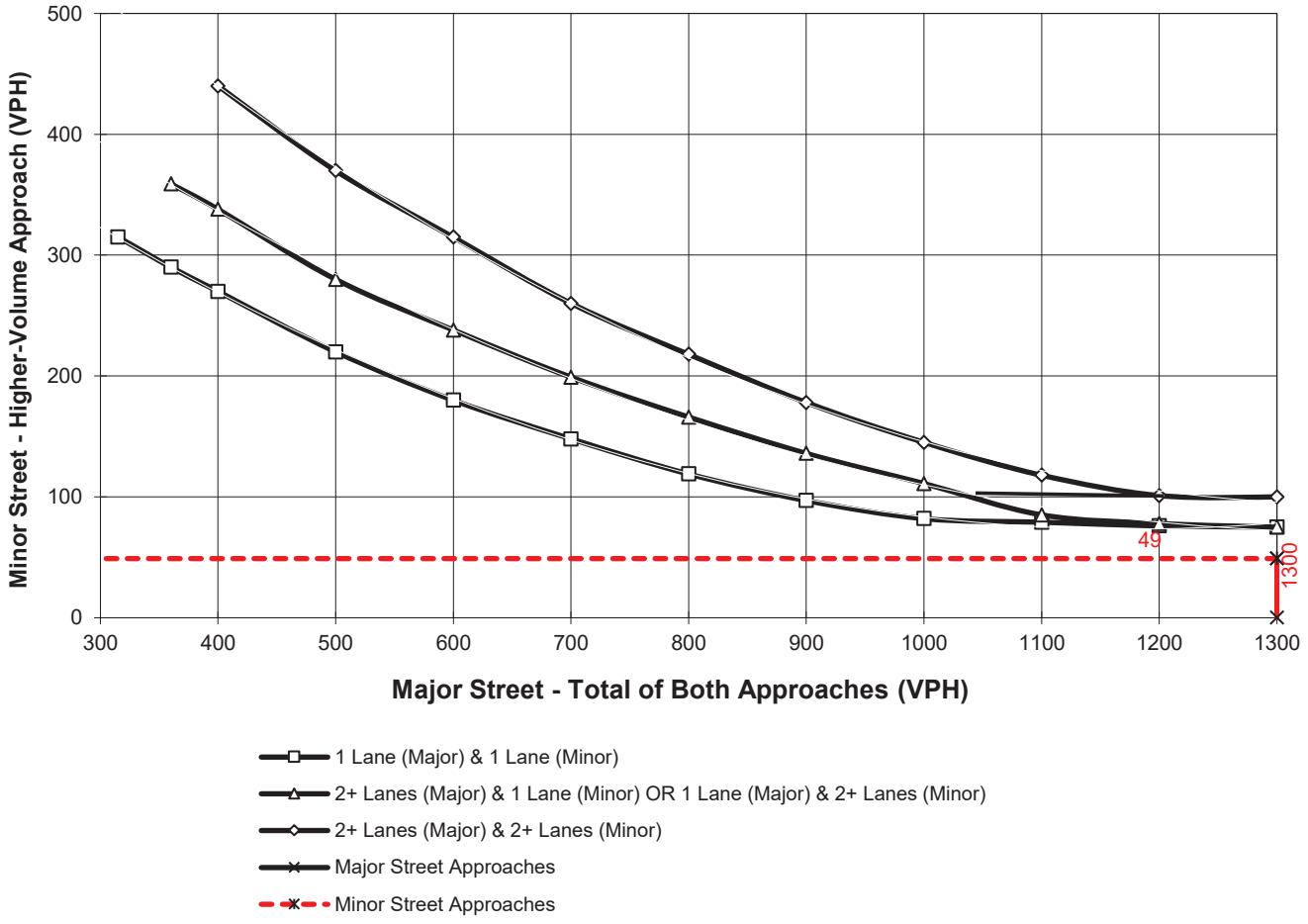
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Horizon Year (2040) Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1796**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road**
High Volume Approach (VPH) = **49**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

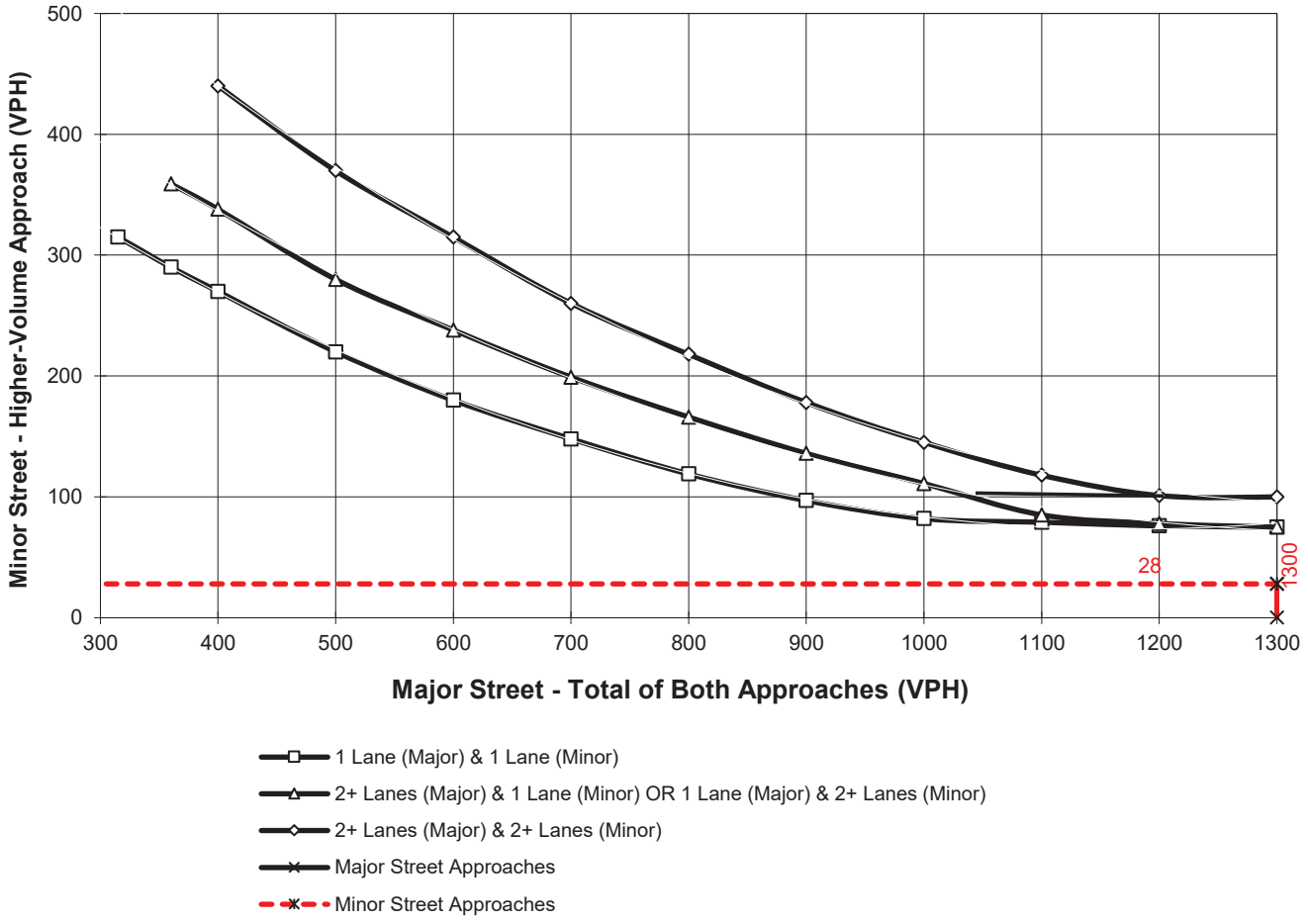
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Horizon Year (2040) Without Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road** — Total of Both Approaches (VPH) = **1992**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street** — High Volume Approach (VPH) = **28**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

Horizon Year (2040) Without Project

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		
				CALC CH	DATE	01/27/20
				CHK CH	DATE	01/27/20

Jurisdiction: **City of Hesperia**
Major Street: **Yucca Terrace Dr.**
Minor Street: **Driveway 2**
Critical Approach Speed (Major) 45 mph
Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane
Minor Street Approach Lanes **1** lane

Major Street Future ADT = **286** vpd
Minor Street Future ADT = **0** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]
or
In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Minimum Requirements EADT			
Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1 **286**	*1* **0**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **286**	*1* **0**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 5% B: 3%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

Horizon Year (2040) Without Project

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			
				CALC	CH	DATE	01/27/20
Jurisdiction:	**City of Hesperia**			CHK	CH	DATE	01/27/20
Major Street:	**Yucca Terrace Drive**			Critical Approach Speed (Major)			45 mph
Minor Street:	**Driveway 3**			Critical Approach Speed (Minor)			25 mph

Major Street Approach Lanes = **1** lane

Minor Street Approach Lanes = **1** lane

Major Street Future ADT = **286** vpd

Minor Street Future ADT = **0** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **286**	*1* **0**	8,000	5,600	2,400	1,680
2 +	*1*	9,600	6,720	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 **286**	*1* **0**	12,000	8,400	1,200	850
2 +	*1*	14,400	10,080	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more …..	**A** 5% **B** 3%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

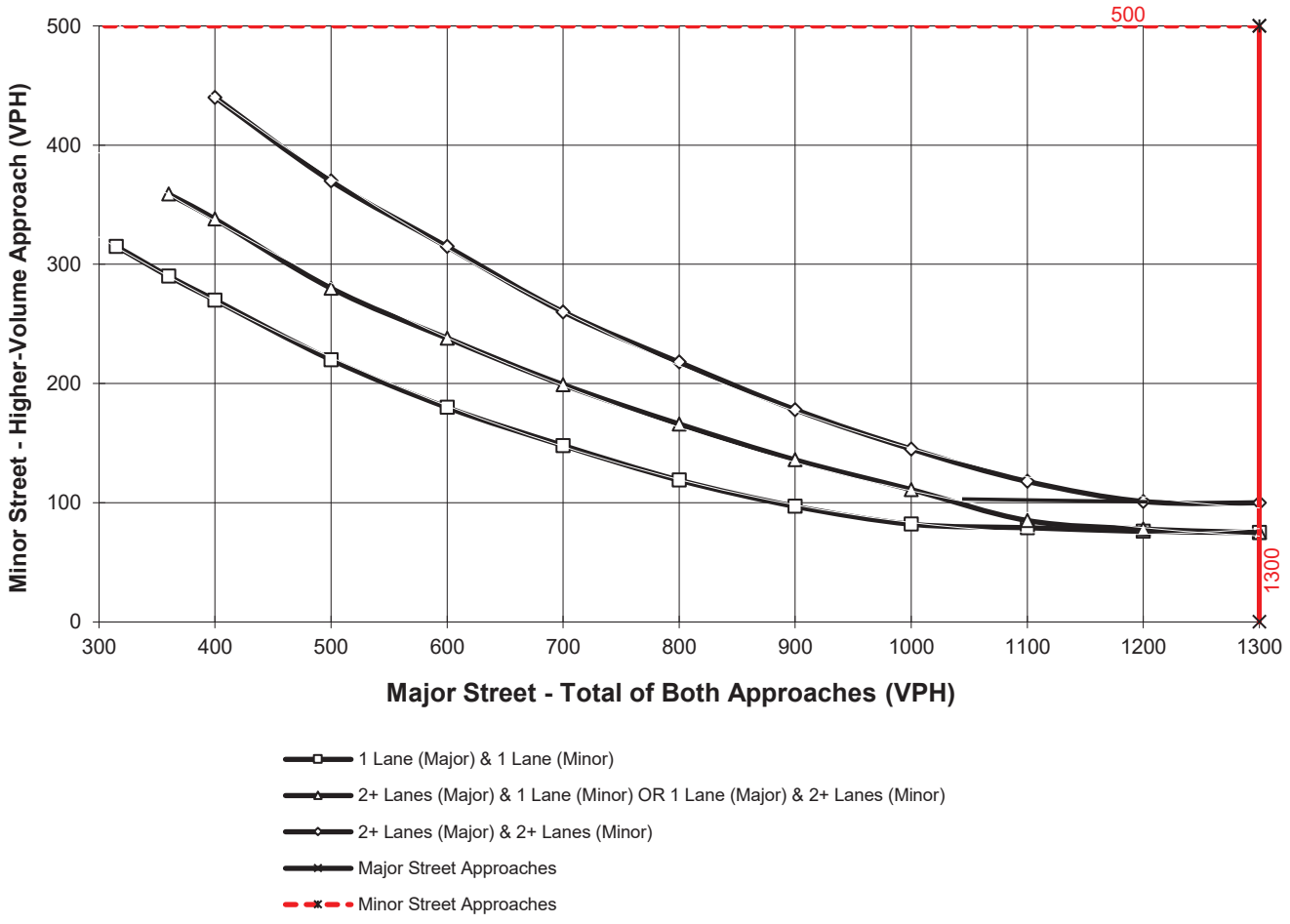
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Horizon Year (2040) Without Project Conditions - Weekday PM Peak Hour**

Major Street Name = **US Highway 395** Total of Both Approaches (VPH) = **3792**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Poplar Street** High Volume Approach (VPH) = **554**
Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.4:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

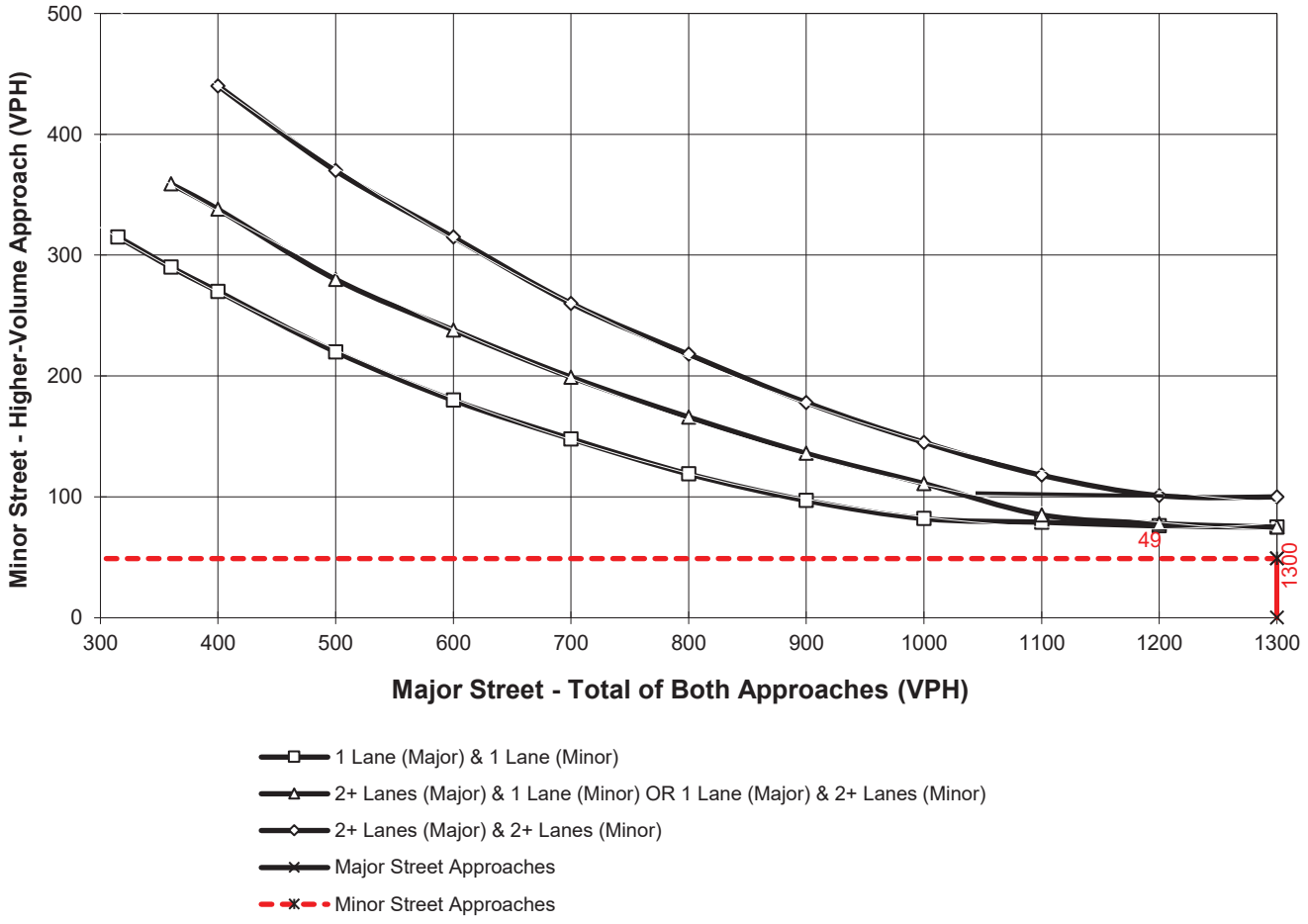
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Horizon Year (2040) With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road**
Total of Both Approaches (VPH) = **1887**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Verbena Road**
High Volume Approach (VPH) = **49**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

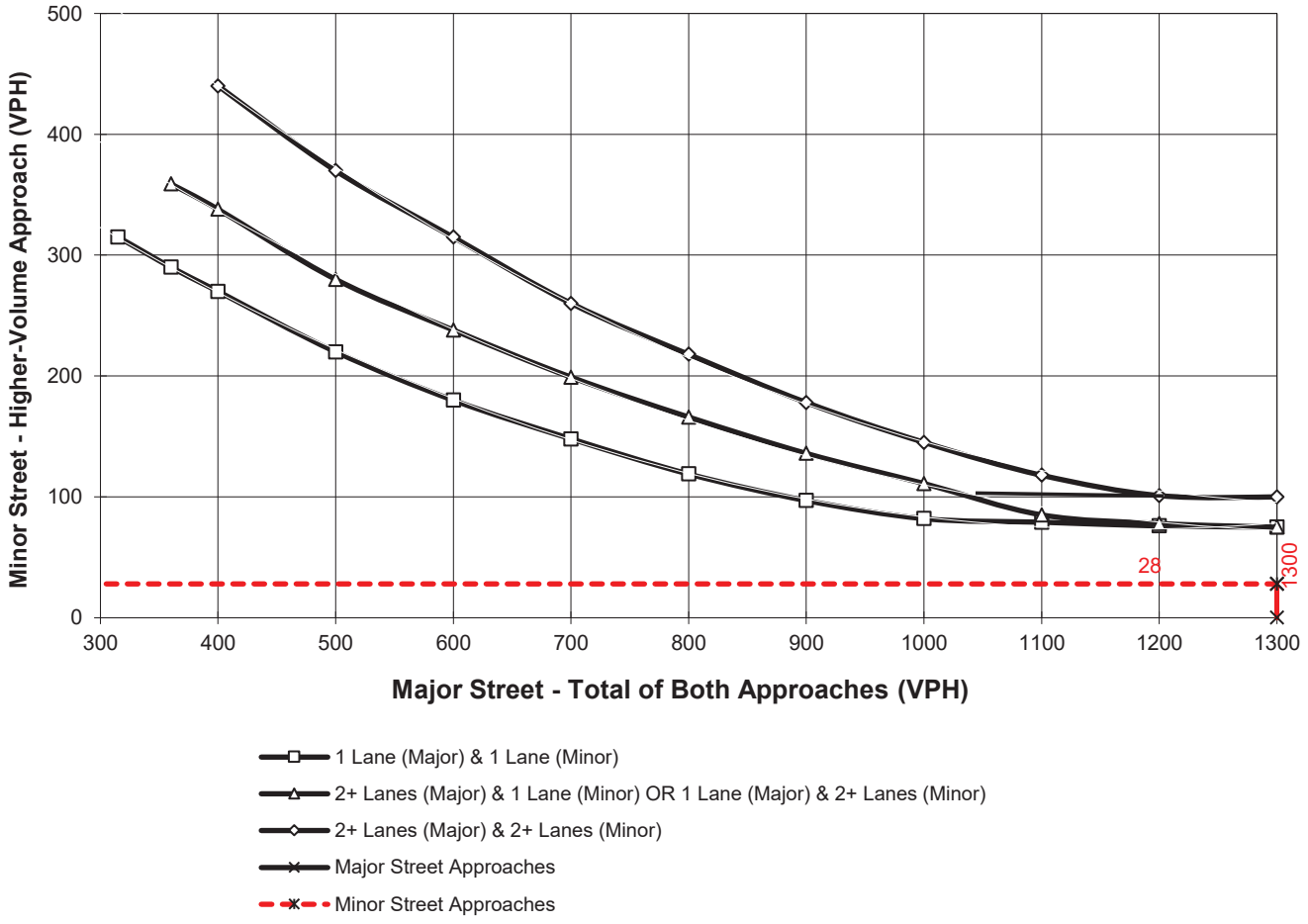
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **Horizon Year (2040) With Project Conditions - Weekday AM Peak Hour**

Major Street Name = **Phelan Road** — Total of Both Approaches (VPH) = **1891**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Bellflower Street** — High Volume Approach (VPH) = **28**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

Horizon Year (2040) With Project

DIST	CO	RTE	PM	TRAFFIC CONDITIONS		
				CALC CH	DATE	01/28/20
Jurisdiction: **City of Hesperia**				CHK CH	DATE	01/28/20
Major Street: **Yucca Terrace Dr.**				Critical Approach Speed (Major)		45 mph
Minor Street: **Driveway 2**				Critical Approach Speed (Minor)		25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **1,422** vpd Minor Street Future ADT = **1,136** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL	Minimum Requirements EADT			
	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
CONDITION A - Minimum Vehicular Volume	Urban	Rural	Urban	Rural
Satisfied / Not Satisfied: XX / XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street				
1 **1,422** / *1* **1,136**	8,000	5,600	2,400	1,680
2 + / *1*	9,600	6,720	2,400	1,680
2 + / *2* +	9,600	6,720	3,200	2,240
1 / *2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic	Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied / Not Satisfied: XX				
Number of lanes for moving traffic on each approach				
Major Street / Minor Street	Urban	Rural	Urban	Rural
1 **1,422** / *1* **1,136**	12,000	8,400	1,200	850 *
2 + / *1*	14,400	10,080	1,200	850
2 + / *2* +	14,400	10,080	1,600	1,120
1 / *2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				
Satisfied / Not Satisfied: XX	2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 25% B: 17%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

TRAFFIC CONDITIONS — **Horizon Year (2040) With Project**

DIST ___ CO ___ RTE ___ PM ___

CALC CH DATE 01/28/20

Jurisdiction: **City of Hesperia** CHK CH DATE 01/28/20

Major Street: **Yucca Terrace Drive** Critical Approach Speed (Major) 45 mph

Minor Street: **Driveway 3** Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **1** lane Minor Street Approach Lanes **1** lane

Major Street Future ADT = **4,046** vpd Minor Street Future ADT = **1,488** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN / RURAL: XX

CONDITION A - Minimum Vehicular Volume

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Minimum Requirements EADT: Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **4,046**	1 **1,488**	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240

CONDITION B - Interruption of Continuous Traffic

Satisfied / Not Satisfied: XX

Number of lanes for moving traffic on each approach

Major Street	Minor Street	Vehicles Per Day on Major Street (Total of Both Approaches) Urban	Rural	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only) Urban	Rural
1 **4,046**	1 **1,488**	12,000	8,400	1,200	850 *
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120

Combination of CONDITIONS A + B

Satisfied / Not Satisfied: XX

No one condition satisfied, but following conditions fulfilled 80% of more ….. A: 72% B: 48%

2 CONDITIONS 80%

2 CONDITIONS 80%

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)

Horizon Year (2040) With Project

DIST	CO	RTE	PM	TRAFFIC CONDITIONS			
				CALC	CH	DATE	01/23/20
				CHK	CH	DATE	01/23/20

Jurisdiction: **City of Hesperia**
Major Street: **US Highway 395** — Critical Approach Speed (Major) 45 mph
Minor Street: **Driveway 5** — Critical Approach Speed (Minor) 25 mph

Major Street Approach Lanes = **2** lane — Minor Street Approach Lanes **1** lane

Major Street Future ADT = **43,745** vpd — Minor Street Future ADT = **449** vpd

Speed limit or critical speed on major street traffic > 64 km/h (40 mph); ……... [√]

or

In built up area of isolated community of < 10,000 population …….. [ ]

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN	RURAL	Minimum Requirements EADT			
	XX				
CONDITION A - Minimum Vehicular Volume		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	8,000	5,600	2,400	1,680
2 + **43,745**	*1* **449**	9,600	6,720 *	2,400	1,680
2 +	*2* +	9,600	6,720	3,200	2,240
1	*2* +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied				
	XX				
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1	*1*	12,000	8,400	1,200	850
2 + **43,745**	*1* **449**	14,400	10,080 *	1,200	850
2 +	*2* +	14,400	10,080	1,600	1,120
1	*2* +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
Satisfied	Not Satisfied				
	XX				
No one condition satisfied, but following conditions fulfilled 80% of more ….. A 27% B 53%		2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

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APPENDIX 7.5:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	187	138	107	544	68	1224	66	323	1908	128
v/c Ratio	1.15	0.30	0.23	0.31	0.86	0.76	0.98	0.11	0.88	1.06	0.15
Control Delay	198.9	32.0	9.2	33.4	44.3	101.0	61.0	3.1	70.3	68.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.2	33.4	44.3	101.0	61.0	3.1	70.3	68.2	3.1
Queue Length 50th (ft)	~69	108	14	62	313	53	~536	0	239	~853	0
Queue Length 95th (ft)	#170	170	61	113	#516	#134	#677	18	#377	#992	31
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	65	617	599	350	629	90	1247	602	406	1805	871
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.30	0.23	0.31	0.86	0.76	0.98	0.11	0.80	1.06	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

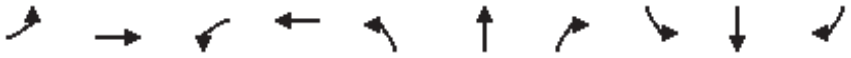


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	478	327	224	358	142	153	1075	138	320	1779	48
v/c Ratio	0.78	0.67	0.66	1.42	0.44	0.30	0.79	0.80	0.20	1.13	1.17	0.07
Control Delay	93.0	42.4	19.2	256.3	35.1	6.6	74.5	35.7	6.1	136.2	114.2	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	42.4	19.2	256.3	35.1	6.6	74.5	35.7	6.1	136.2	114.2	0.8
Queue Length 50th (ft)	53	153	62	~191	106	0	97	315	3	~236	~707	0
Queue Length 95th (ft)	#166	203	150	#412	145	44	#250	#561	50	#504	#1099	4
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	105	1341	736	158	1447	732	194	1341	682	282	1517	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.36	0.44	1.42	0.25	0.19	0.79	0.80	0.20	1.13	1.17	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	26	113	41	10	1275	87	10	2424	12
v/c Ratio	0.12	0.08	0.54	0.11	0.09	0.58	0.08	0.09	1.10	0.01
Control Delay	46.5	15.5	48.7	10.7	46.0	16.1	3.6	46.0	71.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	15.5	48.7	10.7	46.0	16.1	3.6	46.0	71.8	0.0
Queue Length 50th (ft)	5	3	41	3	4	108	0	4	406	0
Queue Length 95th (ft)	33	24	#206	28	26	#657	27	26	#1627	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	113	927	211	972	113	2207	1026	113	2207	1026
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.03	0.54	0.04	0.09	0.58	0.08	0.09	1.10	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	1170	24	901	157	1574	330	2448
v/c Ratio	0.86	0.97	0.31	0.83	0.82	1.54	0.94	1.83
Control Delay	105.8	58.2	66.3	37.9	82.8	278.7	82.1	400.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.8	58.2	66.3	37.9	82.8	278.7	82.1	400.9
Queue Length 50th (ft)	84	~479	18	267	121	~923	255	~1545
Queue Length 95th (ft)	#193	#633	48	348	#234	#1064	#439	#1681
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	124	1203	77	1176	201	1023	357	1340
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.97	0.31	0.77	0.78	1.54	0.92	1.83

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	18.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	432	1230	68	565	1929
Future Vol, veh/h	122	432	1230	68	565	1929
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	131	465	1323	73	608	2074

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4650	698	0	0	1396	0
Stage 1	1360	-	-	-	-	-
Stage 2	3290	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 388	-	-	~ 496	-
Stage 1	207	-	-	-	-	-
Stage 2	~ 25	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 388	-	-	~ 496	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	207	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	32.6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	388	~ 496	-
HCM Lane V/C Ratio	-	-	-	1.197	1.225	-
HCM Control Delay (s)	-	-	-	142.1	143.8	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	18.8	23.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	298	252	2	63	268	1272	154	48	2037	145
v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.65	0.17	0.49	1.13	0.17
Control Delay	34.9	26.8	198.3	31.5	6.6	411.4	21.6	2.7	72.5	95.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	26.8	198.3	31.5	6.6	411.4	21.6	2.7	72.5	95.2	8.0
Queue Length 50th (ft)	45	119	~248	1	0	~311	366	0	37	~962	25
Queue Length 95th (ft)	87	213	#415	8	29	#482	443	32	78	#1100	61
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	395	529	196	522	490	150	1971	933	105	1805	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.65	0.17	0.46	1.13	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	84	140	97	259	14	1370	90	296	2033	258
v/c Ratio	0.25	0.22	0.52	0.25	0.49	0.14	0.84	0.12	0.79	0.82	0.22
Control Delay	31.5	29.4	38.1	30.7	6.9	50.3	30.6	5.8	50.7	16.7	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	29.4	38.1	30.7	6.9	50.3	30.6	5.8	50.7	16.7	4.5
Queue Length 50th (ft)	31	37	68	44	0	7	313	0	144	282	14
Queue Length 95th (ft)	69	79	131	90	56	33	#806	36	314	#1082	94
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	633	921	650	926	910	102	1631	779	552	2491	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09	0.22	0.10	0.28	0.14	0.84	0.12	0.54	0.82	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1461	37	1206	24	457	308
v/c Ratio	0.56	0.02	0.46	0.01	0.43	0.58
Control Delay	9.9	0.0	9.0	0.0	16.4	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	0.0	9.0	0.0	16.4	18.0
Queue Length 50th (ft)	95	0	73	0	53	59
Queue Length 95th (ft)	183	0	143	0	112	155
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	5116	1615	5116	1615	3009	1396
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.02	0.24	0.01	0.15	0.22

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1439	419	1777	684	164	281	285
v/c Ratio	0.45	0.36	0.55	0.54	0.35	0.65	0.66
Control Delay	9.5	1.8	10.6	2.5	30.2	32.6	33.1
Queue Delay	0.0	0.0	0.1	0.3	0.0	0.0	0.0
Total Delay	9.5	1.8	10.7	2.8	30.2	32.6	33.1
Queue Length 50th (ft)	127	0	173	0	70	114	116
Queue Length 95th (ft)	239	38	320	45	155	253	258
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	4354	1423	4354	1465	875	770	767
Starvation Cap Reductn	0	0	1088	266	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.29	0.54	0.57	0.19	0.36	0.37

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	106	102	85	72	478	124	1945	128	315	1499	127
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.45	0.19	0.89	0.86	0.15
Control Delay	175.7	31.4	4.9	31.9	43.5	95.4	238.7	7.0	74.8	33.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	31.9	43.5	95.4	238.7	7.0	74.8	33.5	3.3
Queue Length 50th (ft)	~96	58	0	41	283	96	~1101	8	236	525	0
Queue Length 95th (ft)	#214	102	28	79	#457	#204	#1239	49	#387	631	32
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	93	586	568	405	585	150	1339	670	376	1746	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.83	1.45	0.19	0.84	0.86	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	117	463	198	157	537	220	427	1843	300	241	1397	100
v/c Ratio	1.12	0.62	0.40	1.51	0.72	0.44	1.29	1.29	0.40	0.87	1.06	0.16
Control Delay	171.6	40.6	6.9	306.6	43.5	7.0	188.2	165.1	12.2	73.5	73.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	171.6	40.6	6.9	306.6	43.5	7.0	188.2	165.1	12.2	73.5	73.9	7.4
Queue Length 50th (ft)	~86	147	0	~140	175	0	~348	~790	52	153	~511	4
Queue Length 95th (ft)	#238	196	53	#319	228	56	#659	#1179	152	#359	#839	44
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	104	1324	717	104	1324	723	331	1429	743	278	1324	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.35	0.28	1.51	0.41	0.30	1.29	1.29	0.40	0.87	1.06	0.16

Intersection Summary

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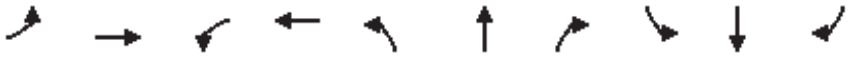
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	4	65	17	13	2580	126	17	1589	17
v/c Ratio	0.07	0.01	0.32	0.06	0.12	1.08	0.11	0.16	0.67	0.02
Control Delay	44.9	0.0	44.2	14.2	45.5	62.7	4.8	46.2	15.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	0.0	44.2	14.2	45.5	62.7	4.8	46.2	15.3	0.0
Queue Length 50th (ft)	4	0	28	1	6	498	3	8	155	0
Queue Length 95th (ft)	23	0	#139	18	32	#1719	52	38	#887	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	108	889	202	867	108	2384	1100	108	2384	1100
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.00	0.32	0.02	0.12	1.08	0.11	0.16	0.67	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	104	961	28	1353	293	2939	402	1748
v/c Ratio	1.39	0.78	0.37	1.20	0.98	2.48	1.58	1.58
Control Delay	279.2	40.6	70.2	133.6	96.6	687.6	312.1	296.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	40.6	70.2	133.6	96.6	687.6	312.1	296.0
Queue Length 50th (ft)	~107	360	22	~656	228	~2009	~442	~1021
Queue Length 95th (ft)	#223	446	54	#797	#406	#2134	#640	#1163
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	75	1231	75	1129	300	1187	255	1106
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.78	0.37	1.20	0.98	2.48	1.58	1.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	94.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	762	2308	188	512	1191
Future Vol, veh/h	91	762	2308	188	512	1191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	778	2355	192	522	1215

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4710	1274	0	0	2547	0
Stage 1	2451	-	-	-	-	-
Stage 2	2259	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 161	-	-	~ 177	-
Stage 1	~ 52	-	-	-	-	-
Stage 2	~ 86	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 161	-	-	~ 177	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	~ 52	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	280.6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	161	~ 177	-
HCM Lane V/C Ratio	-	-	-	4.83	2.952	-
HCM Control Delay (s)	-	-	$ 1778.4	$ 933.4		-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	80.7	47.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	291	234	8	179	236	2279	212	69	1126	113
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	1.04	0.21	0.92	0.64	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	54.0	3.8	141.0	25.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	64.1	3.8	141.0	25.6	3.5
Queue Length 50th (ft)	59	1	~283	5	39	177	~1002	19	54	335	0
Queue Length 95th (ft)	110	75	#446	19	107	259	#1136	51	#149	437	31
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	297	566	116	395	429	361	2196	1020	75	1764	849
Starvation Cap Reductn	0	0	0	0	0	0	53	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.65	1.06	0.21	0.92	0.64	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	418	173	118	78	488	36	1849	126	206	1391	68
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	1.30	0.18	0.72	0.71	0.08
Control Delay	62.7	27.2	30.3	26.2	7.1	72.5	170.9	10.0	60.1	23.3	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.1	72.5	170.9	10.0	60.1	23.3	5.5
Queue Length 50th (ft)	299	90	65	40	22	28	~975	17	154	447	4
Queue Length 95th (ft)	#486	147	116	76	110	#70	#1197	63	224	538	28
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	522	731	428	739	892	81	1422	691	457	1961	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.28	0.11	0.55	0.44	1.30	0.18	0.45	0.71	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	1807	1901	787	572
v/c Ratio	0.75	0.79	0.52	0.81
Control Delay	24.6	25.8	21.4	33.7
Queue Delay	0.2	0.0	0.0	0.0
Total Delay	24.8	25.8	21.4	33.7
Queue Length 50th (ft)	319	346	191	315
Queue Length 95th (ft)	506	546	250	467
Internal Link Dist (ft)	480	822		
Turn Bay Length (ft)			1000	540
Base Capacity (vph)	2891	2891	2256	1045
Starvation Cap Reductn	324	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	0.66	0.35	0.55

Intersection Summary



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2272	322	1904	577	261	605	605
v/c Ratio	0.91	0.36	0.77	0.56	0.33	0.88	0.88
Control Delay	35.7	6.8	28.2	5.4	22.2	44.9	44.9
Queue Delay	0.0	0.0	46.1	0.9	0.0	0.0	0.0
Total Delay	35.7	6.8	74.3	6.3	22.2	44.9	44.9
Queue Length 50th (ft)	602	37	448	30	124	416	416
Queue Length 95th (ft)	#702	98	512	113	187	#648	#648
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	2486	897	2486	1038	865	743	743
Starvation Cap Reductn	0	0	750	216	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.36	1.10	0.70	0.30	0.81	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.6:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	187	138	116	544	68	1232	67	323	1953	128
v/c Ratio	1.15	0.30	0.23	0.33	0.86	0.76	0.99	0.11	0.88	1.08	0.15
Control Delay	198.9	32.0	9.3	34.0	44.3	101.0	62.5	3.1	70.3	77.1	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.3	34.0	44.3	101.0	62.5	3.1	70.3	77.1	3.2
Queue Length 50th (ft)	~69	108	15	68	313	53	~543	0	239	~891	0
Queue Length 95th (ft)	#170	170	62	122	#516	#134	#684	19	#377	#1029	32
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	65	617	599	350	629	90	1247	602	406	1805	871
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.30	0.23	0.33	0.86	0.76	0.99	0.11	0.80	1.08	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

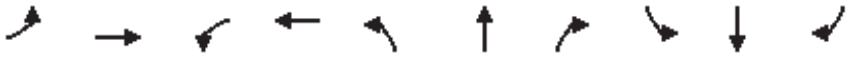


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	478	327	259	358	142	153	1085	144	320	1832	48
v/c Ratio	0.78	0.67	0.66	1.64	0.44	0.30	0.79	0.81	0.21	1.13	1.21	0.07
Control Delay	93.0	42.4	19.4	345.3	35.1	6.6	74.5	36.0	6.2	136.2	128.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	42.4	19.4	345.3	35.1	6.6	74.5	36.0	6.2	136.2	128.7	0.8
Queue Length 50th (ft)	53	153	63	~238	106	0	97	319	4	~236	~745	0
Queue Length 95th (ft)	#166	203	151	#478	145	44	#250	#570	52	#504	#1144	4
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	105	1341	735	158	1447	732	194	1341	684	282	1517	731
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.36	0.44	1.64	0.25	0.19	0.79	0.81	0.21	1.13	1.21	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	14	36	131	41	11	1290	90	10	2515	12
v/c Ratio	0.13	0.11	0.67	0.09	0.10	0.61	0.09	0.09	1.19	0.01
Control Delay	47.8	13.7	57.9	10.4	47.2	17.7	3.9	47.1	111.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	13.7	57.9	10.4	47.2	17.7	3.9	47.1	111.2	0.0
Queue Length 50th (ft)	7	4	63	3	5	205	0	5	~810	0
Queue Length 95th (ft)	33	27	#243	28	29	#671	29	26	#1703	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	109	891	195	943	109	2115	987	109	2115	987
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.04	0.67	0.04	0.10	0.61	0.09	0.09	1.19	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	107	1300	24	1931	247	1663	391	2463
v/c Ratio	0.89	1.03	0.32	1.78	1.27	1.68	1.13	1.91
Control Delay	113.0	71.4	67.3	381.6	197.5	339.4	133.8	438.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.0	71.4	67.3	381.6	197.5	339.4	133.8	438.2
Queue Length 50th (ft)	84	~607	18	~1163	~241	~999	~351	~1558
Queue Length 95th (ft)	#193	#747	48	#1303	#407	#1141	#546	#1693
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	120	1262	75	1085	195	991	345	1289
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	1.03	0.32	1.78	1.27	1.68	1.13	1.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	29.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	122	432	1401	68	565	1958
Future Vol, veh/h	122	432	1401	68	565	1958
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	131	465	1506	73	608	2105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4864	790	0	0	1579	0
Stage 1	1543	-	-	-	-	-
Stage 2	3321	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 337	-	-	~ 422	-
Stage 1	165	-	-	-	-	-
Stage 2	~ 24	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 337	-	-	~ 422	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	165	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	52.9
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	337	~ 422	-
HCM Lane V/C Ratio	-	-	-	1.378	1.44	-
HCM Control Delay (s)	-	-	-	218.6	236.2	-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	23.4	30.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	298	252	2	63	268	1458	154	48	2068	145
v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.74	0.17	0.49	1.15	0.17
Control Delay	34.9	26.8	198.3	31.5	6.6	411.4	24.3	3.5	72.5	102.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	26.8	198.3	31.5	6.6	411.4	24.3	3.5	72.5	102.2	8.1
Queue Length 50th (ft)	45	119	~248	1	0	~311	456	5	37	~988	25
Queue Length 95th (ft)	87	213	#415	8	29	#482	550	38	78	#1126	61
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	395	529	196	522	490	150	1971	926	105	1805	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.56	1.29	0.00	0.13	1.79	0.74	0.17	0.46	1.15	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	84	140	97	296	14	1518	90	302	2059	258
v/c Ratio	0.25	0.22	0.52	0.25	0.53	0.14	0.94	0.12	0.79	0.83	0.22
Control Delay	31.6	29.5	38.2	30.8	7.0	50.5	38.5	5.8	50.8	17.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	29.5	38.2	30.8	7.0	50.5	38.5	5.8	50.8	17.1	4.5
Queue Length 50th (ft)	31	37	68	45	0	7	378	0	148	291	14
Queue Length 95th (ft)	69	79	131	90	59	33	#931	36	#324	#1104	95
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	632	918	648	923	927	102	1621	775	550	2492	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.09	0.22	0.11	0.32	0.14	0.94	0.12	0.55	0.83	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	1555	119	1785	24	457	771
v/c Ratio	0.65	0.07	0.75	0.01	0.29	1.06
Control Delay	21.8	0.1	24.0	0.0	19.7	78.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	0.1	24.0	0.0	19.7	78.9
Queue Length 50th (ft)	269	0	330	0	92	~535
Queue Length 95th (ft)	313	0	381	0	160	#923
Internal Link Dist (ft)	480		822			
Turn Bay Length (ft)		250		150	1000	540
Base Capacity (vph)	3463	1615	3463	1615	1563	729
Starvation Cap Reductn	354	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.07	0.52	0.01	0.29	1.06

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1454	495	1864	684	638	281	285
v/c Ratio	0.50	0.44	0.63	0.56	1.02	0.50	0.51
Control Delay	14.5	2.2	16.7	2.7	77.5	29.1	29.4
Queue Delay	0.0	0.0	0.6	0.6	0.0	0.0	0.0
Total Delay	14.5	2.2	17.3	3.3	77.5	29.1	29.4
Queue Length 50th (ft)	208	0	300	0	~502	141	144
Queue Length 95th (ft)	243	40	344	45	#802	254	258
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	3543	1260	3543	1320	628	565	563
Starvation Cap Reductn	0	0	1140	292	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.39	0.78	0.67	1.02	0.50	0.51

Intersection Summary

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Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	106	102	85	74	478	124	1986	136	315	1507	127
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.48	0.20	0.89	0.86	0.15
Control Delay	175.7	31.4	4.9	32.0	43.5	95.4	251.9	7.2	74.8	33.8	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	32.0	43.5	95.4	251.9	7.2	74.8	33.8	3.3
Queue Length 50th (ft)	~96	58	0	42	283	96	~1136	9	236	529	0
Queue Length 95th (ft)	#214	102	28	82	#457	#204	#1274	52	#387	636	32
Internal Link Dist (ft)		549			898		7898			714	
Turn Bay Length (ft)	120		120	425		415		460	400		400
Base Capacity (vph)	93	586	568	405	585	150	1339	673	376	1746	847
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.83	1.48	0.20	0.84	0.86	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	117	463	198	164	537	220	427	1894	336	241	1407	100
v/c Ratio	1.12	0.62	0.40	1.58	0.72	0.44	1.29	1.33	0.45	0.87	1.06	0.16
Control Delay	171.6	40.6	6.9	333.2	43.5	7.0	188.2	180.4	12.9	73.5	76.4	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	171.6	40.6	6.9	333.2	43.5	7.0	188.2	180.4	12.9	73.5	76.4	7.4
Queue Length 50th (ft)	~86	147	0	~149	175	0	~348	~826	62	153	~518	4
Queue Length 95th (ft)	#238	196	53	#332	228	56	#659	#1222	175	#359	#847	44
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	104	1324	717	104	1324	723	331	1429	752	278	1324	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.35	0.28	1.58	0.41	0.30	1.29	1.33	0.45	0.87	1.06	0.16

Intersection Summary

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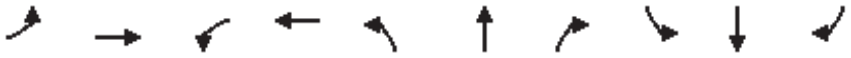

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	6	69	17	21	2666	144	17	1607	17
v/c Ratio	0.07	0.02	0.34	0.06	0.19	1.12	0.13	0.16	0.68	0.02
Control Delay	44.8	0.0	44.2	14.1	46.6	78.7	5.3	45.9	15.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	0.0	44.2	14.1	46.6	78.7	5.3	45.9	15.5	0.0
Queue Length 50th (ft)	4	0	29	1	9	~704	5	8	158	0
Queue Length 95th (ft)	23	0	#149	18	44	#1791	64	38	#902	0
Internal Link Dist (ft)		810		782		6483			5210	
Turn Bay Length (ft)	200		250		500		350	430		300
Base Capacity (vph)	109	894	203	874	109	2378	1098	109	2378	1098
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.01	0.34	0.02	0.19	1.12	0.13	0.16	0.68	0.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	104	1694	28	1559	312	2958	744	1836
v/c Ratio	1.39	1.38	0.37	1.38	1.04	2.49	2.92	1.66
Control Delay	279.2	206.4	70.2	210.1	111.5	694.7	893.1	329.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	206.4	70.2	210.1	111.5	694.7	893.1	329.7
Queue Length 50th (ft)	~107	~963	22	~836	~260	~2025	~993	~1096
Queue Length 95th (ft)	#223	#1105	54	#978	#441	#2151	#1230	#1237
Internal Link Dist (ft)		1117		1265		3985		1763
Turn Bay Length (ft)	340		250		280		250	
Base Capacity (vph)	75	1232	75	1128	300	1187	255	1107
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	1.38	0.37	1.38	1.04	2.49	2.92	1.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	95.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	762	2345	188	512	1359
Future Vol, veh/h	91	762	2345	188	512	1359
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	375	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	778	2393	192	522	1387

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	4920	1293	0	0	2585	0
Stage 1	2489	-	-	-	-	-
Stage 2	2431	-	-	-	-	-
Critical Hdwy	6.6	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 1	~ 156	-	-	~ 171	-
Stage 1	~ 50	-	-	-	-	-
Stage 2	~ 70	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	~ 156	-	-	~ 171	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	~ 50	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	268.5
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	156	~ 171	-
HCM Lane V/C Ratio	-	-	-	4.984	3.055	-
HCM Control Delay (s)	-	-	$ 1849.4	$ 981.2		-
HCM Lane LOS	-	-	-	F	F	-
HCM 95th %tile Q(veh)	-	-	-	81.3	48	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	291	234	8	179	236	2316	212	69	1297	113
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	1.05	0.21	0.92	0.74	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	59.7	3.9	141.0	28.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	70.1	3.9	141.0	28.4	3.5
Queue Length 50th (ft)	59	1	~283	5	39	177	~1033	19	54	414	0
Queue Length 95th (ft)	110	75	#446	19	107	259	#1167	51	#149	537	31
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	297	566	116	395	429	361	2196	1019	75	1764	849
Starvation Cap Reductn	0	0	0	0	0	0	51	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.65	1.08	0.21	0.92	0.74	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	418	173	118	78	495	36	1879	126	241	1530	68
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	1.39	0.19	0.76	0.78	0.08
Control Delay	62.7	27.2	30.3	26.2	7.5	72.5	209.1	10.7	59.4	25.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.5	72.5	209.1	10.7	59.4	25.7	5.8
Queue Length 50th (ft)	299	90	65	40	26	28	~1030	17	180	524	5
Queue Length 95th (ft)	#486	147	116	76	118	#70	#1258	65	254	630	29
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	522	731	428	739	892	81	1354	662	457	1961	902
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.28	0.11	0.55	0.44	1.39	0.19	0.53	0.78	0.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	SBL	SBR
Lane Group Flow (vph)	2322	452	2013	787	662
v/c Ratio	0.96	0.28	0.83	0.50	0.90
Control Delay	40.9	0.4	31.0	22.4	44.3
Queue Delay	36.2	0.0	0.0	0.0	0.0
Total Delay	77.1	0.4	31.0	22.4	44.3
Queue Length 50th (ft)	605	0	473	198	415
Queue Length 95th (ft)	#808	0	596	250	597
Internal Link Dist (ft)	480		822		
Turn Bay Length (ft)		250		1000	540
Base Capacity (vph)	2424	1615	2424	1891	879
Starvation Cap Reductn	280	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	0.28	0.83	0.42	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	2359	749	1923	577	355	605	605
v/c Ratio	0.95	0.72	0.78	0.56	0.44	0.88	0.88
Control Delay	40.5	11.2	28.8	5.6	24.2	44.1	44.1
Queue Delay	0.0	0.0	47.5	0.9	0.0	0.0	0.0
Total Delay	40.5	11.2	76.3	6.5	24.2	44.1	44.1
Queue Length 50th (ft)	645	125	455	32	180	416	416
Queue Length 95th (ft)	#779	284	520	117	261	#648	#648
Internal Link Dist (ft)	822		339			457	
Turn Bay Length (ft)		250			1000		615
Base Capacity (vph)	2472	1047	2472	1032	860	739	739
Starvation Cap Reductn	0	0	745	215	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.72	1.11	0.71	0.41	0.82	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.7:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	6409	7146	0.90	59.0	36.2	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.901	6409	807	7200	2100	0.89	0.38	63.5	59.6	33.6	37.3	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	5600	7146	0.78	63.8	29.3	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	6355	755	7200	1900	0.88	0.40	58.0	55.3	36.5	34.5	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	6355	7146	0.89	59.3	35.7	E

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	6796	441	7200	2100	0.94	0.21	57.4	55.0	39.5	35.0	D

Segment 7: Basic

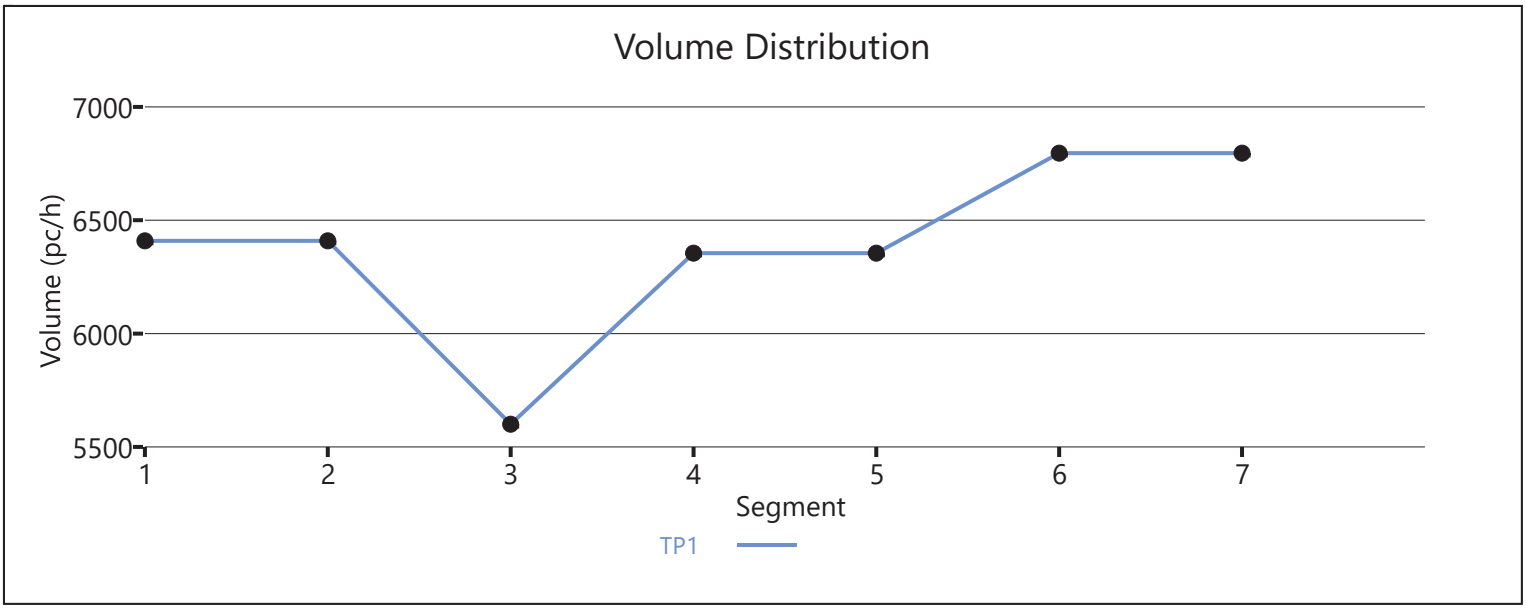
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	6796	7146	0.95	56.0	40.4	E

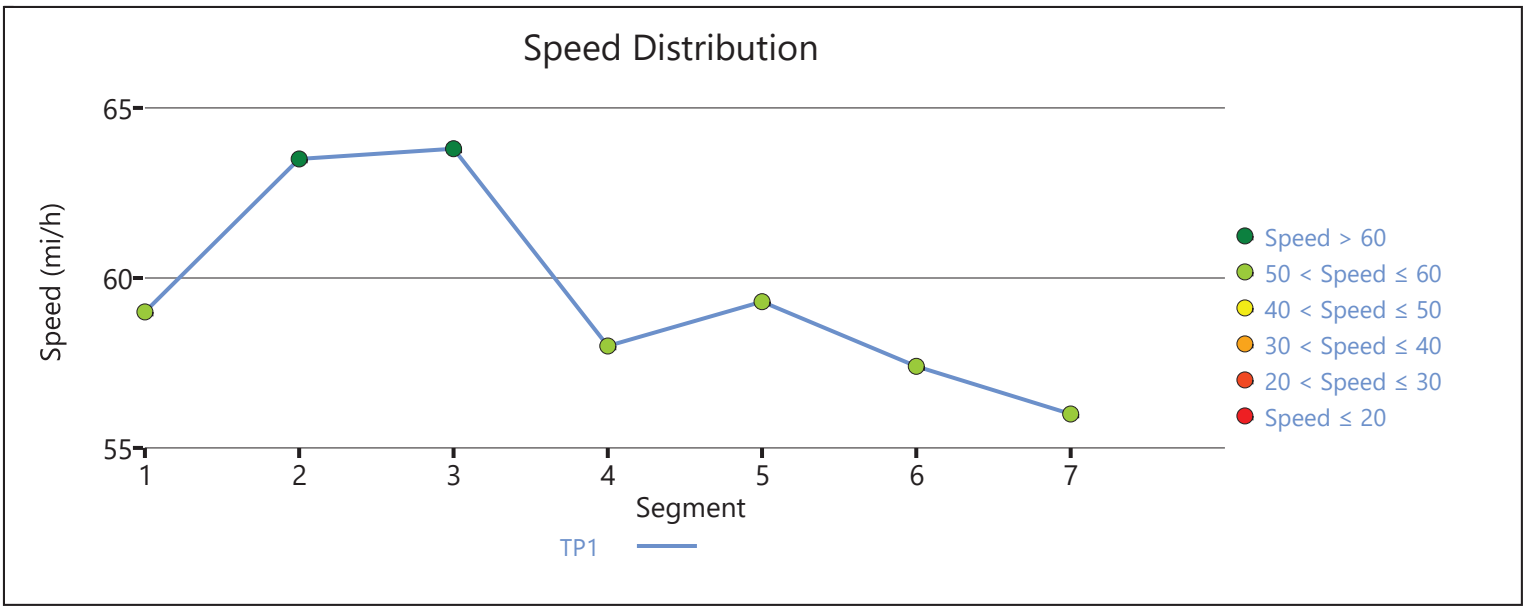
Facility Time Period Results

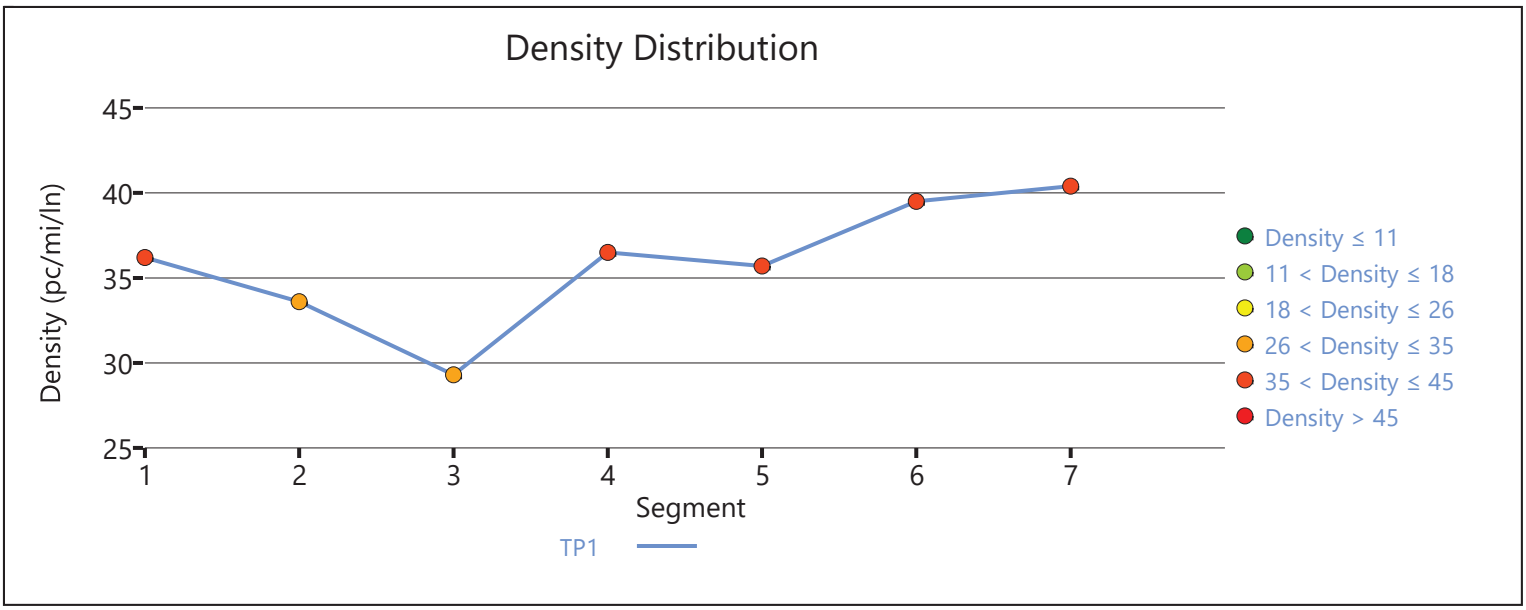
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.5	36.9	35.6	5.7	E

Facility Overall Results

Space Mean Speed, mi/h	58.5	Density, veh/mi/ln	35.6
Average Travel Time, min	5.7	Density, pc/mi/ln	36.9







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	8043	7179	1.12	53.2	45.0	F

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.893	8542	2438	9600	2100	0.84	1.16	53.1	-	40.2	-	F

Segment 3: Basic

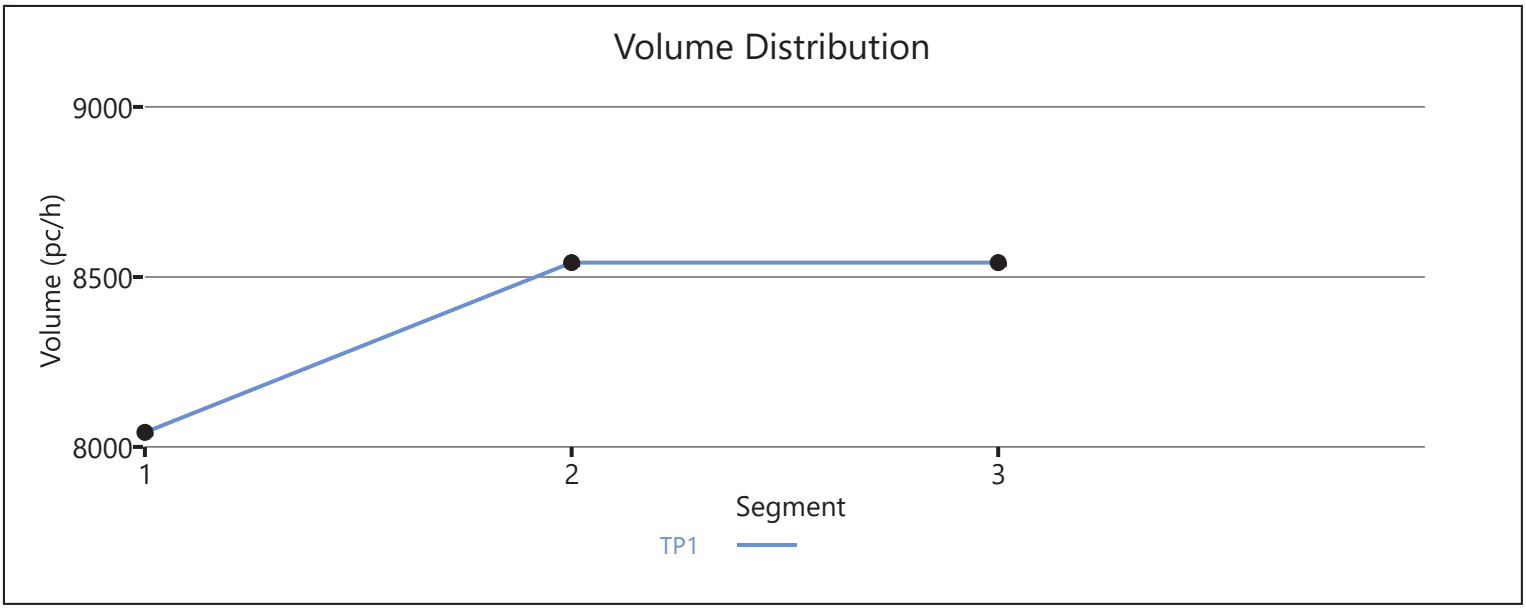
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	8542	9572	1.10	59.9	35.7	F

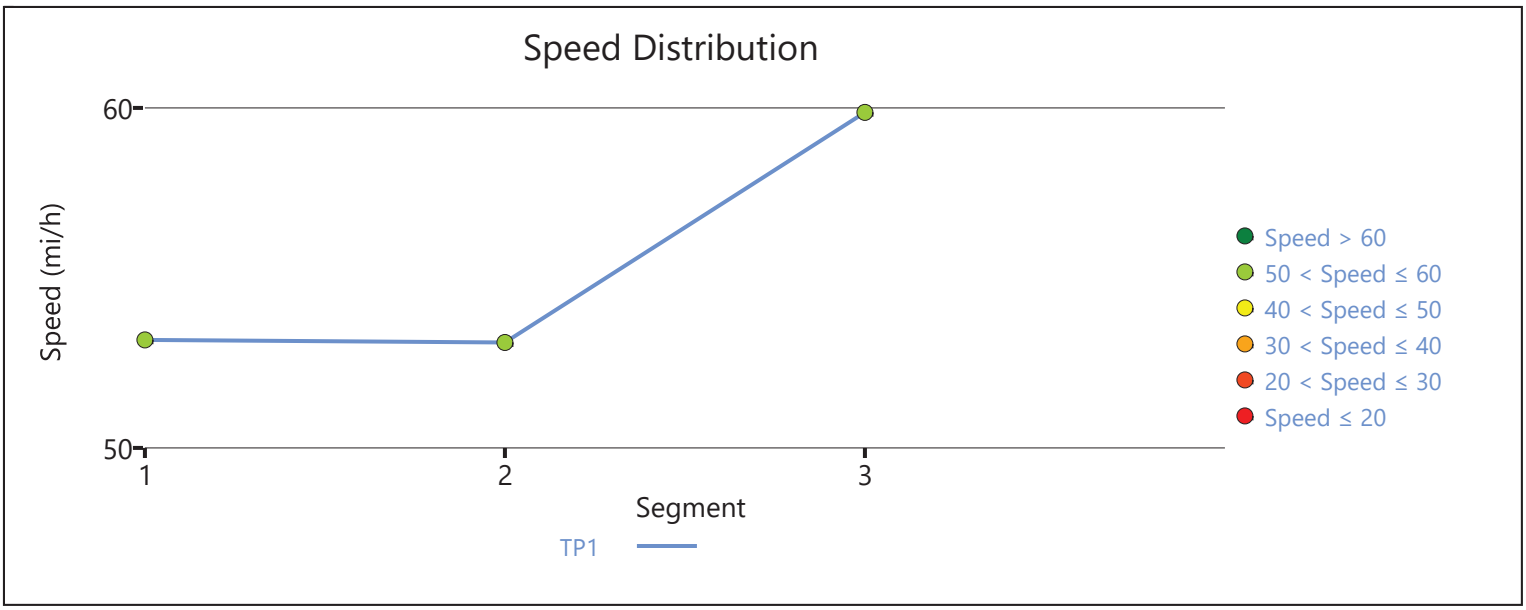
Facility Time Period Results

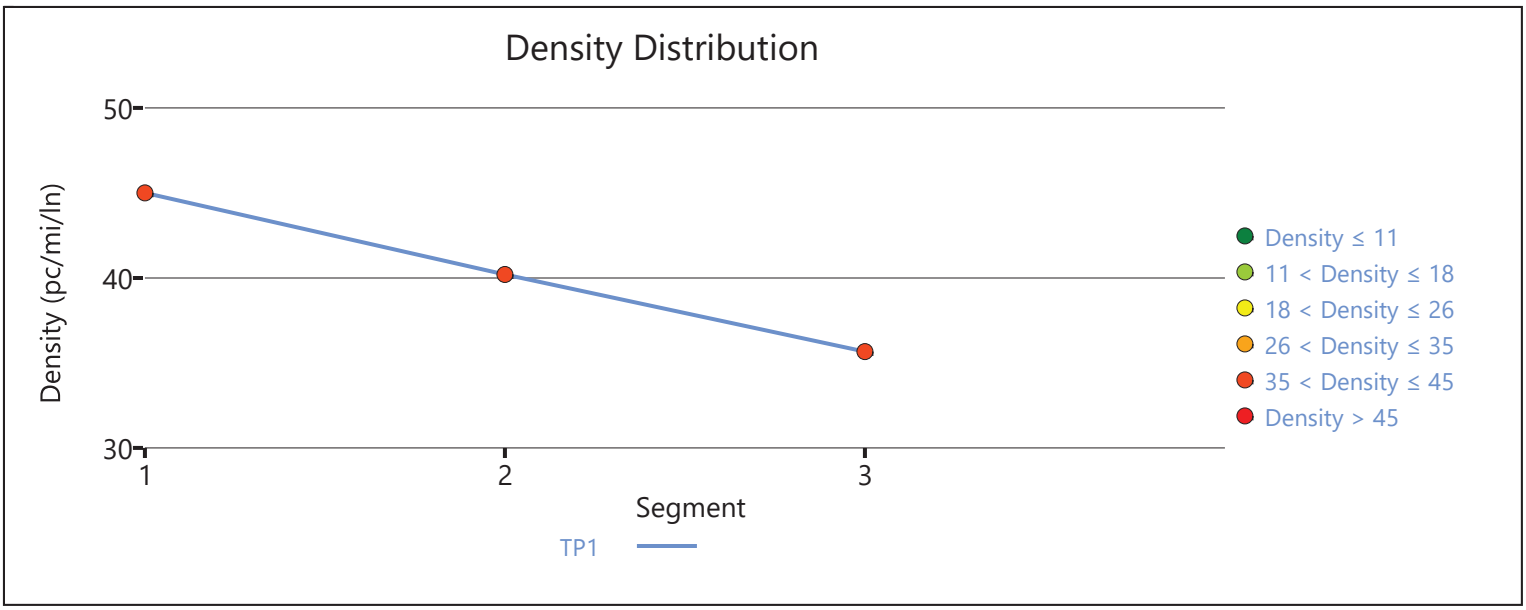
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	55.5	40.0	38.5	2.0	F

Facility Overall Results

Space Mean Speed, mi/h	55.5	Density, veh/mi/ln	38.5
Average Travel Time, min	2.0	Density, pc/mi/ln	40.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	4789	7146	0.67	66.9	23.9	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.926	4789	840	7200	2100	0.67	0.40	63.7	59.5	25.1	30.7	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	3951	7146	0.55	68.2	19.3	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	4415	464	7200	1900	0.61	0.24	62.0	59.9	23.7	24.1	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	4447	7146	0.62	67.7	21.9	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	5206	759	7200	2100	0.72	0.36	60.9	58.8	28.5	29.0	D

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	5206	7146	0.73	65.5	26.5	D

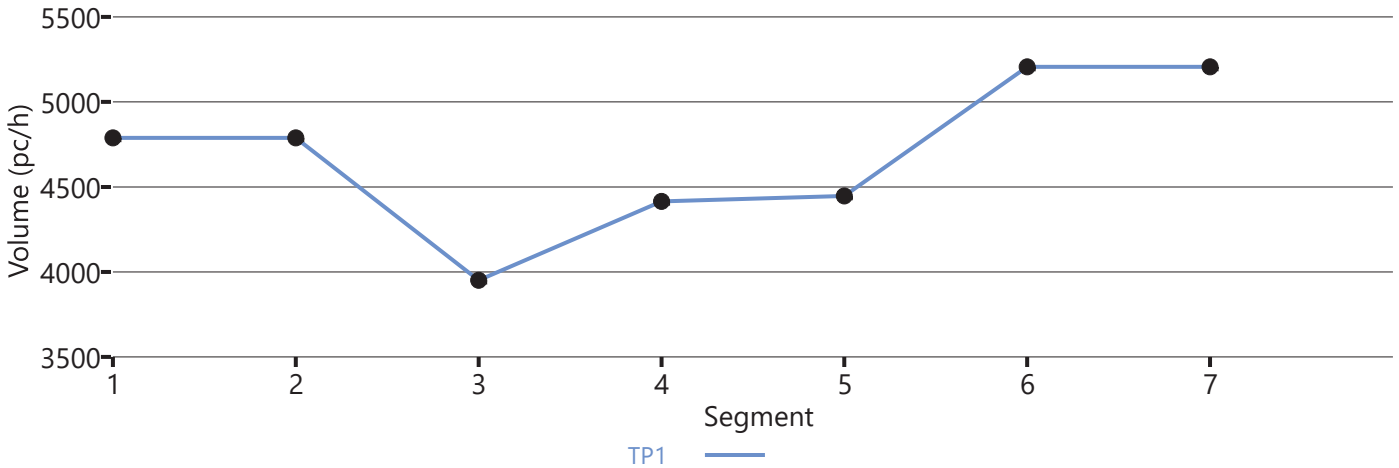
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	65.4	25.4	24.6	5.1	C

Facility Overall Results

Space Mean Speed, mi/h	65.4	Density, veh/mi/ln	24.6
Average Travel Time, min	5.1	Density, pc/mi/ln	25.4

Volume Distribution



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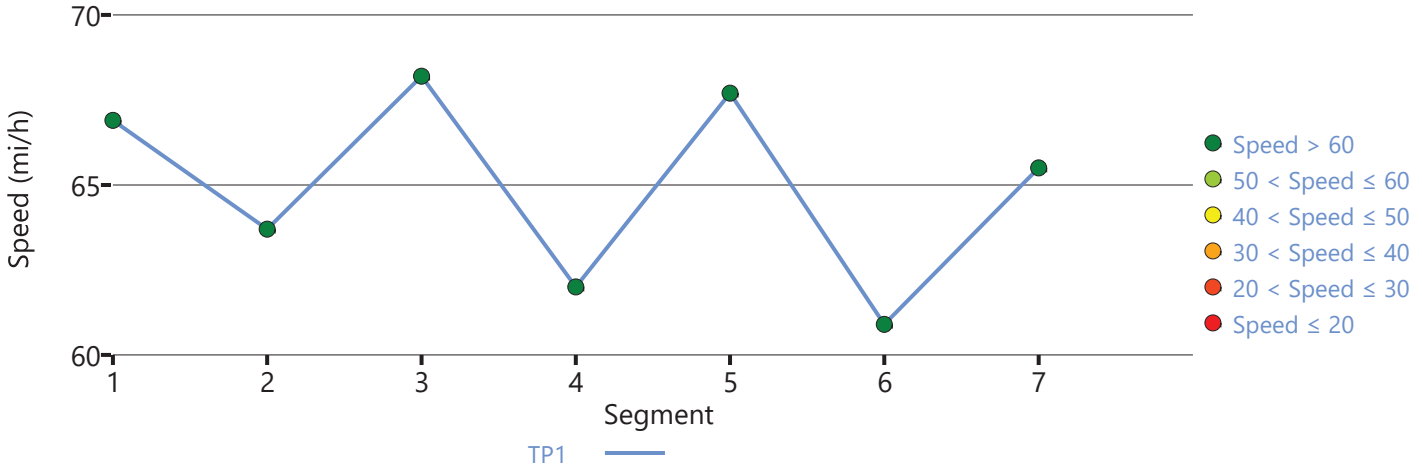

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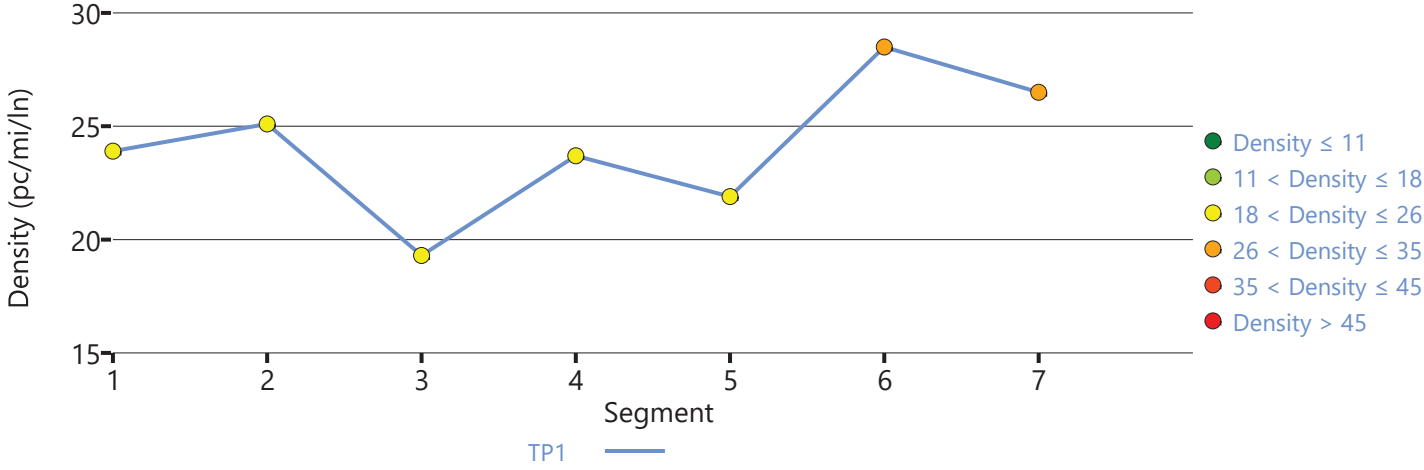

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	7050	9572	0.74	65.9	26.7	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.870	7050	1694	9600	2100	0.73	0.81	63.8	57.4	27.6	33.6	D

Segment 3: Basic

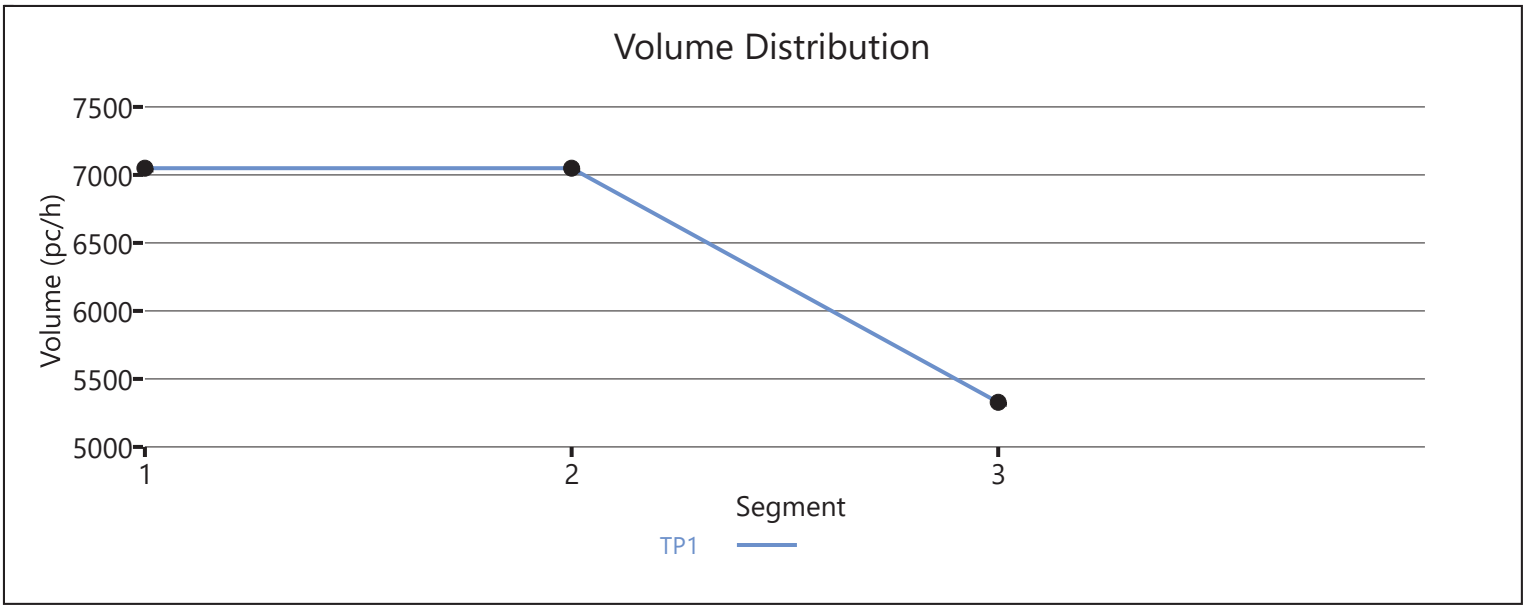
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	5328	9572	0.56	69.2	19.2	C

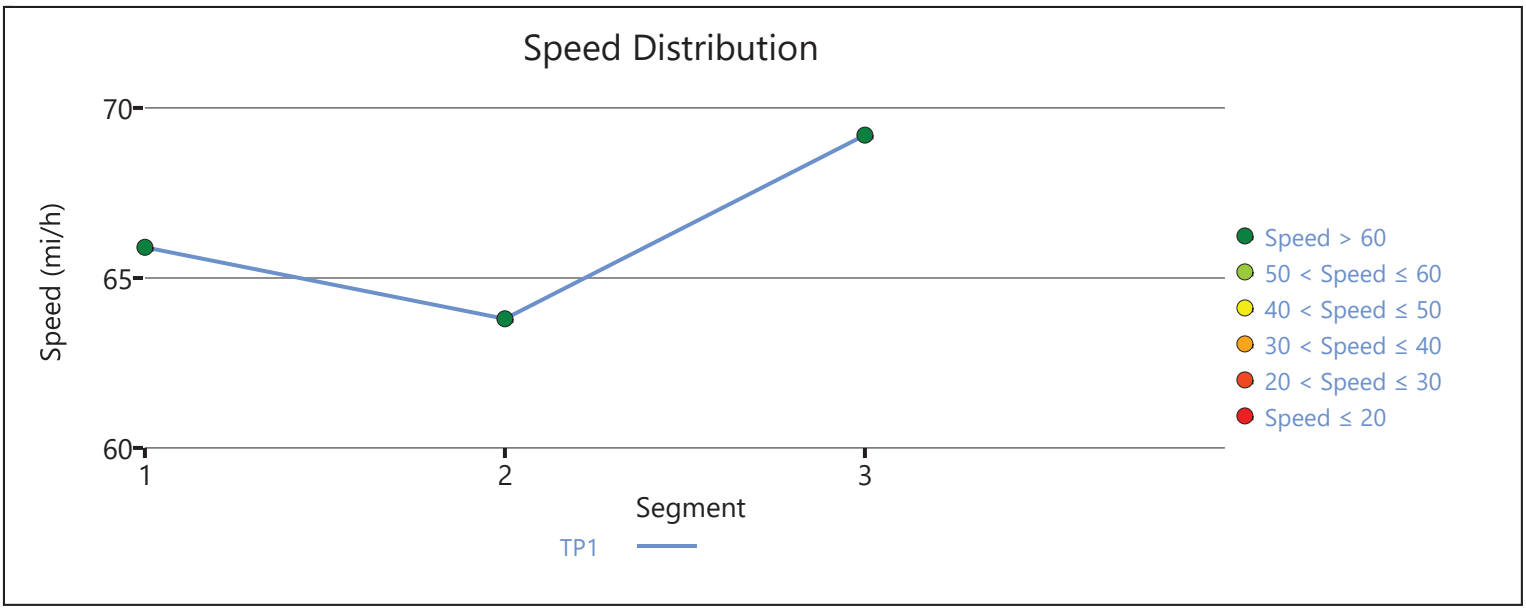
Facility Time Period Results

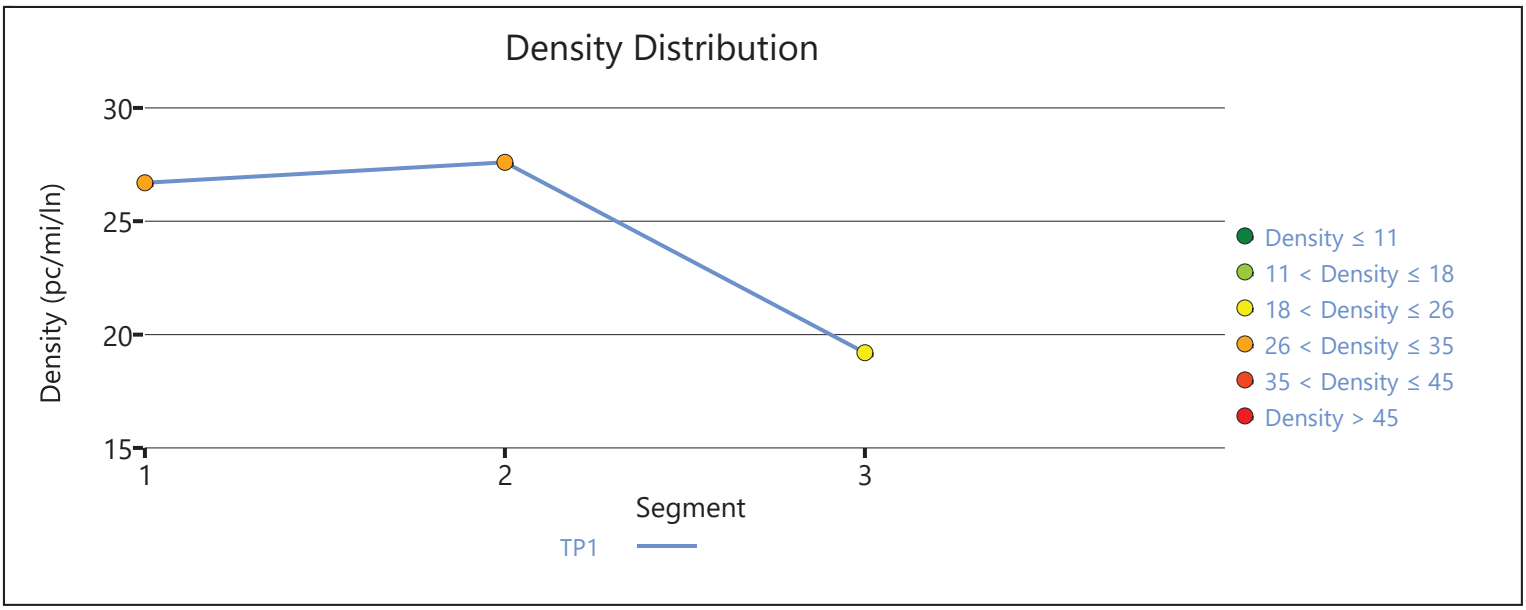
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.4	22.0	21.1	1.7	C

Facility Overall Results

Space Mean Speed, mi/h	67.4	Density, veh/mi/ln	21.1
Average Travel Time, min	1.7	Density, pc/mi/ln	22.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	6685	7146	0.94	56.9	39.2	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.971	6685	1357	7200	2100	0.93	0.65	62.4	58.2	35.7	39.2	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5315	7146	0.74	65.1	27.2	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.917	5594	279	7200	1900	0.78	0.15	60.3	58.2	30.9	29.7	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5581	7146	0.78	63.9	29.1	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.847	5700	119	7200	2100	0.79	0.06	60.7	58.9	31.3	29.1	D

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5686	7146	0.80	63.4	29.9	D

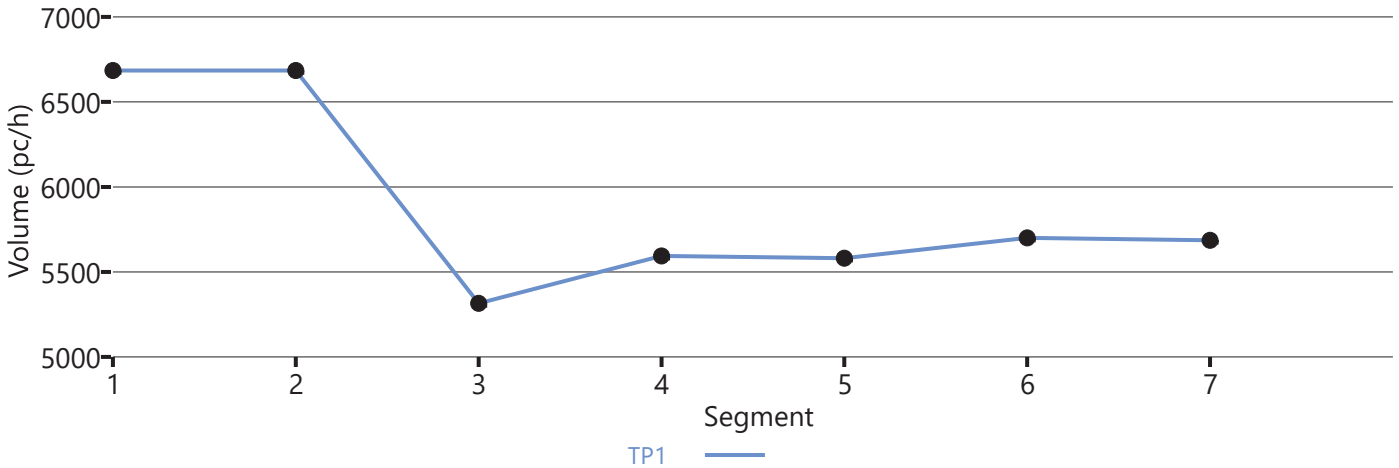
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	59.1	35.4	34.1	5.6	E

Facility Overall Results

Space Mean Speed, mi/h	59.1	Density, veh/mi/ln	34.1
Average Travel Time, min	5.6	Density, pc/mi/ln	35.4

Volume Distribution



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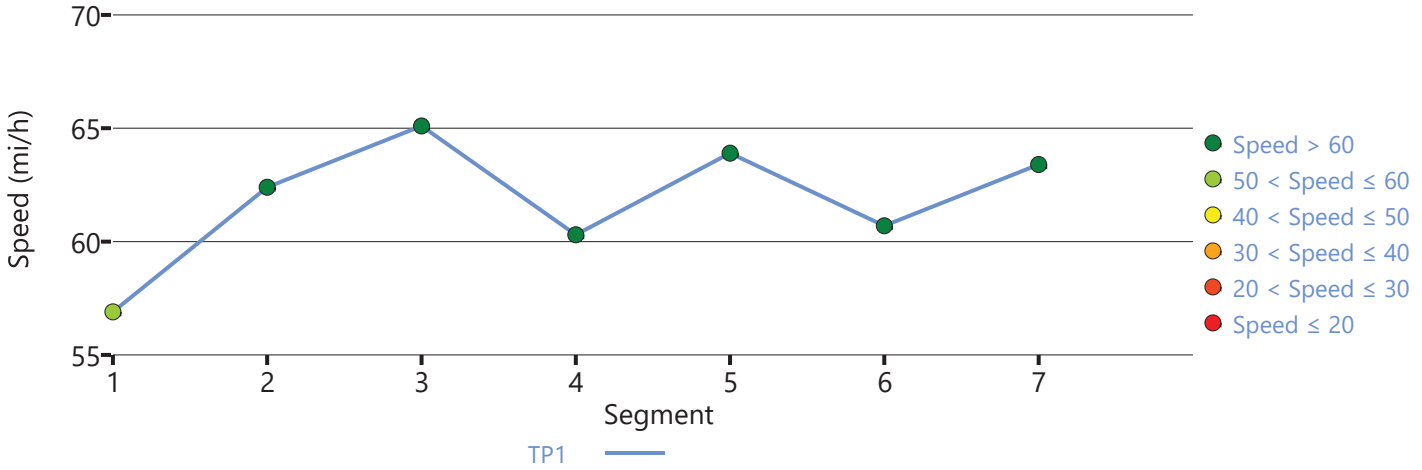

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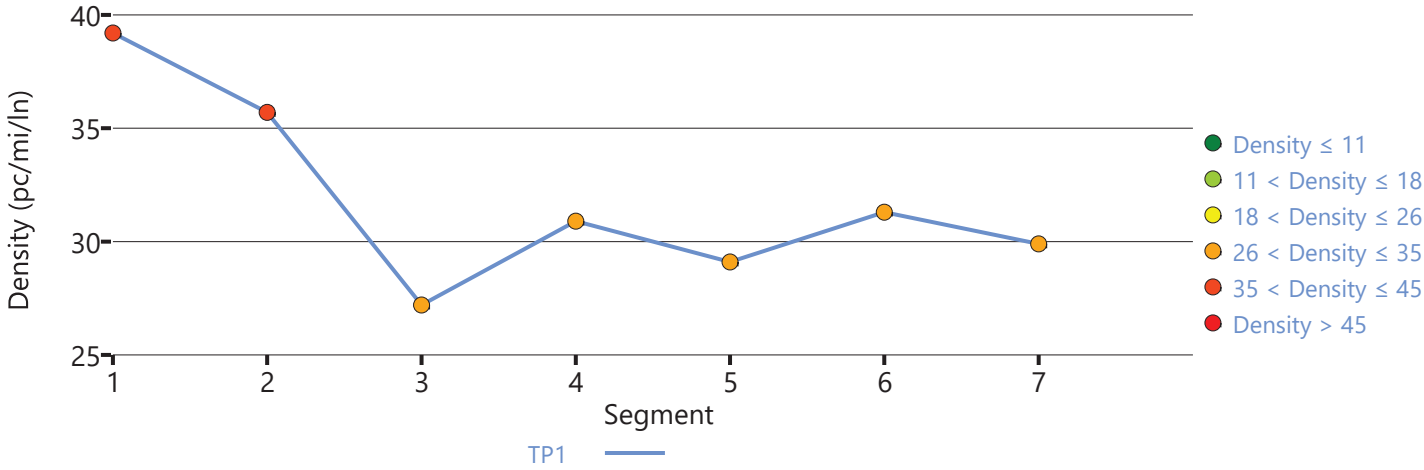

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	7017	7179	0.98	54.6	42.8	E

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.870	8940	1850	9600	2100	0.74	0.88	66.2	-	26.8	-	D

Segment 3: Basic

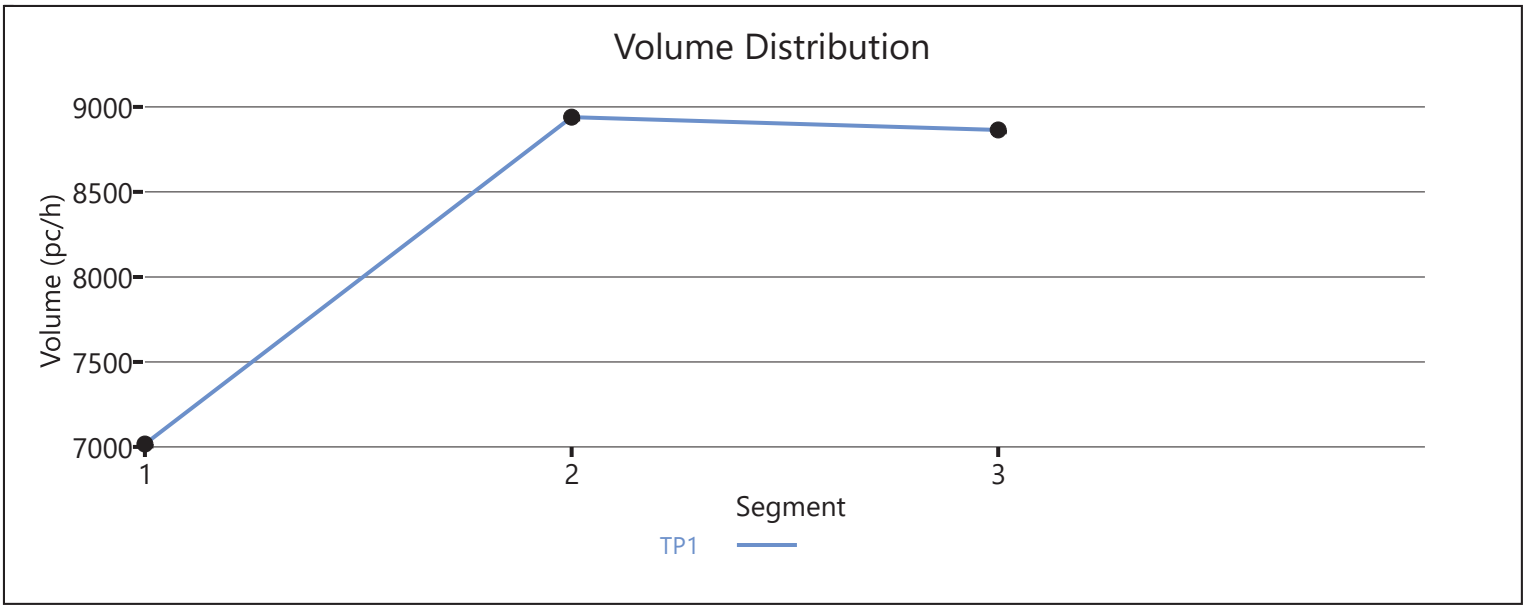
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	8865	9572	0.93	57.7	38.4	E

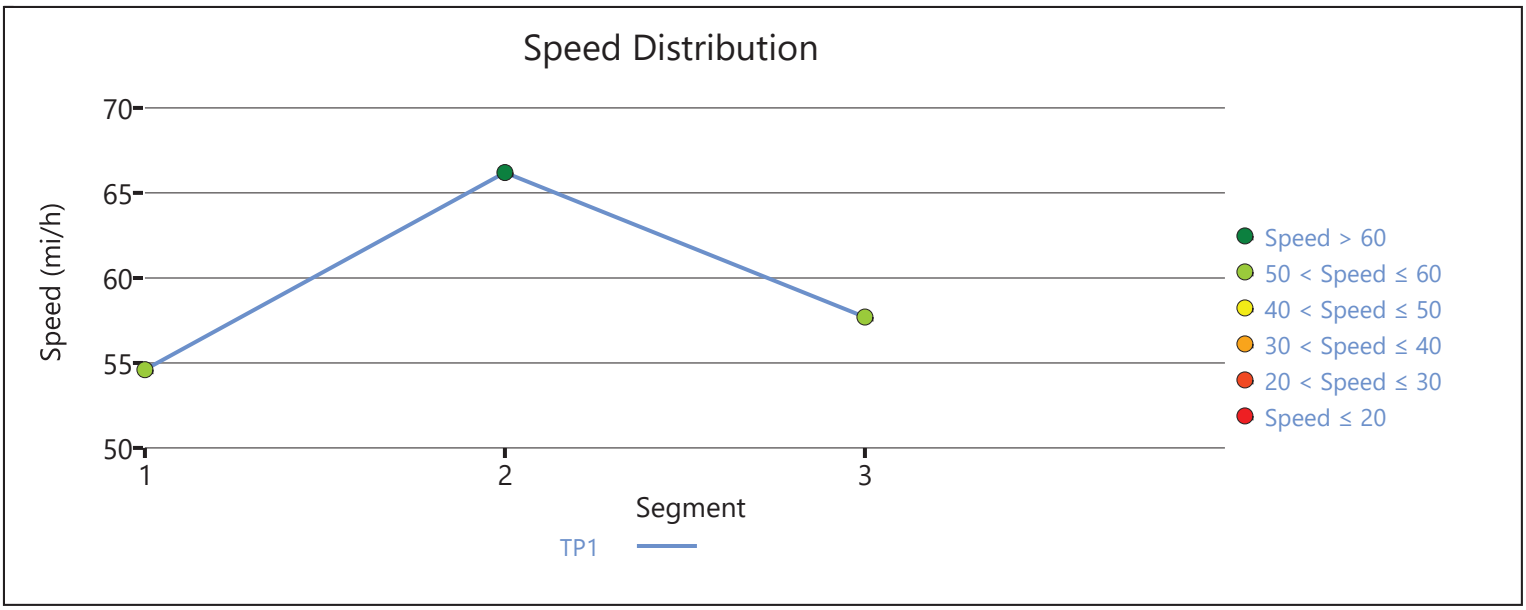
Facility Time Period Results

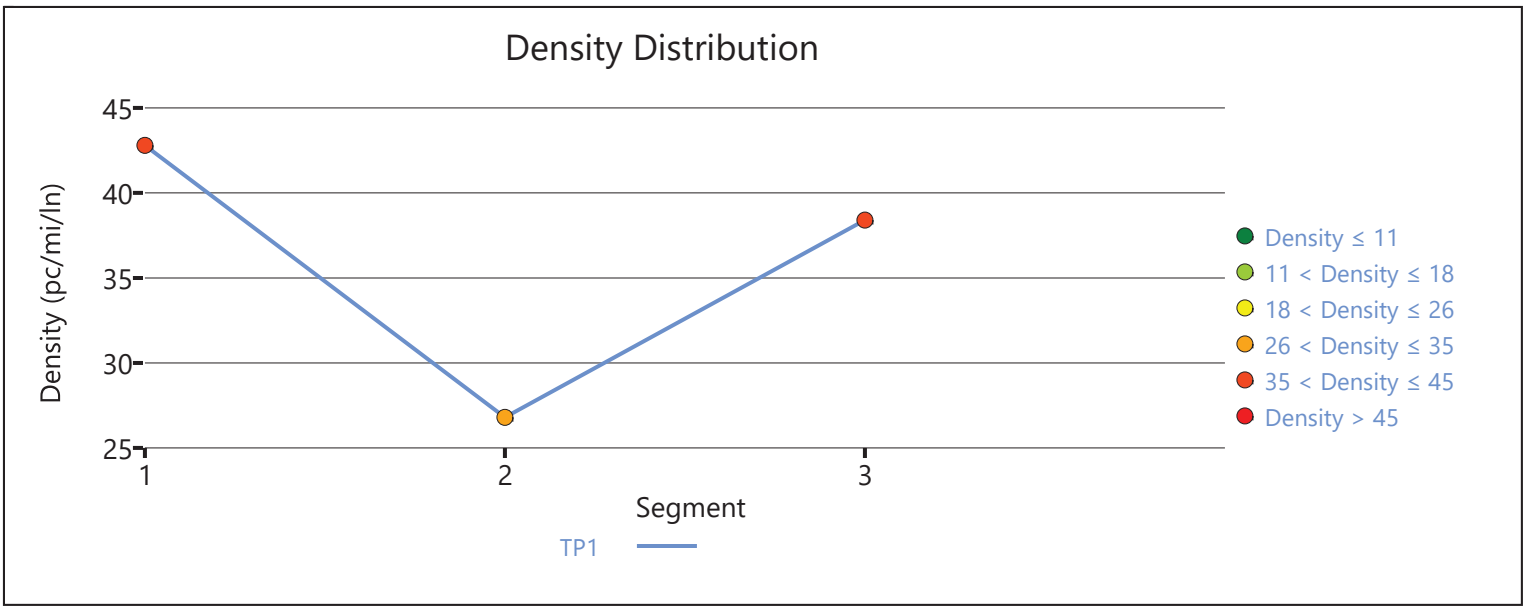
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	57.7	38.0	36.2	1.9	E

Facility Overall Results

Space Mean Speed, mi/h	57.7	Density, veh/mi/ln	36.2
Average Travel Time, min	1.9	Density, pc/mi/ln	38.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	8189	7146	1.15	52.9	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.935	7146	1659	7200	2100	1.14	0.79	61.7	57.5	38.6	41.2	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5487	7146	0.91	65.4	28.0	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.962	5840	353	7200	1900	0.96	0.19	59.9	57.7	32.5	30.3	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5840	7146	0.96	63.5	30.6	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6473	633	7200	2100	1.06	0.30	58.1	55.6	37.1	34.5	F

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6473	7146	1.06	59.4	36.3	F

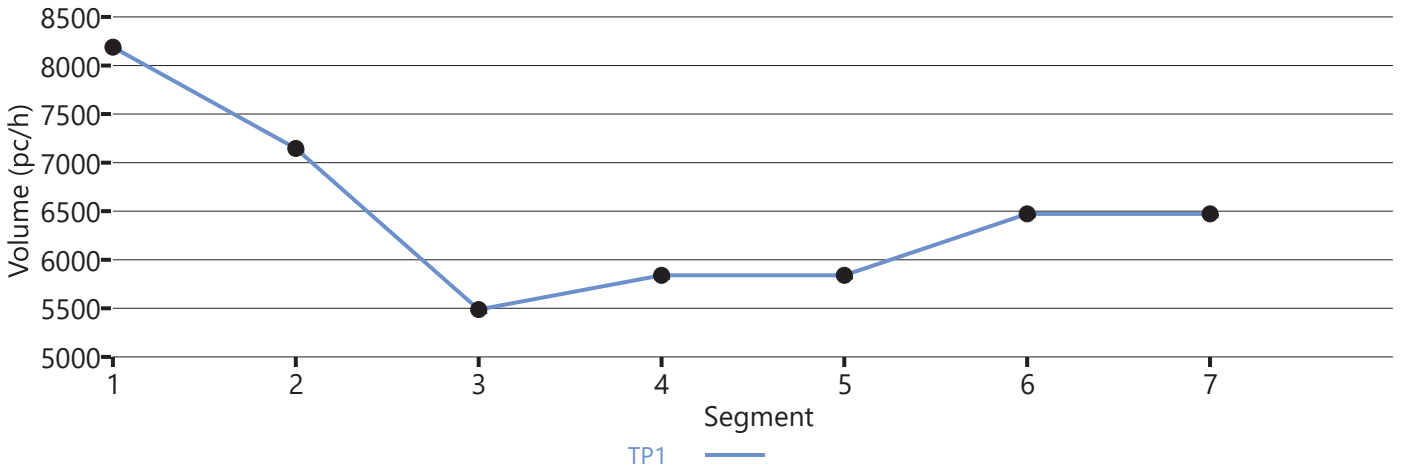
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.4	37.4	36.3	5.7	F

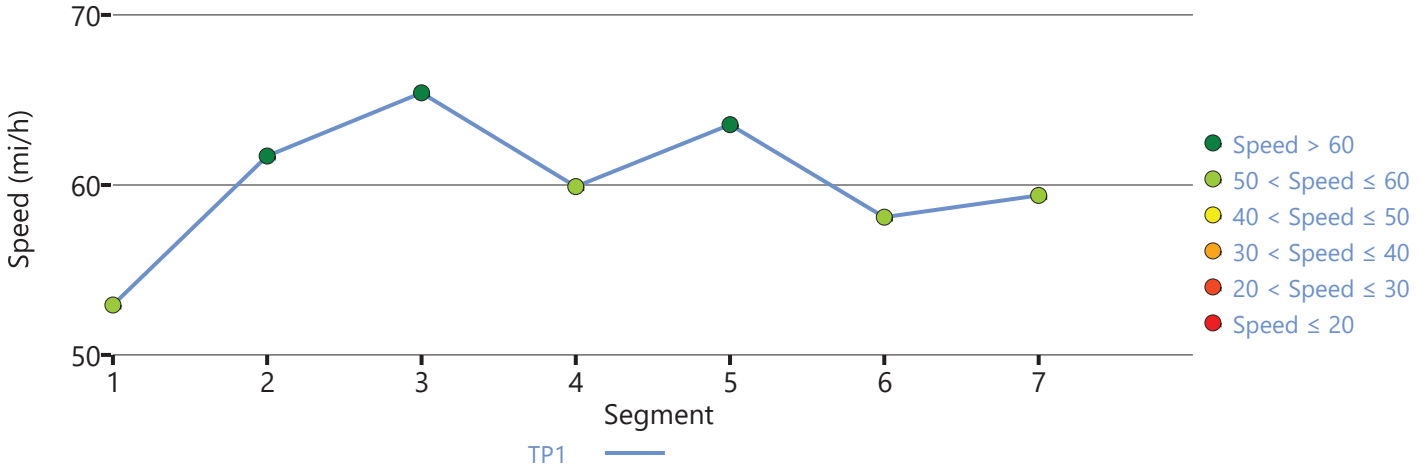
Facility Overall Results

Space Mean Speed, mi/h	58.4	Density, veh/mi/ln	36.3
Average Travel Time, min	5.7	Density, pc/mi/ln	37.4

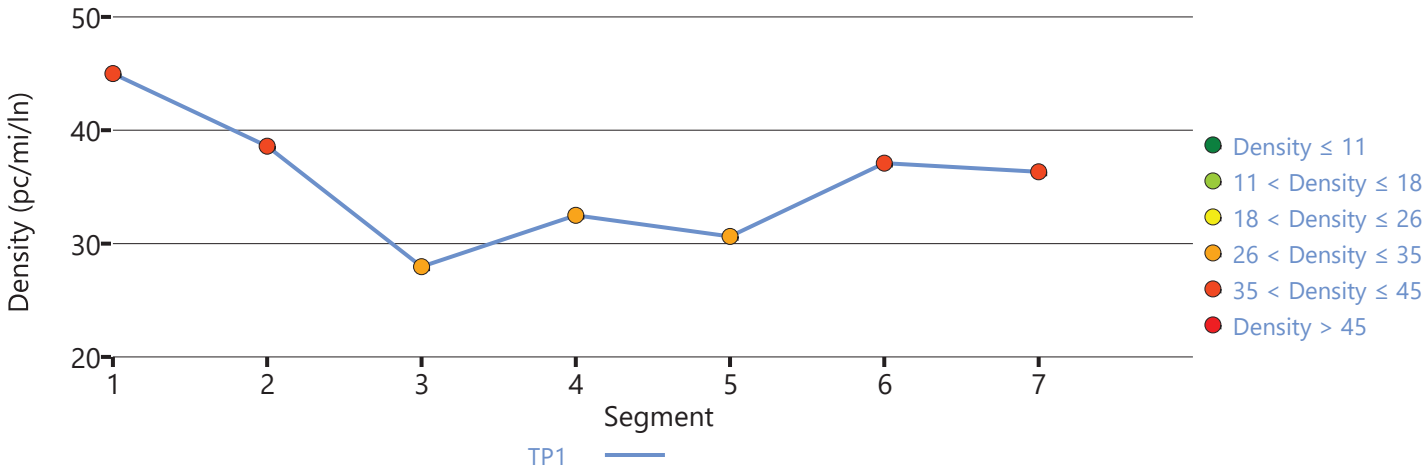
Volume Distribution



Speed Distribution



Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	11432	9572	1.19	53.2	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.901	9572	2354	9600	2100	1.20	1.12	53.3	55.7	45.0	46.3	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	7218	9572	0.94	65.8	27.4	D

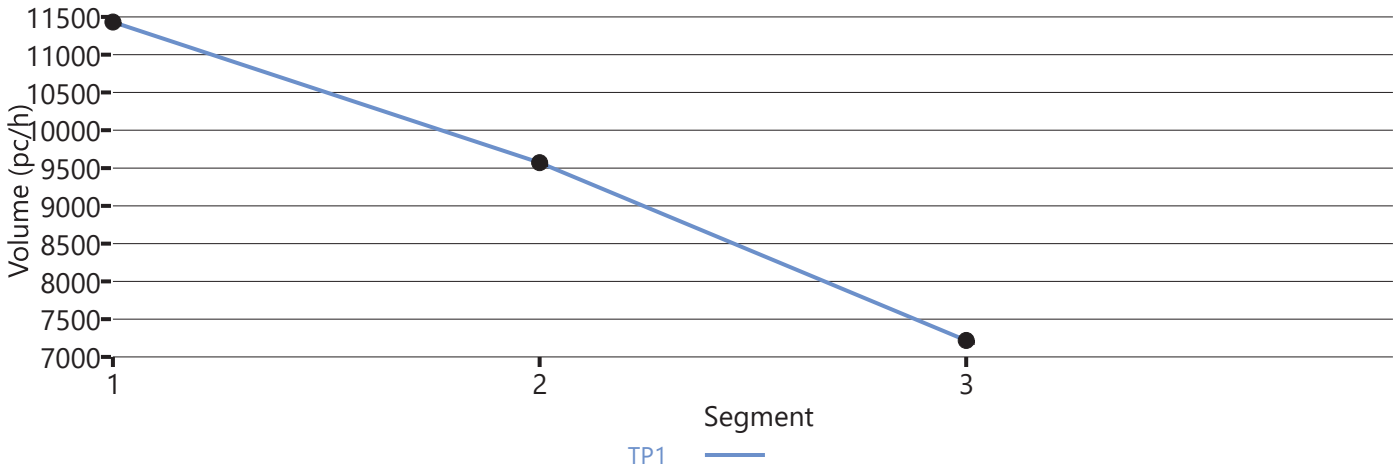
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	60.0	33.6	32.3	1.9	F

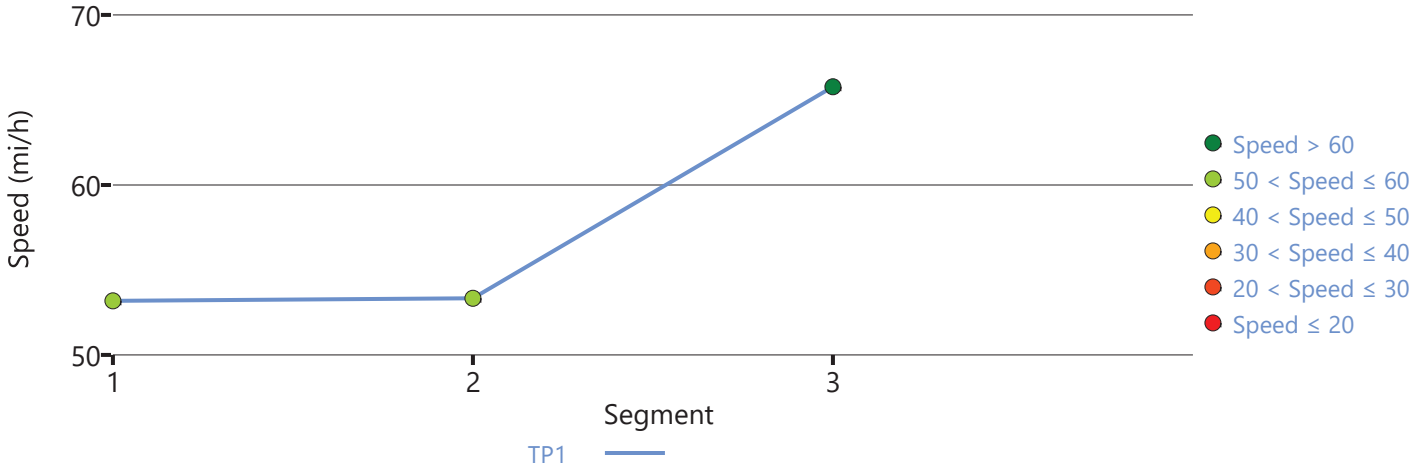
Facility Overall Results

Space Mean Speed, mi/h	60.0	Density, veh/mi/ln	32.3
Average Travel Time, min	1.9	Density, pc/mi/ln	33.6

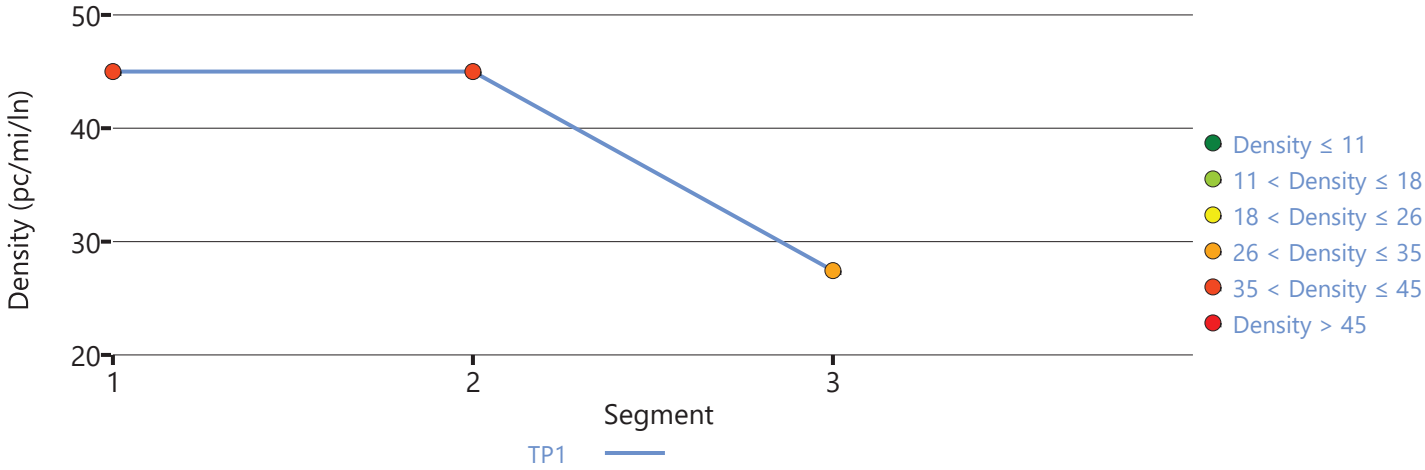
Volume Distribution



Speed Distribution



Density Distribution



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APPENDIX 7.8:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	6805	7146	0.95	55.9	40.6	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.952	0.855	6805	1216	7200	2100	0.95	0.58	62.6	58.6	36.2	39.4	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	5600	7146	0.78	63.8	29.3	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	6355	755	7200	1900	0.88	0.40	58.0	55.3	36.5	34.5	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	6355	7146	0.89	59.3	35.7	E

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.943	6866	511	7200	2100	0.95	0.24	56.9	54.4	40.2	35.5	E

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	6852	7146	0.96	55.5	41.2	E

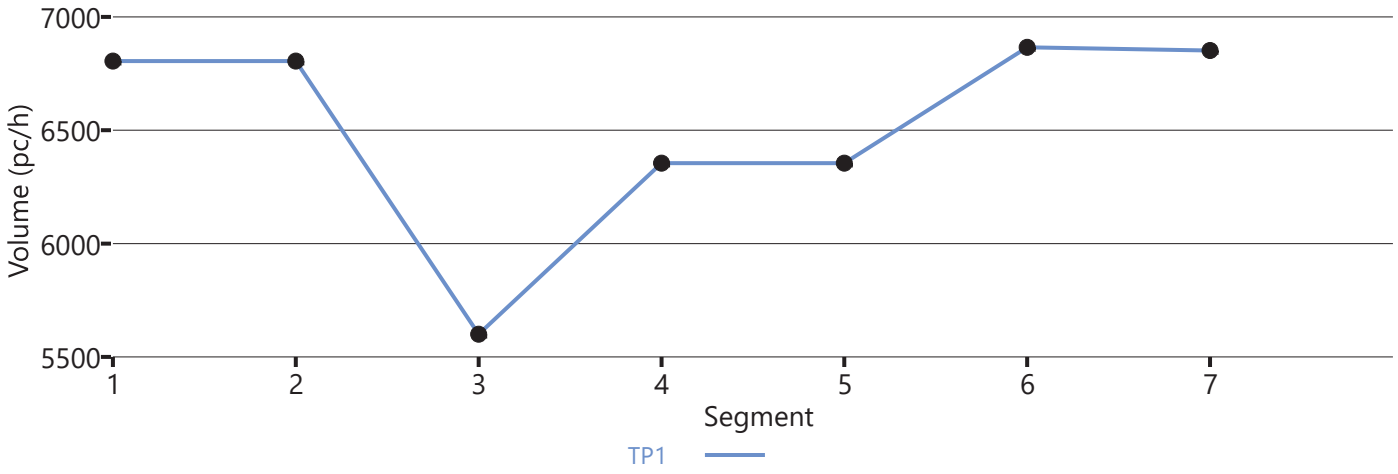
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	56.6	39.7	38.1	5.8	E

Facility Overall Results

Space Mean Speed, mi/h	56.6	Density, veh/mi/ln	38.1
Average Travel Time, min	5.8	Density, pc/mi/ln	39.7

Volume Distribution



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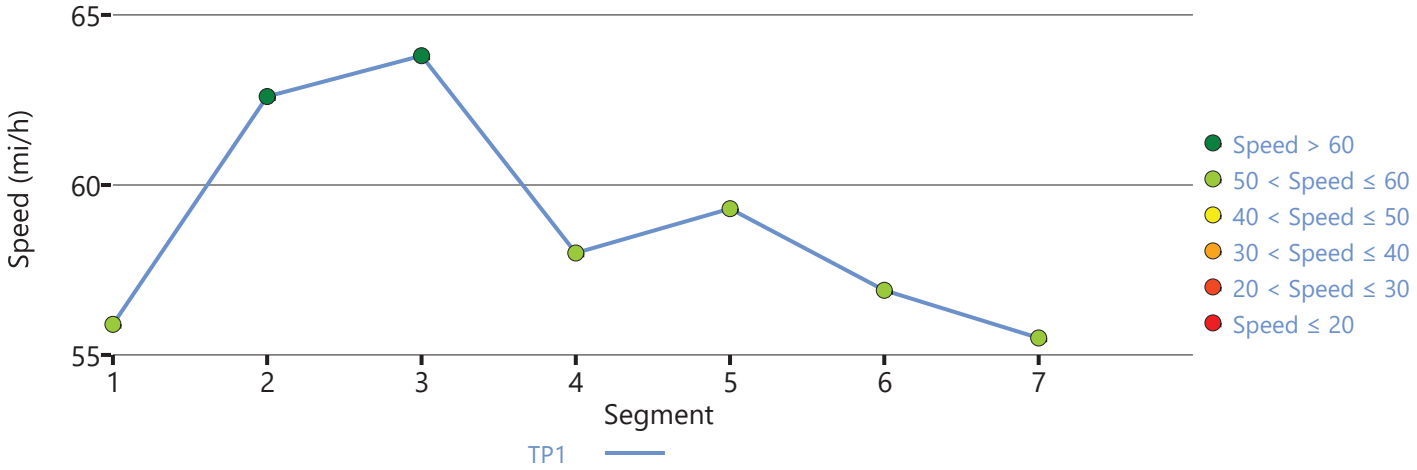

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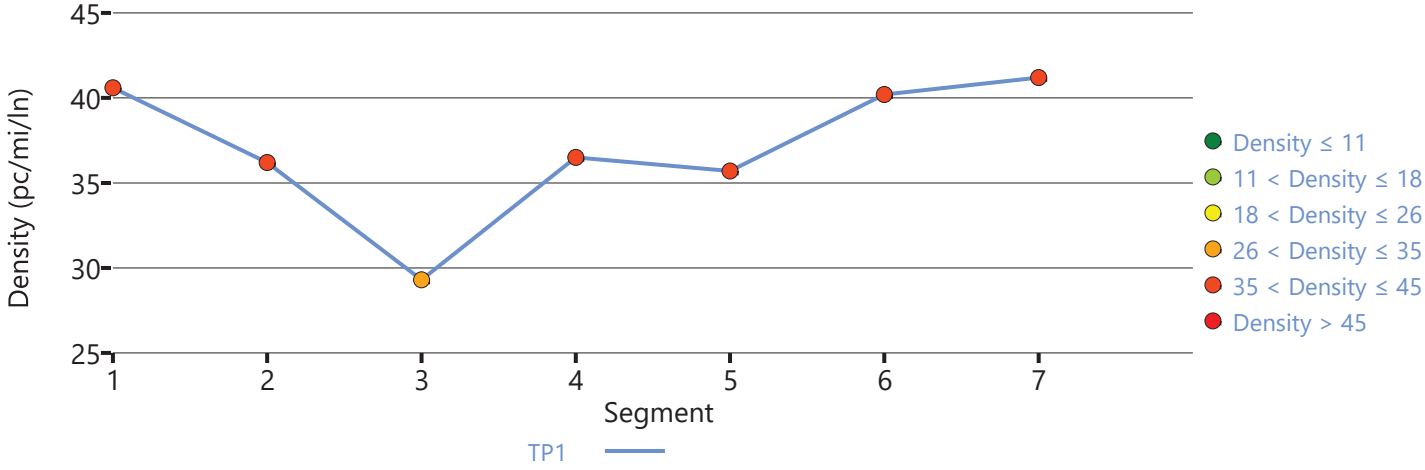

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	8103	7179	1.13	53.2	45.0	F

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.893	8539	2467	9600	2100	0.84	1.17	52.9	-	40.4	-	F

Segment 3: Basic

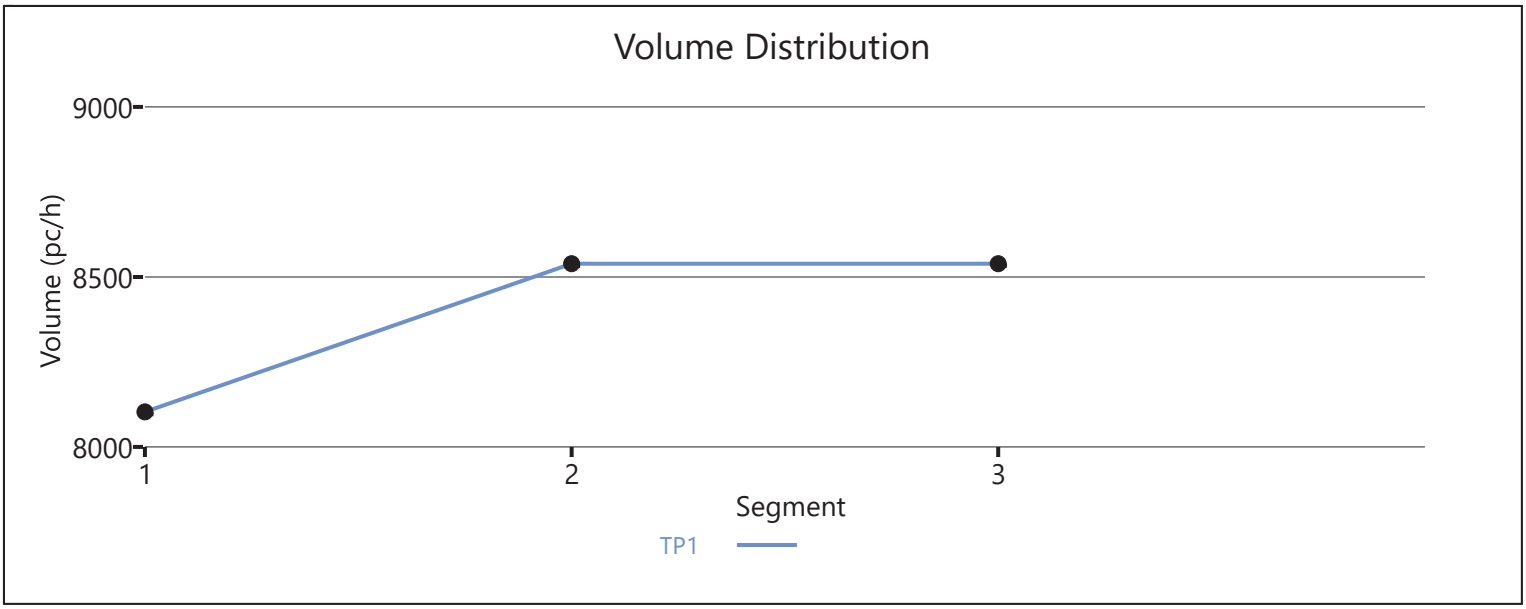
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	8539	9572	1.11	59.9	35.6	F

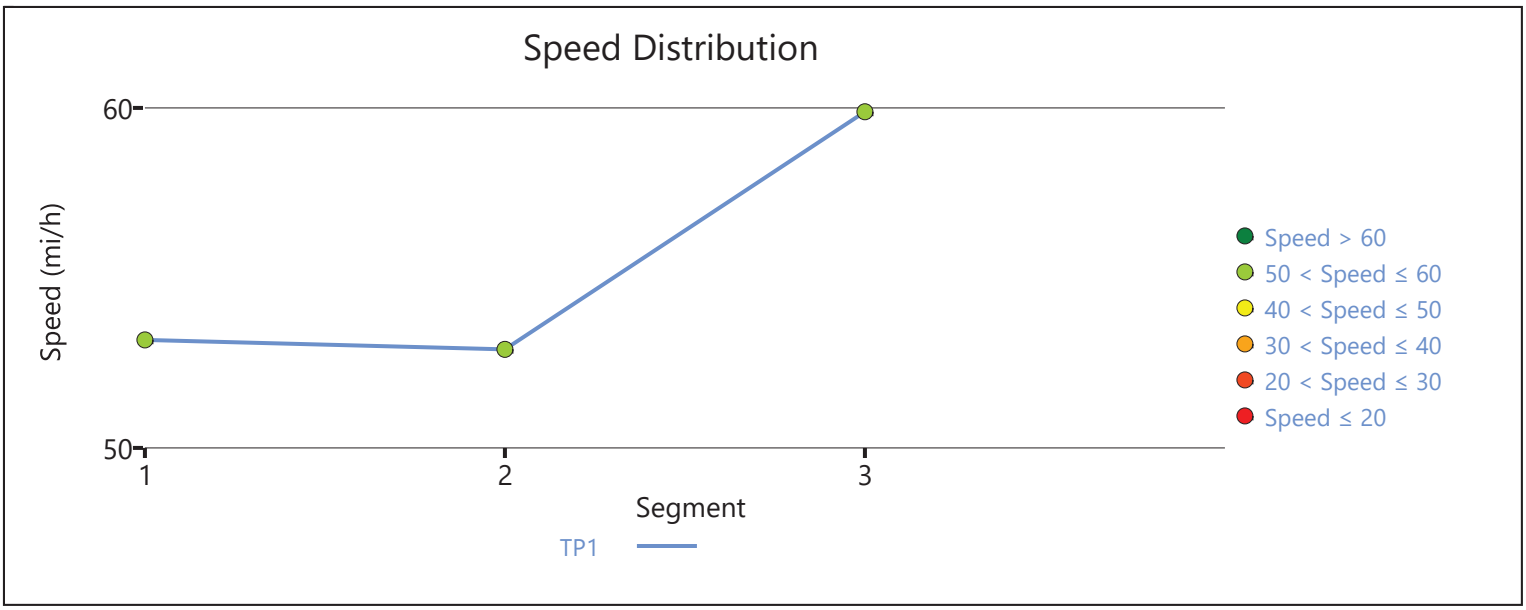
Facility Time Period Results

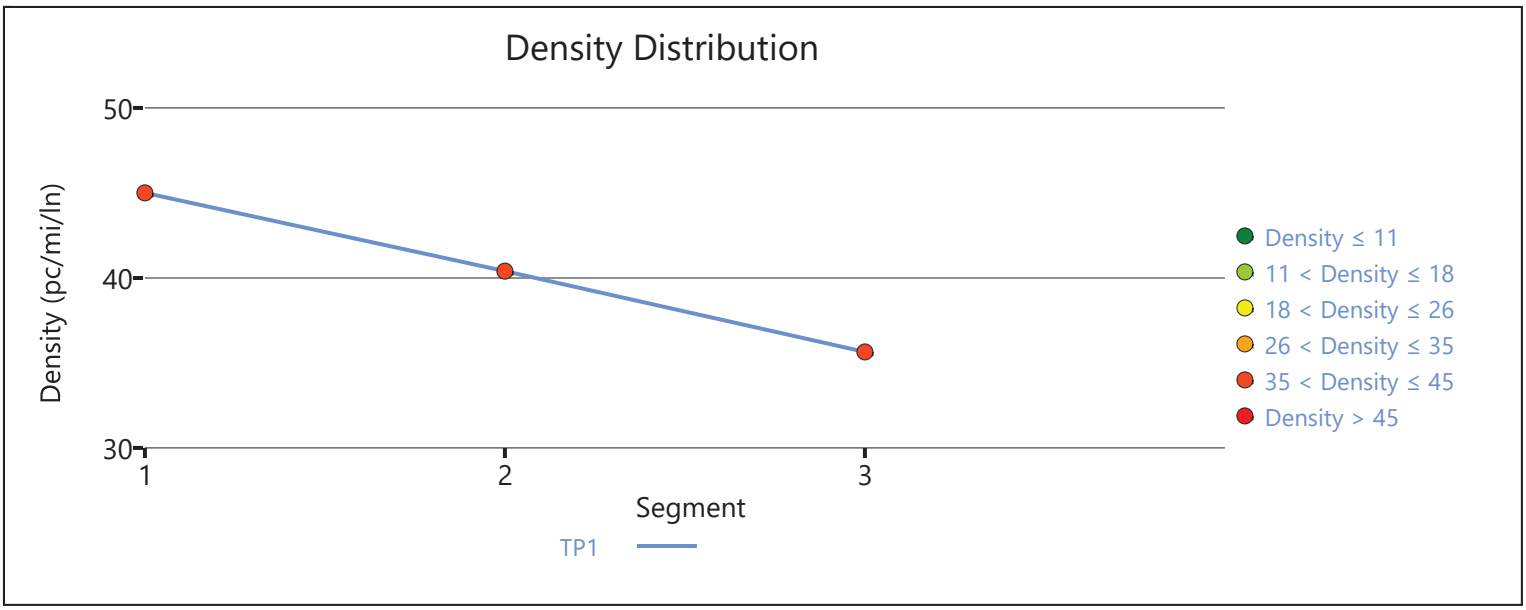
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	55.5	40.0	38.6	2.0	F

Facility Overall Results

Space Mean Speed, mi/h	55.5	Density, veh/mi/ln	38.6
Average Travel Time, min	2.0	Density, pc/mi/ln	40.0







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5305	7146	0.74	65.2	27.1	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.862	5305	1311	7200	2100	0.74	0.62	62.7	58.4	28.2	33.7	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	3951	7146	0.55	68.2	19.3	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.935	4490	539	7200	1900	0.62	0.28	61.9	59.8	24.2	24.6	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	4507	7146	0.63	67.5	22.3	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.971	5266	759	7200	2100	0.73	0.36	60.8	58.7	28.9	29.3	D

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	5266	7146	0.74	65.3	26.9	D

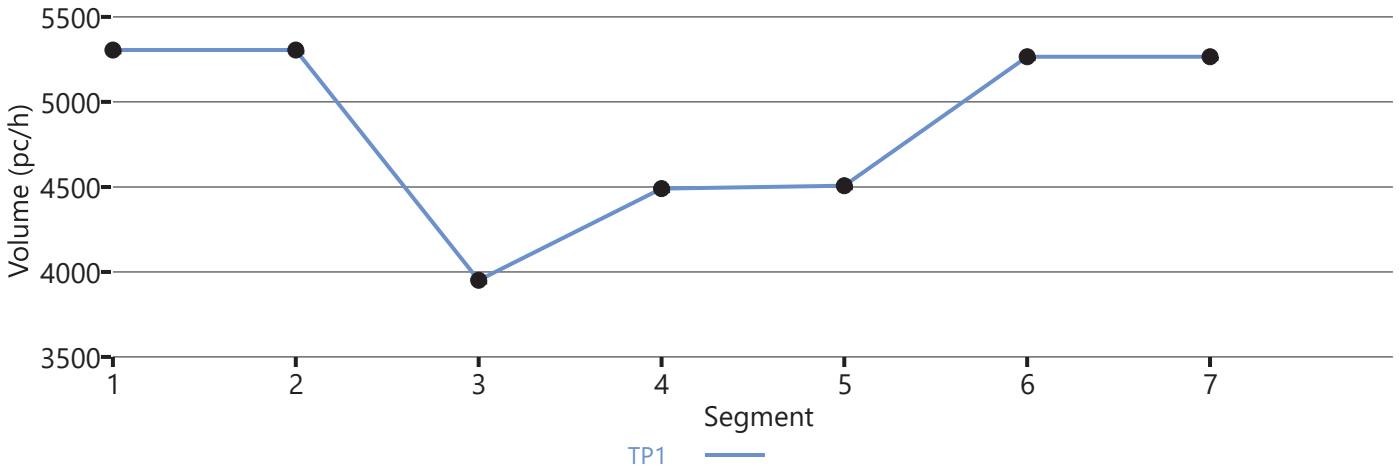
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	64.9	26.5	25.5	5.1	D

Facility Overall Results

Space Mean Speed, mi/h	64.9	Density, veh/mi/ln	25.5
Average Travel Time, min	5.1	Density, pc/mi/ln	26.5

Volume Distribution



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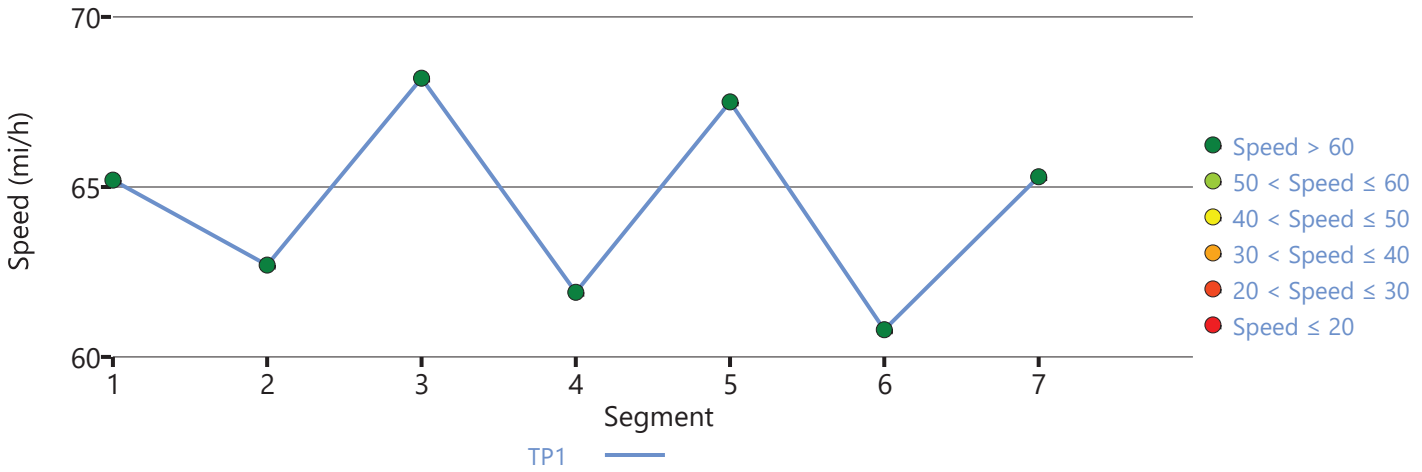
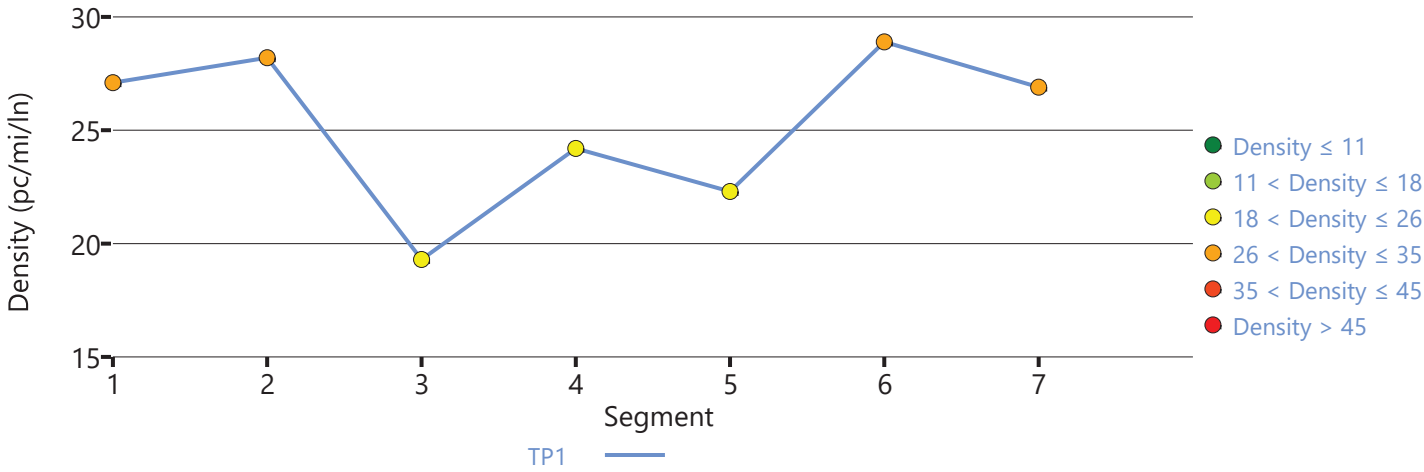


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	7646	9572	0.80	63.7	30.0	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.877	7646	1850	9600	2100	0.80	0.88	63.3	57.0	30.2	36.6	E

Segment 3: Basic

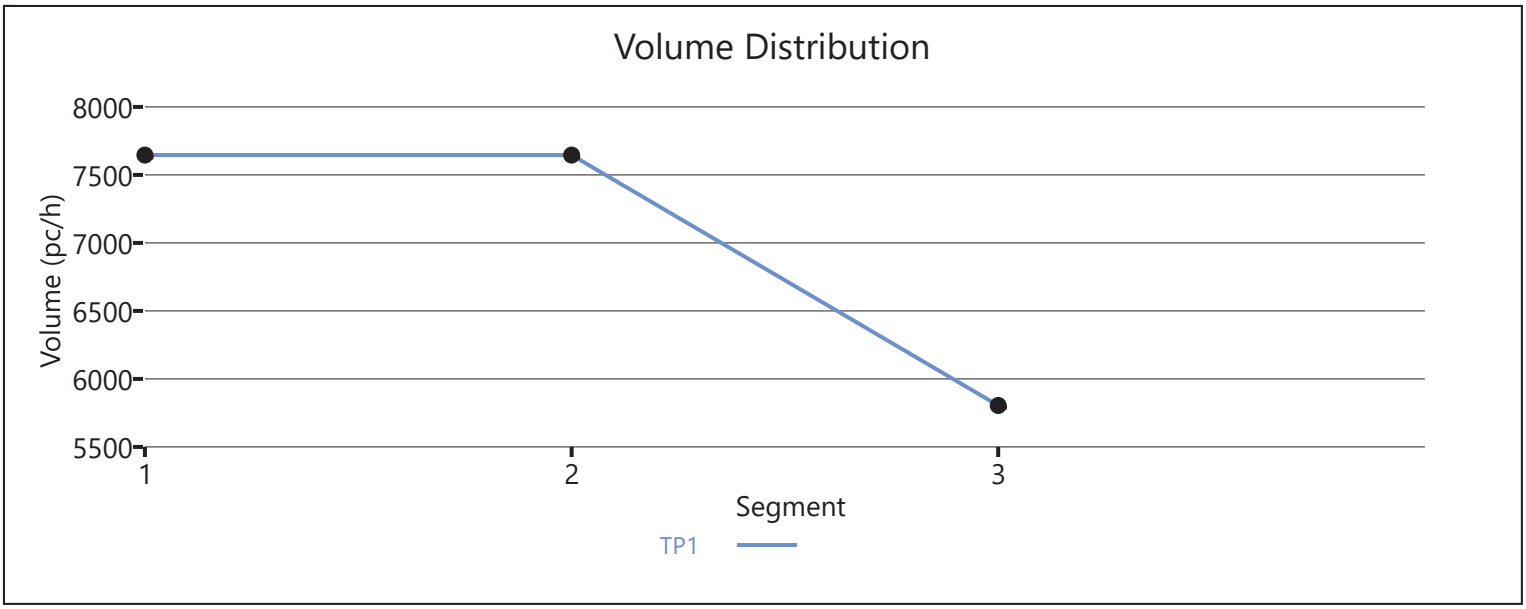
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	5805	9572	0.61	68.7	21.1	C

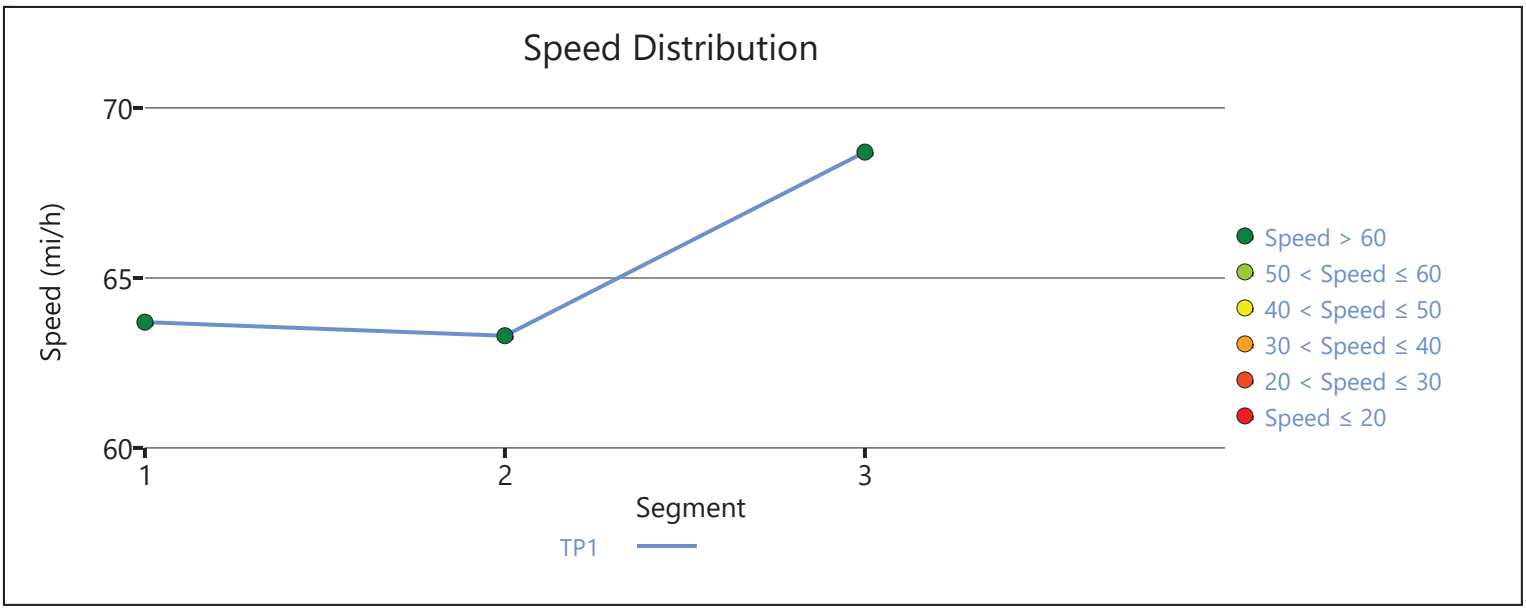
Facility Time Period Results

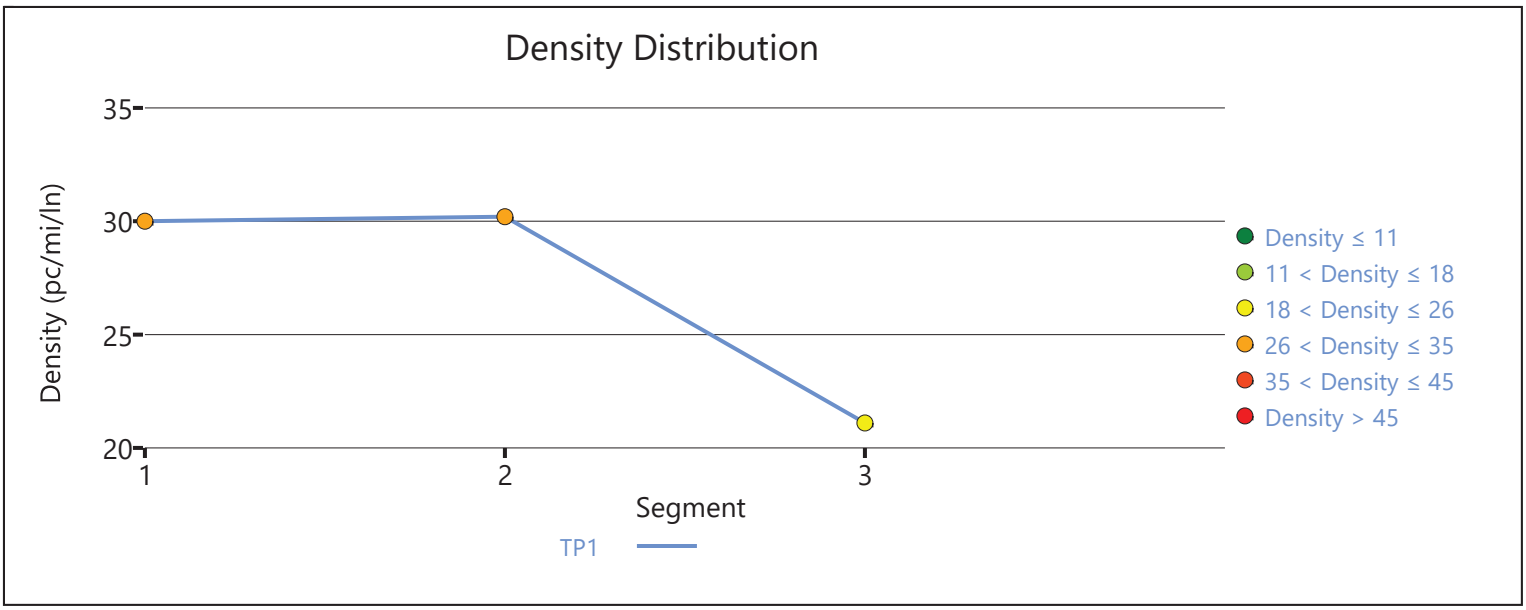
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.5	24.3	22.9	1.7	C

Facility Overall Results

Space Mean Speed, mi/h	66.5	Density, veh/mi/ln	22.9
Average Travel Time, min	1.7	Density, pc/mi/ln	24.3







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	6751	7146	0.94	56.3	40.0	E

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.962	6751	1436	7200	2100	0.94	0.68	62.2	58.0	36.2	39.6	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5315	7146	0.74	65.1	27.2	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.917	5594	279	7200	1900	0.78	0.15	60.3	58.2	30.9	29.7	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5581	7146	0.78	63.9	29.1	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.962	0.775	6110	529	7200	2100	0.85	0.25	59.4	57.2	34.3	32.1	D

Segment 7: Basic

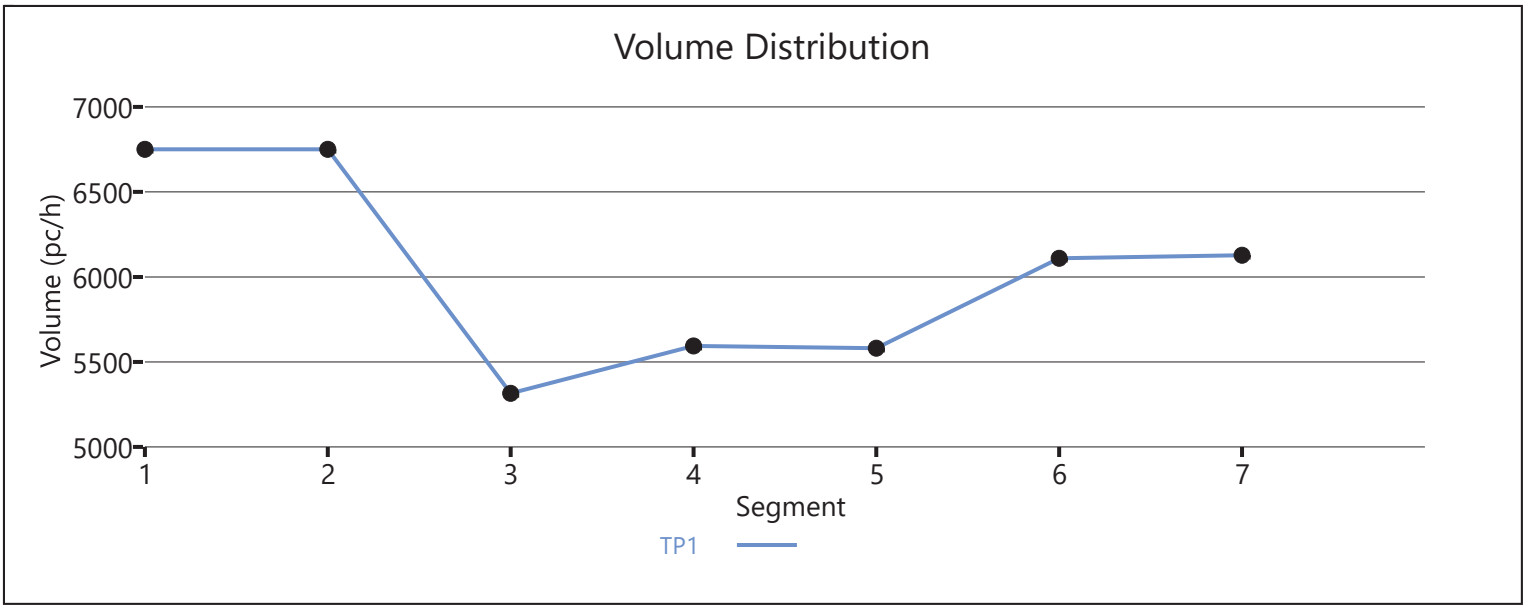
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.943	6128	7146	0.86	60.8	33.6	D

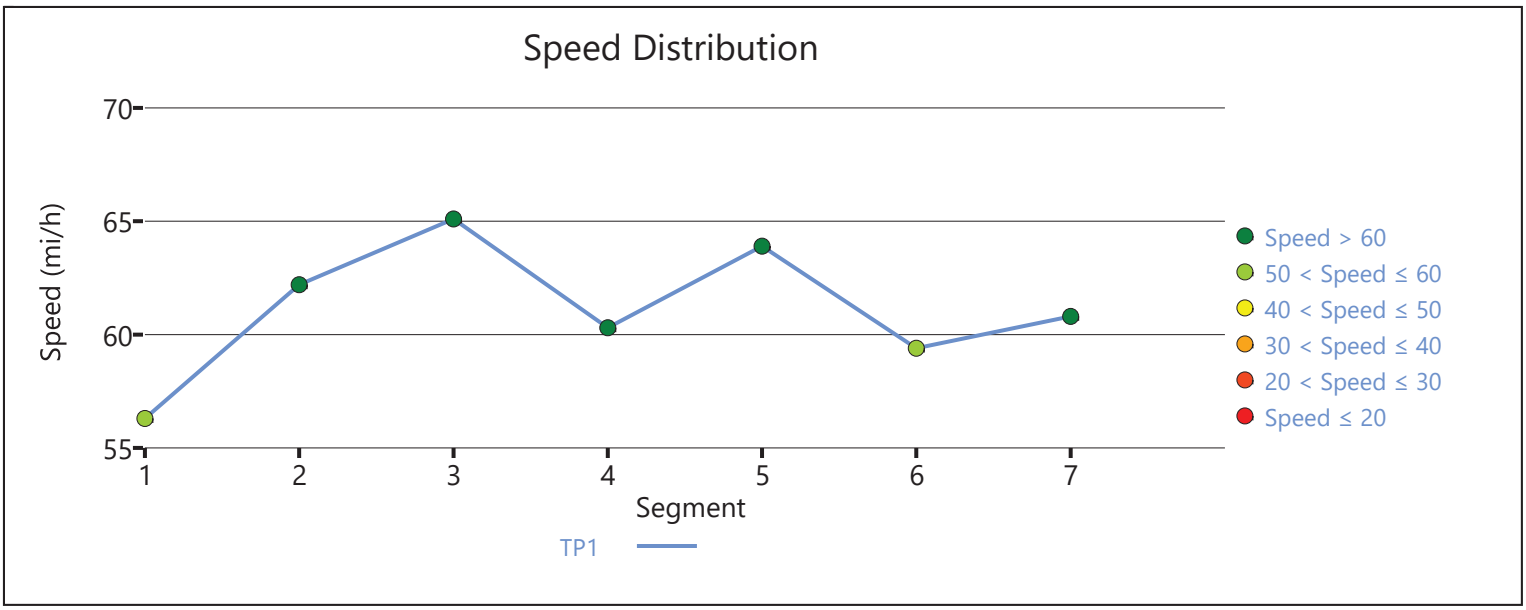
Facility Time Period Results

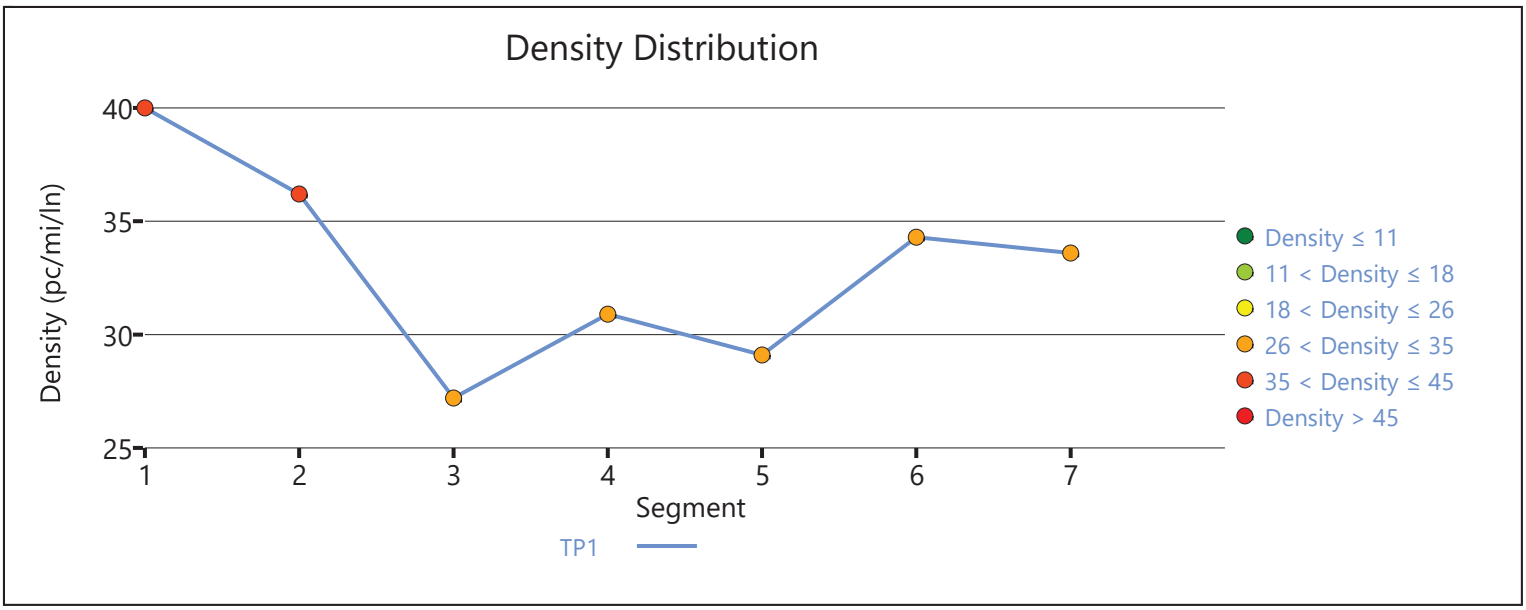
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	58.3	36.8	35.3	5.7	E

Facility Overall Results

Space Mean Speed, mi/h	58.3	Density, veh/mi/ln	35.3
Average Travel Time, min	5.7	Density, pc/mi/ln	36.8







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	7366	7179	1.03	53.2	45.0	F

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.885	9164	1985	9600	2100	0.77	0.95	53.7	-	42.7	-	E

Segment 3: Basic

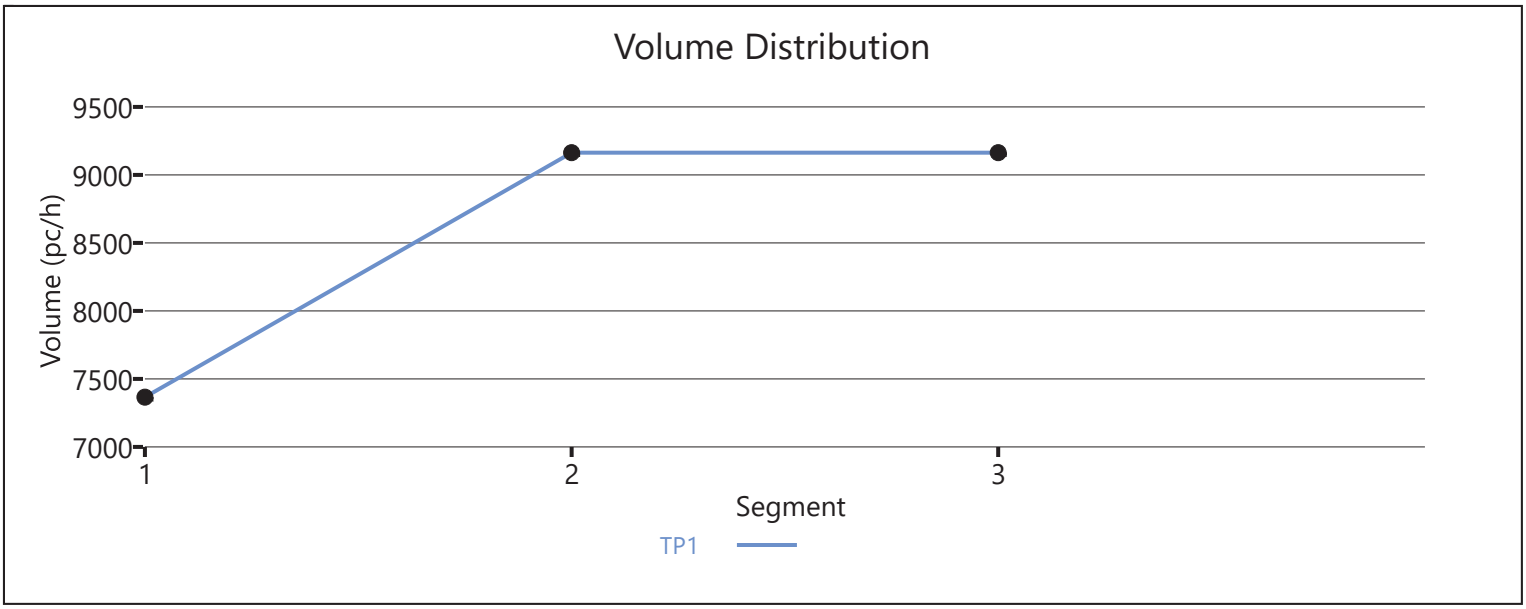
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	9164	9572	0.99	56.2	40.7	E

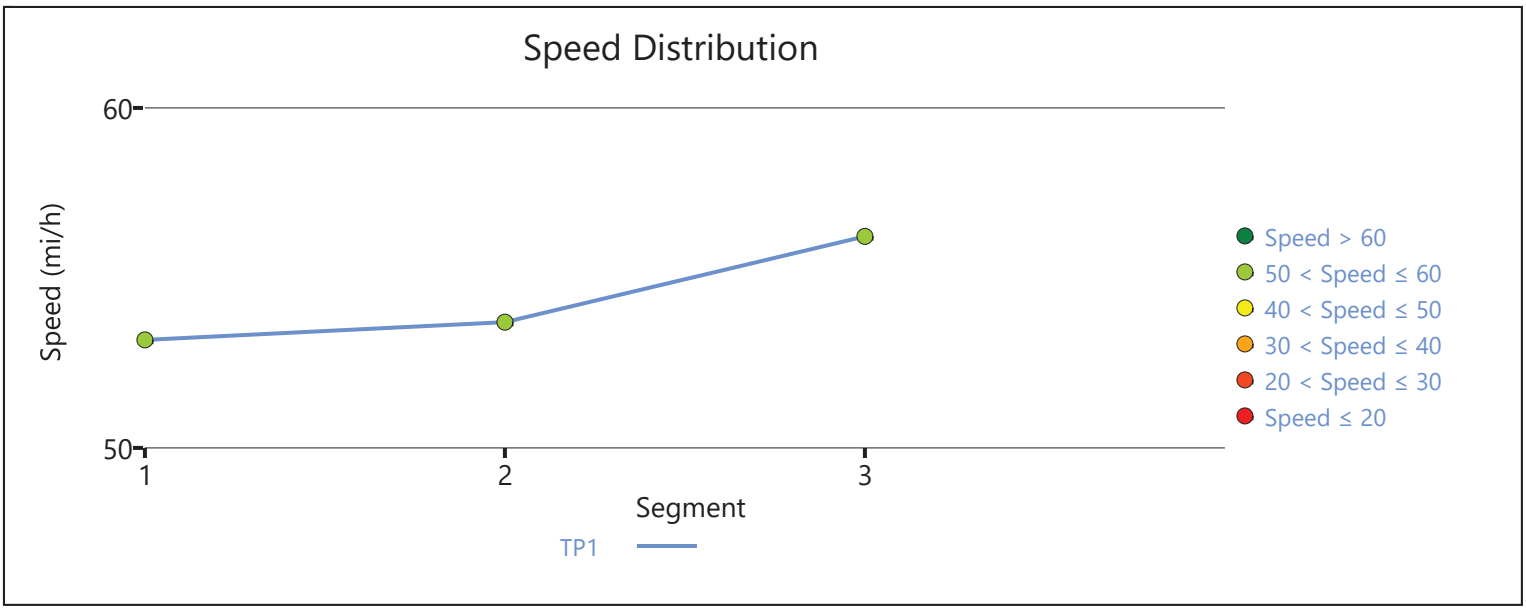
Facility Time Period Results

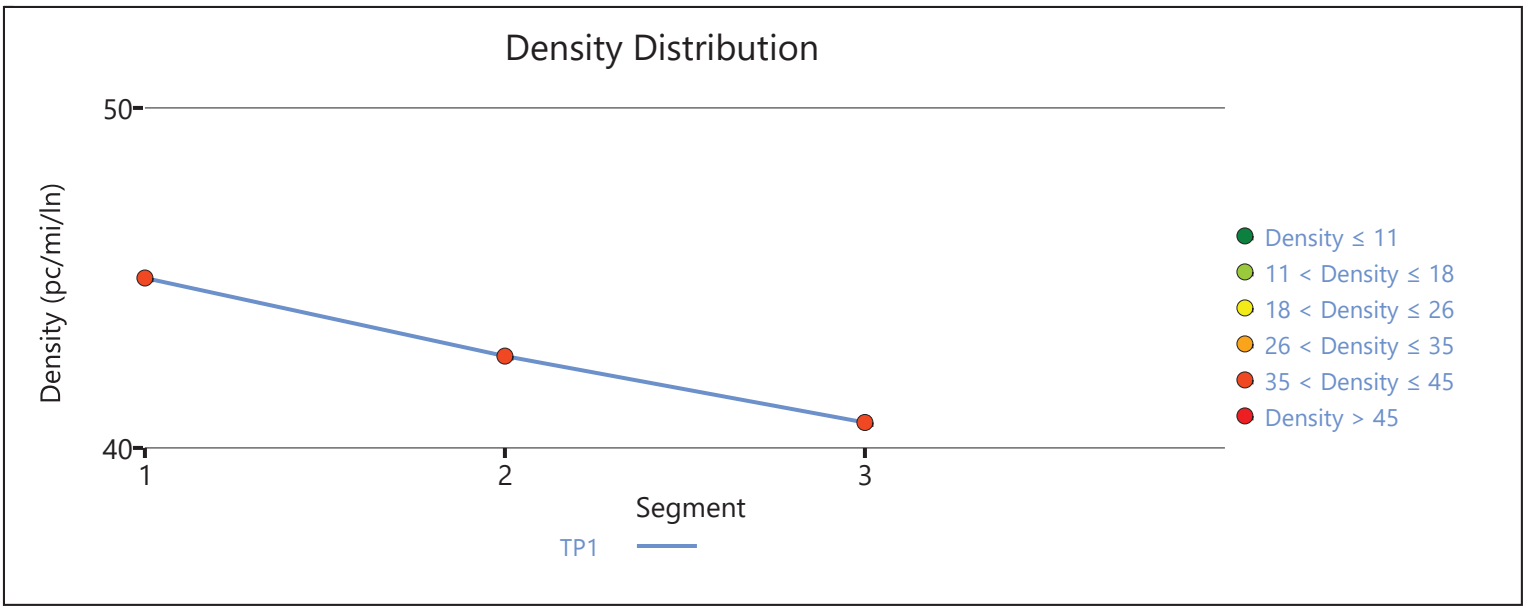
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	54.8	42.5	40.4	2.1	F

Facility Overall Results

Space Mean Speed, mi/h	54.8	Density, veh/mi/ln	40.4
Average Travel Time, min	2.1	Density, pc/mi/ln	42.5







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	8339	7146	1.17	52.9	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.926	7146	1751	7200	2100	1.16	0.83	61.5	57.2	38.7	41.3	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.980	5395	7146	0.91	65.9	27.3	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.980	0.862	6165	770	7200	1900	1.01	0.41	58.6	56.0	35.1	33.0	F

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6165	7146	1.03	61.5	33.4	F

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6798	633	7200	2100	1.11	0.30	57.0	54.3	39.8	36.0	F

Segment 7: Basic

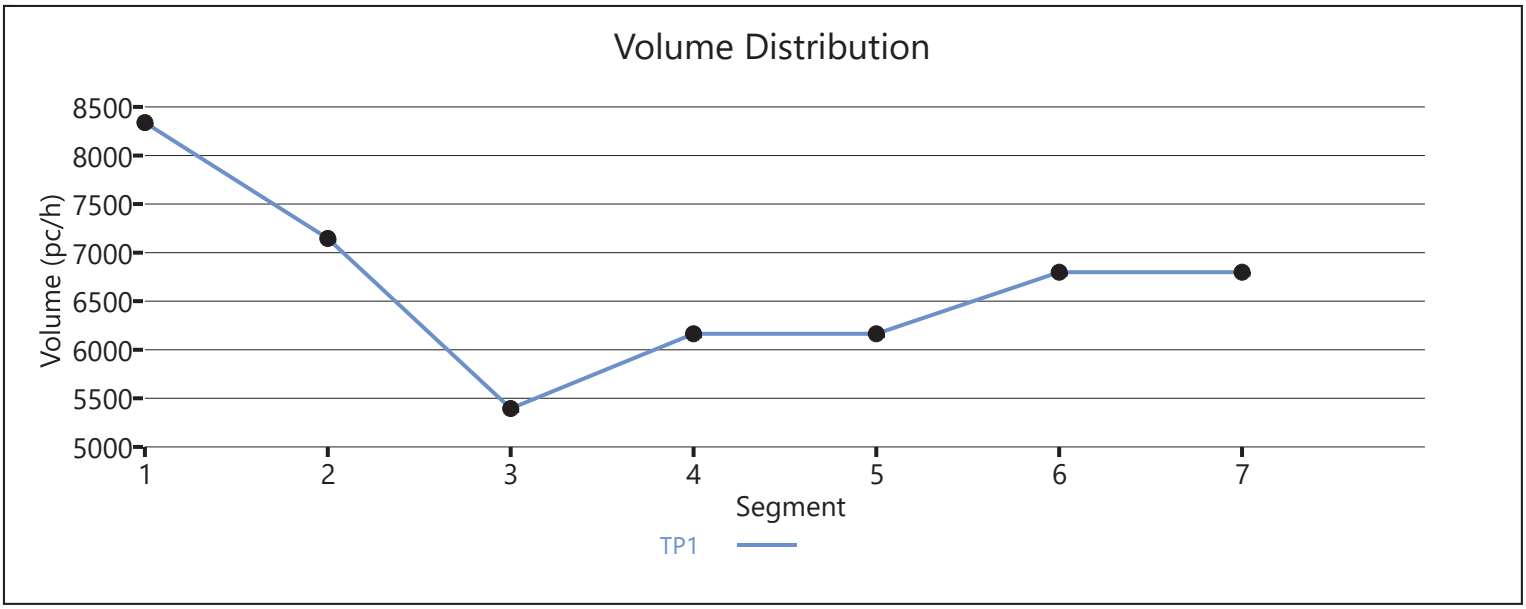
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6798	7146	1.12	56.8	39.9	F

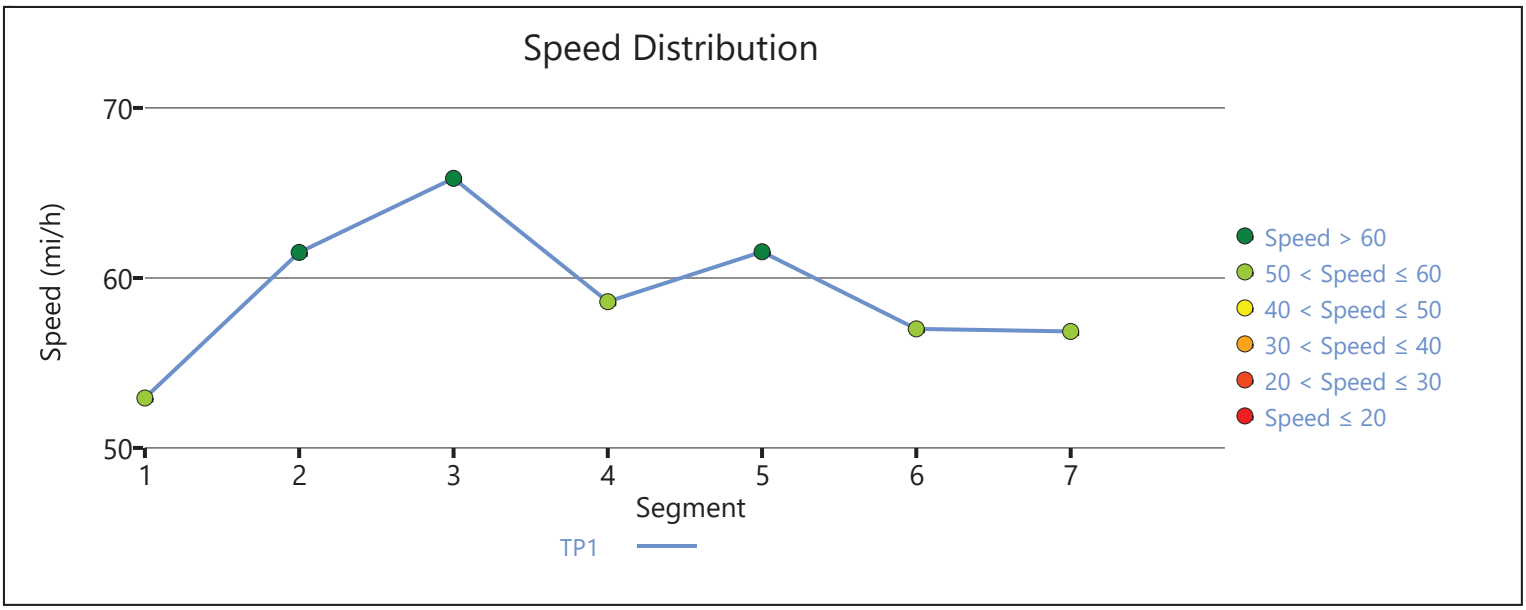
Facility Time Period Results

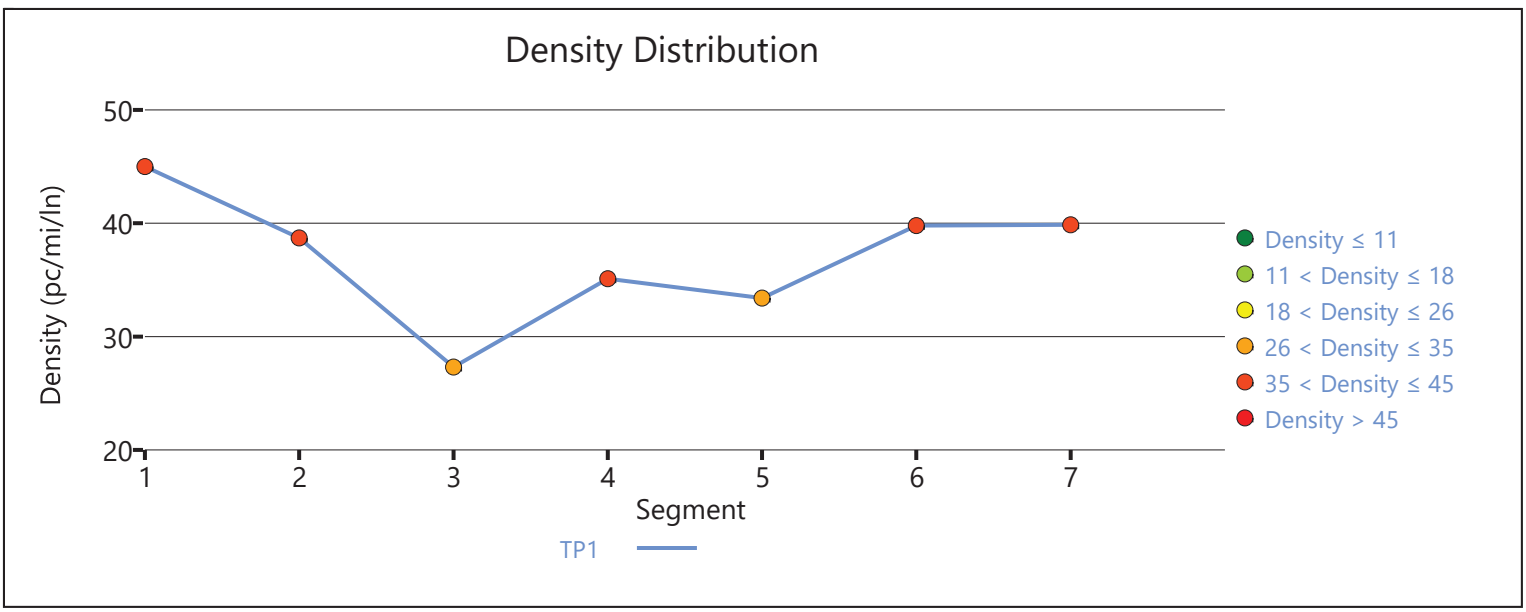
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	56.9	39.7	38.3	5.9	F

Facility Overall Results

Space Mean Speed, mi/h	56.9	Density, veh/mi/ln	38.3
Average Travel Time, min	5.9	Density, pc/mi/ln	39.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	11540	9572	1.21	53.2	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.901	9572	2389	9600	2100	1.20	1.14	53.3	55.6	45.0	46.5	F

Segment 3: Basic

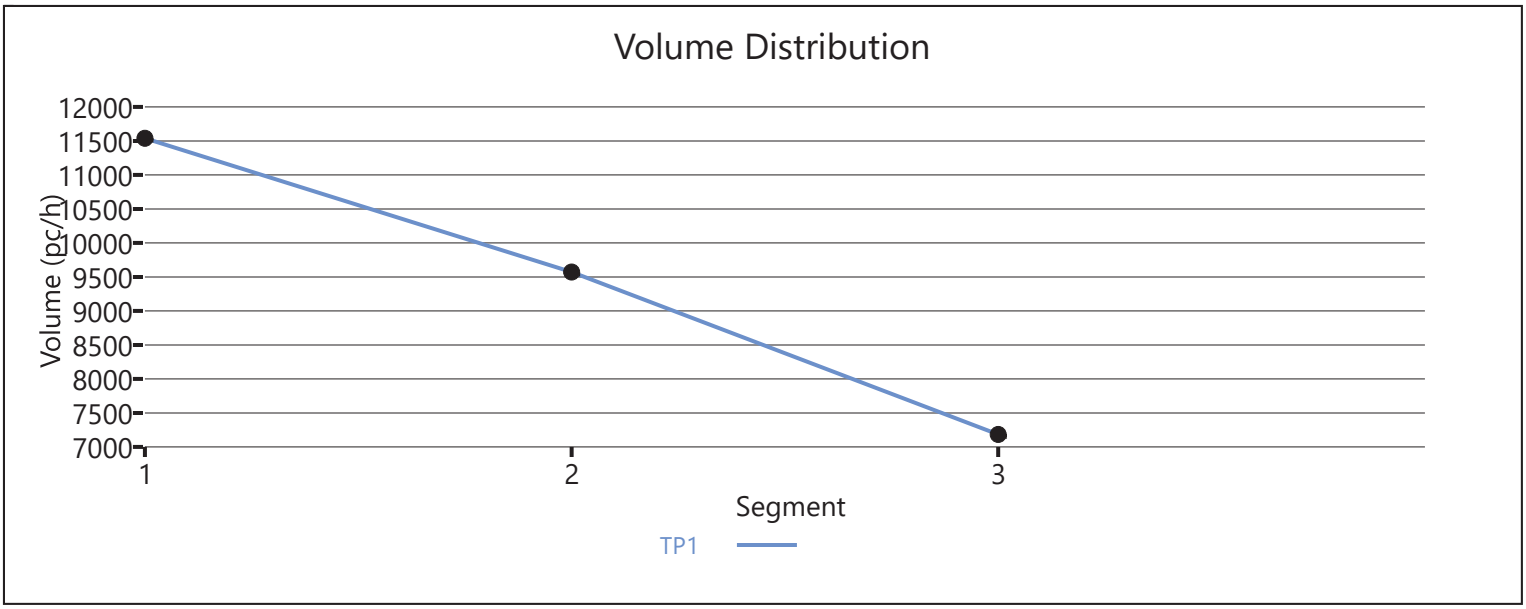
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	7183	9572	0.95	65.9	27.3	D

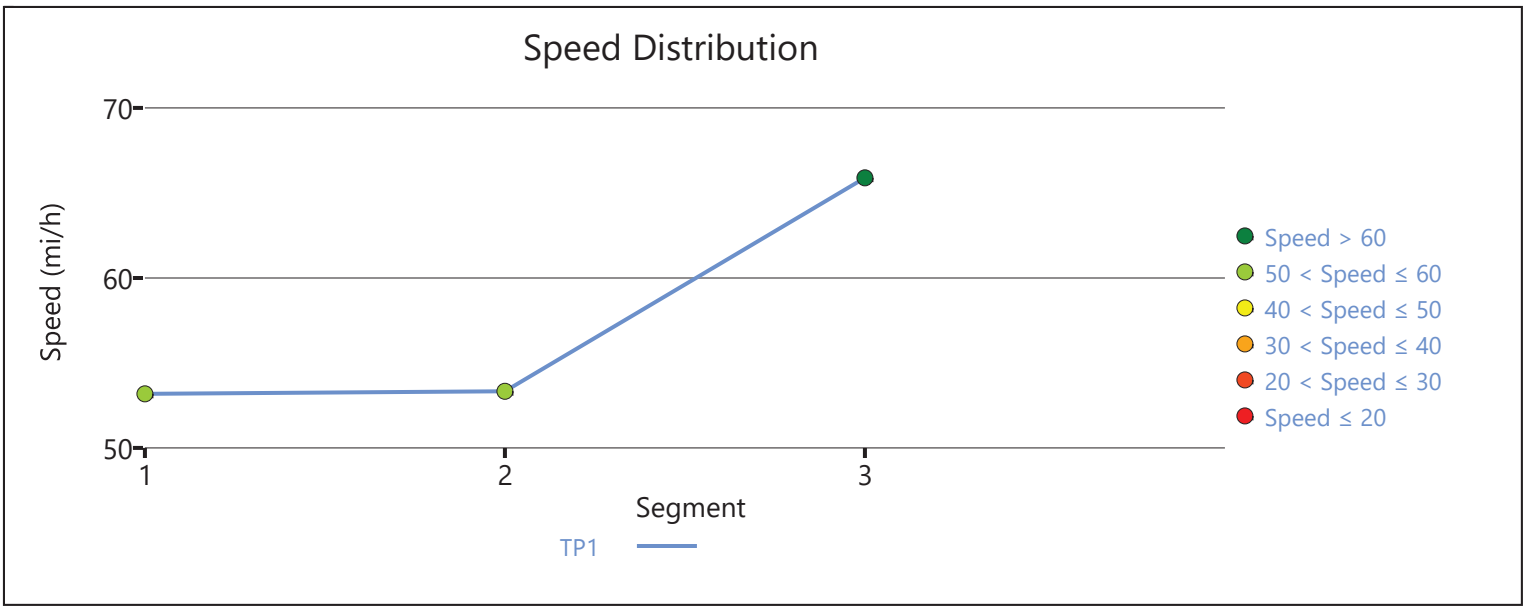
Facility Time Period Results

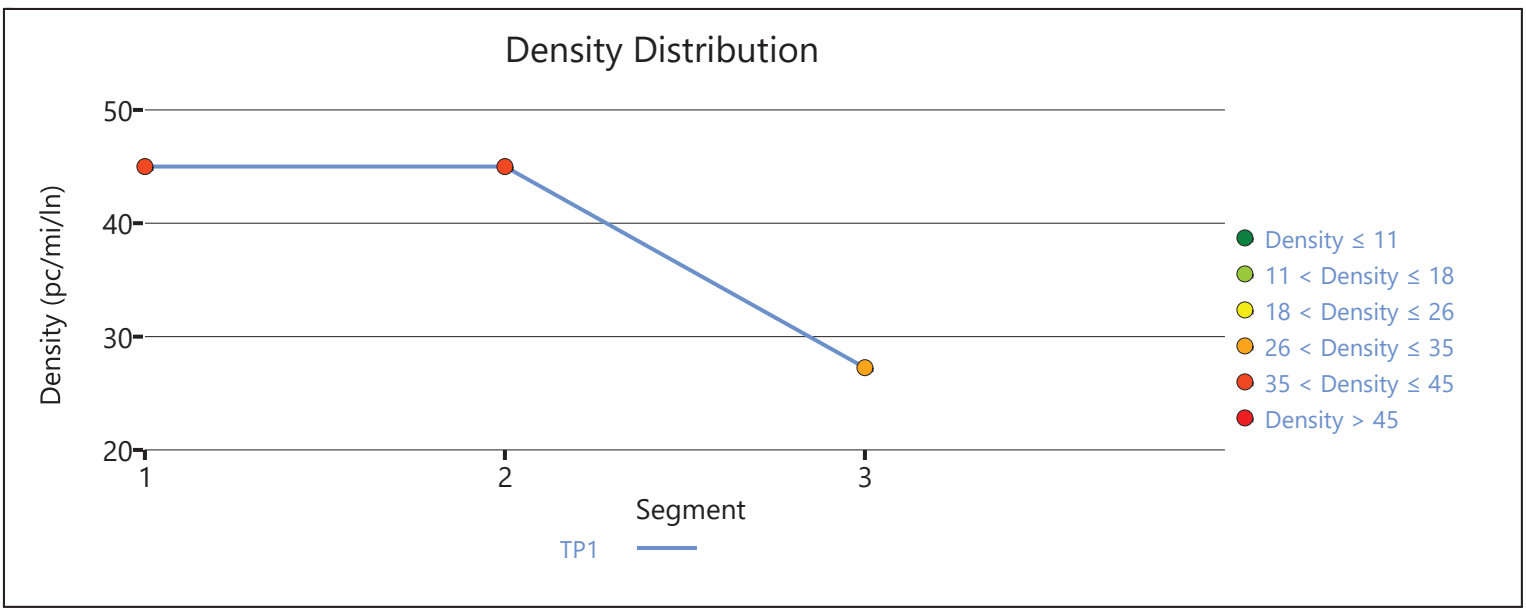
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	60.0	33.5	32.2	1.9	F

Facility Overall Results

Space Mean Speed, mi/h	60.0	Density, veh/mi/ln	32.2
Average Travel Time, min	1.9	Density, pc/mi/ln	33.5







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APPENDIX 7.9:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	69	172	127	98	129	63	1126	61	297	1755
Future Volume (vph)	69	172	127	98	129	63	1126	61	297	1755
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	39.0	39.0	39.0	39.0	39.0	6.0	41.5	41.5	24.5	60.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.05	0.35	0.35	0.20	0.50
v/c Ratio	1.15	0.30	0.23	0.31	0.86	0.76	0.68	0.11	0.88	0.79
Control Delay	198.9	32.0	9.2	33.4	44.3	101.0	36.5	3.1	70.3	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.2	33.4	44.3	101.0	36.5	3.1	70.3	27.5
LOS	F	C	A	C	D	F	D	A	E	C
Approach Delay		55.4			42.5		38.1			33.4
Approach LOS		E			D		D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 95.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	172	127	98	129	372	63	1126	61	297	1755	118
Future Volume (veh/h)	69	172	127	98	129	372	63	1126	61	297	1755	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	75	187	105	107	140	338	68	1224	50	323	1908	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	619	524	354	161	388	87	1842	569	351	2513	145
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.36	0.36	0.19	0.50	0.50
Sat Flow, veh/h	982	1900	1610	1166	493	1190	1810	5187	1603	1810	5018	288
Grp Volume(v), veh/h	75	187	105	107	0	478	68	1224	50	323	1313	705
Grp Sat Flow(s),veh/h/ln	982	1900	1610	1166	0	1683	1810	1729	1603	1810	1729	1848
Q Serve(g_s), s	7.0	8.8	5.6	9.1	0.0	32.0	4.5	23.9	2.5	21.0	36.6	36.8
Cycle Q Clear(g_c), s	39.0	8.8	5.6	17.9	0.0	32.0	4.5	23.9	2.5	21.0	36.6	36.8
Prop In Lane	1.00		1.00	1.00		0.71	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	117	619	524	354	0	548	87	1842	569	351	1732	926
V/C Ratio(X)	0.64	0.30	0.20	0.30	0.00	0.87	0.78	0.66	0.09	0.92	0.76	0.76
Avail Cap(c_a), veh/h	117	619	524	354	0	548	91	1842	569	408	1732	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	30.2	29.1	36.9	0.0	38.0	56.4	32.6	25.7	47.4	24.1	24.1
Incr Delay (d2), s/veh	8.7	0.1	0.1	0.2	0.0	13.8	31.9	1.9	0.3	23.2	3.2	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.0	2.2	2.6	0.0	14.8	2.7	9.6	0.9	11.2	14.1	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	30.3	29.2	37.1	0.0	51.9	88.3	34.5	26.0	70.6	27.2	30.0
LnGrp LOS	E	C	C	D	A	D	F	C	C	E	C	C
Approach Vol, veh/h		367			585			1342			2341	
Approach Delay, s/veh		37.3			49.2			36.9			34.0	
Approach LOS		D			D			D			C	

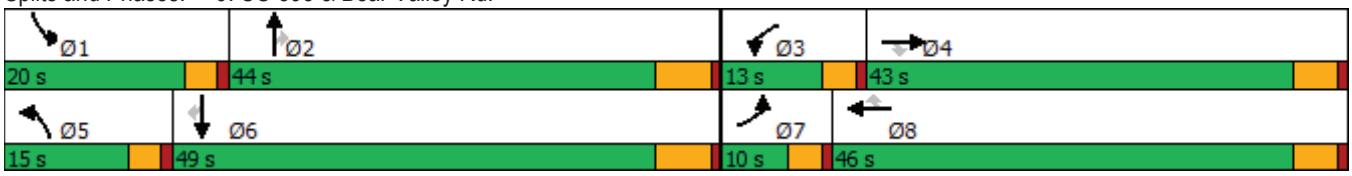
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.2	48.5		44.0	9.8	66.0		44.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	23.0	25.9		41.0	6.5	38.8		34.0				
Green Ext Time (p_c), s	0.3	5.3		0.0	0.0	11.2		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		37.0	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	464	317	217	347	138	148	1043	134	310	1726	47
Future Volume (vph)	80	464	317	217	347	138	148	1043	134	310	1726	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.1	20.2	20.2	9.1	23.2	23.2	9.0	39.1	39.1	13.3	43.5	43.5
Actuated g/C Ratio	0.06	0.20	0.20	0.09	0.23	0.23	0.09	0.39	0.39	0.13	0.43	0.43
v/c Ratio	0.76	0.66	0.66	1.38	0.43	0.30	0.49	0.53	0.19	0.69	0.80	0.06
Control Delay	89.0	41.4	19.0	242.3	34.3	6.5	51.1	26.6	5.3	51.4	29.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.0	41.4	19.0	242.3	34.3	6.5	51.1	26.6	5.3	51.4	29.7	0.8
LOS	F	D	B	F	C	A	D	C	A	D	C	A
Approach Delay		37.5			93.2			27.2			32.3	
Approach LOS		D			F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.38	
Intersection Signal Delay: 40.4	Intersection LOS: D
Intersection Capacity Utilization 78.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	464	317	217	347	138	148	1043	134	310	1726	47
Future Volume (veh/h)	80	464	317	217	347	138	148	1043	134	310	1726	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	478	246	224	358	108	153	1075	111	320	1779	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	105	681	304	171	813	363	224	2088	648	401	2348	729
Arrive On Green	0.06	0.19	0.19	0.09	0.23	0.23	0.06	0.40	0.40	0.11	0.45	0.45
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1610	3510	5187	1610
Grp Volume(v), veh/h	82	478	246	224	358	108	153	1075	111	320	1779	42
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1610	1755	1729	1610
Q Serve(g_s), s	4.2	11.8	13.9	9.0	8.1	5.3	4.1	14.8	4.2	8.4	27.1	1.4
Cycle Q Clear(g_c), s	4.2	11.8	13.9	9.0	8.1	5.3	4.1	14.8	4.2	8.4	27.1	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	681	304	171	813	363	224	2088	648	401	2348	729
V/C Ratio(X)	0.78	0.70	0.81	1.31	0.44	0.30	0.68	0.51	0.17	0.80	0.76	0.06
Avail Cap(c_a), veh/h	114	1444	644	171	1558	695	406	2088	648	591	2348	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	36.0	36.9	43.0	31.7	30.6	43.5	21.4	18.2	41.0	21.7	14.6
Incr Delay (d2), s/veh	25.2	0.5	2.0	173.6	0.1	0.2	2.7	0.9	0.6	3.9	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.8	5.2	12.0	3.3	1.9	1.7	5.5	1.5	3.6	9.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	36.5	38.9	216.6	31.8	30.7	46.2	22.3	18.8	44.9	24.0	14.8
LnGrp LOS	E	D	D	F	C	C	D	C	B	D	C	B
Approach Vol, veh/h		806			690			1339			2141	
Approach Delay, s/veh		40.6			91.6			24.7			27.0	
Approach LOS		D			F			C			C	

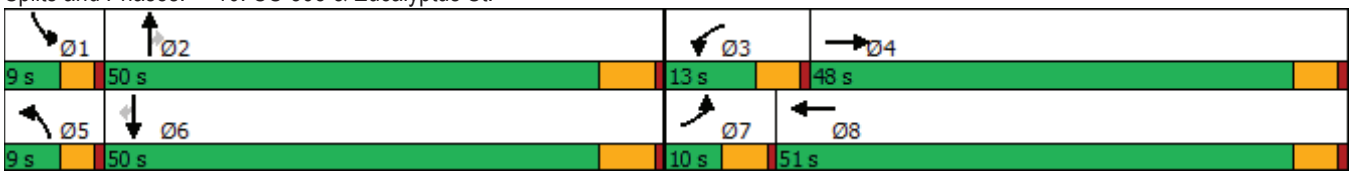
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	44.2	13.0	22.9	10.1	49.0	9.5	26.4
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	10.4	16.8	11.0	15.9	6.1	29.1	6.2	10.1
Green Ext Time (p_c), s	0.4	4.5	0.0	2.0	0.1	6.8	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	37.5
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	7	105	8	9	1186	81	9	2254	11
Future Volume (vph)	13	7	105	8	9	1186	81	9	2254	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.7	18.2	5.2	50.9	50.9	5.2	50.9	50.9
Actuated g/C Ratio	0.06	0.18	0.12	0.22	0.06	0.61	0.61	0.06	0.61	0.61
v/c Ratio	0.12	0.08	0.54	0.11	0.09	0.40	0.08	0.09	0.76	0.01
Control Delay	46.5	15.5	48.7	10.7	46.0	13.0	3.6	46.0	18.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.5	15.5	48.7	10.7	46.0	13.0	3.6	46.0	18.4	0.0
LOS	D	B	D	B	D	B	A	D	B	A
Approach Delay		26.3		38.6		12.6			18.4	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 83.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization 66.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	7	17	105	8	30	9	1186	81	9	2254	11
Future Volume (veh/h)	13	7	17	105	8	30	9	1186	81	9	2254	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	14	8	10	113	9	21	10	1275	83	10	2424	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	30	76	95	144	82	191	23	2885	896	23	2885	896
Arrive On Green	0.02	0.10	0.10	0.08	0.16	0.16	0.01	0.56	0.56	0.01	0.56	0.56
Sat Flow, veh/h	1810	768	960	1810	506	1180	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	14	0	18	113	0	30	10	1275	83	10	2424	11
Grp Sat Flow(s),veh/h/ln	1810	0	1727	1810	0	1685	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	0.6	0.0	0.8	4.9	0.0	1.2	0.4	11.4	1.9	0.4	30.8	0.2
Cycle Q Clear(g_c), s	0.6	0.0	0.8	4.9	0.0	1.2	0.4	11.4	1.9	0.4	30.8	0.2
Prop In Lane	1.00		0.56	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	30	0	171	144	0	273	23	2885	896	23	2885	896
V/C Ratio(X)	0.46	0.00	0.11	0.79	0.00	0.11	0.44	0.44	0.09	0.44	0.84	0.01
Avail Cap(c_a), veh/h	114	0	939	183	0	980	114	2885	896	114	2885	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	32.4	35.7	0.0	28.3	38.8	10.3	8.2	38.8	14.6	7.8
Incr Delay (d2), s/veh	4.0	0.0	0.3	12.1	0.0	0.2	5.0	0.5	0.2	5.0	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	2.5	0.0	0.5	0.2	3.4	0.6	0.2	11.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	0.0	32.7	47.8	0.0	28.5	43.8	10.8	8.4	43.8	17.8	7.9
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	B	A
Approach Vol, veh/h		32			143			1368			2445	
Approach Delay, s/veh		37.0			43.8			10.9			17.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	50.0	11.3	12.8	5.0	50.0	6.3	17.8
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.4	13.4	6.9	2.8	2.4	32.8	2.6	3.2
Green Ext Time (p_c), s	0.0	9.7	0.0	0.1	0.0	10.2	0.0	0.1

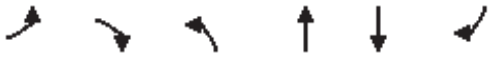
Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	1	4	1920	2656
Future Volume (vph)	1	4	1920	2656
Turn Type	Perm	Prot	NA	NA
Protected Phases		5	2	6
Permitted Phases	4			
Detector Phase	4	5	2	6
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	9.6	16.5	23.5
Total Split (s)	26.6	26.0	93.4	67.4
Total Split (%)	22.2%	21.7%	77.8%	56.2%
Yellow Time (s)	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.5	6.5
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None	Max	Max
Act Effct Green (s)	12.2	5.1	104.6	102.7
Actuated g/C Ratio	0.11	0.05	0.94	0.93
v/c Ratio	0.00	0.05	0.43	0.60
Control Delay	0.0	53.8	2.2	5.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	0.0	53.8	2.2	5.3
LOS	A	D	A	A
Approach Delay			2.3	5.3
Approach LOS			A	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.60	
Intersection Signal Delay: 4.1	Intersection LOS: A
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	1	4	1920	2656	0
Future Volume (veh/h)	0	1	4	1920	2656	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	0	1	4	2087	2887	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	5	4	10	4587	4317	0
Arrive On Green	0.00	0.00	0.01	0.88	0.83	0.00
Sat Flow, veh/h	1810	1610	1810	5358	5529	0
Grp Volume(v), veh/h	0	1	4	2087	2887	0
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1729	1729	0
Q Serve(g_s), s	0.0	0.1	0.2	7.7	20.7	0.0
Cycle Q Clear(g_c), s	0.0	0.1	0.2	7.7	20.7	0.0
Prop In Lane	1.00	1.00	1.00			0.00
Lane Grp Cap(c), veh/h	5	4	10	4587	4317	0
V/C Ratio(X)	0.00	0.23	0.42	0.45	0.67	0.00
Avail Cap(c_a), veh/h	405	360	394	4587	4317	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	48.9	48.7	1.1	3.1	0.0
Incr Delay (d2), s/veh	0.0	24.2	10.6	0.3	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.1	1.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	73.1	59.3	1.4	4.0	0.0
LnGrp LOS	A	E	E	A	A	A
Approach Vol, veh/h	1			2091	2887	
Approach Delay, s/veh	73.1			1.5	4.0	
Approach LOS	E			A	A	

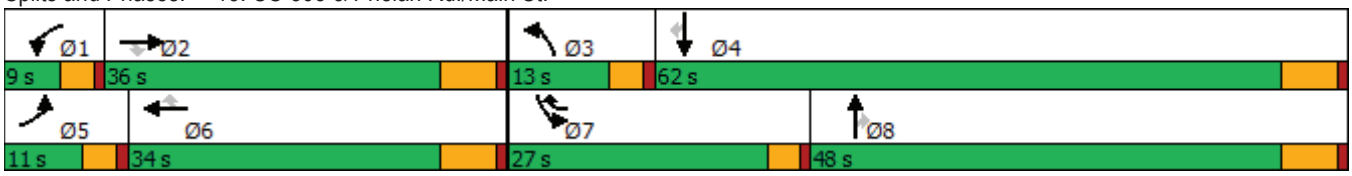
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.4		4.9	5.1	88.3
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		86.9		22.0	21.4	60.9
Max Q Clear Time (g_c+I1), s		9.7		2.1	2.2	22.7
Green Ext Time (p_c), s		27.3		0.0	0.0	31.4

Intersection Summary	
HCM 6th Ctrl Delay	3.0
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	921	203	23	449	416	151	1485	26	317	2268	82
Future Volume (vph)	103	921	203	23	449	416	151	1485	26	317	2268	82
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	7	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	16.0	16.0	9.0	16.0	9.0	9.0	16.0	16.0	9.0	16.0	16.0
Total Split (s)	11.0	36.0	36.0	9.0	34.0	27.0	13.0	48.0	48.0	27.0	62.0	62.0
Total Split (%)	9.2%	30.0%	30.0%	7.5%	28.3%	22.5%	10.8%	40.0%	40.0%	22.5%	51.7%	51.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.0	27.5	27.5	5.0	21.5	43.3	8.5	49.1	49.1	15.7	56.3	56.3
Actuated g/C Ratio	0.06	0.24	0.24	0.04	0.19	0.38	0.07	0.43	0.43	0.14	0.50	0.50
v/c Ratio	0.96	0.76	0.40	0.30	0.48	0.66	0.60	0.69	0.03	0.68	0.92	0.10
Control Delay	130.0	44.9	9.5	65.3	42.0	28.7	62.3	29.8	0.1	54.5	34.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.0	44.9	9.5	65.3	42.0	28.7	62.3	29.8	0.1	54.5	34.6	2.8
LOS	F	D	A	E	D	C	E	C	A	D	C	A
Approach Delay		46.2			36.4			32.2			36.0	
Approach LOS		D			D			C			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 113.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 37.0	Intersection LOS: D
Intersection Capacity Utilization 86.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	921	203	23	449	416	151	1485	26	317	2268	82
Future Volume (veh/h)	103	921	203	23	449	416	151	1485	26	317	2268	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	107	959	155	24	468	225	157	1547	18	330	2362	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	115	1192	370	43	984	492	218	2330	723	406	2607	809
Arrive On Green	0.06	0.23	0.23	0.02	0.19	0.19	0.06	0.45	0.45	0.12	0.50	0.50
Sat Flow, veh/h	1810	5187	1610	1810	5187	1610	3510	5187	1610	3510	5187	1610
Grp Volume(v), veh/h	107	959	155	24	468	225	157	1547	18	330	2362	64
Grp Sat Flow(s),veh/h/ln	1810	1729	1610	1810	1729	1610	1755	1729	1610	1755	1729	1610
Q Serve(g_s), s	6.5	19.2	9.0	1.4	8.8	12.4	4.8	25.7	0.7	10.1	45.7	2.3
Cycle Q Clear(g_c), s	6.5	19.2	9.0	1.4	8.8	12.4	4.8	25.7	0.7	10.1	45.7	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	1192	370	43	984	492	218	2330	723	406	2607	809
V/C Ratio(X)	0.93	0.80	0.42	0.56	0.48	0.46	0.72	0.66	0.02	0.81	0.91	0.08
Avail Cap(c_a), veh/h	115	1414	439	82	1320	596	287	2330	723	734	2640	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	40.0	36.1	53.1	39.7	30.9	50.6	23.8	16.9	47.5	25.0	14.2
Incr Delay (d2), s/veh	61.7	3.0	0.8	8.3	0.4	0.7	4.9	0.8	0.0	3.0	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	8.0	3.4	0.7	3.6	4.6	2.2	9.6	0.2	4.4	17.4	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.9	43.0	36.9	61.4	40.1	31.5	55.5	24.5	16.9	50.5	30.0	14.2
LnGrp LOS	F	D	D	E	D	C	E	C	B	D	C	B
Approach Vol, veh/h		1221			717			1722			2756	
Approach Delay, s/veh		48.4			38.1			27.3			32.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	31.3	10.8	61.3	11.0	26.9	16.7	55.4
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	30.0	9.0	56.0	7.0	28.0	23.0	42.0
Max Q Clear Time (g_c+I1), s	3.4	21.2	6.8	47.7	8.5	14.4	12.1	27.7
Green Ext Time (p_c), s	0.0	4.1	0.1	7.5	0.0	2.9	0.6	9.2

Intersection Summary	
HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	122	432	1230	68	565	1929
Future Volume (vph)	122	432	1230	68	565	1929
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.7	26.7	23.5	23.5	9.6	16.5
Total Split (s)	31.0	31.0	55.2	55.2	33.8	89.0
Total Split (%)	25.8%	25.8%	46.0%	46.0%	28.2%	74.2%
Yellow Time (s)	3.7	3.7	5.5	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.5	6.5	4.6	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	14.7	14.7	55.6	55.6	22.5	82.7
Actuated g/C Ratio	0.14	0.14	0.51	0.51	0.21	0.76
v/c Ratio	0.54	0.80	0.50	0.08	0.84	0.53
Control Delay	51.6	18.2	19.7	5.6	52.5	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	18.2	19.7	5.6	52.5	6.3
LOS	D	B	B	A	D	A
Approach Delay	25.5		19.0			16.8
Approach LOS	C		B			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 18.5	Intersection LOS: B
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 14: US-395 & Poplar St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	432	1230	68	565	1929
Future Volume (veh/h)	122	432	1230	68	565	1929
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	131	357	1323	57	608	2074
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	397	353	2370	736	675	3566
Arrive On Green	0.22	0.22	0.46	0.46	0.19	0.69
Sat Flow, veh/h	1810	1610	5358	1610	3510	5358
Grp Volume(v), veh/h	131	357	1323	57	608	2074
Grp Sat Flow(s),veh/h/ln	1810	1610	1729	1610	1755	1729
Q Serve(g_s), s	7.3	26.3	22.3	2.4	20.3	25.0
Cycle Q Clear(g_c), s	7.3	26.3	22.3	2.4	20.3	25.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	397	353	2370	736	675	3566
V/C Ratio(X)	0.33	1.01	0.56	0.08	0.90	0.58
Avail Cap(c_a), veh/h	397	353	2370	736	854	3566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	46.8	23.8	18.3	47.4	9.8
Incr Delay (d2), s/veh	0.5	50.9	1.0	0.2	9.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	15.4	8.5	0.9	9.3	7.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.9	97.7	24.7	18.5	56.8	10.5
LnGrp LOS	D	F	C	B	E	B
Approach Vol, veh/h	488		1380			2682
Approach Delay, s/veh	82.2		24.5			21.0
Approach LOS	F		C			C

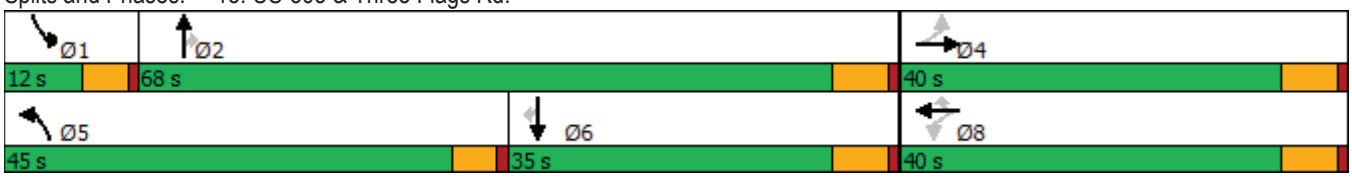
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	27.7	61.3			89.0	31.0
Change Period (Y+Rc), s	4.6	6.5			6.5	4.7
Max Green Setting (Gmax), s	29.2	48.7			82.5	26.3
Max Q Clear Time (g_c+I1), s	22.3	24.3			27.0	28.3
Green Ext Time (p_c), s	0.8	9.3			24.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1	232	2	58	247	1170	142	44	1874	133
Future Volume (vph)	70	1	232	2	58	247	1170	142	44	1874	133
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	45.0	68.0	68.0	12.0	35.0	35.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	37.5%	56.7%	56.7%	10.0%	29.2%	29.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	34.1	34.1	34.1	34.1	34.1	22.1	62.1	62.1	6.4	44.3	44.3
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.19	0.53	0.53	0.05	0.38	0.38
v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.79	0.46	0.17	0.48	1.04	0.21
Control Delay	33.9	6.0	148.9	31.0	0.5	62.0	18.4	2.8	71.6	68.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	6.0	148.9	31.0	0.5	62.0	18.4	2.8	71.6	68.8	8.4
LOS	C	A	F	C	A	E	B	A	E	E	A
Approach Delay		11.6		118.7			23.8			64.9	
Approach LOS		B		F			C			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 49.2	Intersection LOS: D
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1	273	232	2	58	247	1170	142	44	1874	133
Future Volume (veh/h)	70	1	273	232	2	58	247	1170	142	44	1874	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	76	1	260	252	2	54	268	1272	142	48	2037	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	480	2	466	246	552	467	298	2748	852	62	2071	643
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.53	0.53	0.03	0.40	0.40
Sat Flow, veh/h	1442	6	1605	1199	1900	1607	1810	5187	1609	1810	5187	1610
Grp Volume(v), veh/h	76	0	261	252	2	54	268	1272	142	48	2037	124
Grp Sat Flow(s),veh/h/ln	1442	0	1611	1199	1900	1607	1810	1729	1609	1810	1729	1610
Q Serve(g_s), s	4.6	0.0	16.0	18.0	0.1	2.9	17.0	17.9	5.3	3.1	45.5	5.9
Cycle Q Clear(g_c), s	4.7	0.0	16.0	34.0	0.1	2.9	17.0	17.9	5.3	3.1	45.5	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	480	0	468	246	552	467	298	2748	852	62	2071	643
V/C Ratio(X)	0.16	0.00	0.56	1.03	0.00	0.12	0.90	0.46	0.17	0.77	0.98	0.19
Avail Cap(c_a), veh/h	480	0	468	246	552	467	619	2748	852	108	2071	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	35.1	51.8	29.5	30.5	47.9	17.1	14.2	56.0	34.8	22.9
Incr Delay (d2), s/veh	0.1	0.0	0.9	64.4	0.0	0.0	3.9	0.6	0.4	7.4	16.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	6.4	11.7	0.0	1.1	7.6	6.5	1.9	1.5	20.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	36.0	116.2	29.5	30.5	51.8	17.7	14.6	63.4	51.1	23.5
LnGrp LOS	C	A	D	F	C	C	D	B	B	E	D	C
Approach Vol, veh/h		337			308			1682			2209	
Approach Delay, s/veh		34.9			100.6			22.9			49.8	
Approach LOS		C			F			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	68.0		40.0	24.3	52.7		40.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	62.0		34.0	40.0	29.0		34.0				
Max Q Clear Time (g_c+I1), s	5.1	19.9		18.0	19.0	47.5		36.0				
Green Ext Time (p_c), s	0.0	10.8		1.1	0.3	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		42.2	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	74	129	89	238	13	1260	83	272	1870	237
Future Volume (vph)	62	74	129	89	238	13	1260	83	272	1870	237
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	46.0	46.0	46.0	46.0	46.0	18.0	34.0	34.0	40.0	56.0	56.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	15.0%	28.3%	28.3%	33.3%	46.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.7	17.7	17.7	17.7	17.7	5.9	34.1	34.1	17.5	54.0	54.0
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.07	0.42	0.42	0.21	0.66	0.66
v/c Ratio	0.24	0.20	0.49	0.24	0.47	0.11	0.63	0.12	0.73	0.59	0.23
Control Delay	27.5	25.8	33.1	26.8	6.3	43.8	23.9	6.6	41.7	11.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	25.8	33.1	26.8	6.3	43.8	23.9	6.6	41.7	11.8	4.0
LOS	C	C	C	C	A	D	C	A	D	B	A
Approach Delay		26.6		17.9			23.1			14.4	
Approach LOS		C		B			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.6	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 17.9	Intersection LOS: B
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	74	4	129	89	238	13	1260	83	272	1870	237
Future Volume (veh/h)	62	74	4	129	89	238	13	1260	83	272	1870	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	67	80	1	140	97	205	14	1370	76	296	2033	253
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	250	342	4	297	347	294	30	2475	768	344	3374	1047
Arrive On Green	0.18	0.18	0.17	0.18	0.18	0.18	0.02	0.48	0.48	0.19	0.65	0.65
Sat Flow, veh/h	1154	1872	23	1413	1900	1608	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	67	0	81	140	97	205	14	1370	76	296	2033	253
Grp Sat Flow(s),veh/h/ln	1154	0	1896	1413	1900	1608	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	4.2	0.0	2.9	7.5	3.5	9.5	0.6	15.0	2.1	12.7	18.0	5.2
Cycle Q Clear(g_c), s	7.8	0.0	2.9	10.4	3.5	9.5	0.6	15.0	2.1	12.7	18.0	5.2
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	346	297	347	294	30	2475	768	344	3374	1047
V/C Ratio(X)	0.27	0.00	0.23	0.47	0.28	0.70	0.46	0.55	0.10	0.86	0.60	0.24
Avail Cap(c_a), veh/h	646	0	996	781	998	844	317	2475	768	815	3374	1047
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.5	0.0	27.9	32.3	28.1	30.6	39.0	14.8	11.5	31.4	8.0	5.8
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.2	1.1	8.0	0.9	0.3	4.8	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.3	2.5	1.6	3.7	0.3	4.9	0.7	5.4	4.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	28.0	32.8	28.3	31.7	46.9	15.7	11.7	36.2	8.8	6.3
LnGrp LOS	C	A	C	C	C	C	D	B	B	D	A	A
Approach Vol, veh/h		148			442			1460			2582	
Approach Delay, s/veh		29.7			31.3			15.8			11.7	
Approach LOS		C			C			B			B	

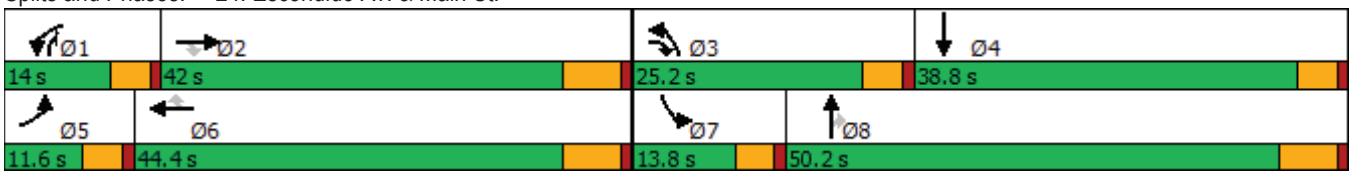
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.2	42.1		18.6	5.3	56.0		18.6				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	36.0	28.0		41.0	14.0	50.0		41.0				
Max Q Clear Time (g_c+I1), s	14.7	17.0		9.8	2.6	20.0		12.4				
Green Ext Time (p_c), s	0.5	8.7		0.4	0.0	26.6		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		15.5	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	6	1103	505	359	1369	4	814	30	379	1	4
Future Volume (vph)	6	1103	505	359	1369	4	814	30	379	1	4
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.0	25.2	14.0	44.4	44.4	25.2	50.2	14.0	13.8	38.8
Total Split (%)	9.7%	35.0%	21.0%	11.7%	37.0%	37.0%	21.0%	41.8%	11.7%	11.5%	32.3%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	5.5	25.3	53.7	10.0	38.7	38.7	21.8	26.6	43.1	5.3	13.7
Actuated g/C Ratio	0.07	0.31	0.66	0.12	0.48	0.48	0.27	0.33	0.53	0.07	0.17
v/c Ratio	0.05	0.70	0.42	0.96	0.57	0.00	1.00	0.05	0.41	0.01	0.07
Control Delay	47.2	28.5	2.2	77.8	19.5	0.0	63.9	20.1	6.6	48.0	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	28.5	2.2	77.8	19.5	0.0	63.9	20.1	6.6	48.0	17.2
LOS	D	C	A	E	B	A	E	C	A	D	B
Approach Delay		20.3			31.5			45.0			18.6
Approach LOS		C			C			D			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.2	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1103	505	359	1369	4	814	30	379	1	4	17
Future Volume (veh/h)	6	1103	505	359	1369	4	814	30	379	1	4	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	6	1137	407	370	1411	4	839	31	229	1	4	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	1592	868	332	2101	652	728	651	722	2	36	151
Arrive On Green	0.01	0.31	0.31	0.11	0.40	0.40	0.23	0.34	0.34	0.00	0.11	0.11
Sat Flow, veh/h	1714	5187	1610	3141	5187	1610	3141	1900	1610	1714	316	1342
Grp Volume(v), veh/h	6	1137	407	370	1411	4	839	31	229	1	0	21
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1570	1729	1610	1570	1900	1610	1714	0	1658
Q Serve(g_s), s	0.3	17.3	13.9	9.4	19.8	0.1	20.6	1.0	8.1	0.1	0.0	1.0
Cycle Q Clear(g_c), s	0.3	17.3	13.9	9.4	19.8	0.1	20.6	1.0	8.1	0.1	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	13	1592	868	332	2101	652	728	651	722	2	0	186
V/C Ratio(X)	0.45	0.71	0.47	1.11	0.67	0.01	1.15	0.05	0.32	0.43	0.00	0.11
Avail Cap(c_a), veh/h	135	2089	1022	332	2230	692	728	941	967	177	0	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.9	27.3	12.7	39.7	21.6	15.8	34.1	19.5	15.7	44.3	0.0	35.5
Incr Delay (d2), s/veh	8.7	0.8	0.4	83.6	0.7	0.0	83.9	0.0	0.2	39.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.6	4.8	7.3	7.2	0.0	16.2	0.4	3.0	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	28.1	13.0	123.4	22.4	15.8	118.0	19.5	16.0	83.8	0.0	35.7
LnGrp LOS	D	C	B	F	C	B	F	B	B	F	A	D
Approach Vol, veh/h		1550			1785			1099			22	
Approach Delay, s/veh		24.3			43.3			94.0			37.9	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	33.5	25.2	16.2	5.3	42.2	4.7	36.7
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	35.8	20.6	* 34	7.0	38.2	9.2	44.0
Max Q Clear Time (g_c+I1), s	11.4	19.3	22.6	3.0	2.3	21.8	2.1	10.1
Green Ext Time (p_c), s	0.0	8.0	0.0	0.1	0.0	8.3	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	49.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	33	293	1121	122	693
Future Volume (vph)	33	293	1121	122	693
Turn Type	Prot	Perm	NA	Prot	NA
Protected Phases	8		2	1	6
Permitted Phases		8			
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.6	26.6	23.2	9.6	16.2
Total Split (s)	31.0	31.0	65.7	23.3	89.0
Total Split (%)	25.8%	25.8%	54.8%	19.4%	74.2%
Yellow Time (s)	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.2	4.6	6.2
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
Act Effct Green (s)	12.5	12.5	65.8	12.5	83.0
Actuated g/C Ratio	0.12	0.12	0.62	0.12	0.78
v/c Ratio	0.18	0.71	0.57	0.66	0.27
Control Delay	43.5	16.6	14.5	60.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	16.6	14.5	60.6	3.9
LOS	D	B	B	E	A
Approach Delay	19.3		14.5		12.4
Approach LOS	B		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.3	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 60.7%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 25: Escondido Av. & Sultana St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	293	1121	45	122	693
Future Volume (veh/h)	33	293	1121	45	122	693
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1800	1900
Adj Flow Rate, veh/h	36	318	1218	49	133	753
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	364	342	1998	80	159	2515
Arrive On Green	0.21	0.21	0.57	0.57	0.09	0.70
Sat Flow, veh/h	1714	1610	3629	142	1714	3705
Grp Volume(v), veh/h	36	318	622	645	133	753
Grp Sat Flow(s),veh/h/ln	1714	1610	1805	1871	1714	1805
Q Serve(g_s), s	2.0	23.0	27.1	27.2	9.1	9.5
Cycle Q Clear(g_c), s	2.0	23.0	27.1	27.2	9.1	9.5
Prop In Lane	1.00	1.00		0.08	1.00	
Lane Grp Cap(c), veh/h	364	342	1020	1058	159	2515
V/C Ratio(X)	0.10	0.93	0.61	0.61	0.84	0.30
Avail Cap(c_a), veh/h	381	358	1020	1058	270	2515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	45.9	17.1	17.1	53.0	6.9
Incr Delay (d2), s/veh	0.1	29.8	2.7	2.6	4.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	12.1	11.9	12.3	4.1	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.8	75.7	19.8	19.8	57.4	7.2
LnGrp LOS	D	E	B	B	E	A
Approach Vol, veh/h	354		1267			886
Approach Delay, s/veh	71.8		19.8			14.7
Approach LOS	E		B			B

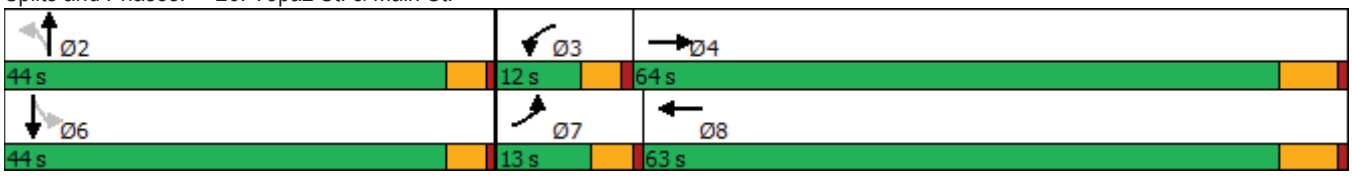
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.6	73.4				89.0	29.8
Change Period (Y+Rc), s	4.6	6.2				6.2	4.6
Max Green Setting (Gmax), s	18.7	59.5				82.8	26.4
Max Q Clear Time (g_c+I1), s	11.1	29.2				11.5	25.0
Green Ext Time (p_c), s	0.1	11.3				6.8	0.2

Intersection Summary		
HCM 6th Ctrl Delay	25.4	
HCM 6th LOS	C	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	60	1357	45	1362	233	113	134	87
Future Volume (vph)	60	1357	45	1362	233	113	134	87
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.4	42.4	7.7	45.5	30.5	30.5	30.5	30.5
Actuated g/C Ratio	0.08	0.44	0.08	0.47	0.32	0.32	0.32	0.32
v/c Ratio	0.50	0.71	0.36	0.67	0.82	0.36	0.48	0.35
Control Delay	62.6	24.1	57.4	23.0	54.8	24.6	34.6	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.6	24.1	57.4	23.0	54.8	24.6	34.6	21.6
LOS	E	C	E	C	D	C	C	C
Approach Delay		25.6		24.0		41.1		27.0
Approach LOS		C		C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 96.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 74.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1357	114	45	1362	131	233	113	81	134	87	104
Future Volume (veh/h)	60	1357	114	45	1362	131	233	113	81	134	87	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	65	1475	111	49	1480	139	253	123	70	146	95	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	82	2075	156	149	2226	209	384	351	200	357	323	224
Arrive On Green	0.05	0.42	0.42	0.09	0.46	0.46	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1714	4913	370	1714	4823	453	1245	1135	646	1207	1044	725
Grp Volume(v), veh/h	65	1038	548	49	1061	558	253	0	193	146	0	161
Grp Sat Flow(s),veh/h/ln	1714	1729	1824	1714	1729	1818	1245	0	1781	1207	0	1769
Q Serve(g_s), s	3.2	21.1	21.1	2.3	20.3	20.3	16.5	0.0	7.1	9.1	0.0	5.9
Cycle Q Clear(g_c), s	3.2	21.1	21.1	2.3	20.3	20.3	22.3	0.0	7.1	16.2	0.0	5.9
Prop In Lane	1.00		0.20	1.00		0.25	1.00		0.36	1.00		0.41
Lane Grp Cap(c), veh/h	82	1461	770	149	1596	839	384	0	551	357	0	547
V/C Ratio(X)	0.79	0.71	0.71	0.33	0.66	0.67	0.66	0.00	0.35	0.41	0.00	0.29
Avail Cap(c_a), veh/h	169	2352	1241	149	2311	1215	576	0	826	543	0	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.0	20.3	20.3	36.5	17.8	17.8	30.8	0.0	22.7	29.0	0.0	22.3
Incr Delay (d2), s/veh	6.2	0.7	1.2	5.8	0.5	0.9	1.9	0.0	0.4	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	7.4	8.0	1.1	6.9	7.4	5.1	0.0	3.0	2.7	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	20.9	21.5	42.2	18.3	18.7	32.7	0.0	23.1	29.8	0.0	22.6
LnGrp LOS	D	C	C	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1651			1668			446			307	
Approach Delay, s/veh		22.1			19.1			28.6			26.0	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		30.9	12.0	42.1		30.9	8.7	45.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		24.3	4.3	23.1		18.2	5.2	22.3				
Green Ext Time (p_c), s		1.9	0.0	12.8		1.5	0.0	13.2				

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	102	98	82	69	148	119	1867	123	302	1439
Future Volume (vph)	102	98	82	69	148	119	1867	123	302	1439
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	37.0	37.0	37.0	37.0	37.0	9.8	44.5	44.5	23.4	58.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.08	0.37	0.37	0.20	0.48
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.01	0.19	0.89	0.65
Control Delay	175.7	31.4	4.9	31.9	43.5	95.4	61.1	5.1	74.8	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	31.9	43.5	95.4	61.1	5.1	74.8	24.7
LOS	F	C	A	C	D	F	E	A	E	C
Approach Delay		75.9			42.0		59.8			32.8
Approach LOS		E			D		E			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 48.3	Intersection LOS: D
Intersection Capacity Utilization 104.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	98	82	69	148	311	119	1867	123	302	1439	122
Future Volume (veh/h)	102	98	82	69	148	311	119	1867	123	302	1439	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	106	102	66	72	154	262	124	1945	103	315	1499	108
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	149	586	497	412	195	331	150	1957	607	342	2388	172
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.08	0.38	0.38	0.19	0.48	0.48
Sat Flow, veh/h	1040	1900	1610	1305	631	1074	1810	5187	1610	1810	4938	356
Grp Volume(v), veh/h	106	102	66	72	0	416	124	1945	103	315	1050	557
Grp Sat Flow(s),veh/h/ln	1040	1900	1610	1305	0	1705	1810	1729	1610	1810	1729	1836
Q Serve(g_s), s	10.2	4.7	3.5	5.1	0.0	26.8	8.1	44.8	5.1	20.5	27.0	27.0
Cycle Q Clear(g_c), s	37.0	4.7	3.5	9.8	0.0	26.8	8.1	44.8	5.1	20.5	27.0	27.0
Prop In Lane	1.00		1.00	1.00		0.63	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	149	586	497	412	0	526	150	1957	607	342	1672	888
V/C Ratio(X)	0.71	0.17	0.13	0.17	0.00	0.79	0.83	0.99	0.17	0.92	0.63	0.63
Avail Cap(c_a), veh/h	149	586	497	412	0	526	151	1957	607	377	1672	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	30.3	29.9	33.9	0.0	37.9	54.2	37.2	24.8	47.7	23.0	23.0
Incr Delay (d2), s/veh	12.8	0.1	0.0	0.1	0.0	7.4	29.3	19.0	0.6	25.6	1.8	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.1	1.4	1.6	0.0	11.9	4.8	20.8	1.9	11.2	10.4	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	30.4	29.9	34.0	0.0	45.3	83.5	56.2	25.5	73.3	24.8	26.3
LnGrp LOS	E	C	C	C	A	D	F	E	C	E	C	C
Approach Vol, veh/h		274			488			2172			1922	
Approach Delay, s/veh		45.0			43.6			56.3			33.2	
Approach LOS		D			D			E			C	

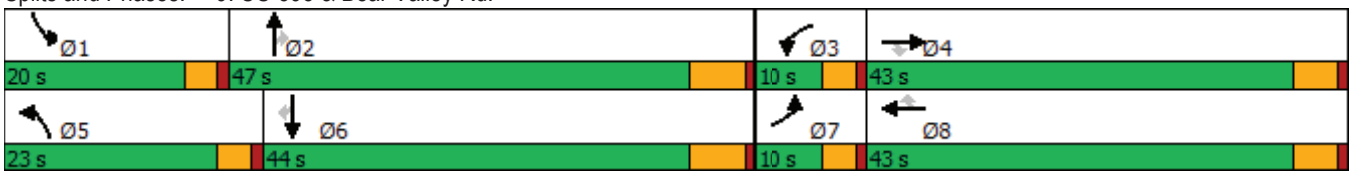
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.7	51.2		42.0	13.9	64.0		42.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	22.5	46.8		39.0	10.1	29.0		28.8				
Green Ext Time (p_c), s	0.2	0.0		0.0	0.0	9.9		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		45.2	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	440	188	149	510	209	406	1751	285	229	1327	95
Future Volume (vph)	111	440	188	149	510	209	406	1751	285	229	1327	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.1	21.4	21.4	6.1	21.4	21.4	16.3	43.0	43.0	11.7	38.4	38.4
Actuated g/C Ratio	0.06	0.21	0.21	0.06	0.21	0.21	0.16	0.42	0.42	0.12	0.38	0.38
v/c Ratio	1.09	0.61	0.40	1.47	0.70	0.43	0.76	0.84	0.37	0.60	0.71	0.15
Control Delay	160.3	39.3	6.9	287.6	42.1	7.0	51.2	32.0	7.3	50.1	30.8	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.3	39.3	6.9	287.6	42.1	7.0	51.2	32.0	7.3	50.1	30.8	7.4
LOS	F	D	A	F	D	A	D	C	A	D	C	A
Approach Delay		49.3			75.8			32.3			32.1	
Approach LOS		D			E			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.4	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.47	
Intersection Signal Delay: 41.1	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	440	188	149	510	209	406	1751	285	229	1327	95
Future Volume (veh/h)	111	440	188	149	510	209	406	1751	285	229	1327	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	117	463	116	157	537	151	427	1843	239	241	1397	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	114	692	309	114	692	308	512	2354	731	322	2072	643
Arrive On Green	0.06	0.19	0.19	0.06	0.19	0.19	0.15	0.45	0.45	0.09	0.40	0.40
Sat Flow, veh/h	1810	3610	1610	1810	3610	1605	3510	5187	1610	3510	5187	1609
Grp Volume(v), veh/h	117	463	116	157	537	151	427	1843	239	241	1397	87
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1605	1755	1729	1610	1755	1729	1609
Q Serve(g_s), s	6.0	11.3	6.0	6.0	13.4	8.0	11.2	28.6	9.1	6.4	21.1	3.3
Cycle Q Clear(g_c), s	6.0	11.3	6.0	6.0	13.4	8.0	11.2	28.6	9.1	6.4	21.1	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	692	309	114	692	308	512	2354	731	322	2072	643
V/C Ratio(X)	1.03	0.67	0.38	1.38	0.78	0.49	0.83	0.78	0.33	0.75	0.67	0.14
Avail Cap(c_a), veh/h	114	1442	643	114	1442	641	701	2354	731	590	2072	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	35.6	33.5	44.6	36.5	34.3	39.5	22.0	16.7	42.1	23.5	18.1
Incr Delay (d2), s/veh	91.1	0.4	0.3	214.5	0.7	0.5	5.6	2.7	1.2	2.6	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	4.6	2.2	9.3	5.5	2.9	4.9	10.5	3.2	2.7	7.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.7	36.1	33.8	259.0	37.2	34.8	45.1	24.7	17.9	44.8	25.2	18.6
LnGrp LOS	F	D	C	F	D	C	D	C	B	D	C	B
Approach Vol, veh/h		696			845			2509			1725	
Approach Delay, s/veh		52.4			78.0			27.5			27.6	
Approach LOS		D			E			C			C	

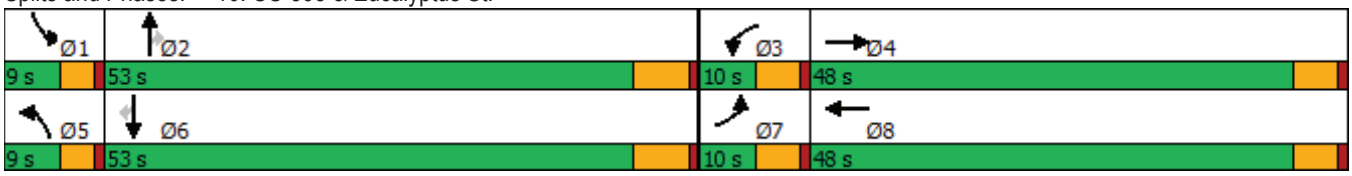
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	49.2	10.0	23.2	17.9	44.0	10.0	23.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	8.4	30.6	8.0	13.3	13.2	23.1	8.0	15.4
Green Ext Time (p_c), s	0.4	6.4	0.0	1.9	0.6	5.7	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	37.9
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	0	62	3	12	2451	120	16	1510	16
Future Volume (vph)	8	0	62	3	12	2451	120	16	1510	16
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.1	9.6	15.1	5.2	56.9	56.9	5.2	56.9	56.9
Actuated g/C Ratio	0.06	0.18	0.11	0.18	0.06	0.66	0.66	0.06	0.66	0.66
v/c Ratio	0.07	0.01	0.32	0.06	0.12	0.75	0.11	0.16	0.46	0.02
Control Delay	44.9	0.0	44.2	14.2	45.5	15.9	4.8	46.2	11.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	0.0	44.2	14.2	45.5	15.9	4.8	46.2	11.8	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		29.9		38.0		15.5			12.0	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 86.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 14.7	Intersection LOS: B
Intersection Capacity Utilization 66.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	4	62	3	13	12	2451	120	16	1510	16
Future Volume (veh/h)	8	0	4	62	3	13	12	2451	120	16	1510	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	0	1	65	3	6	13	2580	123	17	1589	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	18	0	105	88	59	117	29	3153	979	36	3174	985
Arrive On Green	0.01	0.00	0.07	0.05	0.10	0.10	0.02	0.61	0.61	0.02	0.61	0.61
Sat Flow, veh/h	1810	0	1610	1810	565	1131	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	8	0	1	65	0	9	13	2580	123	17	1589	16
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1696	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	0.3	0.0	0.0	2.7	0.0	0.4	0.6	30.0	2.5	0.7	13.3	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.0	2.7	0.0	0.4	0.6	30.0	2.5	0.7	13.3	0.3
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	0	105	88	0	176	29	3153	979	36	3174	985
V/C Ratio(X)	0.43	0.00	0.01	0.74	0.00	0.05	0.46	0.82	0.13	0.47	0.50	0.02
Avail Cap(c_a), veh/h	117	0	895	117	0	943	117	3153	979	117	3174	985
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	33.8	36.3	0.0	31.2	37.7	11.8	6.4	37.5	8.4	5.9
Incr Delay (d2), s/veh	5.8	0.0	0.0	9.7	0.0	0.1	4.2	2.5	0.3	3.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	1.4	0.0	0.1	0.3	8.3	0.7	0.4	4.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	0.0	33.9	46.0	0.0	31.4	41.9	14.3	6.7	41.1	9.0	5.9
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		9			74			2716			1622	
Approach Delay, s/veh		42.8			44.2			14.1			9.3	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	53.0	8.8	10.0	5.2	53.3	5.8	13.0
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.7	32.0	4.7	2.0	2.6	15.3	2.3	2.4
Green Ext Time (p_c), s	0.0	13.2	0.0	0.0	0.0	17.0	0.0	0.0

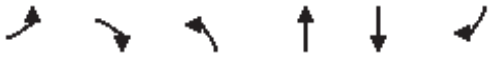
Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	4	6	11	2789	2005
Future Volume (vph)	4	6	11	2789	2005
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	11.5	14.6	23.5
Total Split (s)	26.6	26.6	11.5	93.4	81.9
Total Split (%)	22.2%	22.2%	9.6%	77.8%	68.3%
Yellow Time (s)	3.6	3.6	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.5	4.6	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	12.2	12.2	5.0	100.9	98.1
Actuated g/C Ratio	0.11	0.11	0.05	0.91	0.89
v/c Ratio	0.02	0.03	0.14	0.61	0.46
Control Delay	42.5	24.2	56.4	4.0	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	24.2	56.4	4.0	4.7
LOS	D	C	E	A	A
Approach Delay	31.5			4.2	4.7
Approach LOS	C			A	A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110.6	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 4.4	Intersection LOS: A
Intersection Capacity Utilization 69.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	4	6	11	2789	2005	6
Future Volume (veh/h)	4	6	11	2789	2005	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	4	6	11	2905	2089	6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	44	39	24	4499	4223	12
Arrive On Green	0.02	0.02	0.01	0.87	0.79	0.79
Sat Flow, veh/h	1810	1610	1810	5358	5511	15
Grp Volume(v), veh/h	4	6	11	2905	1353	742
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1729	1729	1897
Q Serve(g_s), s	0.2	0.4	0.6	17.3	13.8	13.8
Cycle Q Clear(g_c), s	0.2	0.4	0.6	17.3	13.8	13.8
Prop In Lane	1.00	1.00	1.00			0.01
Lane Grp Cap(c), veh/h	44	39	24	4499	2735	1500
V/C Ratio(X)	0.09	0.15	0.46	0.65	0.49	0.49
Avail Cap(c_a), veh/h	389	346	88	4499	2735	1500
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	48.9	50.2	2.0	3.7	3.7
Incr Delay (d2), s/veh	0.9	1.8	5.1	0.7	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.3	0.3	2.4	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	49.7	50.7	55.3	2.8	4.3	4.8
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	10			2916	2095	
Approach Delay, s/veh	50.3			3.0	4.5	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.3		7.1	7.8	87.5
Change Period (Y+Rc), s		* 6.5		4.6	6.5	6.5
Max Green Setting (Gmax), s		* 89		22.0	5.0	75.4
Max Q Clear Time (g_c+I1), s		19.3		2.4	2.6	15.8
Green Ext Time (p_c), s		51.9		0.0	0.0	24.7

Intersection Summary		
HCM 6th Ctrl Delay		3.7
HCM 6th LOS		A

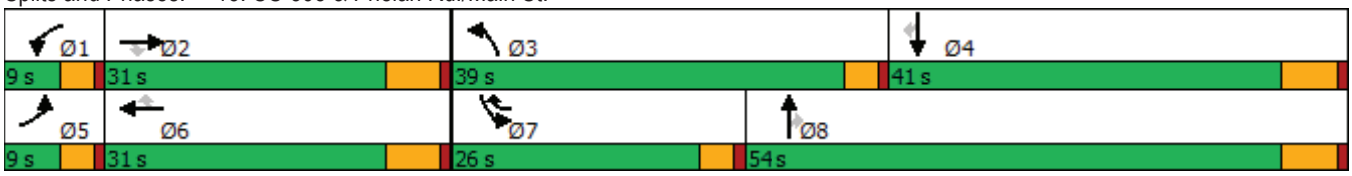
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	787	126	27	925	360	278	2369	423	382	1551	109
Future Volume (vph)	99	787	126	27	925	360	278	2369	423	382	1551	109
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	7	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	16.0	16.0	9.0	16.0	9.0	9.0	16.0	16.0	9.0	16.0	16.0
Total Split (s)	9.0	31.0	31.0	9.0	31.0	26.0	39.0	54.0	54.0	26.0	41.0	41.0
Total Split (%)	7.5%	25.8%	25.8%	7.5%	25.8%	21.7%	32.5%	45.0%	45.0%	21.7%	34.2%	34.2%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-0.5	-2.0	0.0
Total Lost Time (s)	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	6.0	3.5	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	29.5	27.5	5.0	25.8	46.6	14.2	50.1	48.1	17.3	52.7	50.7
Actuated g/C Ratio	0.04	0.26	0.24	0.04	0.23	0.41	0.12	0.44	0.42	0.15	0.46	0.45
v/c Ratio	1.32	0.56	0.27	0.35	0.75	0.53	0.65	0.99	0.59	0.70	0.62	0.14
Control Delay	250.5	39.3	7.8	67.3	45.6	20.8	54.8	48.9	21.4	52.6	24.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	250.5	39.3	7.8	67.3	45.6	20.8	54.8	48.9	21.4	52.6	24.7	2.7
LOS	F	D	A	E	D	C	D	D	C	D	C	A
Approach Delay		56.0			39.2			45.6			28.7	
Approach LOS		E			D			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 113.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.32	
Intersection Signal Delay: 41.3	Intersection LOS: D
Intersection Capacity Utilization 93.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	787	126	27	925	360	278	2369	423	382	1551	109
Future Volume (veh/h)	99	787	126	27	925	360	278	2369	423	382	1551	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	104	828	133	28	974	379	293	2494	392	402	1633	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	80	1463	380	47	1358	568	374	2528	686	494	2692	732
Arrive On Green	0.04	0.26	0.24	0.03	0.24	0.22	0.10	0.44	0.43	0.14	0.47	0.45
Sat Flow, veh/h	1810	5700	1589	1810	5700	1610	3619	5700	1610	3619	5700	1610
Grp Volume(v), veh/h	104	828	133	28	974	379	293	2494	392	402	1633	89
Grp Sat Flow(s),veh/h/ln	1810	1900	1589	1810	1900	1610	1810	1900	1610	1810	1900	1610
Q Serve(g_s), s	5.0	14.2	7.8	1.7	17.7	22.5	8.9	48.8	20.8	12.2	23.9	3.6
Cycle Q Clear(g_c), s	5.0	14.2	7.8	1.7	17.7	22.5	8.9	48.8	20.8	12.2	23.9	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	80	1463	380	47	1358	568	374	2528	686	494	2692	732
V/C Ratio(X)	1.30	0.57	0.35	0.60	0.72	0.67	0.78	0.99	0.57	0.81	0.61	0.12
Avail Cap(c_a), veh/h	80	1463	380	80	1365	570	1124	2528	686	722	2692	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.9	36.4	35.6	54.3	39.5	30.9	49.3	31.0	24.6	47.3	22.0	17.8
Incr Delay (d2), s/veh	198.9	0.5	0.6	8.7	1.8	3.0	2.7	14.8	1.3	3.9	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	6.3	2.9	0.9	8.0	8.5	4.0	23.3	7.5	5.5	9.6	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	252.7	36.9	36.2	63.0	41.3	33.9	52.1	45.9	25.8	51.2	22.4	17.8
LnGrp LOS	F	D	D	E	D	C	D	D	C	D	C	B
Approach Vol, veh/h		1065			1381			3179			2124	
Approach Delay, s/veh		57.9			39.7			44.0			27.7	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	32.9	15.6	57.2	9.0	30.9	18.9	54.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	25.0	35.0	35.0	5.0	25.0	22.0	48.0
Max Q Clear Time (g_c+I1), s	3.7	16.2	10.9	25.9	7.0	24.5	14.2	50.8
Green Ext Time (p_c), s	0.0	3.6	0.7	7.0	0.0	0.4	0.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	762	2308	188	512	1191
Future Volume (vph)	91	762	2308	188	512	1191
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.7	26.7	23.5	23.5	9.6	16.5
Total Split (s)	41.0	41.0	58.0	58.0	21.0	79.0
Total Split (%)	34.2%	34.2%	48.3%	48.3%	17.5%	65.8%
Yellow Time (s)	3.7	3.7	5.5	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.5	6.5	4.6	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	36.3	36.3	51.5	51.5	16.4	72.5
Actuated g/C Ratio	0.30	0.30	0.43	0.43	0.14	0.60
v/c Ratio	0.17	1.16	1.06	0.25	1.09	0.39
Control Delay	31.9	113.1	70.4	10.8	116.6	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	113.1	70.4	10.8	116.6	12.7
LOS	C	F	E	B	F	B
Approach Delay	104.4		65.9			43.9
Approach LOS	F		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 101.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 14: US-395 & Poplar St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	91	762	2308	188	512	1191
Future Volume (veh/h)	91	762	2308	188	512	1191
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	93	421	2355	151	522	1215
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	507	451	2298	713	495	3235
Arrive On Green	0.28	0.28	0.44	0.44	0.14	0.62
Sat Flow, veh/h	1810	1610	5358	1610	3510	5358
Grp Volume(v), veh/h	93	421	2355	151	522	1215
Grp Sat Flow(s),veh/h/ln	1810	1610	1729	1610	1755	1729
Q Serve(g_s), s	4.5	29.6	51.5	6.7	16.4	13.4
Cycle Q Clear(g_c), s	4.5	29.6	51.5	6.7	16.4	13.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	507	451	2298	713	495	3235
V/C Ratio(X)	0.18	0.93	1.02	0.21	1.05	0.38
Avail Cap(c_a), veh/h	565	503	2298	713	495	3235
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	40.8	32.4	19.9	49.9	10.8
Incr Delay (d2), s/veh	0.2	23.4	25.4	0.7	55.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	14.5	24.6	2.5	10.6	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.9	64.2	57.8	20.6	105.4	11.1
LnGrp LOS	C	E	F	C	F	B
Approach Vol, veh/h	514		2506			1737
Approach Delay, s/veh	58.4		55.6			39.4
Approach LOS	E		E			D

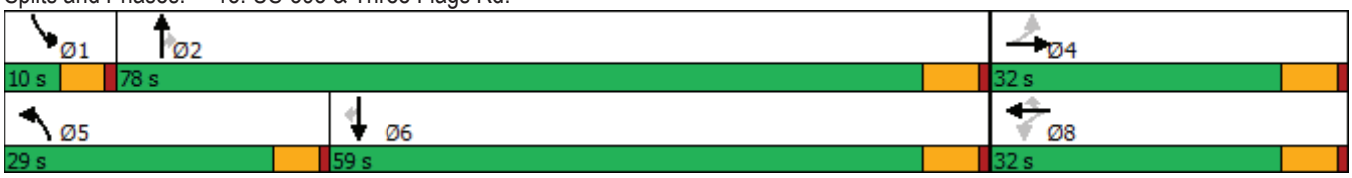
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	58.0			79.0	37.3
Change Period (Y+Rc), s	4.6	6.5			6.5	4.7
Max Green Setting (Gmax), s	16.4	51.5			72.5	36.3
Max Q Clear Time (g_c+I1), s	18.4	53.5			15.4	31.6
Green Ext Time (p_c), s	0.0	0.0			10.3	0.9

Intersection Summary		
HCM 6th Ctrl Delay		50.0
HCM 6th LOS		D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	88	1	229	8	175	231	2233	208	68	1103	111
Future Volume (vph)	88	1	229	8	175	231	2233	208	68	1103	111
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	32.0	32.0	32.0	32.0	32.0	29.0	78.0	78.0	10.0	59.0	59.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	24.2%	65.0%	65.0%	8.3%	49.2%	49.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	26.0	26.0	26.0	26.0	26.0	19.4	72.0	72.0	5.0	57.6	57.6
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.16	0.60	0.60	0.04	0.48	0.48
v/c Ratio	0.29	0.50	1.84	0.02	0.40	0.81	0.73	0.21	0.92	0.45	0.14
Control Delay	42.4	7.8	436.7	37.2	17.8	69.4	18.9	1.9	141.0	22.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	7.8	436.7	37.2	17.8	69.4	18.9	1.9	141.0	22.0	3.6
LOS	D	A	F	D	B	E	B	A	F	C	A
Approach Delay		16.0		251.0			22.0			26.7	
Approach LOS		B		F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.84	
Intersection Signal Delay: 42.7	Intersection LOS: D
Intersection Capacity Utilization 96.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1	284	229	8	175	231	2233	208	68	1103	111
Future Volume (veh/h)	88	1	284	229	8	175	231	2233	208	68	1103	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	90	1	198	234	8	113	236	2279	161	69	1126	77
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	351	2	347	195	412	349	265	3112	965	75	2570	798
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.15	0.60	0.60	0.04	0.50	0.50
Sat Flow, veh/h	1362	8	1603	1269	1900	1610	1810	5187	1609	1810	5187	1610
Grp Volume(v), veh/h	90	0	199	234	8	113	236	2279	161	69	1126	77
Grp Sat Flow(s),veh/h/ln	1362	0	1611	1269	1900	1610	1810	1729	1609	1810	1729	1610
Q Serve(g_s), s	6.7	0.0	13.2	12.8	0.4	7.1	15.4	37.6	5.3	4.6	16.8	3.0
Cycle Q Clear(g_c), s	7.1	0.0	13.2	26.0	0.4	7.1	15.4	37.6	5.3	4.6	16.8	3.0
Prop In Lane	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	351	0	349	195	412	349	265	3112	965	75	2570	798
V/C Ratio(X)	0.26	0.00	0.57	1.20	0.02	0.32	0.89	0.73	0.17	0.92	0.44	0.10
Avail Cap(c_a), veh/h	351	0	349	195	412	349	362	3112	965	75	2570	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	0.0	42.0	55.6	37.0	39.6	50.3	17.1	10.7	57.3	19.5	16.0
Incr Delay (d2), s/veh	0.1	0.0	1.4	129.0	0.0	0.2	15.4	1.6	0.4	74.0	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.4	12.9	0.2	2.8	7.8	13.1	1.8	3.6	6.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	0.0	43.4	184.6	37.0	39.8	65.7	18.7	11.0	131.3	20.1	16.3
LnGrp LOS	D	A	D	F	D	D	E	B	B	F	C	B
Approach Vol, veh/h		289			355			2676			1272	
Approach Delay, s/veh		42.3			135.2			22.4			25.9	
Approach LOS		D			F			C			C	

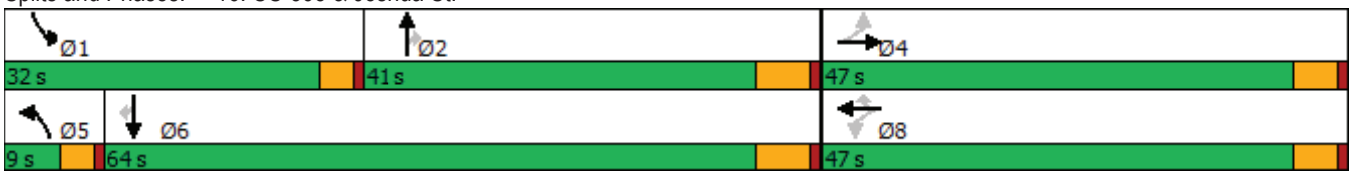
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	78.0		32.0	22.5	65.5		32.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	72.0		26.0	24.0	53.0		26.0				
Max Q Clear Time (g_c+I1), s	6.6	39.6		15.2	17.4	18.8		28.0				
Green Ext Time (p_c), s	0.0	22.7		0.8	0.2	8.9		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		33.3	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	405	149	114	76	473	35	1794	122	200	1349	66
Future Volume (vph)	405	149	114	76	473	35	1794	122	200	1349	66
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	41.0	41.0	32.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	34.2%	34.2%	26.7%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.8	37.8	37.8	37.8	37.8	5.0	43.9	43.9	17.6	60.6	60.6
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34	0.04	0.39	0.39	0.16	0.54	0.54
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	0.90	0.18	0.72	0.49	0.07
Control Delay	62.7	27.2	30.3	26.2	7.1	72.5	40.9	10.0	60.1	18.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.1	72.5	40.9	10.0	60.1	18.0	4.0
LOS	E	C	C	C	A	E	D	A	E	B	A
Approach Delay		52.3		13.3			39.5			22.7	
Approach LOS		D		B			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 31.7	Intersection LOS: C
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	149	18	114	76	473	35	1794	122	200	1349	66
Future Volume (veh/h)	405	149	18	114	76	473	35	1794	122	200	1349	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	418	154	16	118	78	430	36	1849	114	206	1391	61
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	382	614	64	451	690	584	53	2099	652	237	2627	815
Arrive On Green	0.36	0.36	0.35	0.36	0.36	0.36	0.03	0.40	0.40	0.13	0.51	0.51
Sat Flow, veh/h	956	1693	176	1303	1900	1609	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	418	0	170	118	78	430	36	1849	114	206	1391	61
Grp Sat Flow(s),veh/h/ln	956	0	1868	1303	1900	1609	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	39.8	0.0	7.6	8.3	3.2	27.5	2.3	39.1	5.4	13.2	21.4	2.3
Cycle Q Clear(g_c), s	43.0	0.0	7.6	15.8	3.2	27.5	2.3	39.1	5.4	13.2	21.4	2.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	0	678	451	690	584	53	2099	652	237	2627	815
V/C Ratio(X)	1.10	0.00	0.25	0.26	0.11	0.74	0.68	0.88	0.17	0.87	0.53	0.07
Avail Cap(c_a), veh/h	382	0	678	451	690	584	76	2099	652	428	2627	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	26.5	32.0	25.1	32.8	56.9	32.6	22.6	50.5	19.7	15.0
Incr Delay (d2), s/veh	74.3	0.0	0.1	0.1	0.0	4.3	10.7	5.7	0.6	7.2	0.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.3	0.0	3.4	2.6	1.5	11.3	1.2	16.0	2.0	6.2	7.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.8	0.0	26.6	32.1	25.1	37.1	67.7	38.4	23.2	57.6	20.5	15.2
LnGrp LOS	F	A	C	C	C	D	E	D	C	E	C	B
Approach Vol, veh/h		588			626			1999			1658	
Approach Delay, s/veh		90.7			34.7			38.0			24.9	
Approach LOS		F			C			D			C	

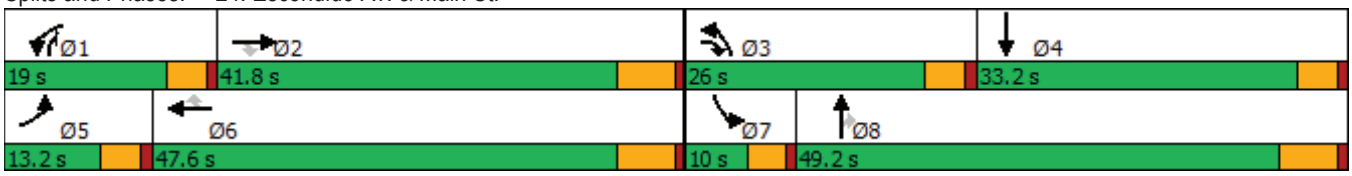
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.5	51.9		47.0	7.5	64.0		47.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	35.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	15.2	41.1		45.0	4.3	23.4		29.5				
Green Ext Time (p_c), s	0.3	0.0		0.0	0.0	21.5		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		39.5	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	74	1712	796	504	1318	14	784	71	276	77	52
Future Volume (vph)	74	1712	796	504	1318	14	784	71	276	77	52
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	29.6
Total Split (s)	13.2	41.8	26.0	19.0	47.6	47.6	26.0	49.2	19.0	10.0	33.2
Total Split (%)	11.0%	34.8%	21.7%	15.8%	39.7%	39.7%	21.7%	41.0%	15.8%	8.3%	27.7%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	7.8	35.8	58.9	14.5	44.5	44.5	21.5	25.2	42.5	11.8	13.7
Actuated g/C Ratio	0.07	0.34	0.56	0.14	0.42	0.42	0.20	0.24	0.40	0.11	0.13
v/c Ratio	0.61	0.92	0.72	1.19	0.57	0.02	1.24	0.16	0.42	0.42	0.48
Control Delay	69.0	43.3	8.1	145.4	25.9	0.1	158.3	29.9	16.5	58.2	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	43.3	8.1	145.4	25.9	0.1	158.3	29.9	16.5	58.2	30.2
LOS	E	D	A	F	C	A	F	C	B	E	C
Approach Delay		33.2			58.5			115.6			40.8
Approach LOS		C			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 105.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 57.7	Intersection LOS: E
Intersection Capacity Utilization 99.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1712	796	504	1318	14	784	71	276	77	52	73
Future Volume (veh/h)	74	1712	796	504	1318	14	784	71	276	77	52	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	77	1783	605	525	1373	13	817	74	207	80	54	55
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	97	1960	891	457	2442	675	679	476	630	91	81	82
Arrive On Green	0.08	0.52	0.34	0.21	0.64	0.43	0.21	0.25	0.25	0.05	0.09	0.09
Sat Flow, veh/h	1714	5700	1607	3238	5700	1577	3238	1900	1610	1714	863	879
Grp Volume(v), veh/h	77	1783	605	525	1373	13	817	74	207	80	0	109
Grp Sat Flow(s),veh/h/ln	1714	1900	1607	1619	1900	1577	1619	1900	1610	1714	0	1742
Q Serve(g_s), s	4.5	29.1	27.5	14.4	13.8	0.5	21.4	3.1	9.2	4.7	0.0	6.2
Cycle Q Clear(g_c), s	4.5	29.1	27.5	14.4	13.8	0.5	21.4	3.1	9.2	4.7	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	97	1960	891	457	2442	675	679	476	630	91	0	163
V/C Ratio(X)	0.79	0.91	0.68	1.15	0.56	0.02	1.20	0.16	0.33	0.88	0.00	0.67
Avail Cap(c_a), veh/h	144	1989	898	457	2442	675	679	801	906	91	0	488
HCM Platoon Ratio	1.50	1.50	1.00	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.1	23.3	16.3	40.2	12.9	16.8	40.3	29.8	21.7	48.0	0.0	44.7
Incr Delay (d2), s/veh	9.1	6.6	2.1	89.7	0.3	0.0	105.0	0.2	0.3	56.3	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	10.2	10.2	10.6	4.2	0.2	18.4	1.5	3.5	3.4	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	29.9	18.4	129.9	13.2	16.8	145.4	30.0	22.0	104.3	0.0	49.4
LnGrp LOS	E	C	B	F	B	B	F	C	C	F	A	D
Approach Vol, veh/h		2465			1911			1098			189	
Approach Delay, s/veh		27.9			45.3			114.3			72.6	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	41.3	26.0	15.7	10.4	49.9	10.0	31.7
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	14.4	35.6	21.4	* 29	8.6	41.4	5.4	43.0
Max Q Clear Time (g_c+I1), s	16.4	31.1	23.4	8.2	6.5	15.8	6.7	11.2
Green Ext Time (p_c), s	0.0	4.0	0.0	0.6	0.0	10.5	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

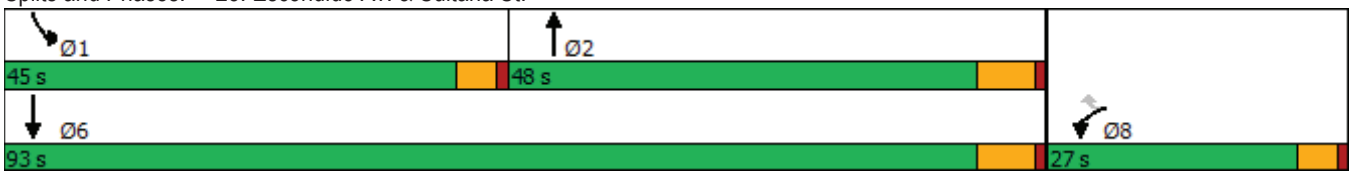
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	23	179	772	335	1056
Future Volume (vph)	23	179	772	335	1056
Turn Type	Prot	Perm	NA	Prot	NA
Protected Phases	8		2	1	6
Permitted Phases		8			
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.6	26.6	23.2	9.6	16.2
Total Split (s)	27.0	27.0	48.0	45.0	93.0
Total Split (%)	22.5%	22.5%	40.0%	37.5%	77.5%
Yellow Time (s)	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.2	4.6	6.2
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
Act Effct Green (s)	12.2	12.2	55.7	26.7	87.0
Actuated g/C Ratio	0.11	0.11	0.51	0.24	0.79
v/c Ratio	0.13	0.54	0.46	0.84	0.39
Control Delay	44.7	12.4	20.4	57.7	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	12.4	20.4	57.7	4.3
LOS	D	B	C	E	A
Approach Delay	16.1		20.4		17.1
Approach LOS	B		C		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 18.1	Intersection LOS: B
Intersection Capacity Utilization 62.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 25: Escondido Av. & Sultana St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	179	772	23	335	1056
Future Volume (veh/h)	23	179	772	23	335	1056
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1800	1900
Adj Flow Rate, veh/h	24	186	804	24	349	1100
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	230	216	1816	54	380	2779
Arrive On Green	0.13	0.13	0.51	0.51	0.22	0.77
Sat Flow, veh/h	1714	1610	3673	107	1714	3705
Grp Volume(v), veh/h	24	186	405	423	349	1100
Grp Sat Flow(s),veh/h/ln	1714	1610	1805	1880	1714	1805
Q Serve(g_s), s	1.4	12.7	16.1	16.1	22.4	11.4
Cycle Q Clear(g_c), s	1.4	12.7	16.1	16.1	22.4	11.4
Prop In Lane	1.00	1.00		0.06	1.00	
Lane Grp Cap(c), veh/h	230	216	916	954	380	2779
V/C Ratio(X)	0.10	0.86	0.44	0.44	0.92	0.40
Avail Cap(c_a), veh/h	341	320	916	954	614	2779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	47.8	17.6	17.6	42.9	4.3
Incr Delay (d2), s/veh	0.2	14.3	1.6	1.5	8.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.0	7.1	7.4	10.4	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.0	62.1	19.2	19.1	51.7	4.7
LnGrp LOS	D	E	B	B	D	A
Approach Vol, veh/h	210		828			1449
Approach Delay, s/veh	59.9		19.2			16.0
Approach LOS	E		B			B

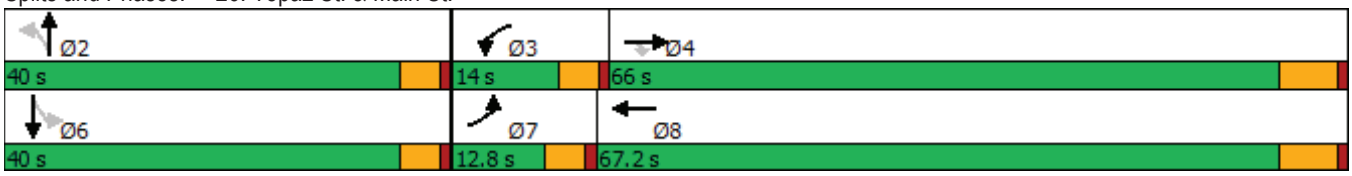
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	29.6	63.4			93.0	19.7
Change Period (Y+Rc), s	4.6	6.2			6.2	4.6
Max Green Setting (Gmax), s	40.4	41.8			86.8	22.4
Max Q Clear Time (g_c+I1), s	24.4	18.1			13.4	14.7
Green Ext Time (p_c), s	0.6	6.2			12.8	0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	88	1958	305	144	1623	294	45	86	49
Future Volume (vph)	88	1958	305	144	1623	294	45	86	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	12.8	66.0	66.0	14.0	67.2	40.0	40.0	40.0	40.0
Total Split (%)	10.7%	55.0%	55.0%	11.7%	56.0%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.0	57.1	57.1	9.5	58.7	32.0	32.0	32.0	32.0
Actuated g/C Ratio	0.07	0.50	0.50	0.08	0.51	0.28	0.28	0.28	0.28
v/c Ratio	0.76	0.84	0.35	1.05	0.67	0.91	0.32	0.32	0.22
Control Delay	92.1	28.7	4.6	141.4	22.3	71.5	12.9	36.8	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.1	28.7	4.6	141.4	22.3	71.5	12.9	36.8	19.1
LOS	F	C	A	F	C	E	B	D	B
Approach Delay		28.3			31.5		49.5		26.8
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 114.2	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 31.5	Intersection LOS: C
Intersection Capacity Utilization 95.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1958	305	144	1623	95	294	45	132	86	49	61
Future Volume (veh/h)	88	1958	305	144	1623	95	294	45	132	86	49	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	91	2019	242	148	1673	91	303	46	105	89	51	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	114	2734	772	152	2527	137	401	147	337	340	312	196
Arrive On Green	0.07	0.48	0.48	0.09	0.50	0.50	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1714	5700	1610	1714	5035	274	1325	514	1174	1256	1087	682
Grp Volume(v), veh/h	91	2019	242	148	1149	615	303	0	151	89	0	83
Grp Sat Flow(s),veh/h/ln	1714	1900	1610	1714	1729	1851	1325	0	1689	1256	0	1770
Q Serve(g_s), s	5.6	30.3	9.8	9.1	26.3	26.3	23.5	0.0	7.4	6.3	0.0	3.7
Cycle Q Clear(g_c), s	5.6	30.3	9.8	9.1	26.3	26.3	27.3	0.0	7.4	13.8	0.0	3.7
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.70	1.00		0.39
Lane Grp Cap(c), veh/h	114	2734	772	152	1735	929	401	0	484	340	0	507
V/C Ratio(X)	0.80	0.74	0.31	0.97	0.66	0.66	0.76	0.00	0.31	0.26	0.00	0.16
Avail Cap(c_a), veh/h	133	3213	908	152	1989	1064	464	0	564	399	0	591
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.8	22.2	16.9	48.2	19.7	19.7	38.5	0.0	29.6	35.0	0.0	28.3
Incr Delay (d2), s/veh	21.6	0.8	0.2	66.5	0.7	1.3	6.0	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	12.2	3.3	6.5	9.5	10.4	8.3	0.0	3.1	2.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	23.0	17.1	114.7	20.4	21.0	44.5	0.0	30.0	35.4	0.0	28.5
LnGrp LOS	E	C	B	F	C	C	D	A	C	D	A	C
Approach Vol, veh/h		2352			1912			454			172	
Approach Delay, s/veh		24.2			27.9			39.7			32.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	14.0	57.1		35.0	11.6	59.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		35.4	9.4	59.8		35.4	8.2	61.0				
Max Q Clear Time (g_c+I1), s		29.3	11.1	32.3		15.8	7.6	28.3				
Green Ext Time (p_c), s		1.1	0.0	18.6		0.7	0.0	15.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.10:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	69	172	127	107	129	63	1133	62	297	1797
Future Volume (vph)	69	172	127	107	129	63	1133	62	297	1797
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0
Total Split (s)	44.0	44.0	44.0	44.0	44.0	10.0	45.0	45.0	31.0	66.0
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	8.3%	37.5%	37.5%	25.8%	55.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	39.0	39.0	39.0	39.0	39.0	6.0	41.5	41.5	24.5	60.0
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.32	0.05	0.35	0.35	0.20	0.50
v/c Ratio	1.15	0.30	0.23	0.33	0.86	0.76	0.69	0.11	0.88	0.81
Control Delay	198.9	32.0	9.3	34.0	44.3	101.0	36.6	3.1	70.3	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	198.9	32.0	9.3	34.0	44.3	101.0	36.6	3.1	70.3	28.1
LOS	F	C	A	C	D	F	D	A	E	C
Approach Delay		55.5			42.5		38.2			33.8
Approach LOS		E			D		D			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 38.0	Intersection LOS: D
Intersection Capacity Utilization 96.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	172	127	107	129	372	63	1133	62	297	1797	118
Future Volume (veh/h)	69	172	127	107	129	372	63	1133	62	297	1797	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	75	187	105	116	140	338	68	1232	51	323	1953	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	117	619	524	354	161	388	87	1842	569	351	2517	141
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.05	0.36	0.36	0.19	0.50	0.50
Sat Flow, veh/h	982	1900	1610	1166	493	1190	1810	5187	1603	1810	5025	282
Grp Volume(v), veh/h	75	187	105	116	0	478	68	1232	51	323	1342	721
Grp Sat Flow(s),veh/h/ln	982	1900	1610	1166	0	1683	1810	1729	1603	1810	1729	1849
Q Serve(g_s), s	7.0	8.8	5.6	9.9	0.0	32.0	4.5	24.1	2.5	21.0	37.9	38.2
Cycle Q Clear(g_c), s	39.0	8.8	5.6	18.7	0.0	32.0	4.5	24.1	2.5	21.0	37.9	38.2
Prop In Lane	1.00		1.00	1.00		0.71	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	117	619	524	354	0	548	87	1842	569	351	1732	926
V/C Ratio(X)	0.64	0.30	0.20	0.33	0.00	0.87	0.78	0.67	0.09	0.92	0.77	0.78
Avail Cap(c_a), veh/h	117	619	524	354	0	548	91	1842	569	408	1732	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.2	30.2	29.1	37.2	0.0	38.0	56.4	32.7	25.7	47.4	24.4	24.4
Incr Delay (d2), s/veh	8.7	0.1	0.1	0.2	0.0	13.8	31.9	1.9	0.3	23.2	3.5	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.0	2.2	2.8	0.0	14.8	2.7	9.7	1.0	11.2	14.6	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	30.3	29.2	37.4	0.0	51.9	88.3	34.6	26.0	70.6	27.8	30.9
LnGrp LOS	E	C	C	D	A	D	F	C	C	E	C	C
Approach Vol, veh/h		367			594			1351			2386	
Approach Delay, s/veh		37.3			49.0			37.0			34.5	
Approach LOS		D			D			D			C	

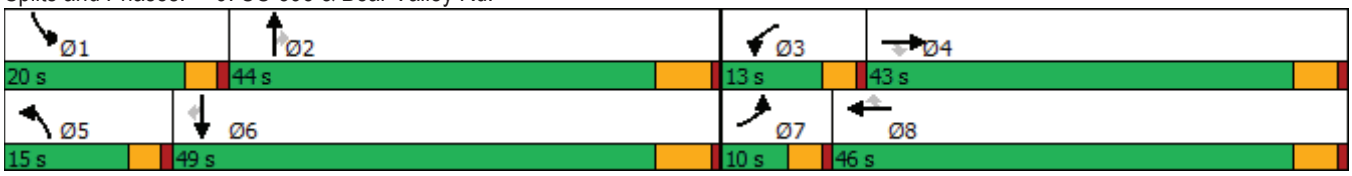
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.2	48.5		44.0	9.8	66.0		44.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	27.0	39.0		39.0	6.0	60.0		39.0				
Max Q Clear Time (g_c+I1), s	23.0	26.1		41.0	6.5	40.2		34.0				
Green Ext Time (p_c), s	0.3	5.3		0.0	0.0	11.1		1.1				

Intersection Summary												
HCM 6th Ctrl Delay			37.3									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	464	317	251	347	138	148	1052	140	310	1777	47
Future Volume (vph)	80	464	317	251	347	138	148	1052	140	310	1777	47
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	13.0	46.0	46.0	15.0	44.0	44.0	20.0	49.0	49.0
Total Split (%)	8.3%	35.8%	35.8%	10.8%	38.3%	38.3%	12.5%	36.7%	36.7%	16.7%	40.8%	40.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.1	20.2	20.2	9.1	23.2	23.2	9.0	39.1	39.1	13.3	43.5	43.5
Actuated g/C Ratio	0.06	0.20	0.20	0.09	0.23	0.23	0.09	0.39	0.39	0.13	0.43	0.43
v/c Ratio	0.76	0.66	0.66	1.60	0.43	0.30	0.49	0.54	0.20	0.69	0.82	0.06
Control Delay	89.0	41.4	19.1	328.6	34.3	6.5	51.1	26.7	5.2	51.4	30.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.0	41.4	19.1	328.6	34.3	6.5	51.1	26.7	5.2	51.4	30.5	0.8
LOS	F	D	B	F	C	A	D	C	A	D	C	A
Approach Delay		37.6			129.5			27.2			32.9	
Approach LOS		D			F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 100.9	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.60	
Intersection Signal Delay: 46.2	Intersection LOS: D
Intersection Capacity Utilization 81.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	464	317	251	347	138	148	1052	140	310	1777	47
Future Volume (veh/h)	80	464	317	251	347	138	148	1052	140	310	1777	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	82	478	246	259	358	108	153	1085	117	320	1832	42
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	105	681	304	171	813	363	224	2088	648	401	2348	729
Arrive On Green	0.06	0.19	0.19	0.09	0.23	0.23	0.06	0.40	0.40	0.11	0.45	0.45
Sat Flow, veh/h	1810	3610	1610	1810	3610	1610	3510	5187	1610	3510	5187	1610
Grp Volume(v), veh/h	82	478	246	259	358	108	153	1085	117	320	1832	42
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1610	1755	1729	1610	1755	1729	1610
Q Serve(g_s), s	4.2	11.8	13.9	9.0	8.1	5.3	4.1	15.0	4.4	8.4	28.4	1.4
Cycle Q Clear(g_c), s	4.2	11.8	13.9	9.0	8.1	5.3	4.1	15.0	4.4	8.4	28.4	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	681	304	171	813	363	224	2088	648	401	2348	729
V/C Ratio(X)	0.78	0.70	0.81	1.51	0.44	0.30	0.68	0.52	0.18	0.80	0.78	0.06
Avail Cap(c_a), veh/h	114	1444	644	171	1558	695	406	2088	648	591	2348	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.1	36.0	36.9	43.0	31.7	30.6	43.5	21.4	18.3	41.0	22.0	14.6
Incr Delay (d2), s/veh	25.2	0.5	2.0	257.6	0.1	0.2	2.7	0.9	0.6	3.9	2.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.8	5.2	16.0	3.3	1.9	1.7	5.6	1.6	3.6	10.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	36.5	38.9	300.6	31.8	30.7	46.2	22.4	18.9	44.9	24.7	14.8
LnGrp LOS	E	D	D	F	C	C	D	C	B	D	C	B
Approach Vol, veh/h		806			725			1355			2194	
Approach Delay, s/veh		40.6			127.7			24.8			27.4	
Approach LOS		D			F			C			C	

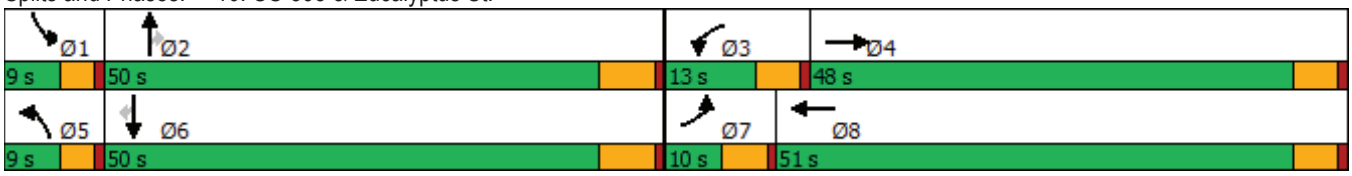
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	44.2	13.0	22.9	10.1	49.0	9.5	26.4
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	38.0	9.0	38.0	11.0	43.0	6.0	41.0
Max Q Clear Time (g_c+I1), s	10.4	17.0	11.0	15.9	6.1	30.4	6.2	10.1
Green Ext Time (p_c), s	0.4	4.5	0.0	2.0	0.1	6.6	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	13	7	122	8	10	1200	84	9	2339	11
Future Volume (vph)	13	7	122	8	10	1200	84	9	2339	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	13.0	51.0	9.0	50.0	50.0	9.0	50.0	50.0
Total Split (%)	8.3%	40.0%	10.8%	42.5%	7.5%	41.7%	41.7%	7.5%	41.7%	41.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.0	9.2	21.1	5.2	49.9	49.9	5.2	49.9	49.9
Actuated g/C Ratio	0.06	0.18	0.11	0.25	0.06	0.59	0.59	0.06	0.59	0.59
v/c Ratio	0.13	0.11	0.67	0.09	0.10	0.42	0.09	0.09	0.83	0.01
Control Delay	47.8	13.7	57.9	10.4	47.2	14.2	3.9	47.1	21.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.8	13.7	57.9	10.4	47.2	14.2	3.9	47.1	21.2	0.0
LOS	D	B	E	B	D	B	A	D	C	A
Approach Delay		23.2		46.6		13.8			21.2	
Approach LOS		C		D		B			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.1	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 68.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	7	26	122	8	30	10	1200	84	9	2339	11
Future Volume (veh/h)	13	7	26	122	8	30	10	1200	84	9	2339	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	14	8	20	131	9	21	11	1290	86	10	2515	11
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	30	50	125	164	90	210	24	2829	878	23	2823	876
Arrive On Green	0.02	0.10	0.10	0.09	0.18	0.18	0.01	0.55	0.55	0.01	0.54	0.54
Sat Flow, veh/h	1810	481	1203	1810	506	1180	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	14	0	28	131	0	30	11	1290	86	10	2515	11
Grp Sat Flow(s),veh/h/ln	1810	0	1684	1810	0	1685	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	0.6	0.0	1.2	5.7	0.0	1.2	0.5	12.2	2.1	0.4	34.7	0.3
Cycle Q Clear(g_c), s	0.6	0.0	1.2	5.7	0.0	1.2	0.5	12.2	2.1	0.4	34.7	0.3
Prop In Lane	1.00		0.71	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	30	0	175	164	0	300	24	2829	878	23	2823	876
V/C Ratio(X)	0.46	0.00	0.16	0.80	0.00	0.10	0.45	0.46	0.10	0.44	0.89	0.01
Avail Cap(c_a), veh/h	112	0	896	179	0	959	112	2829	878	112	2823	876
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	0.0	33.0	36.0	0.0	27.8	39.6	11.1	8.8	39.6	16.3	8.5
Incr Delay (d2), s/veh	4.1	0.0	0.4	18.3	0.0	0.1	4.7	0.5	0.2	5.0	4.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.5	3.2	0.0	0.5	0.2	3.7	0.7	0.2	13.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	33.4	54.3	0.0	27.9	44.3	11.7	9.0	44.7	21.0	8.5
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	C	A
Approach Vol, veh/h		42			161			1387			2536	
Approach Delay, s/veh		36.8			49.4			11.7			21.1	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	50.1	12.3	13.4	5.1	50.0	6.3	19.4
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	44.0	8.0	43.0	5.0	44.0	5.0	46.0
Max Q Clear Time (g_c+I1), s	2.4	14.2	7.7	3.2	2.5	36.7	2.6	3.2
Green Ext Time (p_c), s	0.0	9.8	0.0	0.1	0.0	6.9	0.0	0.1

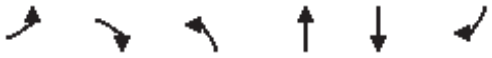
Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	19	74	325	1920	2656
Future Volume (vph)	19	74	325	1920	2656
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	9.6	16.5	23.5
Total Split (s)	26.6	26.6	26.0	93.4	67.4
Total Split (%)	22.2%	22.2%	21.7%	77.8%	56.2%
Yellow Time (s)	3.6	3.6	3.6	5.5	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.5	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	12.2	12.2	21.5	89.0	61.3
Actuated g/C Ratio	0.11	0.11	0.20	0.83	0.57
v/c Ratio	0.10	0.31	0.98	0.49	1.02
Control Delay	44.3	13.0	86.8	4.5	47.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	13.0	86.8	4.5	47.0
LOS	D	B	F	A	D
Approach Delay	19.5			16.4	47.0
Approach LOS	B			B	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 107.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 33.0	Intersection LOS: C
Intersection Capacity Utilization 93.2%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	74	325	1920	2656	111
Future Volume (veh/h)	19	74	325	1920	2656	111
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	21	80	353	2087	2887	121
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	160	142	360	4193	2894	120
Arrive On Green	0.09	0.09	0.20	0.81	0.57	0.57
Sat Flow, veh/h	1810	1610	1810	5358	5280	211
Grp Volume(v), veh/h	21	80	353	2087	1941	1067
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1729	1729	1862
Q Serve(g_s), s	1.2	5.1	20.9	13.9	59.7	60.9
Cycle Q Clear(g_c), s	1.2	5.1	20.9	13.9	59.7	60.9
Prop In Lane	1.00	1.00	1.00			0.11
Lane Grp Cap(c), veh/h	160	142	360	4193	1959	1055
V/C Ratio(X)	0.13	0.56	0.98	0.50	0.99	1.01
Avail Cap(c_a), veh/h	370	329	360	4193	1959	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	47.0	42.8	3.3	23.0	23.3
Incr Delay (d2), s/veh	0.4	3.4	41.8	0.4	18.3	30.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	12.9	2.2	24.8	30.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.6	50.4	84.6	3.7	41.4	53.8
LnGrp LOS	D	D	F	A	D	F
Approach Vol, veh/h	101			2440	3008	
Approach Delay, s/veh	49.4			15.4	45.8	
Approach LOS	D			B	D	

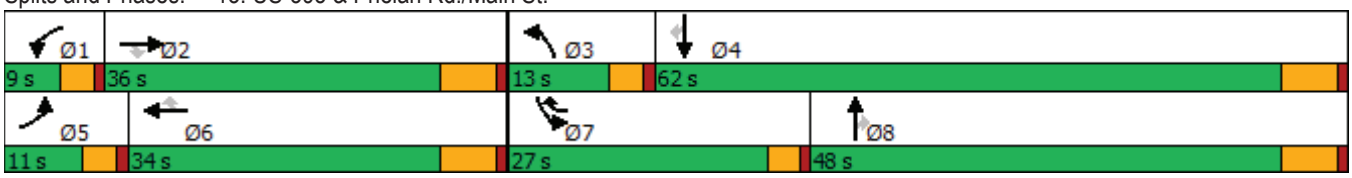
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.4		14.1	26.0	67.4
Change Period (Y+Rc), s		6.5		4.6	4.6	6.5
Max Green Setting (Gmax), s		86.9		22.0	21.4	60.9
Max Q Clear Time (g_c+I1), s		15.9		7.1	22.9	62.9
Green Ext Time (p_c), s		26.7		0.2	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		32.5
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Future Volume (vph)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	7	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	16.0	16.0	9.0	16.0	9.0	9.0	16.0	16.0	9.0	16.0	16.0
Total Split (s)	11.0	36.0	36.0	9.0	34.0	27.0	13.0	48.0	48.0	27.0	62.0	62.0
Total Split (%)	9.2%	30.0%	30.0%	7.5%	28.3%	22.5%	10.8%	40.0%	40.0%	22.5%	51.7%	51.7%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.0	33.6	33.6	5.0	28.0	54.2	9.0	44.8	44.8	20.2	56.0	56.0
Actuated g/C Ratio	0.06	0.28	0.28	0.04	0.23	0.45	0.08	0.37	0.37	0.17	0.47	0.47
v/c Ratio	1.02	0.74	0.39	0.32	1.04	0.89	0.94	0.84	0.04	0.66	0.98	0.11
Control Delay	148.9	43.6	10.4	67.3	80.5	42.0	98.1	40.0	0.1	52.2	46.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.9	43.6	10.4	67.3	80.5	42.0	98.1	40.0	0.1	52.2	46.4	2.8
LOS	F	D	B	E	F	D	F	D	A	D	D	A
Approach Delay		46.3			67.0			46.9			45.9	
Approach LOS		D			E			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 51.3	Intersection LOS: D
Intersection Capacity Utilization 96.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Future Volume (veh/h)	103	1030	218	23	1203	651	237	1571	26	375	2283	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	107	1073	171	24	1253	470	247	1636	18	391	2378	64
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	106	1394	433	42	1210	587	263	2130	661	460	2421	751
Arrive On Green	0.06	0.27	0.27	0.02	0.23	0.23	0.08	0.41	0.41	0.13	0.47	0.47
Sat Flow, veh/h	1810	5187	1610	1810	5187	1610	3510	5187	1610	3510	5187	1610
Grp Volume(v), veh/h	107	1073	171	24	1253	470	247	1636	18	391	2378	64
Grp Sat Flow(s),veh/h/ln	1810	1729	1610	1810	1729	1610	1755	1729	1610	1755	1729	1610
Q Serve(g_s), s	7.0	22.9	10.4	1.6	28.0	28.0	8.4	32.6	0.8	13.1	54.2	2.6
Cycle Q Clear(g_c), s	7.0	22.9	10.4	1.6	28.0	28.0	8.4	32.6	0.8	13.1	54.2	2.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	106	1394	433	42	1210	587	263	2130	661	460	2421	751
V/C Ratio(X)	1.01	0.77	0.40	0.58	1.04	0.80	0.94	0.77	0.03	0.85	0.98	0.09
Avail Cap(c_a), veh/h	106	1394	433	75	1210	587	263	2130	661	673	2421	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	40.5	35.9	58.0	46.0	34.2	55.2	30.4	21.1	51.0	31.5	17.8
Incr Delay (d2), s/veh	91.3	2.7	0.6	9.1	35.4	7.8	38.8	1.8	0.0	6.0	14.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	9.5	4.0	0.8	15.3	12.7	5.0	12.8	0.3	5.9	23.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	147.8	43.1	36.5	67.1	81.4	42.1	94.0	32.2	21.1	57.0	45.9	17.8
LnGrp LOS	F	D	D	E	F	D	F	C	C	E	D	B
Approach Vol, veh/h		1351			1747			1901			2833	
Approach Delay, s/veh		50.6			70.6			40.2			46.8	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	38.2	13.0	62.0	11.0	34.0	19.7	55.3
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	30.0	9.0	56.0	7.0	28.0	23.0	42.0
Max Q Clear Time (g_c+I1), s	3.6	24.9	10.4	56.2	9.0	30.0	15.1	34.6
Green Ext Time (p_c), s	0.0	3.0	0.0	0.0	0.0	0.0	0.6	5.7

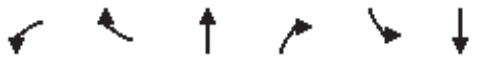
Intersection Summary	
HCM 6th Ctrl Delay	51.2
HCM 6th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	122	432	1401	68	565	1958
Future Volume (vph)	122	432	1401	68	565	1958
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.7	26.7	23.5	23.5	9.6	16.5
Total Split (s)	31.0	31.0	55.2	55.2	33.8	89.0
Total Split (%)	25.8%	25.8%	46.0%	46.0%	28.2%	74.2%
Yellow Time (s)	3.7	3.7	5.5	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.5	6.5	4.6	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	14.9	14.9	55.6	55.6	22.5	82.7
Actuated g/C Ratio	0.14	0.14	0.51	0.51	0.21	0.76
v/c Ratio	0.53	0.81	0.57	0.09	0.84	0.53
Control Delay	51.3	18.6	21.0	6.7	52.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	18.6	21.0	6.7	52.7	6.4
LOS	D	B	C	A	D	A
Approach Delay	25.8		20.3			16.8
Approach LOS	C		C			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 108.8	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 19.0	Intersection LOS: B
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 14: US-395 & Poplar St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	122	432	1401	68	565	1958
Future Volume (veh/h)	122	432	1401	68	565	1958
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	131	357	1506	57	608	2105
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	397	353	2370	736	675	3566
Arrive On Green	0.22	0.22	0.46	0.46	0.19	0.69
Sat Flow, veh/h	1810	1610	5358	1610	3510	5358
Grp Volume(v), veh/h	131	357	1506	57	608	2105
Grp Sat Flow(s),veh/h/ln	1810	1610	1729	1610	1755	1729
Q Serve(g_s), s	7.3	26.3	26.7	2.4	20.3	25.6
Cycle Q Clear(g_c), s	7.3	26.3	26.7	2.4	20.3	25.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	397	353	2370	736	675	3566
V/C Ratio(X)	0.33	1.01	0.64	0.08	0.90	0.59
Avail Cap(c_a), veh/h	397	353	2370	736	854	3566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	46.8	24.9	18.3	47.4	9.9
Incr Delay (d2), s/veh	0.5	50.9	1.3	0.2	9.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	15.4	10.3	0.9	9.3	7.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.9	97.7	26.2	18.5	56.8	10.6
LnGrp LOS	D	F	C	B	E	B
Approach Vol, veh/h	488		1563			2713
Approach Delay, s/veh	82.2		26.0			20.9
Approach LOS	F		C			C

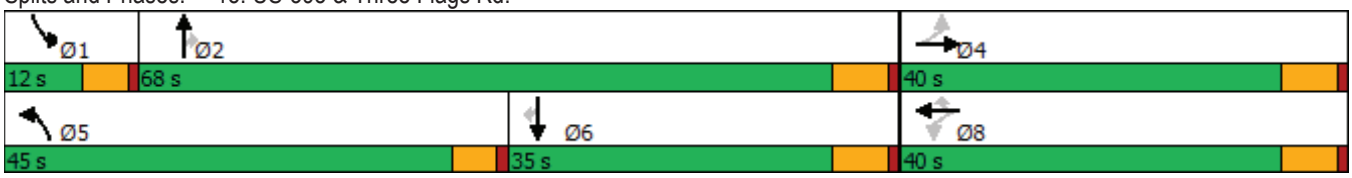
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	27.7	61.3			89.0	31.0
Change Period (Y+Rc), s	4.6	6.5			6.5	4.7
Max Green Setting (Gmax), s	29.2	48.7			82.5	26.3
Max Q Clear Time (g_c+I1), s	22.3	28.7			27.6	28.3
Green Ext Time (p_c), s	0.8	9.9			24.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	1	232	2	58	247	1341	142	44	1903	133
Future Volume (vph)	70	1	232	2	58	247	1341	142	44	1903	133
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	40.0	40.0	40.0	40.0	40.0	45.0	68.0	68.0	12.0	35.0	35.0
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	37.5%	56.7%	56.7%	10.0%	29.2%	29.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	34.1	34.1	34.1	34.1	34.1	22.1	62.1	62.1	6.4	44.3	44.3
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29	0.19	0.53	0.53	0.05	0.38	0.38
v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.79	0.53	0.17	0.48	1.06	0.21
Control Delay	33.9	6.0	148.9	31.0	0.5	62.0	19.4	2.8	71.6	73.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	6.0	148.9	31.0	0.5	62.0	19.4	2.8	71.6	73.9	8.4
LOS	C	A	F	C	A	E	B	A	E	E	A
Approach Delay		11.6		118.7			24.1			69.6	
Approach LOS		B		F			C			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 117.5	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 50.7	Intersection LOS: D
Intersection Capacity Utilization 99.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1	273	232	2	58	247	1341	142	44	1903	133
Future Volume (veh/h)	70	1	273	232	2	58	247	1341	142	44	1903	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	76	1	260	252	2	54	268	1458	142	48	2068	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	480	2	466	246	552	467	298	2748	852	62	2071	643
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.53	0.53	0.03	0.40	0.40
Sat Flow, veh/h	1442	6	1605	1199	1900	1607	1810	5187	1609	1810	5187	1610
Grp Volume(v), veh/h	76	0	261	252	2	54	268	1458	142	48	2068	124
Grp Sat Flow(s),veh/h/ln	1442	0	1611	1199	1900	1607	1810	1729	1609	1810	1729	1610
Q Serve(g_s), s	4.6	0.0	16.0	18.0	0.1	2.9	17.0	21.5	5.3	3.1	46.6	5.9
Cycle Q Clear(g_c), s	4.7	0.0	16.0	34.0	0.1	2.9	17.0	21.5	5.3	3.1	46.6	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	480	0	468	246	552	467	298	2748	852	62	2071	643
V/C Ratio(X)	0.16	0.00	0.56	1.03	0.00	0.12	0.90	0.53	0.17	0.77	1.00	0.19
Avail Cap(c_a), veh/h	480	0	468	246	552	467	619	2748	852	108	2071	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	35.1	51.8	29.5	30.5	47.9	18.0	14.2	56.0	35.1	22.9
Incr Delay (d2), s/veh	0.1	0.0	0.9	64.4	0.0	0.0	3.9	0.7	0.4	7.4	19.5	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	6.4	11.7	0.0	1.1	7.6	7.8	1.9	1.5	21.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	36.0	116.2	29.5	30.5	51.8	18.7	14.6	63.4	54.6	23.5
LnGrp LOS	C	A	D	F	C	C	D	B	B	E	D	C
Approach Vol, veh/h		337			308			1868			2240	
Approach Delay, s/veh		34.9			100.6			23.2			53.1	
Approach LOS		C			F			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	68.0		40.0	24.3	52.7		40.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	7.0	62.0		34.0	40.0	29.0		34.0				
Max Q Clear Time (g_c+I1), s	5.1	23.5		18.0	19.0	48.6		36.0				
Green Ext Time (p_c), s	0.0	12.9		1.1	0.3	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		43.1	
HCM 6th LOS		D	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	62	74	129	89	272	13	1397	83	278	1894	237
Future Volume (vph)	62	74	129	89	272	13	1397	83	278	1894	237
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	46.0	46.0	46.0	46.0	46.0	18.0	34.0	34.0	40.0	56.0	56.0
Total Split (%)	38.3%	38.3%	38.3%	38.3%	38.3%	15.0%	28.3%	28.3%	33.3%	46.7%	46.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.7	17.7	17.7	17.7	17.7	5.9	33.9	33.9	17.8	54.2	54.2
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.07	0.41	0.41	0.22	0.66	0.66
v/c Ratio	0.24	0.21	0.49	0.24	0.51	0.11	0.71	0.12	0.73	0.60	0.23
Control Delay	27.6	26.0	33.2	26.9	6.5	43.9	25.4	6.6	41.6	11.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	26.0	33.2	26.9	6.5	43.9	25.4	6.6	41.6	11.9	4.0
LOS	C	C	C	C	A	D	C	A	D	B	A
Approach Delay		26.7		17.2			24.5			14.5	
Approach LOS		C		B			C			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.8	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 18.5	Intersection LOS: B
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	74	4	129	89	272	13	1397	83	278	1894	237
Future Volume (veh/h)	62	74	4	129	89	272	13	1397	83	278	1894	237
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	67	80	1	140	97	242	14	1518	76	302	2059	253
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	258	365	5	313	370	313	30	2408	748	349	3322	1031
Arrive On Green	0.19	0.19	0.18	0.19	0.19	0.19	0.02	0.46	0.46	0.19	0.64	0.64
Sat Flow, veh/h	1116	1872	23	1413	1900	1608	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	67	0	81	140	97	242	14	1518	76	302	2059	253
Grp Sat Flow(s),veh/h/ln	1116	0	1896	1413	1900	1608	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	4.4	0.0	2.9	7.5	3.5	11.6	0.6	18.0	2.2	13.1	19.2	5.4
Cycle Q Clear(g_c), s	7.9	0.0	2.9	10.4	3.5	11.6	0.6	18.0	2.2	13.1	19.2	5.4
Prop In Lane	1.00		0.01	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	258	0	370	313	370	313	30	2408	748	349	3322	1031
V/C Ratio(X)	0.26	0.00	0.22	0.45	0.26	0.77	0.46	0.63	0.10	0.87	0.62	0.25
Avail Cap(c_a), veh/h	618	0	981	769	983	832	312	2408	748	802	3322	1031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	27.5	31.9	27.7	31.0	39.6	16.5	12.2	31.7	8.7	6.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.4	0.1	1.5	8.0	1.3	0.3	4.9	0.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.3	2.5	1.6	4.5	0.3	6.0	0.7	5.6	4.9	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	27.6	32.2	27.9	32.5	47.6	17.7	12.5	36.6	9.6	6.8
LnGrp LOS	C	A	C	C	C	C	D	B	B	D	A	A
Approach Vol, veh/h		148			479			1608			2614	
Approach Delay, s/veh		29.3			31.5			17.7			12.4	
Approach LOS		C			C			B			B	

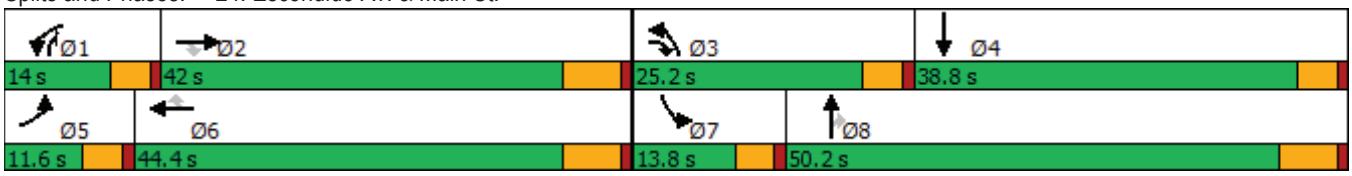
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	19.7	41.7		19.8	5.4	56.0		19.8				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	36.0	28.0		41.0	14.0	50.0		41.0				
Max Q Clear Time (g_c+I1), s	15.1	20.0		9.9	2.6	21.2		13.6				
Green Ext Time (p_c), s	0.6	6.9		0.4	0.0	25.8		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		16.6	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	6	1112	511	359	1420	4	848	30	379	1	4
Future Volume (vph)	6	1112	511	359	1420	4	848	30	379	1	4
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	37.6
Total Split (s)	11.6	42.0	25.2	14.0	44.4	44.4	25.2	50.2	14.0	13.8	38.8
Total Split (%)	9.7%	35.0%	21.0%	11.7%	37.0%	37.0%	21.0%	41.8%	11.7%	11.5%	32.3%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	5.5	25.4	53.8	10.0	38.8	38.8	21.8	26.6	43.1	5.3	13.7
Actuated g/C Ratio	0.07	0.31	0.66	0.12	0.48	0.48	0.27	0.33	0.53	0.07	0.17
v/c Ratio	0.05	0.71	0.42	0.97	0.59	0.00	1.04	0.05	0.41	0.01	0.07
Control Delay	47.2	28.5	2.2	78.2	19.8	0.0	74.5	20.1	6.6	48.0	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	28.5	2.2	78.2	19.8	0.0	74.5	20.1	6.6	48.0	17.2
LOS	D	C	A	E	B	A	E	C	A	D	B
Approach Delay		20.3			31.5			52.8			18.6
Approach LOS		C			C			D			B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 81.3	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 33.3	Intersection LOS: C
Intersection Capacity Utilization 80.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	1112	511	359	1420	4	848	30	379	1	4	17
Future Volume (veh/h)	6	1112	511	359	1420	4	848	30	379	1	4	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	6	1146	413	370	1464	4	874	31	229	1	4	17
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	13	1601	869	331	2108	654	726	650	721	2	35	151
Arrive On Green	0.01	0.31	0.31	0.11	0.41	0.41	0.23	0.34	0.34	0.00	0.11	0.11
Sat Flow, veh/h	1714	5187	1610	3141	5187	1610	3141	1900	1610	1714	316	1342
Grp Volume(v), veh/h	6	1146	413	370	1464	4	874	31	229	1	0	21
Grp Sat Flow(s),veh/h/ln	1714	1729	1610	1570	1729	1610	1570	1900	1610	1714	0	1658
Q Serve(g_s), s	0.3	17.5	14.1	9.4	20.8	0.1	20.6	1.0	8.2	0.1	0.0	1.0
Cycle Q Clear(g_c), s	0.3	17.5	14.1	9.4	20.8	0.1	20.6	1.0	8.2	0.1	0.0	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	13	1601	869	331	2108	654	726	650	721	2	0	186
V/C Ratio(X)	0.45	0.72	0.48	1.12	0.69	0.01	1.20	0.05	0.32	0.43	0.00	0.11
Avail Cap(c_a), veh/h	135	2085	1019	331	2224	691	726	939	965	177	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.0	27.3	12.7	39.8	21.9	15.7	34.2	19.6	15.8	44.4	0.0	35.6
Incr Delay (d2), s/veh	8.7	0.8	0.4	84.6	0.9	0.0	104.3	0.0	0.3	39.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	6.7	4.9	7.3	7.6	0.0	18.3	0.4	3.0	0.0	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	28.2	13.1	124.4	22.8	15.7	138.6	19.6	16.1	83.9	0.0	35.8
LnGrp LOS	D	C	B	F	C	B	F	B	B	F	A	D
Approach Vol, veh/h		1565			1838			1134			22	
Approach Delay, s/veh		24.3			43.2			110.6			38.0	
Approach LOS		C			D			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	33.7	25.2	16.2	5.3	42.4	4.7	36.7
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	9.4	35.8	20.6	* 34	7.0	38.2	9.2	44.0
Max Q Clear Time (g_c+I1), s	11.4	19.5	22.6	3.0	2.3	22.8	2.1	10.2
Green Ext Time (p_c), s	0.0	8.0	0.0	0.1	0.0	8.3	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	33	310	1138	125	696
Future Volume (vph)	33	310	1138	125	696
Turn Type	Prot	Perm	NA	Prot	NA
Protected Phases	8		2	1	6
Permitted Phases		8			
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.6	26.6	23.2	9.6	16.2
Total Split (s)	31.0	31.0	65.7	23.3	89.0
Total Split (%)	25.8%	25.8%	54.8%	19.4%	74.2%
Yellow Time (s)	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.2	4.6	6.2
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
Act Effct Green (s)	12.9	12.9	65.6	12.7	83.0
Actuated g/C Ratio	0.12	0.12	0.61	0.12	0.78
v/c Ratio	0.17	0.75	0.58	0.67	0.27
Control Delay	43.2	19.5	15.0	61.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	19.5	15.0	61.0	4.0
LOS	D	B	B	E	A
Approach Delay	21.8		15.0		12.6
Approach LOS	C		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 106.7	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 15.2	Intersection LOS: B
Intersection Capacity Utilization 61.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 25: Escondido Av. & Sultana St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	33	310	1138	45	125	696
Future Volume (veh/h)	33	310	1138	45	125	696
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1800	1900
Adj Flow Rate, veh/h	36	337	1237	49	136	757
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	377	354	1970	78	162	2491
Arrive On Green	0.22	0.22	0.56	0.56	0.09	0.69
Sat Flow, veh/h	1714	1610	3631	140	1714	3705
Grp Volume(v), veh/h	36	337	631	655	136	757
Grp Sat Flow(s),veh/h/ln	1714	1610	1805	1871	1714	1805
Q Serve(g_s), s	2.0	24.8	28.6	28.6	9.4	9.9
Cycle Q Clear(g_c), s	2.0	24.8	28.6	28.6	9.4	9.9
Prop In Lane	1.00	1.00		0.07	1.00	
Lane Grp Cap(c), veh/h	377	354	1006	1043	162	2491
V/C Ratio(X)	0.10	0.95	0.63	0.63	0.84	0.30
Avail Cap(c_a), veh/h	377	354	1006	1043	267	2491
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	46.2	18.1	18.1	53.4	7.3
Incr Delay (d2), s/veh	0.1	35.2	3.0	2.9	5.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	13.4	12.6	13.0	4.3	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.4	81.4	21.0	21.0	58.7	7.6
LnGrp LOS	D	F	C	C	E	A
Approach Vol, veh/h	373		1286			893
Approach Delay, s/veh	77.1		21.0			15.4
Approach LOS	E		C			B

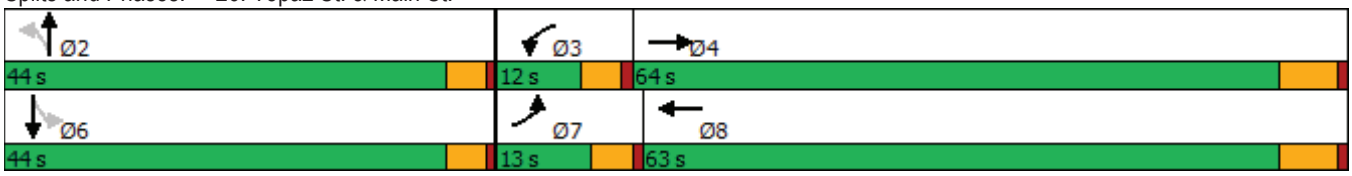
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.9	73.1				89.0	31.0
Change Period (Y+Rc), s	4.6	6.2				6.2	4.6
Max Green Setting (Gmax), s	18.7	59.5				82.8	26.4
Max Q Clear Time (g_c+I1), s	11.4	30.6				11.9	26.8
Green Ext Time (p_c), s	0.1	11.4				6.8	0.0

Intersection Summary		
HCM 6th Ctrl Delay	27.2	
HCM 6th LOS	C	

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	61	1361	45	1388	250	113	134	87
Future Volume (vph)	61	1361	45	1388	250	113	134	87
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4	3	8		2		6
Permitted Phases					2		6	
Detector Phase	7	4	3	8	2	2	6	6
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	13.0	64.0	12.0	63.0	44.0	44.0	44.0	44.0
Total Split (%)	10.8%	53.3%	10.0%	52.5%	36.7%	36.7%	36.7%	36.7%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	Max	None	None	None	None	None
Act Effct Green (s)	7.4	44.4	7.6	47.3	34.2	34.2	34.2	34.2
Actuated g/C Ratio	0.07	0.43	0.07	0.46	0.33	0.33	0.33	0.33
v/c Ratio	0.53	0.72	0.39	0.70	0.85	0.34	0.45	0.35
Control Delay	66.8	25.6	60.3	24.7	57.8	24.6	33.7	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	25.6	60.3	24.7	57.8	24.6	33.7	21.4
LOS	E	C	E	C	E	C	C	C
Approach Delay		27.2		25.8		43.3		26.4
Approach LOS		C		C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 102.1	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 28.4	Intersection LOS: C
Intersection Capacity Utilization 76.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	1361	117	45	1388	131	250	113	81	134	87	113
Future Volume (veh/h)	61	1361	117	45	1388	131	250	113	81	134	87	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	66	1479	114	49	1509	139	272	123	70	146	95	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	84	2047	158	143	2183	201	394	370	211	376	319	255
Arrive On Green	0.05	0.42	0.42	0.08	0.45	0.45	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1714	4903	378	1714	4832	445	1233	1135	646	1207	977	782
Grp Volume(v), veh/h	66	1043	550	49	1080	568	272	0	193	146	0	171
Grp Sat Flow(s),veh/h/ln	1714	1729	1822	1714	1729	1819	1233	0	1782	1207	0	1759
Q Serve(g_s), s	3.4	22.4	22.4	2.4	22.1	22.2	18.8	0.0	7.3	9.3	0.0	6.5
Cycle Q Clear(g_c), s	3.4	22.4	22.4	2.4	22.1	22.2	25.2	0.0	7.3	16.5	0.0	6.5
Prop In Lane	1.00		0.21	1.00		0.24	1.00		0.36	1.00		0.44
Lane Grp Cap(c), veh/h	84	1444	761	143	1562	822	394	0	581	376	0	574
V/C Ratio(X)	0.79	0.72	0.72	0.34	0.69	0.69	0.69	0.00	0.33	0.39	0.00	0.30
Avail Cap(c_a), veh/h	162	2247	1184	143	2208	1162	538	0	789	517	0	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.9	21.6	21.6	38.5	19.4	19.4	31.8	0.0	22.6	28.9	0.0	22.4
Incr Delay (d2), s/veh	6.0	0.7	1.3	6.5	0.6	1.1	2.3	0.0	0.3	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.1	8.6	1.2	7.8	8.3	5.7	0.0	3.1	2.7	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	22.3	22.9	45.0	20.0	20.5	34.0	0.0	23.0	29.5	0.0	22.7
LnGrp LOS	D	C	C	D	B	C	C	A	C	C	A	C
Approach Vol, veh/h		1659			1697			465			317	
Approach Delay, s/veh		23.5			20.9			29.5			25.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.6	12.0	43.3		33.6	8.9	46.4				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		39.4	7.4	57.8		39.4	8.4	56.8				
Max Q Clear Time (g_c+I1), s		27.2	4.4	24.4		18.5	5.4	24.2				
Green Ext Time (p_c), s		1.8	0.0	12.7		1.5	0.0	13.3				

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	102	98	82	71	148	119	1907	131	302	1447
Future Volume (vph)	102	98	82	71	148	119	1907	131	302	1447
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4			8	5	2		1	6
Permitted Phases	4		4	8				2		
Detector Phase	4	4	4	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.0	15.0	15.0	42.0	42.0	9.0	28.0	28.0	9.0	37.0
Total Split (s)	42.0	42.0	42.0	42.0	42.0	14.0	49.0	49.0	29.0	64.0
Total Split (%)	35.0%	35.0%	35.0%	35.0%	35.0%	11.7%	40.8%	40.8%	24.2%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max
Act Effct Green (s)	37.0	37.0	37.0	37.0	37.0	9.8	44.5	44.5	23.4	58.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31	0.08	0.37	0.37	0.20	0.48
v/c Ratio	1.14	0.17	0.15	0.18	0.82	0.84	1.03	0.20	0.89	0.66
Control Delay	175.7	31.4	4.9	32.0	43.5	95.4	66.8	5.1	74.8	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	175.7	31.4	4.9	32.0	43.5	95.4	66.8	5.1	74.8	24.7
LOS	F	C	A	C	D	F	E	A	E	C
Approach Delay		75.9			42.0		64.6			32.8
Approach LOS		E			D		E			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 119.8	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 105.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 8: US-395 & Luna Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	98	82	71	148	311	119	1907	131	302	1447	122
Future Volume (veh/h)	102	98	82	71	148	311	119	1907	131	302	1447	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	106	102	66	74	154	262	124	1986	111	315	1507	108
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	149	586	497	412	195	331	150	1957	607	342	2389	171
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.08	0.38	0.38	0.19	0.48	0.48
Sat Flow, veh/h	1040	1900	1610	1305	631	1074	1810	5187	1610	1810	4940	354
Grp Volume(v), veh/h	106	102	66	74	0	416	124	1986	111	315	1055	560
Grp Sat Flow(s),veh/h/ln	1040	1900	1610	1305	0	1705	1810	1729	1610	1810	1729	1836
Q Serve(g_s), s	10.2	4.7	3.5	5.3	0.0	26.8	8.1	45.2	5.5	20.5	27.2	27.2
Cycle Q Clear(g_c), s	37.0	4.7	3.5	10.0	0.0	26.8	8.1	45.2	5.5	20.5	27.2	27.2
Prop In Lane	1.00		1.00	1.00		0.63	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	149	586	497	412	0	526	150	1957	607	342	1672	888
V/C Ratio(X)	0.71	0.17	0.13	0.18	0.00	0.79	0.83	1.01	0.18	0.92	0.63	0.63
Avail Cap(c_a), veh/h	149	586	497	412	0	526	151	1957	607	377	1672	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.7	30.3	29.9	33.9	0.0	37.9	54.2	37.3	25.0	47.7	23.0	23.0
Incr Delay (d2), s/veh	12.8	0.1	0.0	0.1	0.0	7.4	29.3	24.1	0.7	25.6	1.8	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	2.1	1.4	1.7	0.0	11.9	4.8	21.9	2.1	11.2	10.4	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	30.4	29.9	34.0	0.0	45.3	83.5	61.5	25.6	73.3	24.8	26.4
LnGrp LOS	E	C	C	C	A	D	F	F	C	E	C	C
Approach Vol, veh/h		274			490			2221			1930	
Approach Delay, s/veh		45.0			43.6			60.9			33.2	
Approach LOS		D			D			E			C	

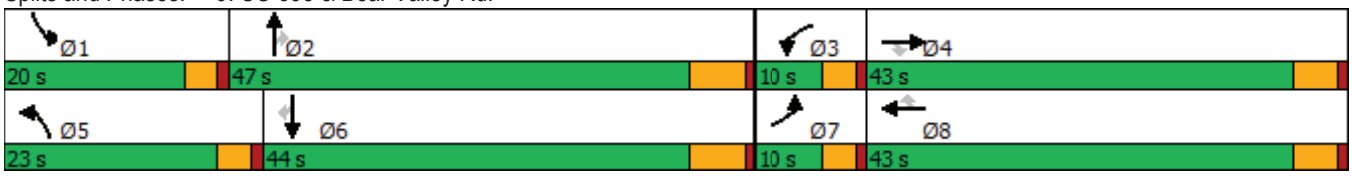
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.7	51.2		42.0	13.9	64.0		42.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	25.0	43.0		37.0	10.0	58.0		37.0				
Max Q Clear Time (g_c+I1), s	22.5	47.2		39.0	10.1	29.2		28.8				
Green Ext Time (p_c), s	0.2	0.0		0.0	0.0	10.0		1.3				

Intersection Summary												
HCM 6th Ctrl Delay			47.4									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	440	188	156	510	209	406	1799	319	229	1337	95
Future Volume (vph)	111	440	188	156	510	209	406	1799	319	229	1337	95
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	43.0	43.0	9.0	43.0	43.0	9.0	44.0	44.0	9.0	44.0	44.0
Total Split (s)	10.0	43.0	43.0	10.0	43.0	43.0	23.0	47.0	47.0	20.0	44.0	44.0
Total Split (%)	8.3%	35.8%	35.8%	8.3%	35.8%	35.8%	19.2%	39.2%	39.2%	16.7%	36.7%	36.7%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.1	21.4	21.4	6.1	21.4	21.4	16.3	43.0	43.0	11.7	38.4	38.4
Actuated g/C Ratio	0.06	0.21	0.21	0.06	0.21	0.21	0.16	0.42	0.42	0.12	0.38	0.38
v/c Ratio	1.09	0.61	0.40	1.53	0.70	0.43	0.76	0.86	0.41	0.60	0.72	0.15
Control Delay	160.3	39.3	6.9	313.0	42.1	7.0	51.2	33.0	9.0	50.1	30.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.3	39.3	6.9	313.0	42.1	7.0	51.2	33.0	9.0	50.1	30.9	7.4
LOS	F	D	A	F	D	A	D	C	A	D	C	A
Approach Delay		49.3			81.9			32.9			32.2	
Approach LOS		D			F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 101.4	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.53	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 9: US-395 & Bear Valley Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	440	188	156	510	209	406	1799	319	229	1337	95
Future Volume (veh/h)	111	440	188	156	510	209	406	1799	319	229	1337	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	117	463	116	164	537	151	427	1894	275	241	1407	87
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	114	692	309	114	692	308	512	2354	731	322	2072	643
Arrive On Green	0.06	0.19	0.19	0.06	0.19	0.19	0.15	0.45	0.45	0.09	0.40	0.40
Sat Flow, veh/h	1810	3610	1610	1810	3610	1605	3510	5187	1610	3510	5187	1609
Grp Volume(v), veh/h	117	463	116	164	537	151	427	1894	275	241	1407	87
Grp Sat Flow(s),veh/h/ln	1810	1805	1610	1810	1805	1605	1755	1729	1610	1755	1729	1609
Q Serve(g_s), s	6.0	11.3	6.0	6.0	13.4	8.0	11.2	29.9	10.7	6.4	21.3	3.3
Cycle Q Clear(g_c), s	6.0	11.3	6.0	6.0	13.4	8.0	11.2	29.9	10.7	6.4	21.3	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	692	309	114	692	308	512	2354	731	322	2072	643
V/C Ratio(X)	1.03	0.67	0.38	1.44	0.78	0.49	0.83	0.80	0.38	0.75	0.68	0.14
Avail Cap(c_a), veh/h	114	1442	643	114	1442	641	701	2354	731	590	2072	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	35.6	33.5	44.6	36.5	34.3	39.5	22.3	17.1	42.1	23.5	18.1
Incr Delay (d2), s/veh	91.1	0.4	0.3	239.2	0.7	0.5	5.6	3.0	1.5	2.6	1.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	4.6	2.2	10.1	5.5	2.9	4.9	11.0	3.8	2.7	8.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.7	36.1	33.8	283.8	37.2	34.8	45.1	25.4	18.6	44.8	25.3	18.6
LnGrp LOS	F	D	C	F	D	C	D	C	B	D	C	B
Approach Vol, veh/h		696			852			2596			1735	
Approach Delay, s/veh		52.4			84.2			27.9			27.7	
Approach LOS		D			F			C			C	

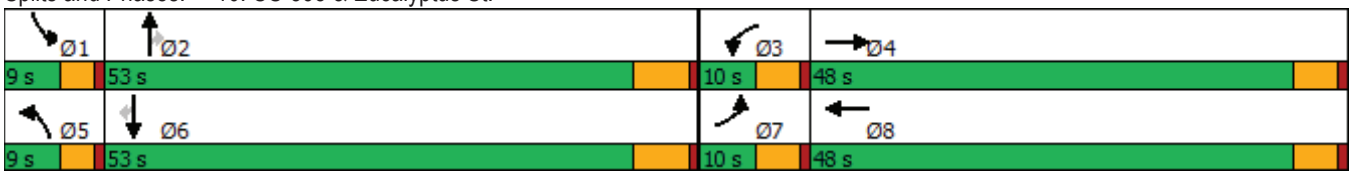
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	49.2	10.0	23.2	17.9	44.0	10.0	23.2
Change Period (Y+Rc), s	4.0	6.0	4.0	5.0	4.0	6.0	4.0	5.0
Max Green Setting (Gmax), s	16.0	41.0	6.0	38.0	19.0	38.0	6.0	38.0
Max Q Clear Time (g_c+I1), s	8.4	31.9	8.0	13.3	13.2	23.3	8.0	15.4
Green Ext Time (p_c), s	0.4	6.0	0.0	1.9	0.6	5.7	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	8	0	66	3	20	2533	137	16	1527	16
Future Volume (vph)	8	0	66	3	20	2533	137	16	1527	16
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	10.0	48.0	10.0	48.0	9.0	41.0	41.0	9.0	41.0	41.0
Total Split (s)	10.0	48.0	10.0	48.0	9.0	53.0	53.0	9.0	53.0	53.0
Total Split (%)	8.3%	40.0%	8.3%	40.0%	7.5%	44.2%	44.2%	7.5%	44.2%	44.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	6.0	6.0	4.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	5.2	15.1	9.7	15.1	5.2	56.4	56.4	5.2	56.4	56.4
Actuated g/C Ratio	0.06	0.18	0.11	0.18	0.06	0.66	0.66	0.06	0.66	0.66
v/c Ratio	0.07	0.02	0.34	0.06	0.19	0.78	0.13	0.16	0.47	0.02
Control Delay	44.8	0.0	44.2	14.1	46.6	16.5	4.8	45.9	11.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.8	0.0	44.2	14.1	46.6	16.5	4.8	45.9	11.9	0.0
LOS	D	A	D	B	D	B	A	D	B	A
Approach Delay		25.6		38.2		16.1			12.1	
Approach LOS		C		D		B			B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 85.6	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 68.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 10: US-395 & Eucalyptus St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	6	66	3	13	20	2533	137	16	1527	16
Future Volume (veh/h)	8	0	6	66	3	13	20	2533	137	16	1527	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	8	0	3	69	3	6	21	2666	141	17	1607	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	18	0	107	90	60	120	42	3149	978	36	3130	972
Arrive On Green	0.01	0.00	0.07	0.05	0.11	0.11	0.02	0.61	0.61	0.02	0.60	0.60
Sat Flow, veh/h	1810	0	1610	1810	565	1131	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	8	0	3	69	0	9	21	2666	141	17	1607	16
Grp Sat Flow(s),veh/h/ln	1810	0	1610	1810	0	1696	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	0.3	0.0	0.1	2.9	0.0	0.4	0.9	32.4	2.9	0.7	13.9	0.3
Cycle Q Clear(g_c), s	0.3	0.0	0.1	2.9	0.0	0.4	0.9	32.4	2.9	0.7	13.9	0.3
Prop In Lane	1.00		1.00	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	18	0	107	90	0	180	42	3149	978	36	3130	972
V/C Ratio(X)	0.43	0.00	0.03	0.77	0.00	0.05	0.50	0.85	0.14	0.48	0.51	0.02
Avail Cap(c_a), veh/h	116	0	889	116	0	937	116	3149	978	116	3130	972
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.3	0.0	34.0	36.6	0.0	31.3	37.6	12.4	6.6	37.8	8.9	6.2
Incr Delay (d2), s/veh	5.8	0.0	0.1	14.6	0.0	0.1	3.3	3.0	0.3	3.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.1	1.6	0.0	0.2	0.4	9.1	0.9	0.4	4.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	0.0	34.1	51.1	0.0	31.4	40.9	15.4	6.9	41.4	9.5	6.2
LnGrp LOS	D	A	C	D	A	C	D	B	A	D	A	A
Approach Vol, veh/h		11			78			2828			1640	
Approach Delay, s/veh		41.4			48.8			15.2			9.8	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	53.3	8.9	10.2	5.8	53.0	5.8	13.3
Change Period (Y+Rc), s	4.0	6.0	5.0	5.0	4.0	6.0	5.0	5.0
Max Green Setting (Gmax), s	5.0	47.0	5.0	43.0	5.0	47.0	5.0	43.0
Max Q Clear Time (g_c+I1), s	2.7	34.4	4.9	2.1	2.9	15.9	2.3	2.4
Green Ext Time (p_c), s	0.0	11.5	0.0	0.0	0.0	17.1	0.0	0.0

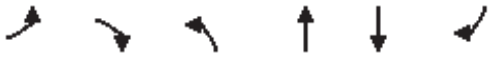
Intersection Summary	
HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations					
Traffic Volume (vph)	111	415	74	2789	2005
Future Volume (vph)	111	415	74	2789	2005
Turn Type	Prot	Perm	Prot	NA	NA
Protected Phases	4		5	2	6
Permitted Phases		4			
Detector Phase	4	4	5	2	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	26.6	26.6	11.5	14.6	23.5
Total Split (s)	26.6	26.6	11.5	93.4	81.9
Total Split (%)	22.2%	22.2%	9.6%	77.8%	68.3%
Yellow Time (s)	3.6	3.6	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.5	4.6	6.5
Lead/Lag			Lead		Lag
Lead-Lag Optimize?			Yes		Yes
Recall Mode	None	None	None	Max	Max
Act Effct Green (s)	22.0	22.0	5.0	88.8	75.4
Actuated g/C Ratio	0.18	0.18	0.04	0.74	0.63
v/c Ratio	0.35	1.20	1.03	0.76	0.65
Control Delay	46.3	150.1	167.9	10.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	150.1	167.9	10.9	15.2
LOS	D	F	F	B	B
Approach Delay	128.1			14.9	15.2
Approach LOS	F			B	B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 26.0	Intersection LOS: C
Intersection Capacity Utilization 74.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 11: US-395 & Yucca Terrace Dr.





Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	111	415	74	2789	2005	29
Future Volume (veh/h)	111	415	74	2789	2005	29
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	116	432	77	2905	2089	30
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	327	291	74	3779	3341	48
Arrive On Green	0.18	0.18	0.04	0.73	0.63	0.63
Sat Flow, veh/h	1810	1610	1810	5358	5440	76
Grp Volume(v), veh/h	116	432	77	2905	1370	749
Grp Sat Flow(s),veh/h/ln	1810	1610	1810	1729	1729	1886
Q Serve(g_s), s	6.8	22.0	5.0	42.1	29.3	29.3
Cycle Q Clear(g_c), s	6.8	22.0	5.0	42.1	29.3	29.3
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	327	291	74	3779	2193	1196
V/C Ratio(X)	0.36	1.49	1.04	0.77	0.62	0.63
Avail Cap(c_a), veh/h	327	291	74	3779	2193	1196
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	50.0	58.5	10.2	13.5	13.5
Incr Delay (d2), s/veh	0.7	236.5	115.2	1.6	1.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	37.0	4.6	12.0	9.9	11.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.4	286.4	173.6	11.8	14.9	16.0
LnGrp LOS	D	F	F	B	B	B
Approach Vol, veh/h	548			2982	2119	
Approach Delay, s/veh	235.2			16.0	15.3	
Approach LOS	F			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.3		26.6	11.5	83.8
Change Period (Y+Rc), s		* 6.5		4.6	6.5	6.5
Max Green Setting (Gmax), s		* 89		22.0	5.0	75.4
Max Q Clear Time (g_c+I1), s		44.1		24.0	7.0	31.3
Green Ext Time (p_c), s		36.7		0.0	0.0	22.3

Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

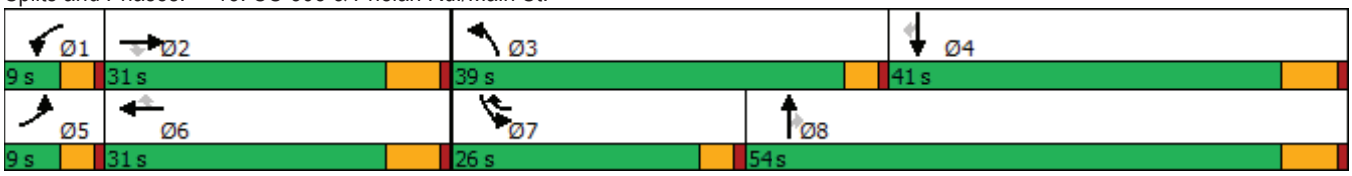
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Future Volume (vph)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6	7	3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	7	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	16.0	16.0	9.0	16.0	9.0	9.0	16.0	16.0	9.0	16.0	16.0
Total Split (s)	9.0	31.0	31.0	9.0	31.0	26.0	39.0	54.0	54.0	26.0	41.0	41.0
Total Split (%)	7.5%	25.8%	25.8%	7.5%	25.8%	21.7%	32.5%	45.0%	45.0%	21.7%	34.2%	34.2%
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	3.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	-0.5	-2.0	0.0
Total Lost Time (s)	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	6.0	3.5	4.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.0	30.6	28.6	5.0	27.0	53.0	15.3	50.0	48.0	22.5	56.7	54.7
Actuated g/C Ratio	0.04	0.26	0.24	0.04	0.22	0.44	0.13	0.42	0.40	0.19	0.47	0.46
v/c Ratio	1.39	1.01	0.42	0.37	0.88	0.55	0.68	1.06	0.63	1.04	0.64	0.14
Control Delay	279.2	71.7	11.5	70.2	54.4	21.6	57.5	70.6	26.0	93.3	25.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	71.7	11.5	70.2	54.4	21.6	57.5	70.6	26.0	93.3	25.7	2.7
LOS	F	E	B	E	D	C	E	E	C	F	C	A
Approach Delay		76.3			45.9			63.3			44.1	
Approach LOS		E			D			E			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 57.5	Intersection LOS: E
Intersection Capacity Utilization 110.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 13: US-395 & Phelan Rd./Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Future Volume (veh/h)	99	1399	210	27	1077	404	296	2387	423	707	1635	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	104	1473	221	28	1134	425	312	2513	392	744	1721	89
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	75	1376	357	46	1282	631	385	2375	644	679	2814	768
Arrive On Green	0.06	0.36	0.34	0.04	0.34	0.31	0.16	0.63	0.60	0.28	0.74	0.72
Sat Flow, veh/h	1810	5700	1589	1810	5700	1610	3619	5700	1610	3619	5700	1610
Grp Volume(v), veh/h	104	1473	221	28	1134	425	312	2513	392	744	1721	89
Grp Sat Flow(s),veh/h/ln	1810	1900	1589	1810	1900	1610	1810	1900	1610	1810	1900	1610
Q Serve(g_s), s	5.0	29.0	14.0	1.8	22.5	25.0	10.0	50.0	18.4	22.5	17.2	2.1
Cycle Q Clear(g_c), s	5.0	29.0	14.0	1.8	22.5	25.0	10.0	50.0	18.4	22.5	17.2	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	75	1376	357	46	1283	631	385	2375	644	679	2814	768
V/C Ratio(X)	1.38	1.07	0.62	0.61	0.88	0.67	0.81	1.06	0.61	1.10	0.61	0.12
Avail Cap(c_a), veh/h	75	1376	357	75	1283	631	1056	2375	644	679	2814	768
HCM Platoon Ratio	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.2	38.3	35.5	57.1	38.3	26.6	49.3	22.5	18.1	43.1	10.1	9.2
Incr Delay (d2), s/veh	234.0	45.6	3.2	9.4	7.6	2.8	3.1	36.1	1.8	63.9	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	16.8	5.0	0.9	9.6	8.7	4.3	21.7	5.3	14.5	4.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	290.3	83.9	38.7	66.6	45.9	29.4	52.4	58.6	19.9	107.0	10.5	9.3
LnGrp LOS	F	F	D	E	D	C	D	F	B	F	B	A
Approach Vol, veh/h		1798			1587			3217			2554	
Approach Delay, s/veh		90.2			41.9			53.3			38.6	
Approach LOS		F			D			D			D	

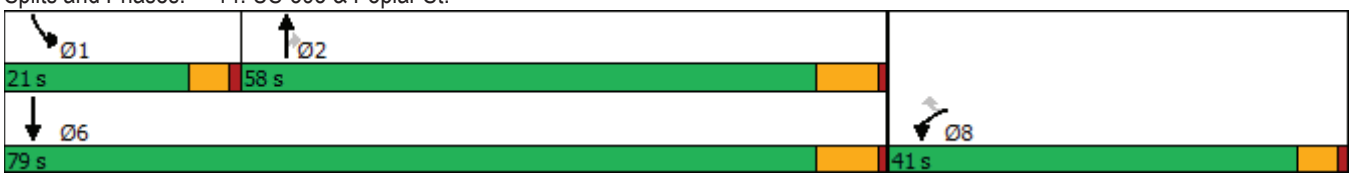
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	33.0	16.8	63.2	9.0	31.0	26.0	54.0
Change Period (Y+Rc), s	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	5.0	25.0	35.0	35.0	5.0	25.0	22.0	48.0
Max Q Clear Time (g_c+I1), s	3.8	31.0	12.0	19.2	7.0	27.0	24.5	52.0
Green Ext Time (p_c), s	0.0	0.0	0.8	11.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	91	762	2345	188	512	1359
Future Volume (vph)	91	762	2345	188	512	1359
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.7	26.7	23.5	23.5	9.6	16.5
Total Split (s)	41.0	41.0	58.0	58.0	21.0	79.0
Total Split (%)	34.2%	34.2%	48.3%	48.3%	17.5%	65.8%
Yellow Time (s)	3.7	3.7	5.5	5.5	3.6	5.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7	6.5	6.5	4.6	6.5
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effct Green (s)	36.3	36.3	51.5	51.5	16.4	72.5
Actuated g/C Ratio	0.30	0.30	0.43	0.43	0.14	0.60
v/c Ratio	0.17	1.16	1.08	0.26	1.09	0.44
Control Delay	31.9	113.1	76.4	10.9	116.6	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	113.1	76.4	10.9	116.6	13.4
LOS	C	F	E	B	F	B
Approach Delay	104.4		71.6			41.6
Approach LOS	F		E			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 66.2	Intersection LOS: E
Intersection Capacity Utilization 101.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 14: US-395 & Poplar St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	91	762	2345	188	512	1359
Future Volume (veh/h)	91	762	2345	188	512	1359
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	93	421	2393	151	522	1387
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	507	451	2298	713	495	3235
Arrive On Green	0.28	0.28	0.44	0.44	0.14	0.62
Sat Flow, veh/h	1810	1610	5358	1610	3510	5358
Grp Volume(v), veh/h	93	421	2393	151	522	1387
Grp Sat Flow(s),veh/h/ln	1810	1610	1729	1610	1755	1729
Q Serve(g_s), s	4.5	29.6	51.5	6.7	16.4	16.0
Cycle Q Clear(g_c), s	4.5	29.6	51.5	6.7	16.4	16.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	507	451	2298	713	495	3235
V/C Ratio(X)	0.18	0.93	1.04	0.21	1.05	0.43
Avail Cap(c_a), veh/h	565	503	2298	713	495	3235
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	40.8	32.4	19.9	49.9	11.2
Incr Delay (d2), s/veh	0.2	23.4	30.6	0.7	55.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	14.5	25.7	2.5	10.6	5.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.9	64.2	63.0	20.6	105.4	11.7
LnGrp LOS	C	E	F	C	F	B
Approach Vol, veh/h	514		2544			1909
Approach Delay, s/veh	58.4		60.5			37.3
Approach LOS	E		E			D

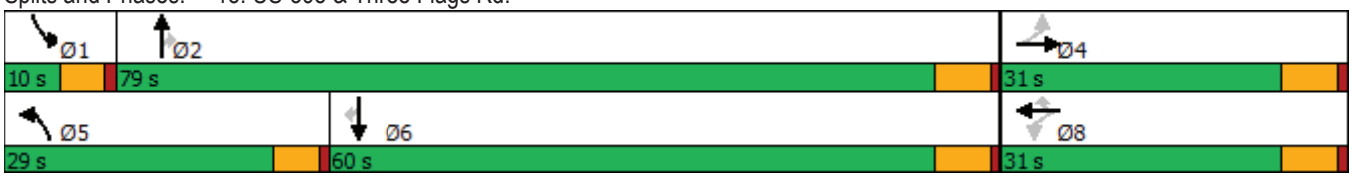
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	58.0			79.0	37.3
Change Period (Y+Rc), s	4.6	6.5			6.5	4.7
Max Green Setting (Gmax), s	16.4	51.5			72.5	36.3
Max Q Clear Time (g_c+I1), s	18.4	53.5			18.0	31.6
Green Ext Time (p_c), s	0.0	0.0			12.6	0.9

Intersection Summary	
HCM 6th Ctrl Delay	51.4
HCM 6th LOS	D

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	88	1	229	8	175	231	2270	208	68	1271	111
Future Volume (vph)	88	1	229	8	175	231	2270	208	68	1271	111
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	16.0	16.0	16.0	16.0	16.0	10.0	16.0	16.0	10.0	16.0	16.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0	29.0	79.0	79.0	10.0	60.0	60.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%	24.2%	65.8%	65.8%	8.3%	50.0%	50.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	25.0	25.0	25.0	25.0	25.0	19.4	73.0	73.0	5.0	58.6	58.6
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.21	0.16	0.61	0.61	0.04	0.49	0.49
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	0.73	0.20	0.92	0.51	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	18.4	1.8	141.0	22.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	18.4	1.8	141.0	22.4	3.5
LOS	D	A	F	D	B	E	B	A	F	C	A
Approach Delay		16.5		293.9			21.5			26.5	
Approach LOS		B		F			C			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.02	
Intersection Signal Delay: 45.3	Intersection LOS: D
Intersection Capacity Utilization 97.5%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 15: US-395 & Three Flags Rd.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	1	284	229	8	175	231	2270	208	68	1271	111
Future Volume (veh/h)	88	1	284	229	8	175	231	2270	208	68	1271	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	90	1	198	234	8	113	236	2316	161	69	1297	77
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	339	2	334	183	396	335	265	3155	979	75	2613	811
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.15	0.61	0.61	0.04	0.50	0.50
Sat Flow, veh/h	1362	8	1603	1269	1900	1610	1810	5187	1609	1810	5187	1610
Grp Volume(v), veh/h	90	0	199	234	8	113	236	2316	161	69	1297	77
Grp Sat Flow(s),veh/h/ln	1362	0	1611	1269	1900	1610	1810	1729	1609	1810	1729	1610
Q Serve(g_s), s	6.7	0.0	13.4	11.6	0.4	7.2	15.4	37.9	5.2	4.6	19.9	3.0
Cycle Q Clear(g_c), s	7.2	0.0	13.4	25.0	0.4	7.2	15.4	37.9	5.2	4.6	19.9	3.0
Prop In Lane	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	0	336	183	396	335	265	3155	979	75	2613	811
V/C Ratio(X)	0.27	0.00	0.59	1.28	0.02	0.34	0.89	0.73	0.16	0.92	0.50	0.09
Avail Cap(c_a), veh/h	339	0	336	183	396	335	362	3155	979	75	2613	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	42.9	56.1	37.8	40.4	50.3	16.6	10.2	57.3	19.7	15.5
Incr Delay (d2), s/veh	0.2	0.0	1.9	161.1	0.0	0.2	15.4	1.6	0.4	74.0	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	5.5	13.7	0.2	2.9	7.8	13.0	1.7	3.6	7.4	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	0.0	44.8	217.2	37.8	40.7	65.7	18.2	10.6	131.3	20.4	15.7
LnGrp LOS	D	A	D	F	D	D	E	B	B	F	C	B
Approach Vol, veh/h		289			355			2713			1443	
Approach Delay, s/veh		43.6			157.0			21.9			25.4	
Approach LOS		D			F			C			C	

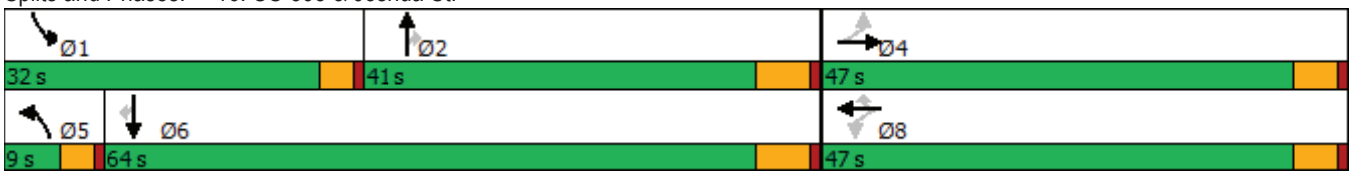
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	79.0		31.0	22.5	66.5		31.0				
Change Period (Y+Rc), s	5.0	6.0		6.0	5.0	6.0		6.0				
Max Green Setting (Gmax), s	5.0	73.0		25.0	24.0	54.0		25.0				
Max Q Clear Time (g_c+I1), s	6.6	39.9		15.4	17.4	21.9		27.0				
Green Ext Time (p_c), s	0.0	23.5		0.7	0.2	10.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		34.2	
HCM 6th LOS		C	

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	405	149	114	76	480	35	1823	122	234	1484	66
Future Volume (vph)	405	149	114	76	480	35	1823	122	234	1484	66
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8		5	2		1	6	
Permitted Phases	4		8		8			2			6
Detector Phase	4	4	8	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	15.0	15.0	46.0	46.0	46.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	47.0	47.0	47.0	47.0	47.0	9.0	41.0	41.0	32.0	64.0	64.0
Total Split (%)	39.2%	39.2%	39.2%	39.2%	39.2%	7.5%	34.2%	34.2%	26.7%	53.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	5.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-2.0	-2.0	0.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	37.8	37.8	37.8	37.8	37.8	5.0	41.8	41.8	19.7	60.6	60.6
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34	0.04	0.37	0.37	0.18	0.54	0.54
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	0.97	0.19	0.76	0.54	0.07
Control Delay	62.7	27.2	30.3	26.2	7.5	72.5	49.6	10.7	59.4	18.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.5	72.5	49.6	10.7	59.4	18.8	4.0
LOS	E	C	C	C	A	E	D	B	E	B	A
Approach Delay		52.3		13.5			47.6			23.6	
Approach LOS		D		B			D			C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 111.5	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 35.0	Intersection LOS: D
Intersection Capacity Utilization 97.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 16: US-395 & Joshua St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	149	18	114	76	480	35	1823	122	234	1484	66
Future Volume (veh/h)	405	149	18	114	76	480	35	1823	122	234	1484	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	418	154	16	118	78	437	36	1879	114	241	1530	61
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	379	614	64	451	690	584	53	1999	620	272	2627	815
Arrive On Green	0.36	0.36	0.35	0.36	0.36	0.36	0.03	0.39	0.39	0.15	0.51	0.51
Sat Flow, veh/h	949	1693	176	1303	1900	1609	1810	5187	1610	1810	5187	1610
Grp Volume(v), veh/h	418	0	170	118	78	437	36	1879	114	241	1530	61
Grp Sat Flow(s),veh/h/ln	949	0	1868	1303	1900	1609	1810	1729	1610	1810	1729	1610
Q Serve(g_s), s	39.8	0.0	7.6	8.3	3.2	28.1	2.3	41.4	5.5	15.5	24.5	2.3
Cycle Q Clear(g_c), s	43.0	0.0	7.6	15.8	3.2	28.1	2.3	41.4	5.5	15.5	24.5	2.3
Prop In Lane	1.00		0.09	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	379	0	678	451	690	584	53	1999	620	272	2627	815
V/C Ratio(X)	1.10	0.00	0.25	0.26	0.11	0.75	0.68	0.94	0.18	0.89	0.58	0.07
Avail Cap(c_a), veh/h	379	0	678	451	690	584	76	1999	620	428	2627	815
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	26.5	32.0	25.1	33.0	56.9	35.1	24.1	49.3	20.5	15.0
Incr Delay (d2), s/veh	76.4	0.0	0.1	0.1	0.0	4.7	10.7	10.2	0.7	11.2	1.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.4	0.0	3.4	2.6	1.5	11.6	1.2	17.8	2.1	7.5	9.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.0	0.0	26.6	32.1	25.1	37.7	67.7	45.3	24.7	60.5	21.4	15.2
LnGrp LOS	F	A	C	C	C	D	E	D	C	E	C	B
Approach Vol, veh/h		588			633			2029			1832	
Approach Delay, s/veh		92.3			35.1			44.6			26.4	
Approach LOS		F			D			D			C	

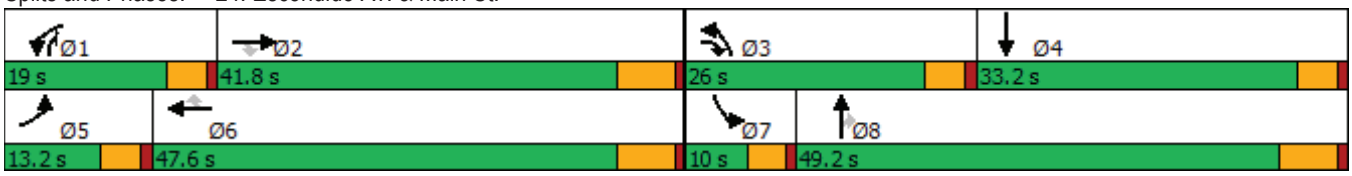
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.8	49.7		47.0	7.5	64.0		47.0				
Change Period (Y+Rc), s	4.0	6.0		5.0	4.0	6.0		5.0				
Max Green Setting (Gmax), s	28.0	35.0		42.0	5.0	58.0		42.0				
Max Q Clear Time (g_c+I1), s	17.5	43.4		45.0	4.3	26.5		30.1				
Green Ext Time (p_c), s	0.4	0.0		0.0	0.0	22.1		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		42.3	
HCM 6th LOS		D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Traffic Volume (vph)	74	1762	830	504	1329	14	791	71	276	77	52
Future Volume (vph)	74	1762	830	504	1329	14	791	71	276	77	52
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA
Protected Phases	5	2	3	1	6		3	8	1	7	4
Permitted Phases			2			6			8		
Detector Phase	5	2	3	1	6	6	3	8	1	7	4
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	9.6	41.2	9.6	9.6	31.2	31.2	9.6	49.2	9.6	9.6	29.6
Total Split (s)	13.2	41.8	26.0	19.0	47.6	47.6	26.0	49.2	19.0	10.0	33.2
Total Split (%)	11.0%	34.8%	21.7%	15.8%	39.7%	39.7%	21.7%	41.0%	15.8%	8.3%	27.7%
Yellow Time (s)	3.6	5.2	3.6	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Min	None	None	Min	Min	None	None	None	None	None
Act Effct Green (s)	7.8	35.8	58.9	14.5	44.5	44.5	21.5	25.2	42.5	11.8	13.7
Actuated g/C Ratio	0.07	0.34	0.56	0.14	0.42	0.42	0.20	0.24	0.40	0.11	0.13
v/c Ratio	0.61	0.95	0.75	1.19	0.58	0.02	1.25	0.16	0.42	0.42	0.48
Control Delay	69.0	46.4	9.4	145.4	26.0	0.1	162.5	29.9	16.5	58.2	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	46.4	9.4	145.4	26.0	0.1	162.5	29.9	16.5	58.2	30.2
LOS	E	D	A	F	C	A	F	C	B	E	C
Approach Delay		35.5			58.4			118.8			40.8
Approach LOS		D			E			F			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 105.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.25	
Intersection Signal Delay: 59.1	Intersection LOS: E
Intersection Capacity Utilization 100.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 24: Escondido Av. & Main St.





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	1762	830	504	1329	14	791	71	276	77	52	73
Future Volume (veh/h)	74	1762	830	504	1329	14	791	71	276	77	52	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1700	1900	1900	1700	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	77	1835	641	525	1384	13	824	74	207	80	54	55
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	97	1970	892	456	2449	678	677	474	629	90	81	82
Arrive On Green	0.08	0.52	0.35	0.21	0.64	0.43	0.21	0.25	0.25	0.05	0.09	0.09
Sat Flow, veh/h	1714	5700	1607	3238	5700	1577	3238	1900	1610	1714	863	879
Grp Volume(v), veh/h	77	1835	641	525	1384	13	824	74	207	80	0	109
Grp Sat Flow(s),veh/h/ln	1714	1900	1607	1619	1900	1577	1619	1900	1610	1714	0	1742
Q Serve(g_s), s	4.5	30.7	30.2	14.4	13.9	0.5	21.4	3.1	9.2	4.7	0.0	6.2
Cycle Q Clear(g_c), s	4.5	30.7	30.2	14.4	13.9	0.5	21.4	3.1	9.2	4.7	0.0	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	97	1970	892	456	2449	678	677	474	629	90	0	163
V/C Ratio(X)	0.79	0.93	0.72	1.15	0.57	0.02	1.22	0.16	0.33	0.88	0.00	0.67
Avail Cap(c_a), veh/h	144	1984	896	456	2449	678	677	799	903	90	0	487
HCM Platoon Ratio	1.50	1.50	1.00	1.50	1.50	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	23.5	16.9	40.4	12.8	16.8	40.5	30.0	21.8	48.1	0.0	44.9
Incr Delay (d2), s/veh	9.3	8.6	2.8	90.9	0.3	0.0	110.6	0.2	0.3	57.0	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	11.0	11.3	10.7	4.3	0.2	18.9	1.5	3.5	3.5	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	32.1	19.7	131.2	13.1	16.8	151.0	30.1	22.1	105.2	0.0	49.6
LnGrp LOS	E	C	B	F	B	B	F	C	C	F	A	D
Approach Vol, veh/h		2553			1922			1105			189	
Approach Delay, s/veh		29.7			45.4			118.8			73.1	
Approach LOS		C			D			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.0	41.6	26.0	15.7	10.4	50.2	10.0	31.7
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2
Max Green Setting (Gmax), s	14.4	35.6	21.4	* 29	8.6	41.4	5.4	43.0
Max Q Clear Time (g_c+I1), s	16.4	32.7	23.4	8.2	6.5	15.9	6.7	11.2
Green Ext Time (p_c), s	0.0	2.7	0.0	0.6	0.0	10.6	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

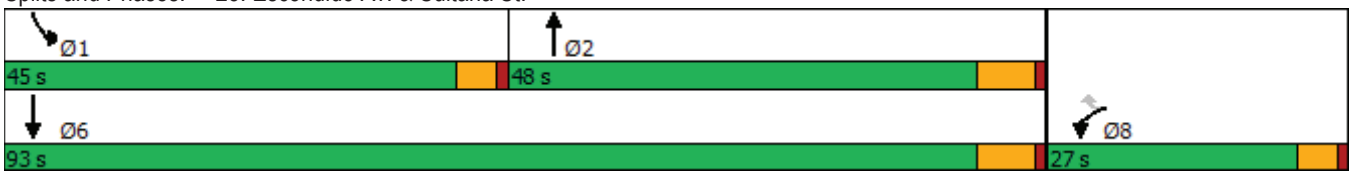
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	23	183	776	352	1073
Future Volume (vph)	23	183	776	352	1073
Turn Type	Prot	Perm	NA	Prot	NA
Protected Phases	8		2	1	6
Permitted Phases		8			
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.6	26.6	23.2	9.6	16.2
Total Split (s)	27.0	27.0	48.0	45.0	93.0
Total Split (%)	22.5%	22.5%	40.0%	37.5%	77.5%
Yellow Time (s)	3.6	3.6	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	6.2	4.6	6.2
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	Max	None	Max
Act Effct Green (s)	12.2	12.2	54.6	27.7	87.0
Actuated g/C Ratio	0.11	0.11	0.50	0.25	0.79
v/c Ratio	0.13	0.55	0.47	0.85	0.39
Control Delay	44.7	12.4	21.2	57.5	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	12.4	21.2	57.5	4.3
LOS	D	B	C	E	A
Approach Delay	16.0		21.2		17.5
Approach LOS	B		C		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 110	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 18.6	Intersection LOS: B
Intersection Capacity Utilization 63.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 25: Escondido Av. & Sultana St.





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	23	183	776	23	352	1073
Future Volume (veh/h)	23	183	776	23	352	1073
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1800	1900	1900	1900	1800	1900
Adj Flow Rate, veh/h	24	191	808	24	367	1118
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	235	221	1770	53	398	2770
Arrive On Green	0.14	0.14	0.49	0.49	0.23	0.77
Sat Flow, veh/h	1714	1610	3674	106	1714	3705
Grp Volume(v), veh/h	24	191	407	425	367	1118
Grp Sat Flow(s),veh/h/ln	1714	1610	1805	1880	1714	1805
Q Serve(g_s), s	1.4	13.1	16.7	16.7	23.7	11.8
Cycle Q Clear(g_c), s	1.4	13.1	16.7	16.7	23.7	11.8
Prop In Lane	1.00	1.00		0.06	1.00	
Lane Grp Cap(c), veh/h	235	221	893	930	398	2770
V/C Ratio(X)	0.10	0.86	0.46	0.46	0.92	0.40
Avail Cap(c_a), veh/h	339	319	893	930	612	2770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.7	47.8	18.7	18.7	42.5	4.4
Incr Delay (d2), s/veh	0.2	15.3	1.7	1.6	10.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.2	7.4	7.7	11.2	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.9	63.1	20.4	20.3	53.3	4.9
LnGrp LOS	D	E	C	C	D	A
Approach Vol, veh/h	215		832			1485
Approach Delay, s/veh	60.8		20.3			16.8
Approach LOS	E		C			B

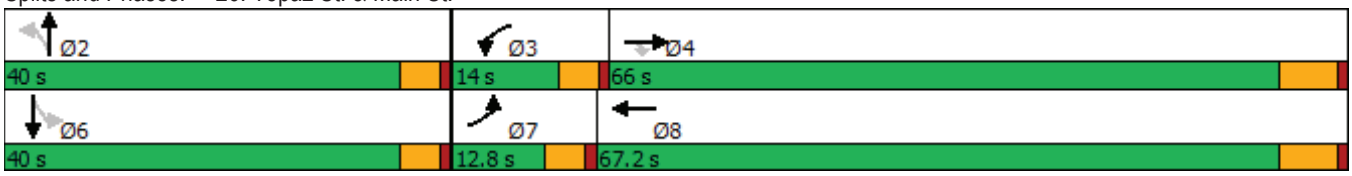
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	30.9	62.1			93.0	20.1
Change Period (Y+Rc), s	4.6	6.2			6.2	4.6
Max Green Setting (Gmax), s	40.4	41.8			86.8	22.4
Max Q Clear Time (g_c+I1), s	25.7	18.7			13.8	15.1
Green Ext Time (p_c), s	0.6	6.2			13.2	0.4

Intersection Summary		
HCM 6th Ctrl Delay		21.7
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	96	1983	322	144	1629	298	45	86	49
Future Volume (vph)	96	1983	322	144	1629	298	45	86	49
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	7	4		3	8		2		6
Permitted Phases			4			2		6	
Detector Phase	7	4	4	3	8	2	2	6	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	25.2	25.2	9.6	23.2	32.6	32.6	38.6	38.6
Total Split (s)	12.8	66.0	66.0	14.0	67.2	40.0	40.0	40.0	40.0
Total Split (%)	10.7%	55.0%	55.0%	11.7%	56.0%	33.3%	33.3%	33.3%	33.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	Max	None	None	None	None	None
Act Effct Green (s)	8.2	57.6	57.6	9.5	58.9	32.6	32.6	32.6	32.6
Actuated g/C Ratio	0.07	0.50	0.50	0.08	0.51	0.28	0.28	0.28	0.28
v/c Ratio	0.82	0.85	0.36	1.06	0.67	0.91	0.32	0.32	0.22
Control Delay	99.2	29.4	4.7	144.6	22.7	72.7	12.9	36.7	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.2	29.4	4.7	144.6	22.7	72.7	12.9	36.7	19.0
LOS	F	C	A	F	C	E	B	D	B
Approach Delay		29.2			32.0		50.4		26.7
Approach LOS		C			C		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 115.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 32.2	Intersection LOS: C
Intersection Capacity Utilization 96.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 26: Topaz St. & Main St.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	1983	322	144	1629	95	298	45	132	86	49	63
Future Volume (veh/h)	96	1983	322	144	1629	95	298	45	132	86	49	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900
Adj Flow Rate, veh/h	99	2044	260	148	1679	91	307	46	105	89	51	34
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	123	2737	773	150	2497	135	402	149	340	343	307	204
Arrive On Green	0.07	0.48	0.48	0.09	0.50	0.50	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1714	5700	1610	1714	5036	273	1323	514	1174	1256	1059	706
Grp Volume(v), veh/h	99	2044	260	148	1152	618	307	0	151	89	0	85
Grp Sat Flow(s),veh/h/ln	1714	1900	1610	1714	1729	1851	1323	0	1689	1256	0	1765
Q Serve(g_s), s	6.1	31.3	10.8	9.3	27.1	27.2	24.3	0.0	7.5	6.4	0.0	3.9
Cycle Q Clear(g_c), s	6.1	31.3	10.8	9.3	27.1	27.2	28.2	0.0	7.5	13.9	0.0	3.9
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.70	1.00		0.40
Lane Grp Cap(c), veh/h	123	2737	773	150	1715	918	402	0	489	343	0	511
V/C Ratio(X)	0.81	0.75	0.34	0.99	0.67	0.67	0.76	0.00	0.31	0.26	0.00	0.17
Avail Cap(c_a), veh/h	131	3165	894	150	1958	1048	454	0	555	392	0	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.3	22.7	17.4	49.1	20.5	20.5	39.1	0.0	29.8	35.3	0.0	28.6
Incr Delay (d2), s/veh	26.2	0.9	0.3	70.8	0.8	1.4	6.7	0.0	0.4	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	12.7	3.7	6.8	9.9	10.8	8.6	0.0	3.1	2.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.4	23.5	17.6	119.9	21.3	22.0	45.7	0.0	30.2	35.7	0.0	28.7
LnGrp LOS	E	C	B	F	C	C	D	A	C	D	A	C
Approach Vol, veh/h		2403			1918			458			174	
Approach Delay, s/veh		25.0			29.1			40.6			32.3	
Approach LOS		C			C			D			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.8	14.0	57.9		35.8	12.3	59.6				
Change Period (Y+Rc), s		4.6	4.6	6.2		4.6	4.6	6.2				
Max Green Setting (Gmax), s		35.4	9.4	59.8		35.4	8.2	61.0				
Max Q Clear Time (g_c+I1), s		30.2	11.3	33.3		15.9	8.1	29.2				
Green Ext Time (p_c), s		1.0	0.0	18.4		0.7	0.0	15.2				

Intersection Summary		
HCM 6th Ctrl Delay		28.3
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

APPENDIX 7.11:

HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	478	327	224	358	142	153	1075	138	320	1779	48
v/c Ratio	0.76	0.66	0.66	1.38	0.43	0.30	0.49	0.53	0.19	0.69	0.80	0.06
Control Delay	89.0	41.4	19.0	242.3	34.3	6.5	51.1	26.6	5.3	51.4	29.7	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.0	41.4	19.0	242.3	34.3	6.5	51.1	26.6	5.3	51.4	29.7	0.8
Queue Length 50th (ft)	52	149	61	~186	103	0	47	186	0	99	341	0
Queue Length 95th (ft)	#166	203	150	#412	145	44	94	312	46	173	#598	4
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	108	1373	748	162	1481	746	385	2011	710	560	2234	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.35	0.44	1.38	0.24	0.19	0.40	0.53	0.19	0.57	0.80	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	959	211	24	468	433	157	1547	27	330	2363	85
v/c Ratio	0.96	0.76	0.40	0.30	0.48	0.66	0.60	0.69	0.03	0.68	0.92	0.10
Control Delay	130.0	44.9	9.5	65.3	42.0	28.7	62.3	29.8	0.1	54.5	34.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.0	44.9	9.5	65.3	42.0	28.7	62.3	29.8	0.1	54.5	34.6	2.8
Queue Length 50th (ft)	~86	251	13	18	112	220	61	365	0	127	640	0
Queue Length 95th (ft)	#205	303	76	48	147	304	97	456	0	169	#773	21
Internal Link Dist (ft)		1117			1265			3985			1763	
Turn Bay Length (ft)	340			250		200	280		200	250		200
Base Capacity (vph)	112	1378	567	80	1287	756	279	2245	776	713	2573	852
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.70	0.37	0.30	0.36	0.57	0.56	0.69	0.03	0.46	0.92	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	131	465	1323	73	608	2074
v/c Ratio	0.54	0.80	0.50	0.08	0.84	0.53
Control Delay	51.6	18.2	19.7	5.6	52.5	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	18.2	19.7	5.6	52.5	6.3
Queue Length 50th (ft)	86	30	203	2	206	160
Queue Length 95th (ft)	146	143	342	31	286	308
Internal Link Dist (ft)	2428		1974			3985
Turn Bay Length (ft)				200	375	
Base Capacity (vph)	437	707	2652	859	943	3948
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.66	0.50	0.08	0.64	0.53

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	298	252	2	63	268	1272	154	48	2037	145
v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.79	0.46	0.17	0.48	1.04	0.21
Control Delay	33.9	6.0	148.9	31.0	0.5	62.0	18.4	2.8	71.6	68.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	6.0	148.9	31.0	0.5	62.0	18.4	2.8	71.6	68.8	8.4
Queue Length 50th (ft)	45	1	~235	1	0	200	223	0	37	~589	13
Queue Length 95th (ft)	86	67	#402	8	2	274	262	32	78	#805	62
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	416	680	218	551	545	615	2742	908	107	1954	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.44	0.46	0.17	0.45	1.04	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	84	140	97	259	14	1370	90	296	2033	258
v/c Ratio	0.24	0.20	0.49	0.24	0.47	0.11	0.63	0.12	0.73	0.59	0.23
Control Delay	27.5	25.8	33.1	26.8	6.3	43.8	23.9	6.6	41.7	11.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	25.8	33.1	26.8	6.3	43.8	23.9	6.6	41.7	11.8	4.0
Queue Length 50th (ft)	27	32	59	38	0	6	166	0	125	129	8
Queue Length 95th (ft)	65	74	123	84	53	31	#475	39	284	541	79
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	700	1003	708	1008	967	319	2166	727	865	3435	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.20	0.10	0.27	0.04	0.63	0.12	0.34	0.59	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	117	463	198	157	537	220	427	1843	300	241	1397	100
v/c Ratio	1.09	0.61	0.40	1.47	0.70	0.43	0.76	0.84	0.37	0.60	0.71	0.15
Control Delay	160.3	39.3	6.9	287.6	42.1	7.0	51.2	32.0	7.3	50.1	30.8	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.3	39.3	6.9	287.6	42.1	7.0	51.2	32.0	7.3	50.1	30.8	7.4
Queue Length 50th (ft)	~82	143	0	~135	170	0	132	363	23	75	268	3
Queue Length 95th (ft)	#238	196	53	#319	228	56	222	#661	105	133	432	44
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	107	1367	734	107	1367	739	663	2197	820	558	1964	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.34	0.27	1.47	0.39	0.30	0.64	0.84	0.37	0.43	0.71	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	104	828	133	28	974	379	293	2494	445	402	1633	115
v/c Ratio	1.32	0.56	0.27	0.35	0.75	0.53	0.65	0.99	0.59	0.70	0.62	0.14
Control Delay	250.5	39.3	7.8	67.3	45.6	20.8	54.8	48.9	21.4	52.6	24.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	250.5	39.3	7.8	67.3	45.6	20.8	54.8	48.9	21.4	52.6	24.7	2.7
Queue Length 50th (ft)	~100	183	0	21	222	149	105	~608	173	143	297	0
Queue Length 95th (ft)	#223	237	50	54	283	239	149	#785	303	193	369	25
Internal Link Dist (ft)		1117			1265			3985			1763	
Turn Bay Length (ft)	340			250		200	280		200	250		200
Base Capacity (vph)	79	1480	489	79	1355	790	1113	2511	760	753	2643	795
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.56	0.27	0.35	0.72	0.48	0.26	0.99	0.59	0.53	0.62	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	778	2355	192	522	1215
v/c Ratio	0.17	1.16	1.06	0.25	1.09	0.39
Control Delay	31.9	113.1	70.4	10.8	116.6	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	113.1	70.4	10.8	116.6	12.7
Queue Length 50th (ft)	53	~561	~733	40	~235	167
Queue Length 95th (ft)	96	#804	#826	90	#345	197
Internal Link Dist (ft)	2428		1974			3985
Turn Bay Length (ft)				200	375	
Base Capacity (vph)	546	672	2226	753	478	3133
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.16	1.06	0.25	1.09	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	291	234	8	179	236	2279	212	69	1126	113
v/c Ratio	0.29	0.50	1.84	0.02	0.40	0.81	0.73	0.21	0.92	0.45	0.14
Control Delay	42.4	7.8	436.7	37.2	17.8	69.4	18.9	1.9	141.0	22.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	7.8	436.7	37.2	17.8	69.4	18.9	1.9	141.0	22.0	3.6
Queue Length 50th (ft)	59	1	~274	5	39	177	434	1	54	208	0
Queue Length 95th (ft)	109	74	#437	19	106	259	491	31	#149	264	31
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	309	577	127	411	442	361	3112	1032	75	2491	837
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.50	1.84	0.02	0.40	0.65	0.73	0.21	0.92	0.45	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	418	173	118	78	488	36	1849	126	206	1391	68
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	0.90	0.18	0.72	0.49	0.07
Control Delay	62.7	27.2	30.3	26.2	7.1	72.5	40.9	10.0	60.1	18.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.1	72.5	40.9	10.0	60.1	18.0	4.0
Queue Length 50th (ft)	299	90	65	40	22	28	493	17	154	260	0
Queue Length 95th (ft)	#486	147	116	76	110	#70	#678	63	224	305	23
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	522	731	428	739	892	81	2044	691	457	2818	908
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.28	0.11	0.55	0.44	0.90	0.18	0.45	0.49	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.12:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS QUEUING ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	82	478	327	259	358	142	153	1085	144	320	1832	48
v/c Ratio	0.76	0.66	0.66	1.60	0.43	0.30	0.49	0.54	0.20	0.69	0.82	0.06
Control Delay	89.0	41.4	19.1	328.6	34.3	6.5	51.1	26.7	5.2	51.4	30.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.0	41.4	19.1	328.6	34.3	6.5	51.1	26.7	5.2	51.4	30.5	0.8
Queue Length 50th (ft)	52	149	62	~232	103	0	47	188	0	99	357	0
Queue Length 95th (ft)	#166	203	151	#478	145	44	94	316	46	173	#629	4
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	108	1373	748	162	1481	746	385	2011	714	560	2234	747
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.35	0.44	1.60	0.24	0.19	0.40	0.54	0.20	0.57	0.82	0.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	1073	227	24	1253	678	247	1636	27	391	2378	85
v/c Ratio	1.02	0.74	0.39	0.32	1.04	0.89	0.94	0.84	0.04	0.66	0.98	0.11
Control Delay	148.9	43.6	10.4	67.3	80.5	42.0	98.1	40.0	0.1	52.2	46.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.9	43.6	10.4	67.3	80.5	42.0	98.1	40.0	0.1	52.2	46.4	2.8
Queue Length 50th (ft)	~86	289	23	18	~382	414	100	438	0	143	648	0
Queue Length 95th (ft)	#205	345	91	48	#478	#652	#181	504	0	195	#782	21
Internal Link Dist (ft)		1117			1265			3985			1763	
Turn Bay Length (ft)	340			250		200	280		200	250		200
Base Capacity (vph)	105	1452	588	75	1210	800	262	1938	688	671	2420	807
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.74	0.39	0.32	1.04	0.85	0.94	0.84	0.04	0.58	0.98	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	131	465	1506	73	608	2105
v/c Ratio	0.53	0.81	0.57	0.09	0.84	0.53
Control Delay	51.3	18.6	21.0	6.7	52.7	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	18.6	21.0	6.7	52.7	6.4
Queue Length 50th (ft)	86	33	243	4	206	164
Queue Length 95th (ft)	146	147	407	36	287	319
Internal Link Dist (ft)	2428		1974			3985
Turn Bay Length (ft)				200	375	
Base Capacity (vph)	437	704	2650	854	942	3943
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.66	0.57	0.09	0.65	0.53

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	76	298	252	2	63	268	1458	154	48	2068	145
v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.79	0.53	0.17	0.48	1.06	0.21
Control Delay	33.9	6.0	148.9	31.0	0.5	62.0	19.4	2.8	71.6	73.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	6.0	148.9	31.0	0.5	62.0	19.4	2.8	71.6	73.9	8.4
Queue Length 50th (ft)	45	1	~235	1	0	200	268	0	37	~627	13
Queue Length 95th (ft)	86	67	#402	8	2	274	312	32	78	#822	62
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	416	680	218	551	545	615	2742	908	107	1954	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.44	1.16	0.00	0.12	0.44	0.53	0.17	0.45	1.06	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	67	84	140	97	296	14	1518	90	302	2059	258
v/c Ratio	0.24	0.21	0.49	0.24	0.51	0.11	0.71	0.12	0.73	0.60	0.23
Control Delay	27.6	26.0	33.2	26.9	6.5	43.9	25.4	6.6	41.6	11.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	26.0	33.2	26.9	6.5	43.9	25.4	6.6	41.6	11.9	4.0
Queue Length 50th (ft)	27	32	59	38	0	6	193	0	127	133	8
Queue Length 95th (ft)	65	75	123	85	56	31	#562	39	289	552	80
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	699	1001	707	1007	984	318	2152	723	863	3437	1132
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.08	0.20	0.10	0.30	0.04	0.71	0.12	0.35	0.60	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	117	463	198	164	537	220	427	1894	336	241	1407	100
v/c Ratio	1.09	0.61	0.40	1.53	0.70	0.43	0.76	0.86	0.41	0.60	0.72	0.15
Control Delay	160.3	39.3	6.9	313.0	42.1	7.0	51.2	33.0	9.0	50.1	30.9	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.3	39.3	6.9	313.0	42.1	7.0	51.2	33.0	9.0	50.1	30.9	7.4
Queue Length 50th (ft)	~82	143	0	~145	170	0	132	379	37	75	270	3
Queue Length 95th (ft)	#238	196	53	#332	228	56	222	#691	137	133	435	44
Internal Link Dist (ft)		876			804			5210			7898	
Turn Bay Length (ft)	225		225	1000		250	220		280	230		160
Base Capacity (vph)	107	1367	734	107	1367	739	663	2197	820	558	1964	660
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.34	0.27	1.53	0.39	0.30	0.64	0.86	0.41	0.43	0.72	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	104	1473	221	28	1134	425	312	2513	445	744	1721	115
v/c Ratio	1.39	1.01	0.42	0.37	0.88	0.55	0.68	1.06	0.63	1.04	0.64	0.14
Control Delay	279.2	71.7	11.5	70.2	54.4	21.6	57.5	70.6	26.0	93.3	25.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	279.2	71.7	11.5	70.2	54.4	21.6	57.5	70.6	26.0	93.3	25.7	2.7
Queue Length 50th (ft)	~107	~447	21	22	285	181	117	~712	208	~312	327	0
Queue Length 95th (ft)	#223	#535	92	54	#340	283	158	#796	323	#431	401	25
Internal Link Dist (ft)		1117			1265			3985			1763	
Turn Bay Length (ft)	340			250		200	280		200	250		200
Base Capacity (vph)	75	1453	522	75	1282	769	1052	2375	710	712	2694	810
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	1.01	0.42	0.37	0.88	0.55	0.30	1.06	0.63	1.04	0.64	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	778	2393	192	522	1387
v/c Ratio	0.17	1.16	1.08	0.26	1.09	0.44
Control Delay	31.9	113.1	76.4	10.9	116.6	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	113.1	76.4	10.9	116.6	13.4
Queue Length 50th (ft)	53	~561	~755	40	~235	200
Queue Length 95th (ft)	96	#804	#849	90	#345	233
Internal Link Dist (ft)	2428		1974			3985
Turn Bay Length (ft)				200	375	
Base Capacity (vph)	546	672	2226	752	478	3133
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.16	1.08	0.26	1.09	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	291	234	8	179	236	2316	212	69	1297	113
v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.81	0.73	0.20	0.92	0.51	0.13
Control Delay	43.5	8.1	513.4	38.1	18.3	69.4	18.4	1.8	141.0	22.4	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	8.1	513.4	38.1	18.3	69.4	18.4	1.8	141.0	22.4	3.5
Queue Length 50th (ft)	59	1	~283	5	39	177	436	0	54	246	0
Queue Length 95th (ft)	110	75	#446	19	107	259	493	30	#149	310	31
Internal Link Dist (ft)		773		663			859			1974	
Turn Bay Length (ft)	50		400		400	190			225		225
Base Capacity (vph)	297	566	116	395	429	361	3155	1044	75	2534	849
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.51	2.02	0.02	0.42	0.65	0.73	0.20	0.92	0.51	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	418	173	118	78	495	36	1879	126	241	1530	68
v/c Ratio	0.92	0.27	0.32	0.12	0.59	0.44	0.97	0.19	0.76	0.54	0.07
Control Delay	62.7	27.2	30.3	26.2	7.5	72.5	49.6	10.7	59.4	18.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	27.2	30.3	26.2	7.5	72.5	49.6	10.7	59.4	18.8	4.0
Queue Length 50th (ft)	299	90	65	40	26	28	523	17	180	298	0
Queue Length 95th (ft)	#486	147	116	76	118	#70	#731	65	254	345	23
Internal Link Dist (ft)		1110		807			892			859	
Turn Bay Length (ft)	100		65		65	190			195		230
Base Capacity (vph)	522	731	428	739	892	81	1946	662	457	2818	908
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.24	0.28	0.11	0.55	0.44	0.97	0.19	0.53	0.54	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX 7.13:

HORIZON YEAR (2040) WITH PROJECT CONDITIONS FREEWAY FACILITY ANALYSIS WORKSHEETS WITH IMPROVEMENTS

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.943	5908	7146	0.83	62.2	31.7	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.943	0.855	5908	1216	7200	2100	0.82	0.58	62.9	58.6	31.3	36.2	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	4666	7146	0.65	67.2	23.1	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.971	5421	755	7200	1900	0.75	0.40	60.2	57.9	30.0	30.3	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.971	5421	7146	0.76	64.7	27.9	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.971	0.943	5932	511	7200	2100	0.82	0.24	59.9	57.8	33.0	31.2	D

Segment 7: Basic

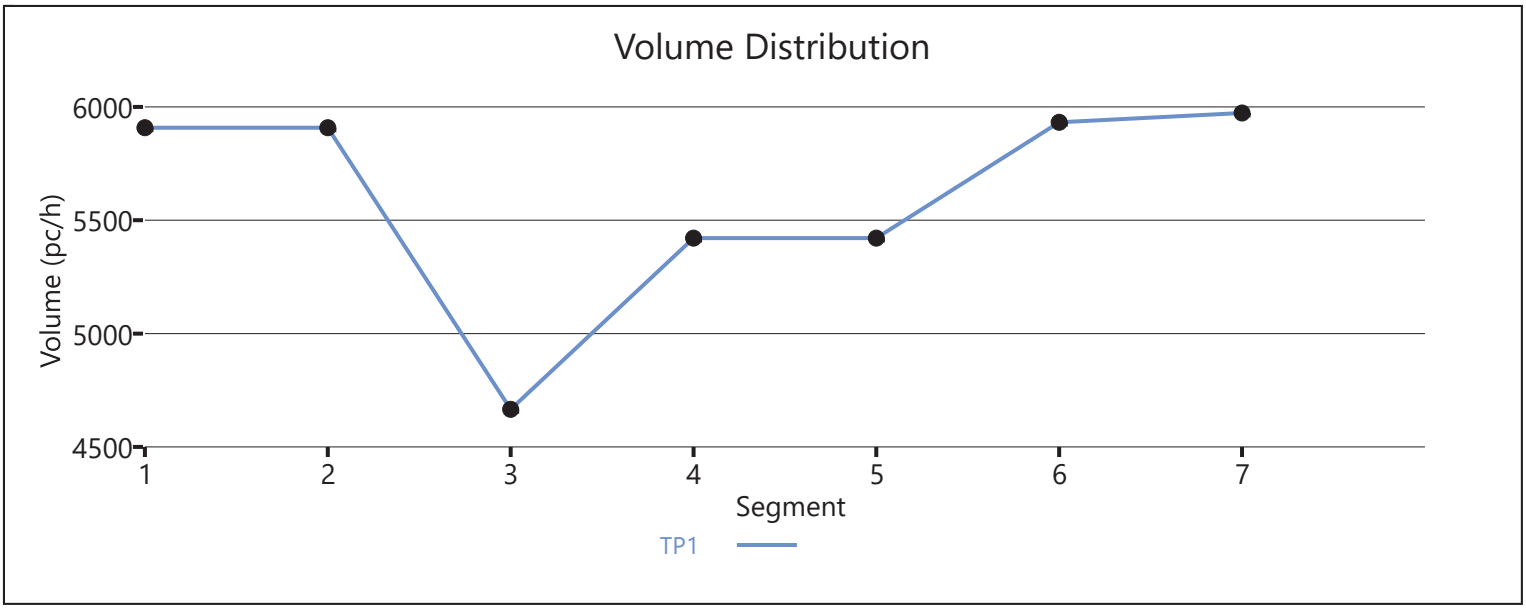
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.962	5973	7146	0.84	61.8	32.2	D

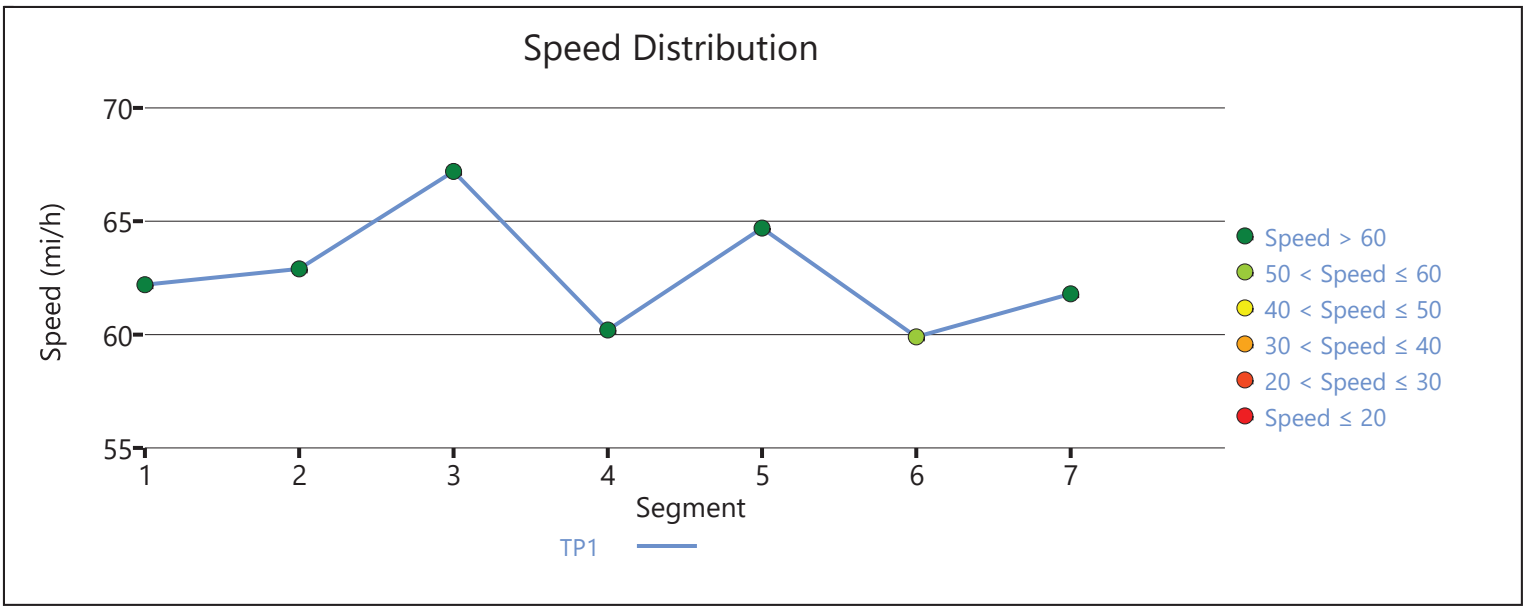
Facility Time Period Results

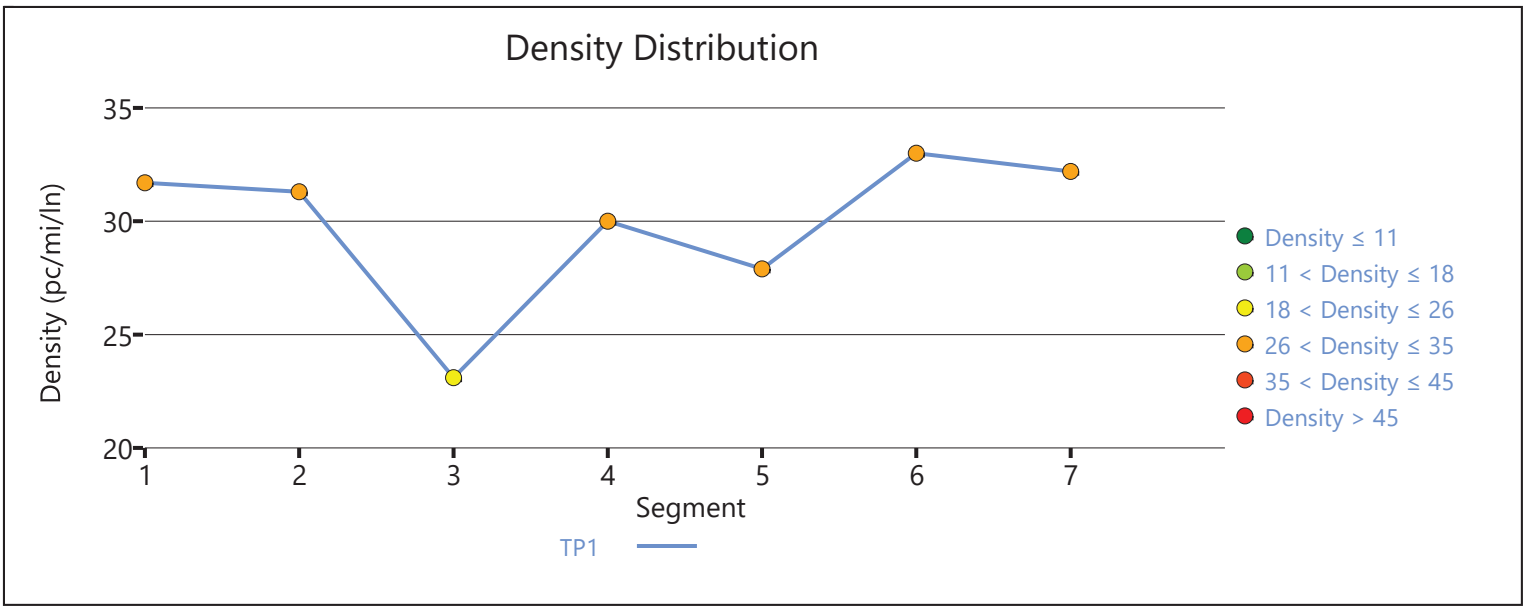
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	62.2	31.3	29.8	5.3	D

Facility Overall Results

Space Mean Speed, mi/h	62.2	Density, veh/mi/ln	29.8
Average Travel Time, min	5.3	Density, pc/mi/ln	31.3







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	6970	7179	0.97	55.1	42.2	E

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.893	9437	2467	9600	2100	0.73	1.17	66.6	-	26.2	-	D

Segment 3: Basic

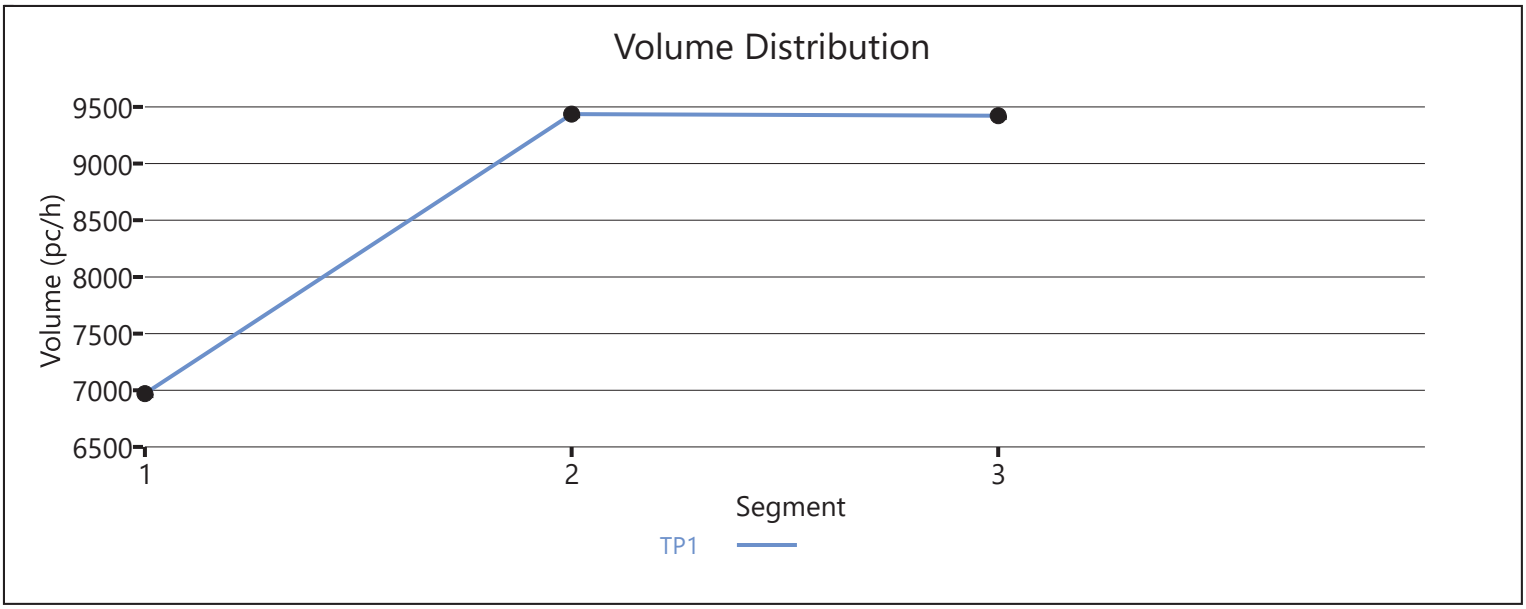
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	9423	9572	0.98	54.2	43.5	E

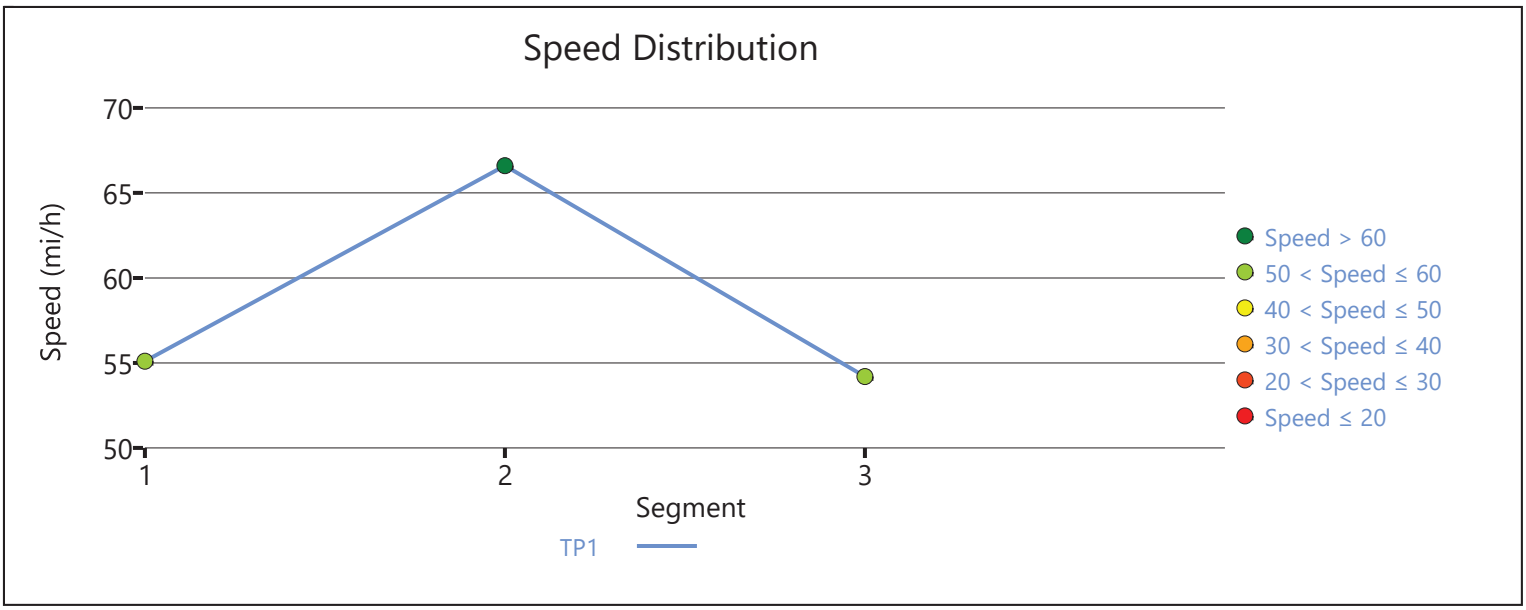
Facility Time Period Results

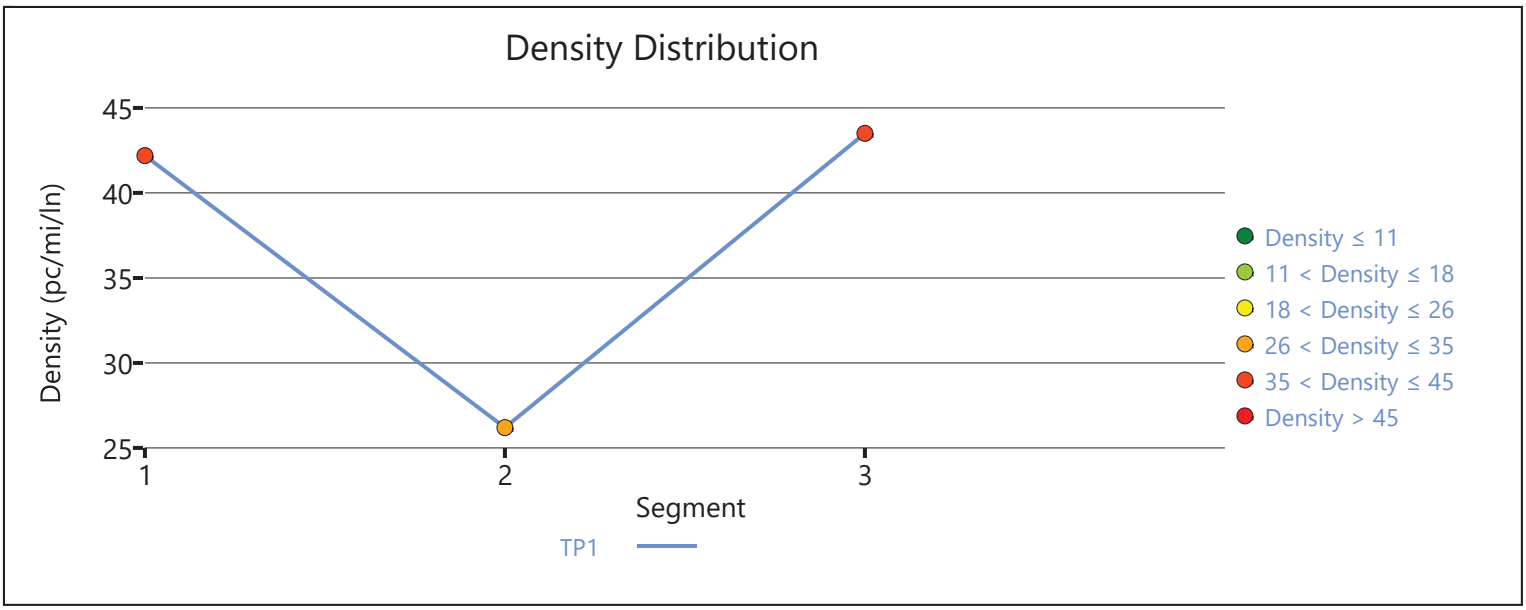
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	56.3	40.1	38.6	2.0	E

Facility Overall Results

Space Mean Speed, mi/h	56.3	Density, veh/mi/ln	38.6
Average Travel Time, min	2.0	Density, pc/mi/ln	40.1







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.935	4584	7146	0.64	67.4	22.7	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.935	0.862	4584	1311	7200	2100	0.64	0.62	62.6	58.4	24.4	30.7	D

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	3250	7146	0.45	68.2	15.9	B

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.935	3789	539	7200	1900	0.53	0.28	62.6	60.4	20.2	21.4	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	3804	7146	0.53	68.2	18.6	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.971	4563	759	7200	2100	0.63	0.36	61.8	59.8	24.6	26.1	C

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	4528	7146	0.63	67.5	22.4	C

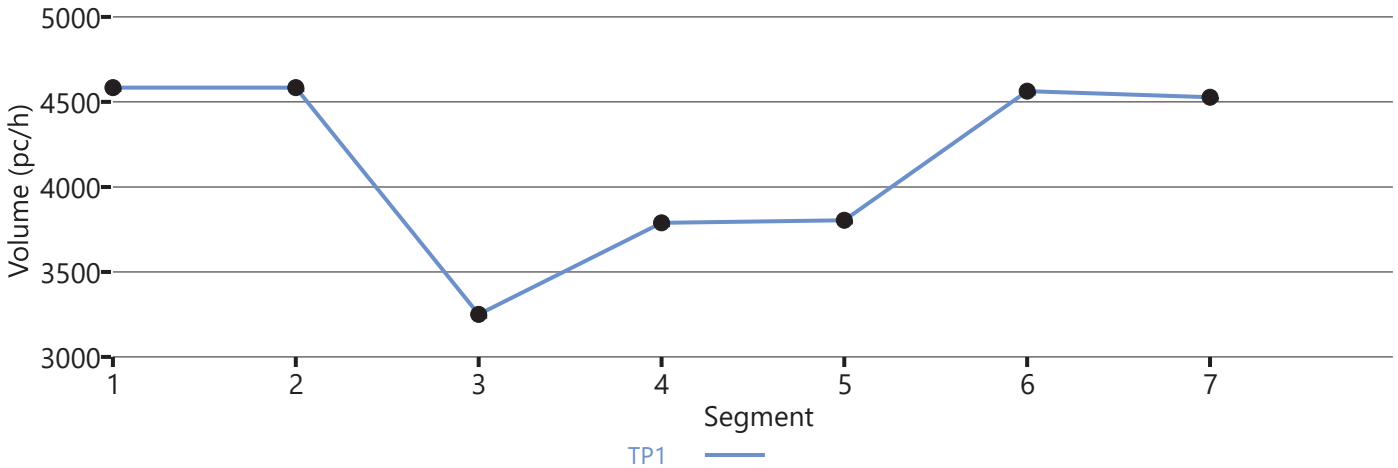
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	66.7	22.2	21.3	5.0	C

Facility Overall Results

Space Mean Speed, mi/h	66.7	Density, veh/mi/ln	21.3
Average Travel Time, min	5.0	Density, pc/mi/ln	22.2

Volume Distribution



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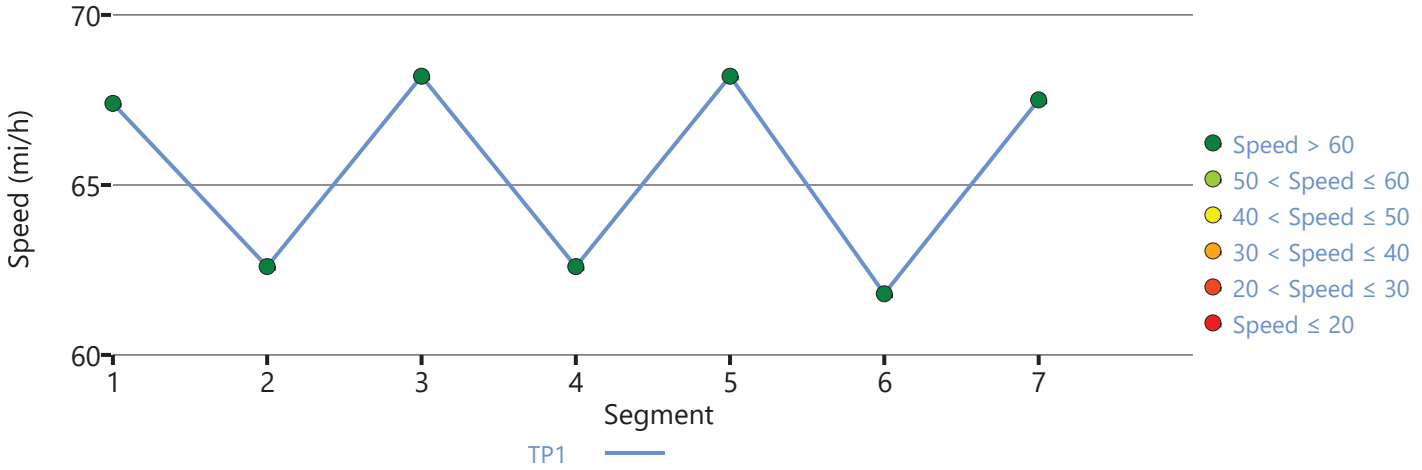

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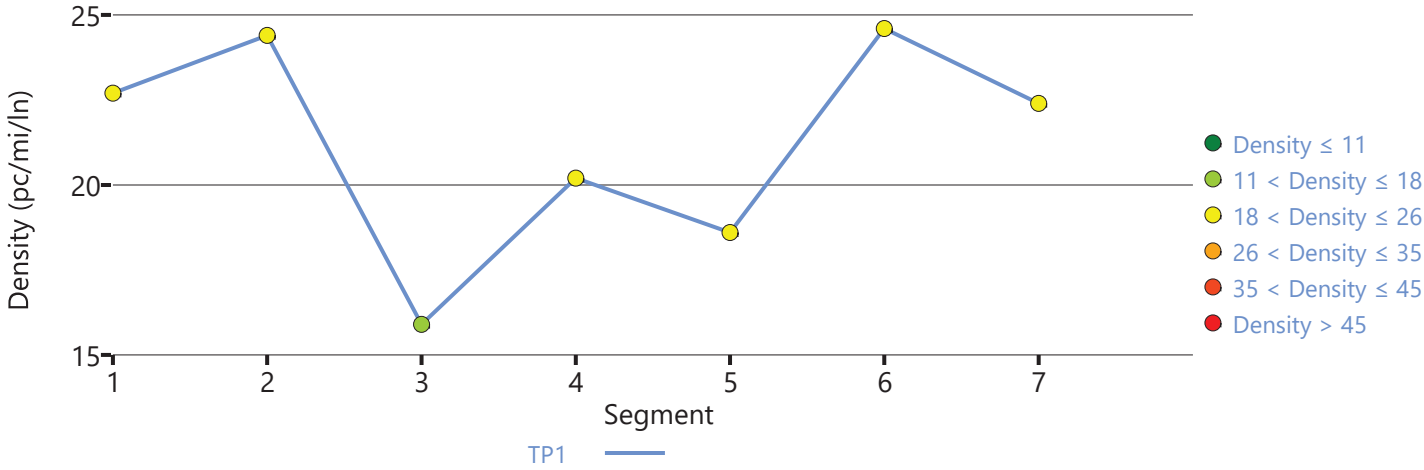

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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	AM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	6884	9572	0.72	66.4	25.9	C

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.926	0.877	6884	1850	9600	2100	0.72	0.88	63.3	57.0	27.2	33.8	D

Segment 3: Basic

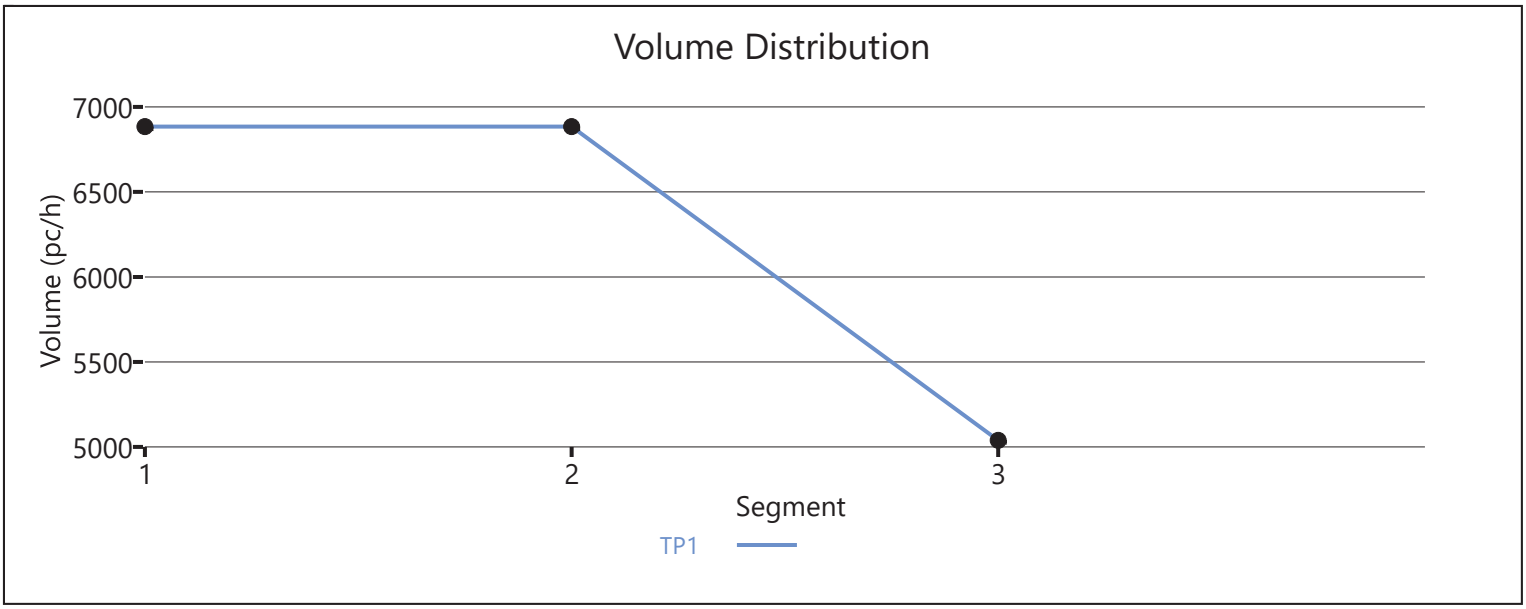
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	5039	9572	0.53	69.3	18.2	C

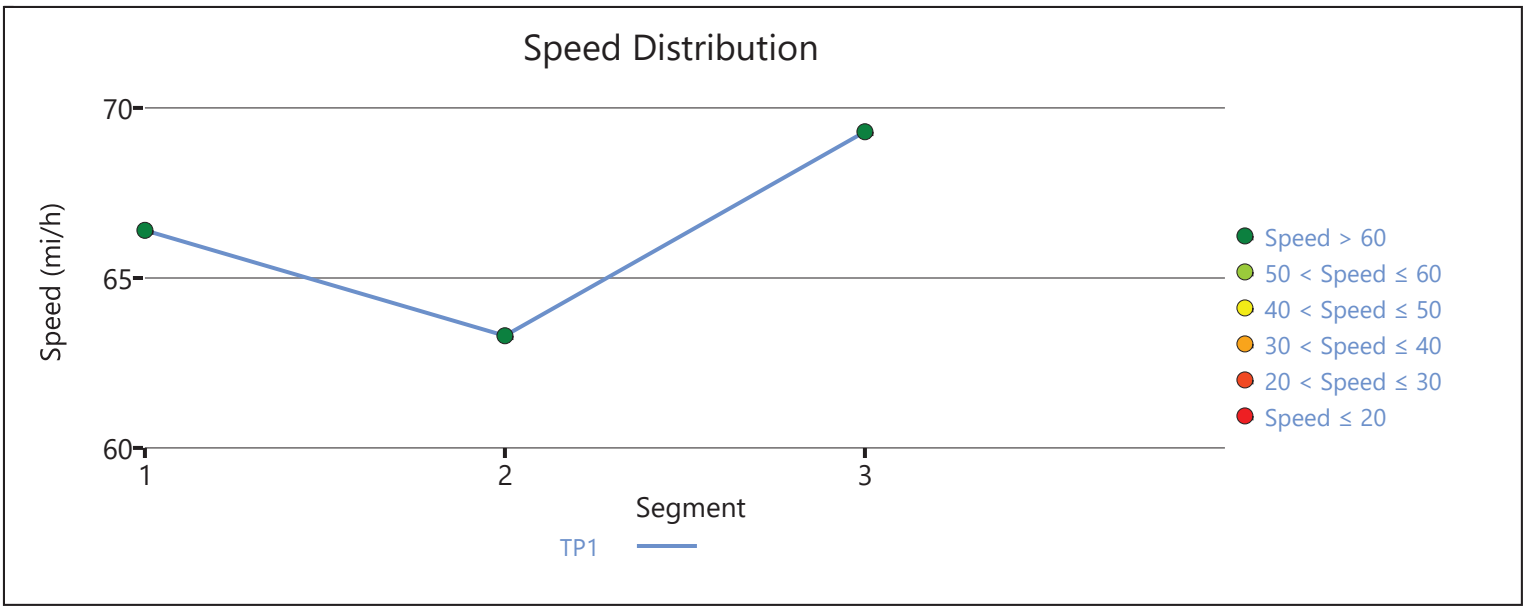
Facility Time Period Results

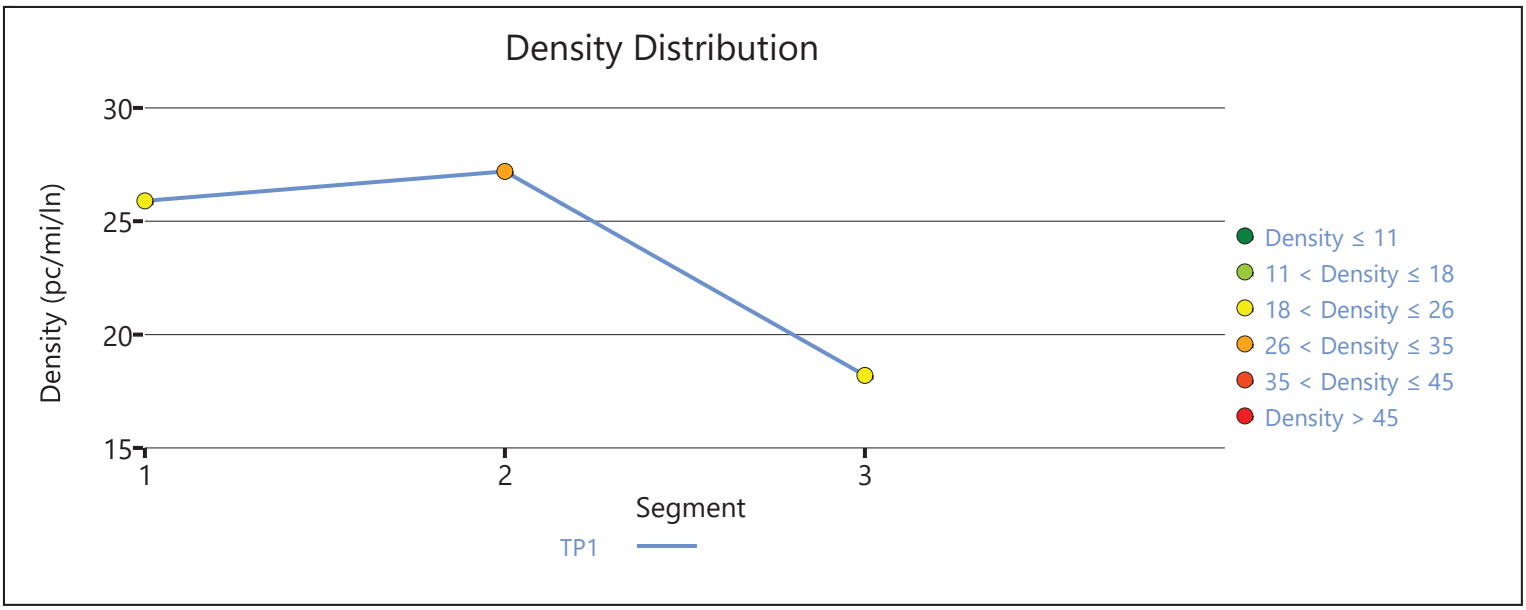
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	67.4	21.1	19.8	1.7	C

Facility Overall Results

Space Mean Speed, mi/h	67.4	Density, veh/mi/ln	19.8
Average Travel Time, min	1.7	Density, pc/mi/ln	21.1







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 SB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 SB, North of Main St.	16360	3
2	Diverge	Diverge	I-15 SB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 SB, Between Off and Loop On-Ramp	975	3
4	Merge	Merge	I-15 SB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 SB, Between Loop On-Ramp and On-Ramp	1415	3
6	Merge	Merge	I-15 SB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 SB, South of Main St.	5900	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	5867	7146	0.82	62.4	31.3	D

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.952	0.962	5867	1436	7200	2100	0.81	0.68	62.4	58.0	31.3	36.5	E

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	4416	7146	0.62	67.7	21.7	C

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.952	0.917	4695	279	7200	1900	0.65	0.15	61.7	59.6	25.4	25.6	C

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.952	4685	7146	0.66	67.2	23.2	C

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	1.00	1.00	0.952	0.775	5214	529	7200	2100	0.72	0.25	61.2	59.3	28.4	27.9	C

Segment 7: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	1.00	0.935	5209	7146	0.73	65.5	26.5	D

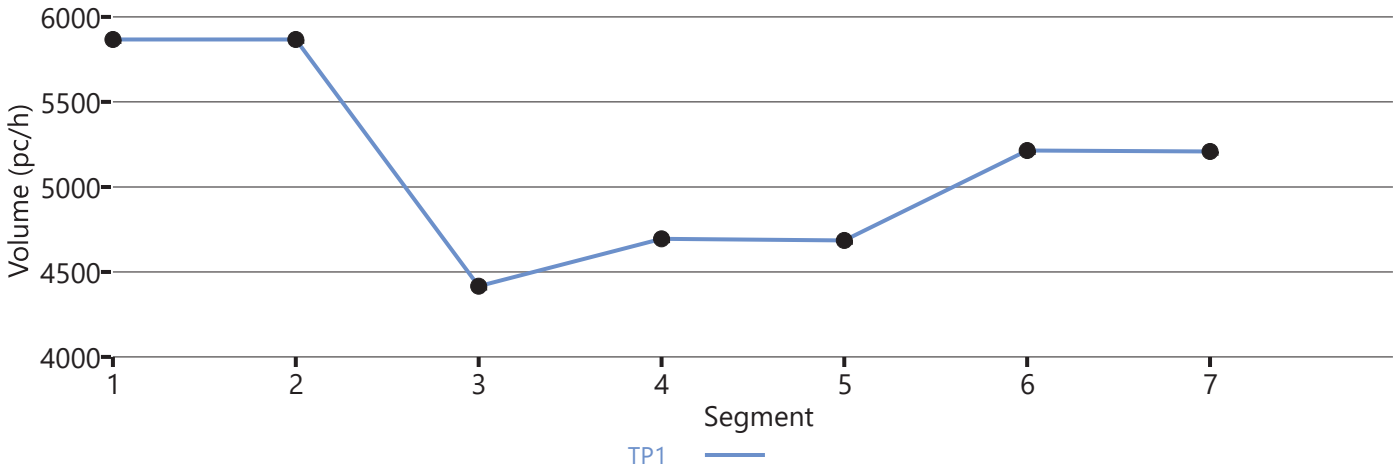
Facility Time Period Results

T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	63.2	29.2	27.7	5.2	D

Facility Overall Results

Space Mean Speed, mi/h	63.2	Density, veh/mi/ln	27.7
Average Travel Time, min	5.2	Density, pc/mi/ln	29.2

Volume Distribution



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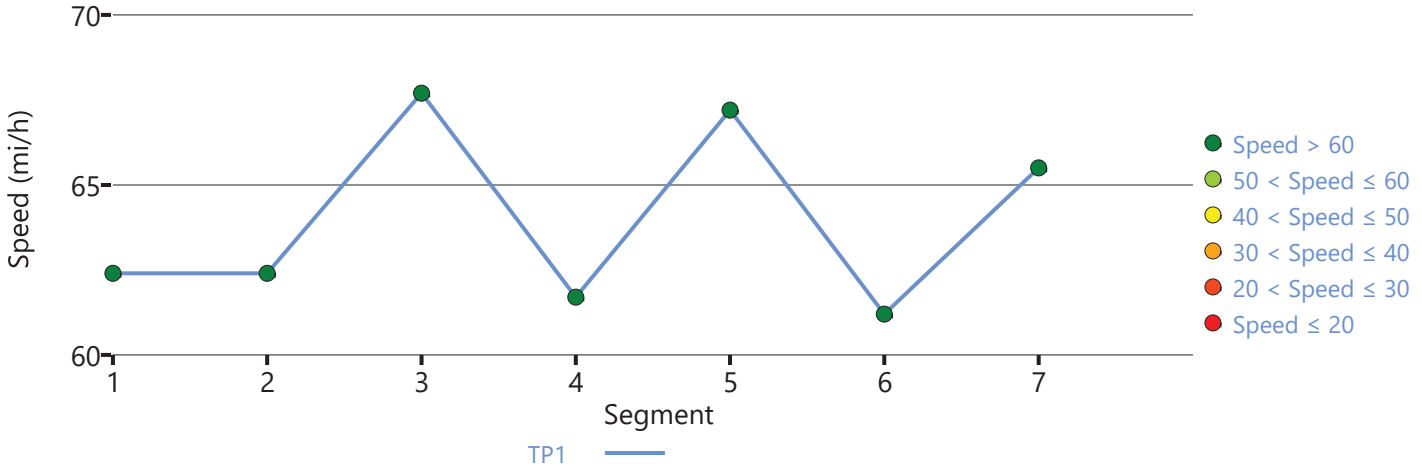
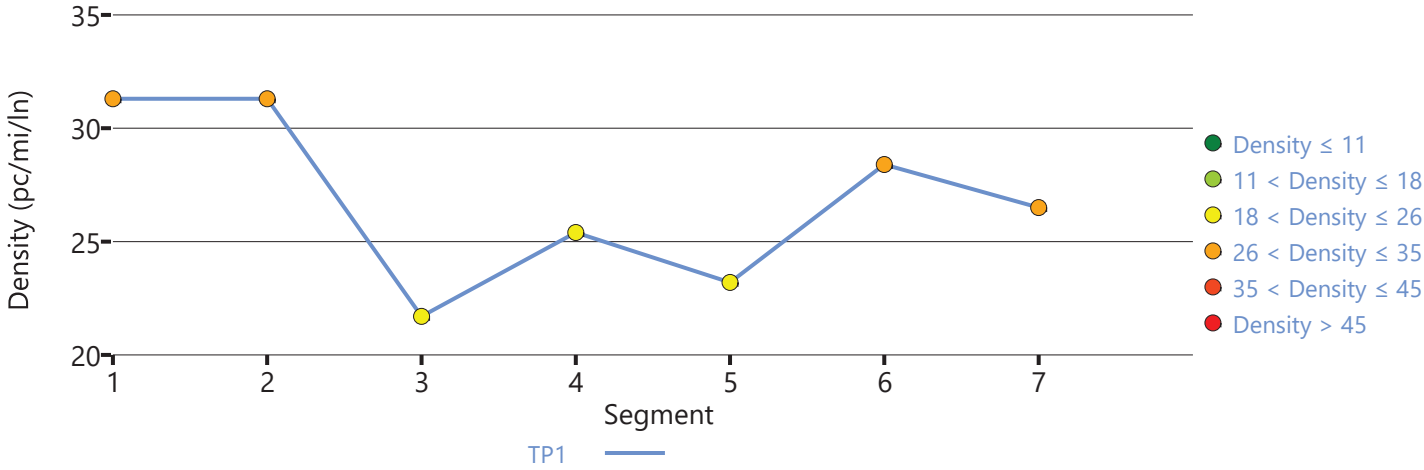


Density Distribution



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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 Southbound at US Highway 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	North of US 395	4200	3
2	Merge	Basic	On-Ramp at US 395	1500	4
3	Basic	Basic	South of US 395	4200	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.943	6462	7179	0.90	59.1	36.4	E

Segment 2: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.943	0.885	8447	1985	9600	2100	0.67	0.95	68.0	-	23.8	-	C

Segment 3: Basic

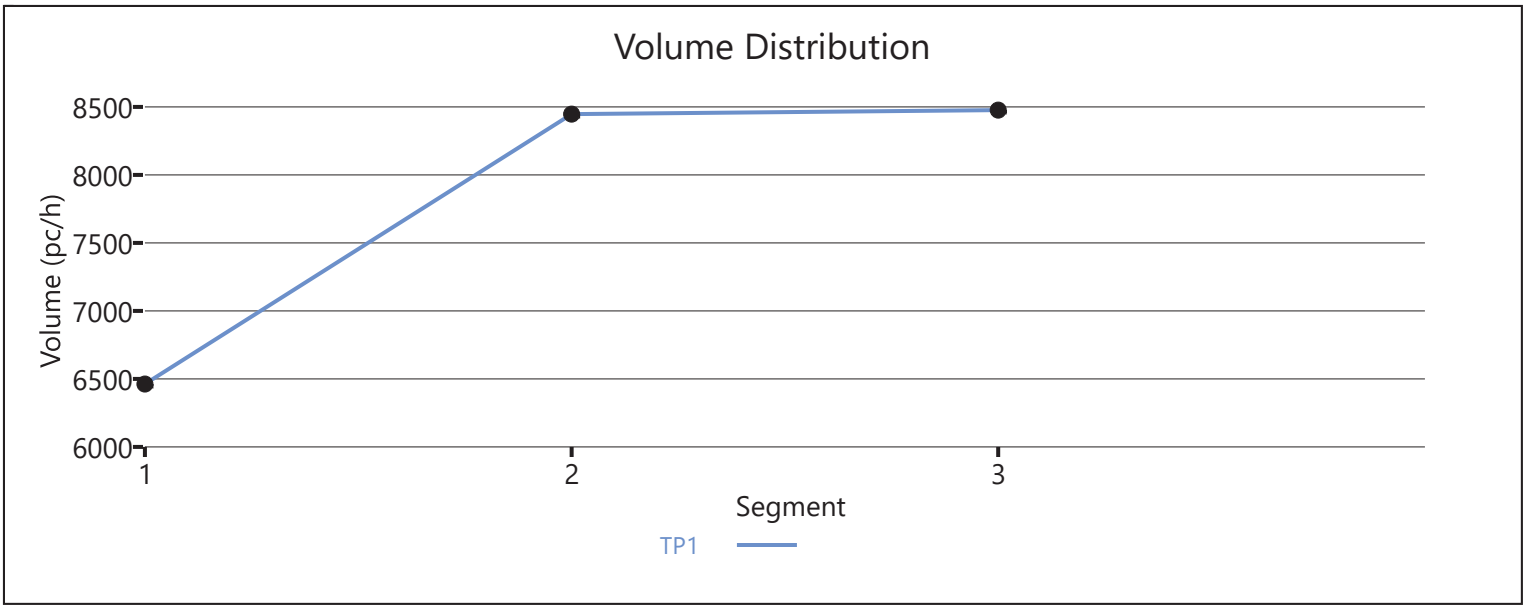
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.926	8477	9572	0.89	59.9	35.4	E

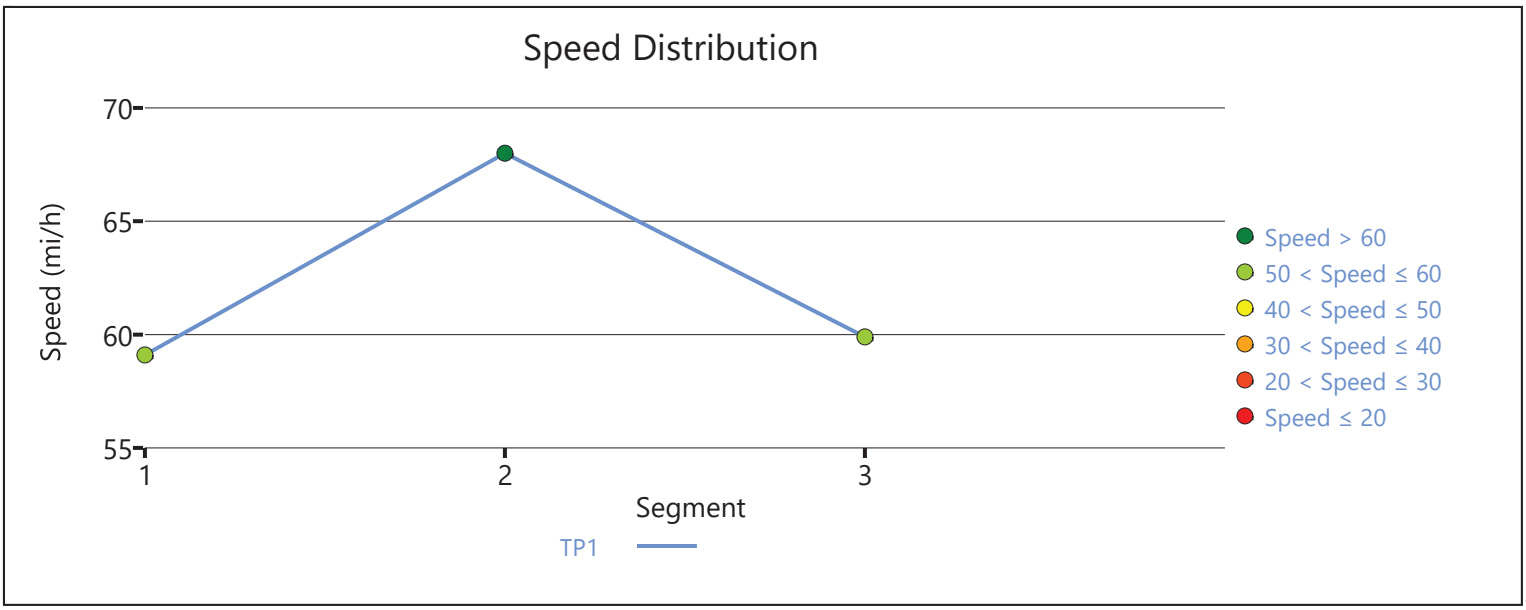
Facility Time Period Results

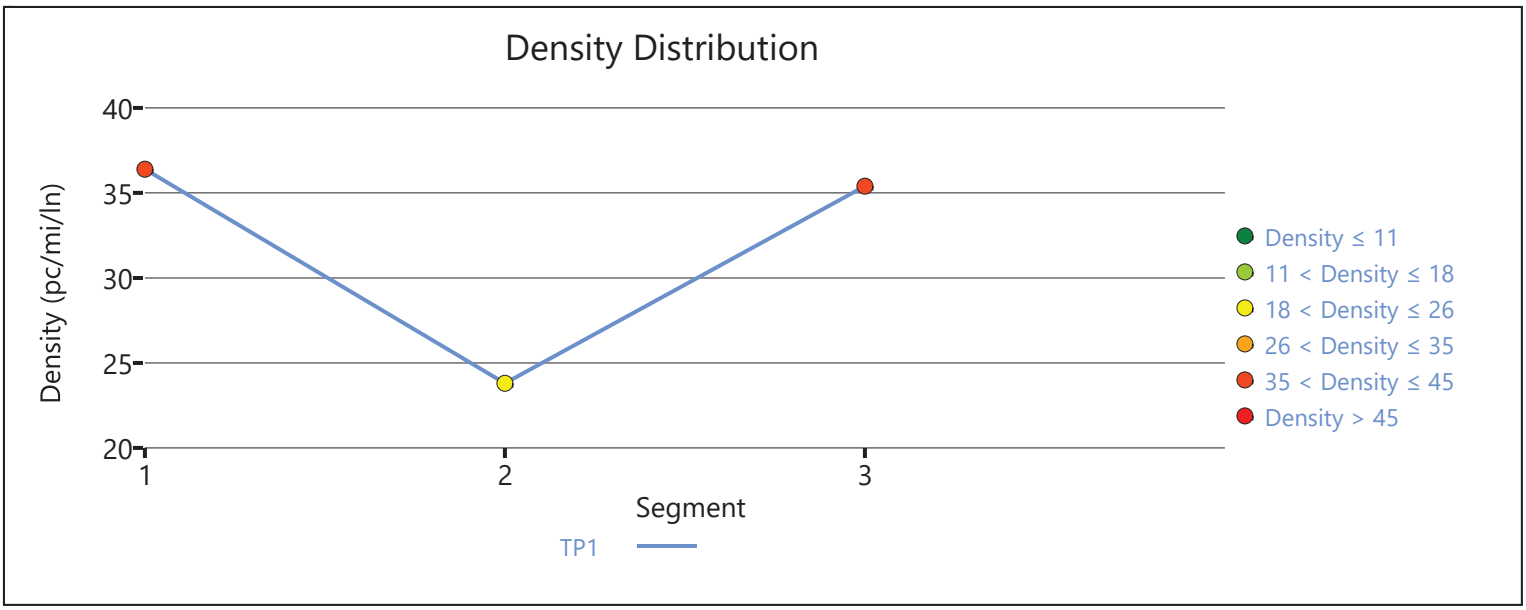
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	60.8	33.8	31.6	1.8	D

Facility Overall Results

Space Mean Speed, mi/h	60.8	Density, veh/mi/ln	31.6
Average Travel Time, min	1.8	Density, pc/mi/ln	33.8







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) Without Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN 12778) - I-15 NB at Main		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	I-15 NB, South of Main St.	6140	3
2	Diverge	Diverge	I-15 NB, Off-Ramp at Main St.	1500	3
3	Basic	Basic	I-15 NB, Between Off-Ramp and Loop On-Ramp	1125	3
4	Merge	Merge	I-15 NB, Loop On-Ramp at Main St.	1500	3
5	Basic	Basic	I-15 NB, Between Loop On-Ramp and On-Ramp	1215	3
6	Merge	Merge	I-15 NB, On-Ramp at Main St.	1500	3
7	Basic	Basic	I-15 NB, North of Main St.	16370	3

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	7222	7146	1.01	52.9	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.926	7146	1751	7200	2100	1.00	0.83	61.5	57.2	38.7	41.3	F

Segment 3: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.971	5395	7146	0.77	65.9	27.3	D

Segment 4: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.971	0.862	6165	770	7200	1900	0.87	0.41	58.6	56.0	35.1	33.0	D

Segment 5: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6165	7146	0.87	61.5	33.4	D

Segment 6: Merge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.962	0.962	6798	633	7200	2100	0.95	0.30	57.0	54.3	39.8	36.0	E

Segment 7: Basic

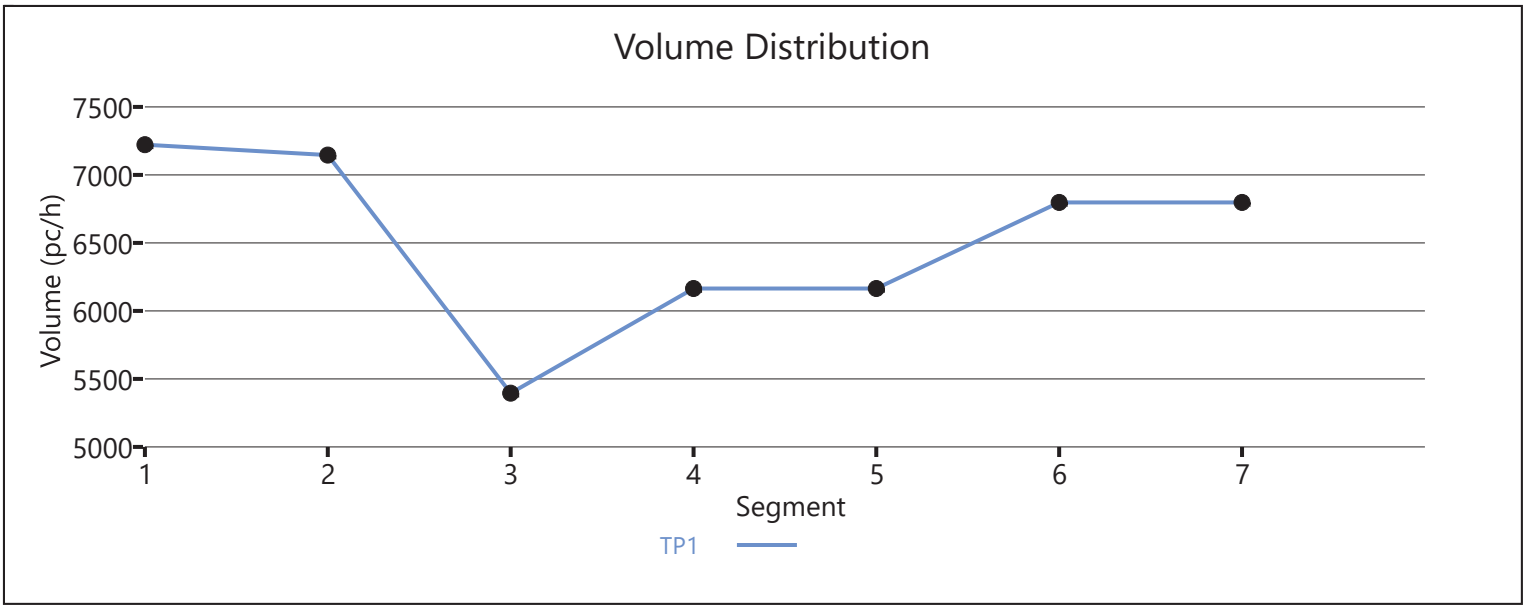
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	6798	7146	0.96	56.8	39.9	E

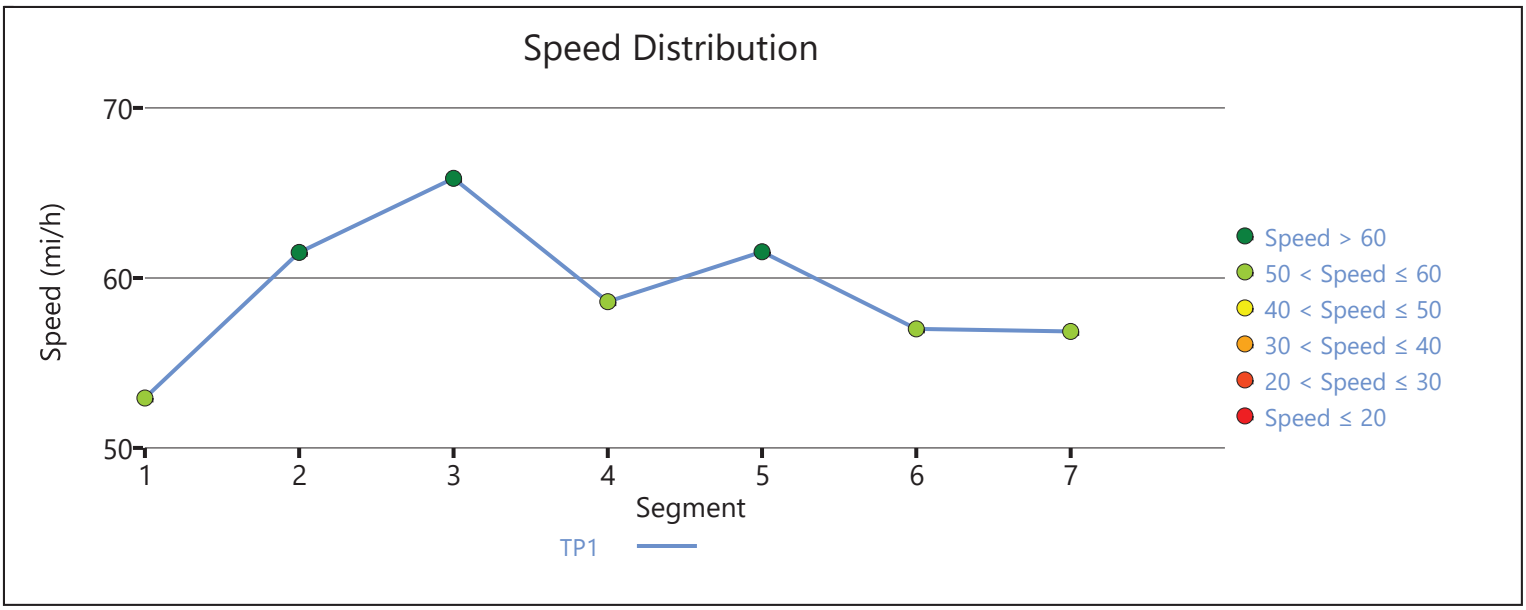
Facility Time Period Results

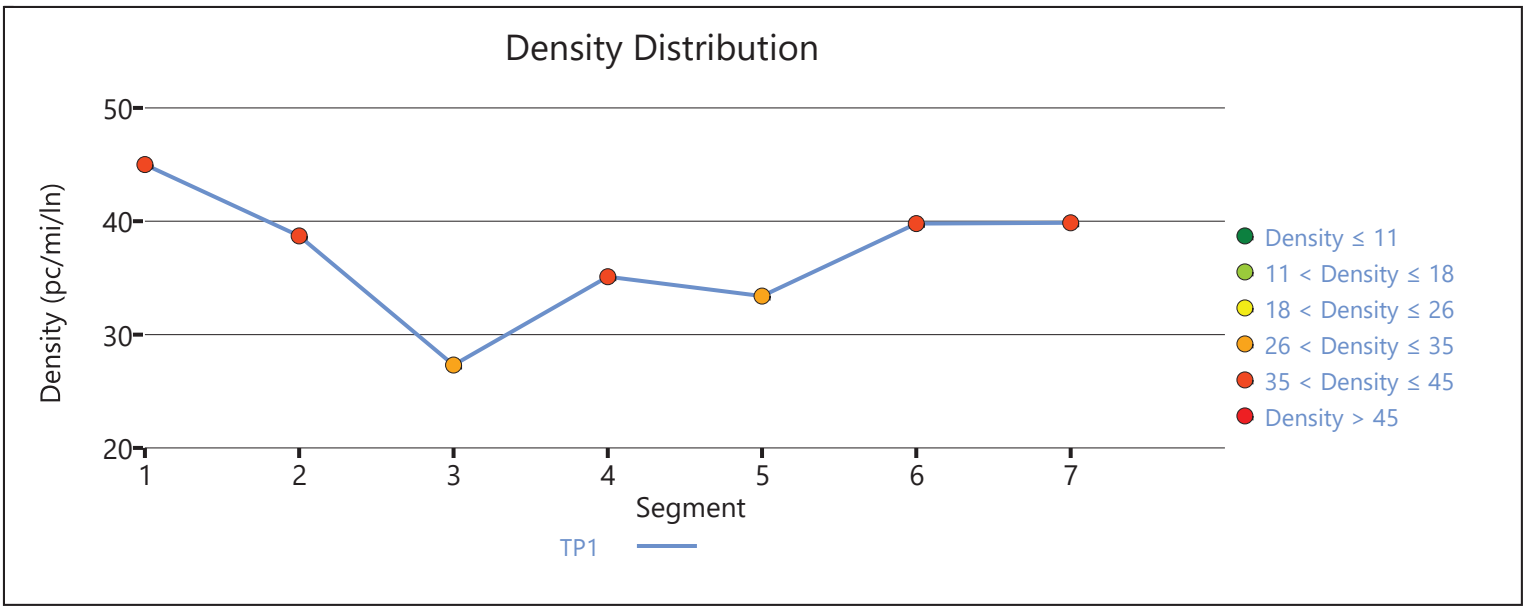
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	56.9	39.7	38.2	5.9	F

Facility Overall Results

Space Mean Speed, mi/h	56.9	Density, veh/mi/ln	38.2
Average Travel Time, min	5.9	Density, pc/mi/ln	39.7







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HCS7 Freeway Facilities Report

Project Information

Analyst	JB	Date	6/30/2020
Agency	Urban Crossroads, Inc.	Analysis Year	Horizon Year (2040) With Project With Improvements
Jurisdiction	Caltrans	Time Period Analyzed	PM Peak Hour
Project Description	Hesperia Commerce Center II (JN:12778) - I-15 NB at US 395		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	3
Total Time Periods	1	Time Period Duration, min	15

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	South of US 395	2000	4
2	Diverge	Diverge	Off-Ramp at US 395	1500	4
3	Basic	Basic	North of US 395	6350	4

Facility Segment Data

Segment 1: Basic

Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.952	10240	9572	1.07	53.2	45.0	F

Segment 2: Diverge

Time Period	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R	Freeway	Ramp	
1	0.92	0.92	0.952	0.901	9572	2389	9600	2100	1.07	1.14	53.3	55.6	45.0	46.5	F

Segment 3: Basic

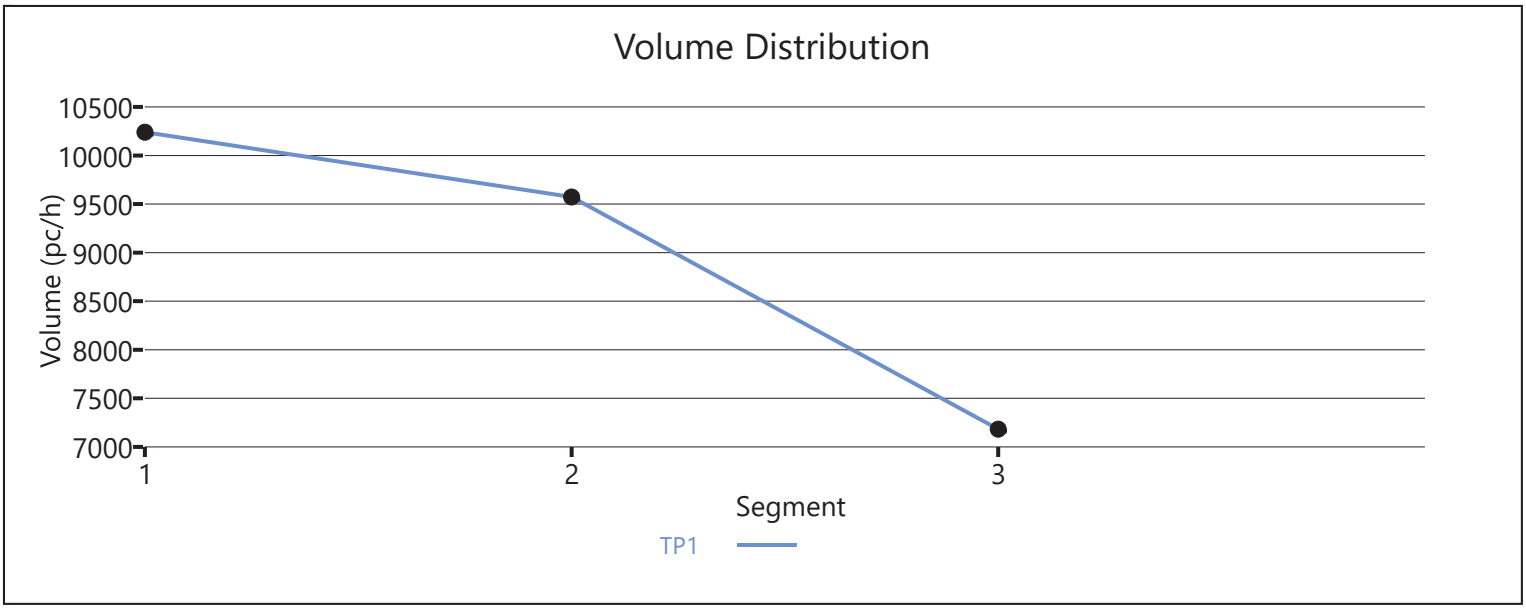
Time Period	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.92	0.962	7183	9572	0.83	65.9	27.3	D

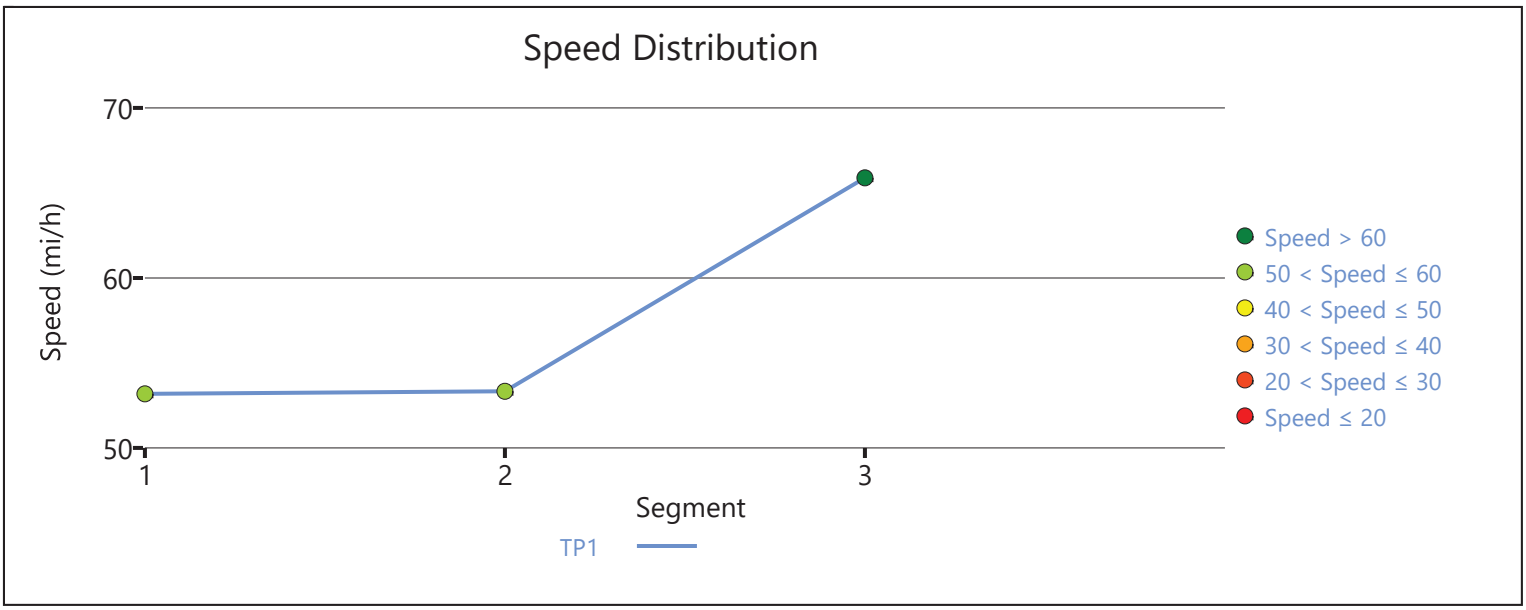
Facility Time Period Results

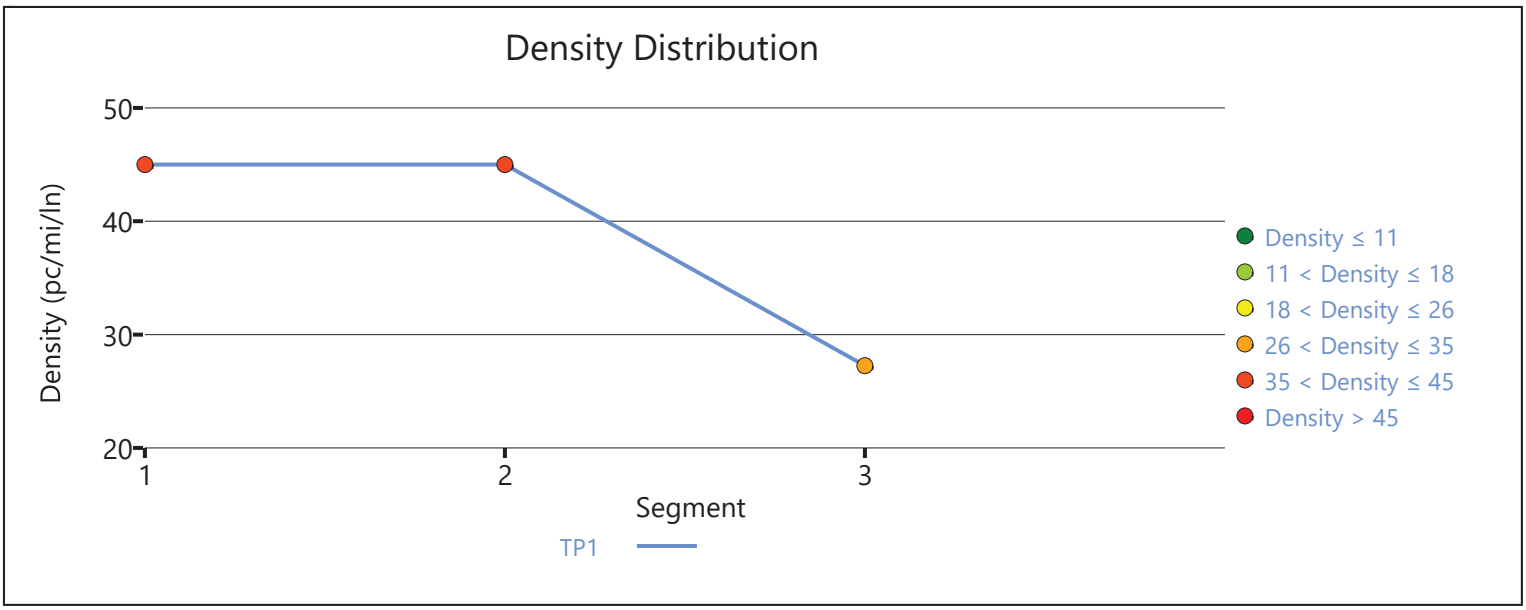
T	Speed, mi/h	Density, pc/mi/ln	Density, veh/mi/ln	Travel Time, min	LOS
1	60.0	33.5	32.1	1.9	F

Facility Overall Results

Space Mean Speed, mi/h	60.0	Density, veh/mi/ln	32.1
Average Travel Time, min	1.9	Density, pc/mi/ln	33.5







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Appendix K-2

Vehicle Miles Traveled Analysis

URBAN CROSSROADS

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

July 3, 2020

Mr. Collin Ramsey
Dudek
27372 Calle Arroyo
San Juan Capistrano, CA 92675

SUBJECT: HESPERIA COMMERCE CENTER II VEHICLE MILES TRAVELED (VMT) ANALYSIS

Dear Mr. Collin Ramsey:

The following VMT Analysis has been prepared for the proposed Hesperia Commerce Center II (Project), which is located north of Phelan Road and west of US Highway 395, in the City of Hesperia. US Highway 395 is located approximately 0.2 miles east of the Project site via Phelan Road.

PROJECT OVERVIEW

The proposed Project consist of the development of 3,745,429 square feet of high-cube fulfillment center warehouse and general light industrial use. Trips generated by the Project's proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (1) The proposed Project is anticipated to generate a total of 11,898 vehicle trip-ends per day. The site is currently designated as a Commercial/Industrial Business Park in the City of Hesperia General Plan.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate takes effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December of 2018) (**Technical Advisory**). (2) The San Bernardino County Transportation Authority (SBCTA) is currently conducting a multi-jurisdictional study to develop a set of procedures and provide local jurisdictions with sufficient information to adopt VMT baselines and thresholds of significance at or around the July 2020 required implementation date. In February 2020, the San Bernardino County Transportation Authority released the SBCTA Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (**SBCTA Guidelines**) that address both traditional automobile delay-based level of service (LOS) and new VMT analysis requirements. (3)

PROJECT SCREENING

The SBCTA Guidelines provides details on appropriate "screening thresholds" that can be used to identify when a proposed land use project is anticipated to result in a less-than-significant impact without conducting a more detailed analysis. Screening thresholds are broken into the following four types:

- Project Type Screening
- Map Based Screening based on Low VMT Area
- Transit Priority Area (TPA) Screening

A land use project need only to meet one of the above screening thresholds to result in a less-than-significant impact.

PROJECT TYPE SCREENING

The SBCTA Guidelines identifies projects that are consistent with the current Sustainable Communities Strategy (SCS) or general plan, and that generate fewer than 110 daily vehicle trips be presumed to have a less-than-significant impact on VMT. Based on information contained in the Project's traffic study (4), the Project would generate more than 110 daily vehicle trips and would not be eligible to screen out based on project type screening.

The Project Type screening threshold is not met.

LOW VMT AREA SCREENING

As noted in the Technical Advisory and SBCTA Guidelines, residential and office projects that locate in areas with low VMT and that incorporate similar features (density, mix of uses, and transit accessibility) will tend to exhibit similarly low VMT. The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ's) within the region. The Project's physical location based on parcel number was input into the Screening Tool to determine the TAZ's VMT as compared to the County average. A parcel within the proposed Project was selected and the Screening Tool was run for VMT per service population (i.e., population and employment) measure of VMT. Based on the Screening Tool results (see Attachment A), the Project is partially located within what appears to be a low VMT generating TAZ. However, further review of the TAZ (53908102) indicates that the socio-economic data within the zone contains no employment or population and review of adjacent TAZ's that contain small amounts of employment and population generate VMT levels that exceed the County's current average. SBCTA Guidelines note that to qualify the project land use must be consistent with the existing land use in the low VMT generating TAZ. As the existing TAZ contains no employment use, the Project would not qualify as residing in a low VMT area.

The Low VMT Area screening threshold is not met.

TPA SCREENING

Consistent with guidance identified in the Technical Advisory and SBCTA Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the Screening Tool results presented in Attachment B, the Project site is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

The TPA screening threshold is not met.

VMT ANALYSIS METHODOLOGY

Through consultation with City of Hesperia staff, it is our understanding that the City of Hesperia has yet to adopt its own VMT analysis guidelines and thresholds. City staff have recommended the VMT threshold of better than existing regional VMT until the City of Hesperia adopts its own guidelines and thresholds.

PROJECT VMT

The San Bernardino Transportation Analysis Model (SBTAM) is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households, and employment. The SBCTA Guidelines identifies SBTAM as the appropriate tool for conducting VMT analysis for land use projects in San Bernardino County.

Project VMT has been calculated using the most current version of SBTAM. Adjustments in socio-economic data (SED) (i.e., employment) have been made to a traffic analysis zone (TAZ) within the SBTAM model to reflect the Project's proposed land uses (i.e., warehouse). Table 1 summarizes the

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

employment estimates for the Project. It should be noted that the employment estimates are consistent with the employment density factors identified in the Southern California Association of Governments (SCAG) Employment Density Study (October 2001). (5)

TABLE 1: EMPLOYMENT ESTIMATES

Land Use	Quantity (in square feet)	Employment Density Factor[3]	Estimated Employees
Warehouse	3,745,429	1 employee per 1,195 SF	3,134

Adjustments to employment factors for the Project TAZ were made to both the SBTAM base year model (2012) and the cumulative year model (2040). Project VMT was then calculated for both the base year model (2012) and cumulative year model (2040) and linear interpolation was used to determine the Project's baseline (2020) VMT. The VMT is then normalized by dividing by the Project's service population (SP) (e.g., employees). As shown in Table 2, the Project baseline (2020) VMT per SP is 39.25.

TABLE 2: PROJECT VMT PER SP

	Baseline 2020
Employment	3,134
VMT	123,022
VMT / SP[4]	39.25

SAN BERNARDINO COUNTY VMT

SBCTA provides VMT calculations for each of its member agencies and for the County of San Bernardino region. Urban Crossroads has obtained this data from SBCTA which identifies that the existing San Bernardino County VMT per SP for is 32.66.

PROJECT LEVEL VMT ASSESSMENT

Table 3 illustrates the comparison between Project generated VMT per SP to the baseline (2016) regional (San Bernardino County) VMT per SP, which was derived from the SBTAM base year model by SBCTA and their consultant. As shown, the Project would exceed the current threshold of the baseline County of San Bernardino VMT per SP. The Project VMT impact is therefore considered potentially significant.

[3] Table II-B of the SCAG Employment Density Study.
[4] Since the Project does not have a residential component, the service population consists entirely of employment.

TABLE 3: PROJECT VMT PER SP COMPARISON

	Baseline (2020) VMT/SP
Project	39.25
San Bernardino County Regional Baseline (2016)	32.66
Percent Change	+18.58%
Below the Regional Baseline?	No

PROJECT'S POTENTIAL CUMULATIVE IMPACT ON VMT

The Technical Advisory states the following, "a project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts, and impacts that utilize plan compliance as a threshold of significance."[5] Therefore, the Project's finding related to cumulative impacts is considered potentially significant.

VMT REDUCTION STRATEGIES

Transportation demand management (TDM) strategies have been evaluated for reducing VMT impacts determined to be potentially significant. The effectiveness of TDM strategies to reduce VMT has been determined based on the SB 743 Implementation TDM Strategy Assessment (November 11, 2019, Fehr & Peers) prepared for SBCTA. The memo evaluated 50 transportation measures presented in the CAPCOA 2010 report *Quantifying Greenhouse Gas Mitigation Measures* and indicated 41 are applicable at building and site level. The remaining measures are functions of, or depend on, site location and/or actions by local and regional agencies or funders. Review of the 41 transportation measures identified by CAPCOA, indicates that only 7 of those measures may be effective at the project level, which is consistent with SBCTA findings. Evaluation of potentially applicable TDM strategies in the context of the Project were reviewed.

The effectiveness of the TDM measures would be dependent in part on final Project designs and tenant occupancies, which are unknown at this time. Beyond Project design and tenancy considerations, land use context is a major factor relevant to the potential application and effectiveness of TDM measures. More specifically, the land use context of the Project is characteristically suburban. Of itself, the Project's suburban context acts to reduce the range of feasible TDM measures and moderates their potential effectiveness.

Based on available research, for projects located within a suburban context, a maximum 10% reduction in VMT is achievable when combining multiple mitigation strategies. Furthermore, to even achieve a 10%

[5] Page 6 of the OPR's Technical Advisory.

reduction in VMT, a project would need to contain a diverse land use mix, workforce housing and project-specific transit options. Even under the most favorable circumstances, projects located within a suburban context, such as the proposed Project evaluated here, could realize a maximum 10 percent reduction in VMT through implementation of feasible TDM measures. For the Project considered here, this could result in reduction from 39.25 to 35.33 Total VMT per SP which would still exceed the regional threshold of 32.66 Total VMT per SP by 8.2%.

In summary, the Project's Total VMT per SP exceeds the regional (San Bernardino County) threshold of better than existing Total VMT per SP. Even with implementation of maximum feasible TDM measures, Project VMT cannot be reduced to levels that would be less-than-significant. However, the efficacy of TDM measures and reduction of VMT impacts below thresholds cannot be assured. The Project VMT impact is therefore considered ***significant and unavoidable.***

If you have any questions, please contact me directly at (949) 336-5978.

Respectfully submitted,

URBAN CROSSROADS, INC.





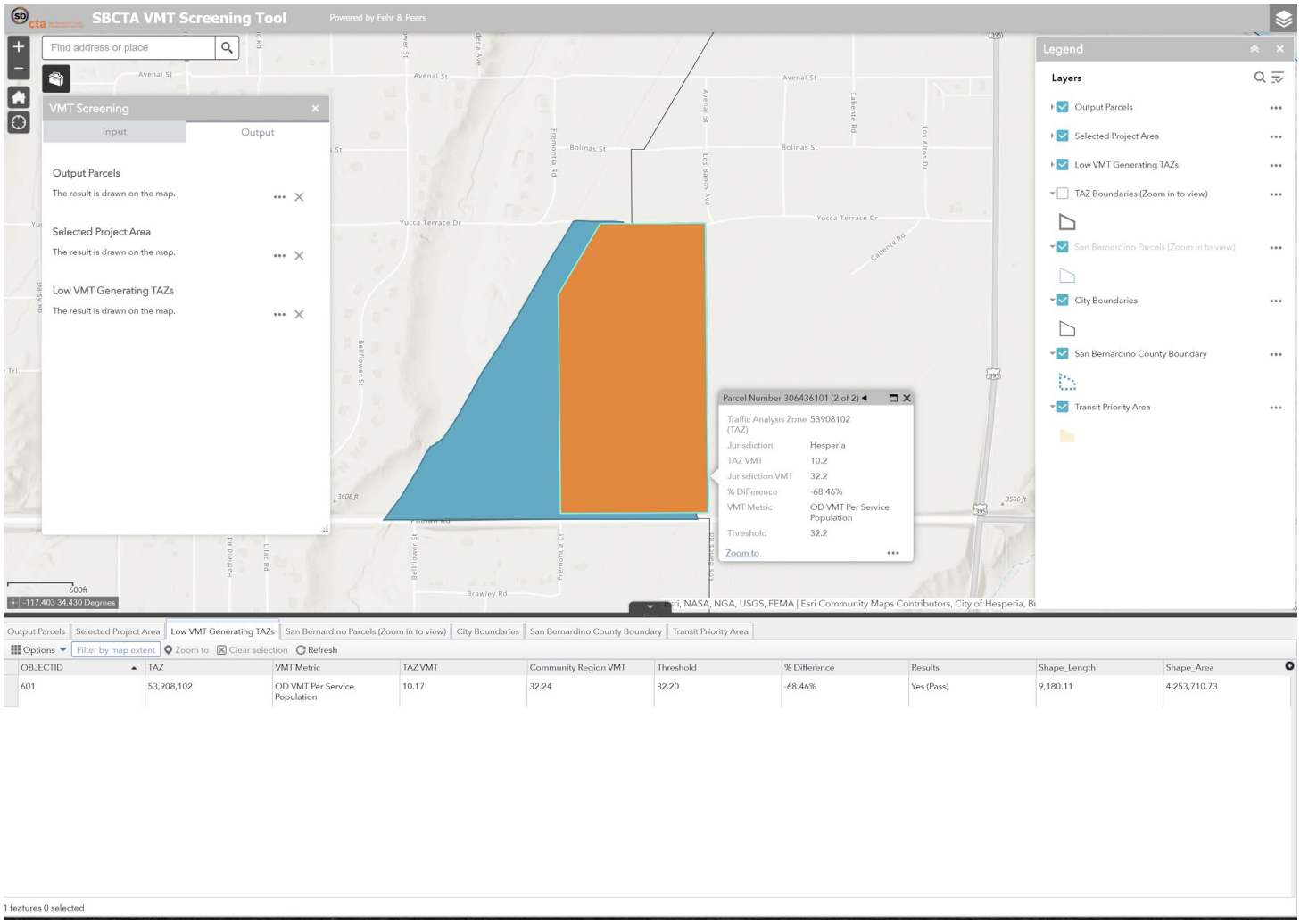
Aric Evatt, PTP
President

Robert Vu, PE
Transportation Engineer

REFERENCES

1. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
2. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
3. **San Bernardino County Transportation Authority (SBCTA).** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* February 2020.
4. **Urban Crossroads, Inc.** *Hesperia Commerce Center II.* June 2020.
5. **Southern California Association of Governments.** *Employment Density Study.* October 2001.

ATTACHMENT A


SBCTA VMT Screening Tool
Powered by Fehr & Peers
Find address or place
VMT Screening
Input
Output
Output Parcels
The result is drawn on the map.
Selected Project Area
The result is drawn on the map.
Low VMT Generating TAZs
The result is drawn on the map.
Legend
Layers
Output Parcels
Selected Project Area
Low VMT Generating TAZs
TAZ Boundaries (Zoom in to view)
San Bernardino Parcels (Zoom in to view)
City Boundaries
San Bernardino County Boundary
Transit Priority Area
Parcel Number 306436101 (2 of 2)
Traffic Analysis Zone (TAZ) 53908102
Jurisdiction Hesperia
TAZ VMT 10.2
Jurisdiction VMT 32.2
% Difference -68.46%
VMT Metric OD VMT Per Service Population
Threshold 32.2
Zoom to
Avenal St
Bolinas St
Yucca Terrace Dr
Fremontia Rd
Los Banos Ave
Los Altos Dr
Calliente Rd
Bellflower St
Hatfield Rd
Brawley Rd
600ft
-117.403 34.430 Degrees
Output Parcels
Selected Project Area
Low VMT Generating TAZs
San Bernardino Parcels (Zoom in to view)
City Boundaries
San Bernardino County Boundary
Transit Priority Area
Options
Filter by map extent
Zoom to
Clear selection
Refresh
OBJECTID
TAZ
VMT Metric
TAZ VMT
Community Region VMT
Threshold
% Difference
Results
Shape_Length
Shape_Area
601
53,908,102
OD VMT Per Service Population
10.17
32.24
32.20
-68.46%
Yes (Pass)
9,180.11
4,253,710.73
1 features 0 selected

Appendix L

Water Supply Assessment

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ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AFY	acre-feet per year
AWWA	American Water Works Association
cfs	cubic feet per second
EIR	Environmental Impact Report
GPCD	gallons per capita per day
gpd	gallons per day
GPM	Gallons Per Minute
HGL	Hydraulic Grade Line
HWL	High Water Level
SF	Square feet
MWA	Mojave Water Agency
Project	Hesperia Commerce Center II Project
SB	Senate Bill
SWP	State Water Project
UWMP	Urban Water Management Plan
WSA	Water Supply Assessment

Introduction

The information provided in the preparation of this Water Supply Assessment are mainly obtained from the review of the Hesperia Water District Urban Water Management Plan (2015), Hesperia Water District Water Master Plan (2015) and information obtained from the City of Hesperia, Planning Department, Engineering Department, and the GIS Department staff.

Water Code Section 10910:

The California Water Code section 10910 commonly known as Senate Bill (SB) 610 requires preparation of a Water Supply Assessment (WSA). As part of that assessment, the public water system shall indicate whether its total projected water supplies available during normal, single-dry, and multiple-dry water years included in the 20-year projection contained in the urban water management plan will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses.

Water Code Section 10913. Project:

Section 10913 of the Water Code defines a "Project" for which a WSA must be prepared as any of the following:

a) A proposed residential development of more than 500 dwelling units.

b) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

c) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

d) A proposed hotel or motel, or both, having more than 500 rooms.

e) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land or having more than 650,000 square feet of floor area.

f) A mixed-use project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling-unit project.

Project Name:

Hesperia Commerce Center II (HCCII)
In the City of Hesperia

Developer/Owner:

Covington Group
14180 Dallas Parkway
Dallas, TX. 75254

Project Architect:

HPA Architecture, Inc.
18831 Bardeen Ave. Suite #100
Irvine, CA. 92612

Project Civil Engineer:

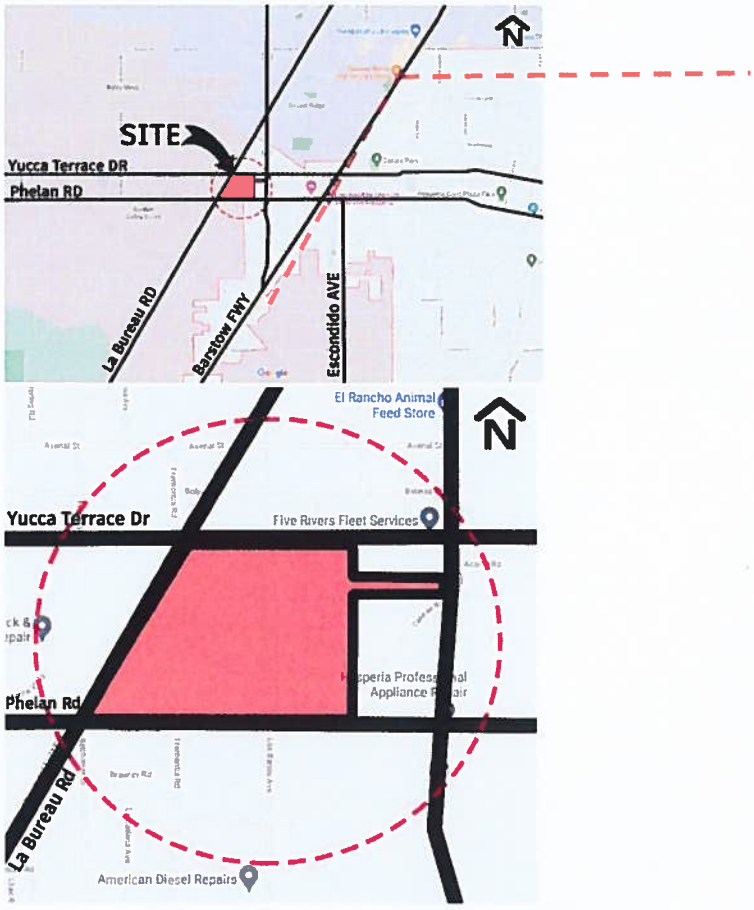
Westland Group
4150 Concourse, Suit 100
Ontario, CA. 91764

Project Description:

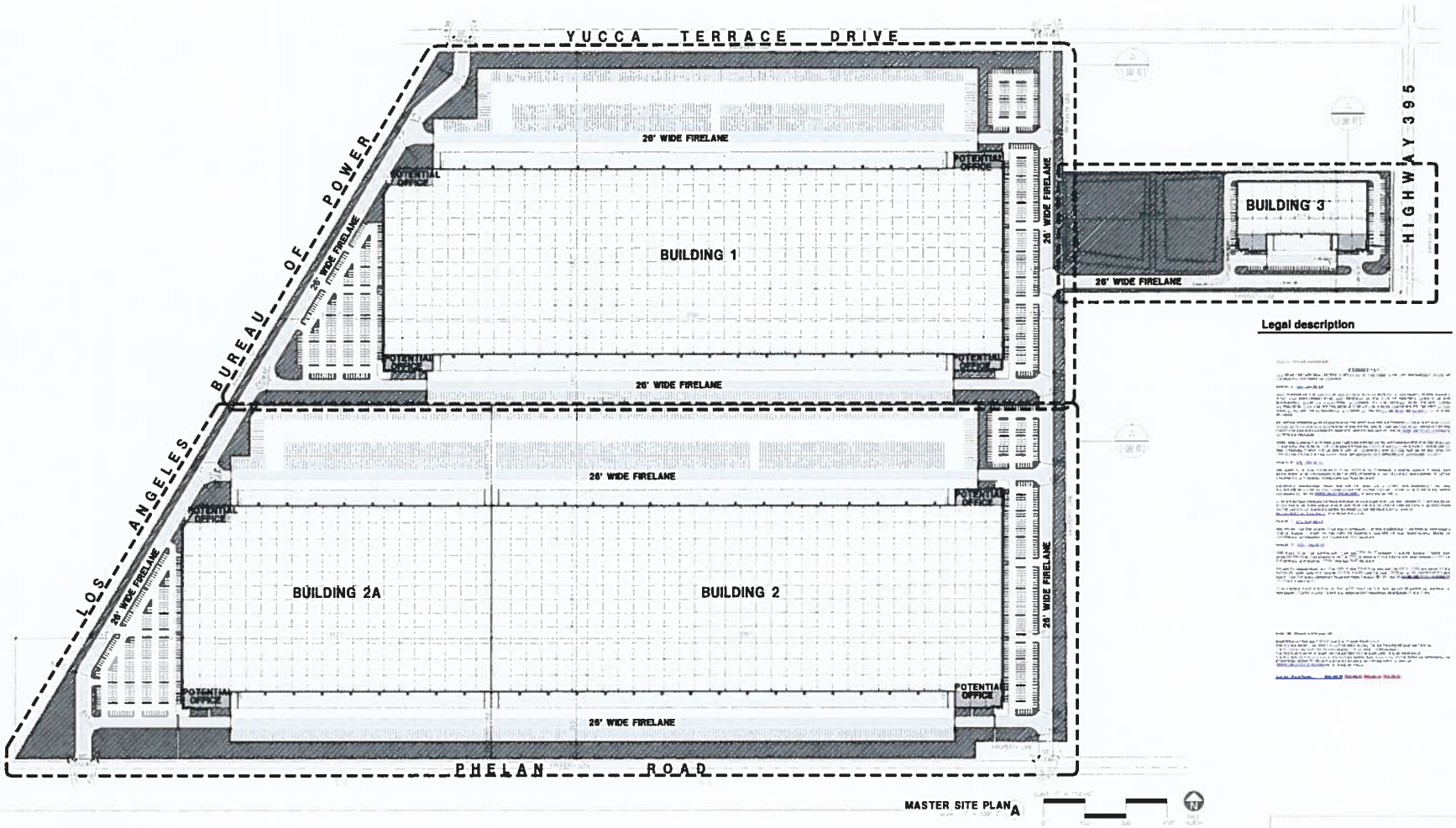
The Hesperia Commerce Center II is a project comprised of 4 warehouse buildings located south of Yucca Terrace, east of highway 395, and north of Phelan Road in the City of Hesperia. The City's zoning designation for this site is Commercial/Industrial Business Park.

Building 1:	APN # 306 458-101 is 1,547,317 S.F. of warehouse with 20,000 S.F. office
Building 2:	APN # 306-462-102 is 1,280,595 S.F. of warehouse with 10,000 S.F. office
Building 2A:	APN # 306-458-101 is 765,392 S.F. of warehouse with 10,000 S.F. office

Building 3: APN #306-460-107 is 103,125 S.F. of warehouse with 9,000 S.F. office



(fig.1) Project Site



MASTER SITE PLAN A

Property owner

Address of the property

Assessor's Parcel Number

Zoning

Applicant

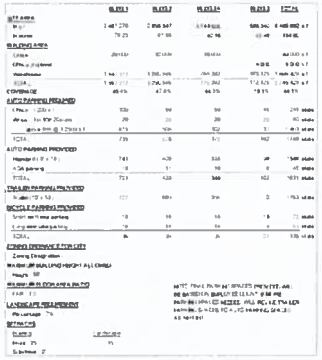
MCWHIRT PROPERTIES, INC.
(949) 514-4274
ATTN: DANA WHITMER

Applicant's respresentative

VICINITY MAP



PROJECT DATA



Legal description

OFFICIAL USE ONLY

HPA architecture
hpa, inc.
18831 bardeen avenue, ste. #100
irvine, ca
92612
tel: 949-863-1770
fax: 949-863-0851
email: hpa@hparchs.com

Owner:

COVINGTON group

Project:

HESPERIA COMMERCE CENTER II

Hesperia, CA

Consultants:

WESTLAND

Title: MASTER SITE PLAN

Project Number: 18005
Drawn by: S.L.M.
Date: 11/13/19
Revision:

Sheet:

DAB-A1.0

Water Purveyor (Hesperia Water District)

The original town site of Hesperia was laid out in 1891 as part of the U.S. and Santa Fe Railroad efforts. Water for the community was provided by Victor Valley County Water District (VVCWD) until 1975, when the Hesperia Water District was formed as a self-governed special district. The City of Hesperia was incorporated in 1988, and in 1992 the District was reorganized as a subsidiary special district of the City. The District operates as a self-sustaining utility business enterprise and the City Council serves as the District's Board of Directors.

The District is located in the High Desert region of San Bernardino County and is bordered by the town of Apple Valley to the northeast, the City of Victorville to the north, and the community of Phelan to the west.

The District's water service area matches the City's boundaries, with minor exceptions, and covers approximately 74 square miles (FIG. 2). The District provides domestic water from sixteen (16) active wells within this area. All wells are within Mojave River Ground Water Basin. Water is conveyed from the wells to the consumers via a distribution system with pipe sizes ranging from 4 and 24 inches in diameter. The District currently maintains 14 water storage reservoirs within the distribution system with a total capacity of nearly 200 AF, or 64 million gallons.

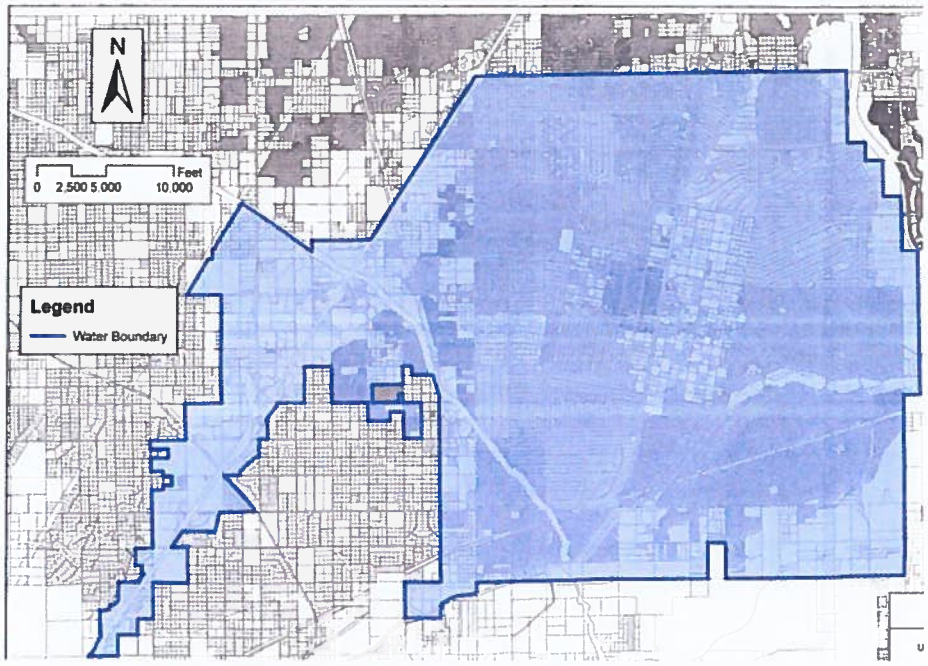


Fig 2. City of Hesperia Water Service Boundary

Current Water Demands:

In 2015, the District produced 12,688 AF of water into the Distribution system. The residential delivery of the metered potable water was 79% of all metered flow. Less than 5% of the total water production was not accounted for due to unmetered flow and/or water losses. Table 4-2 and 4-3 of the 2015 Urban Water Management Plan depict the water demands for different use. This table depicts that demand for the combined commercial and industrial developments were under 15% of the total water production. Such ratio signifies that the commercial and industrial development will continue to have a low impact on the water system except for the fire protection and or any new establishment requiring high levels of water usage (i.e. bottling, agrarian, meet processing, etc.).

Hesperia Water District
2015 Urban Water Management Plan

Table 4-2 Retail : Demands for Potable and Row Water					
Use Type	Additional Description	Project Water use			
		2020	2025	2030	2035
Single Family		11,339	12,225	13,342	14,511
Multi-Family		521	563	613	667
Commercial		1,309	1,496	1,717	1,955
Industrial		10	10	11	12
landscape		0	0	0	0
other		190	206	224	244
Losses	includes all unaccounted water and "apparent" losses	709	767	835	908
	Total	14,078	15,267	16,742	18,297
NOTES: The "losses" category includes actual apparent losses .including all unaccounted for water.					

Recycled water demands were also provided by MWA, and are estimated at 1000 AFY starting in 2020 and continuing through the planning horizon of 2035. Potable and recycled water demands are summarized in Table 4-3 below.

Table 4-3 Retail: Total Water Demands					
	2015	2020	2025	2030	2035
Potable and Raw Water	12,668	14,078	15,298	16,743	18,297
Recycled Water Demand	_	1,000	1,000	1,000	1,000
TOTAL WATER DEMAND	12,668	15,078	16,298	17,743	19,297
NOTES:					

Future Water Demands

Based on the population growth projections provided by Beacon Economics, Mojave Water Agency developed water demand projections by region as well as by purveyor service area, including Hesperia Water District. The MWA methodology utilized historical water production and population data (2010 through 2015)

to develop a trend in GPCD that was then applied to the beacon population growth. Using the past historical data MWA projected the water demand in 5- year increments by multiplying the average GPCD to the projected population provided by Beacon Economics. Base on the UWMP, The year 2015 shows the Daily Per Capita Water Use (GPCD) to be 123 gallons which is more a representative of average normal water demand after implementation of the water conservation programs. However, the Hesperia Water District's Water Master Plan suggest using a GPCD of 135 gallons.

Table1 of the 2015 Water Master Plan depicts the projected water demands through year 2040 .

Year	GPD	MGD	GPM
Existing	12,074,818	12.1	8,385
2020	14,543,100	14.5	10,099
2025	15,943,824	15.9	11,072
2030	17,498,988	17.5	12,152
2035	19,299,852	19.3	13,403
2040	21,432,996	21.4	14,884

Table 1, Water Demand Projection

Water Supplies:

The District has historically utilized ground water as its sole source of water supply, but has implemented and is implementing new projects to diversify its supplies including recycled water and imported State Water Project (SWP). The District pays for a portion of the ground water to the Mojave Basin Area Water master for replenishment of the Mojave water Basin. In 2013, the MWA, in partnership with retail water purveyors, completed the regional recharge and Recovery Project known as "R3" (See Figure 3). This project banks SWP in the Mojave River ground water basin and then later recovers and delivers the water, as a potable supply. The District has a direct connection to the R3 project.

Hesperia Water District
2015 Urban Water Management Plan

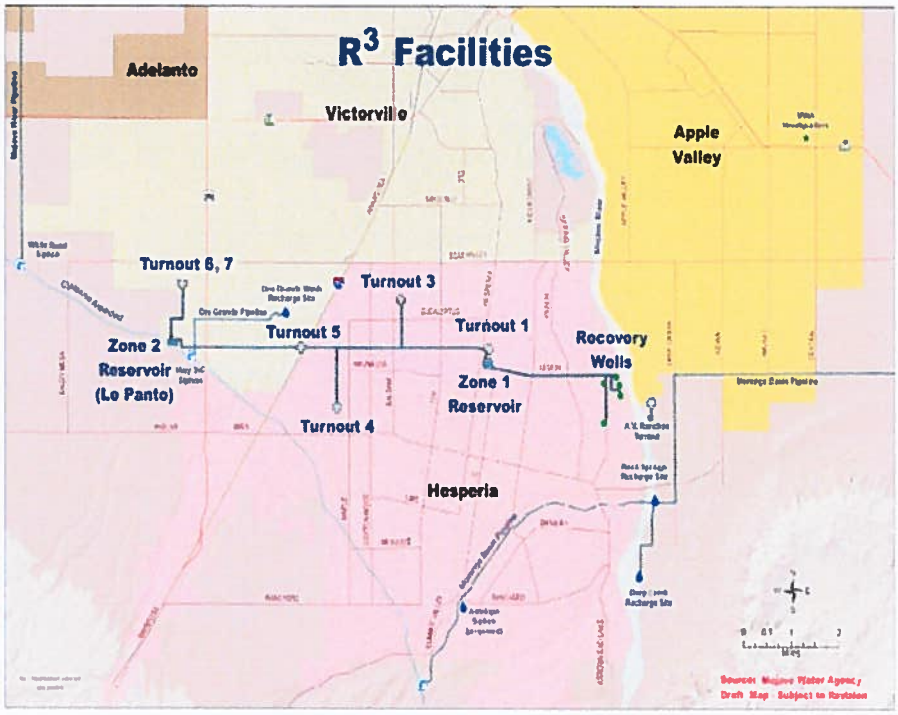


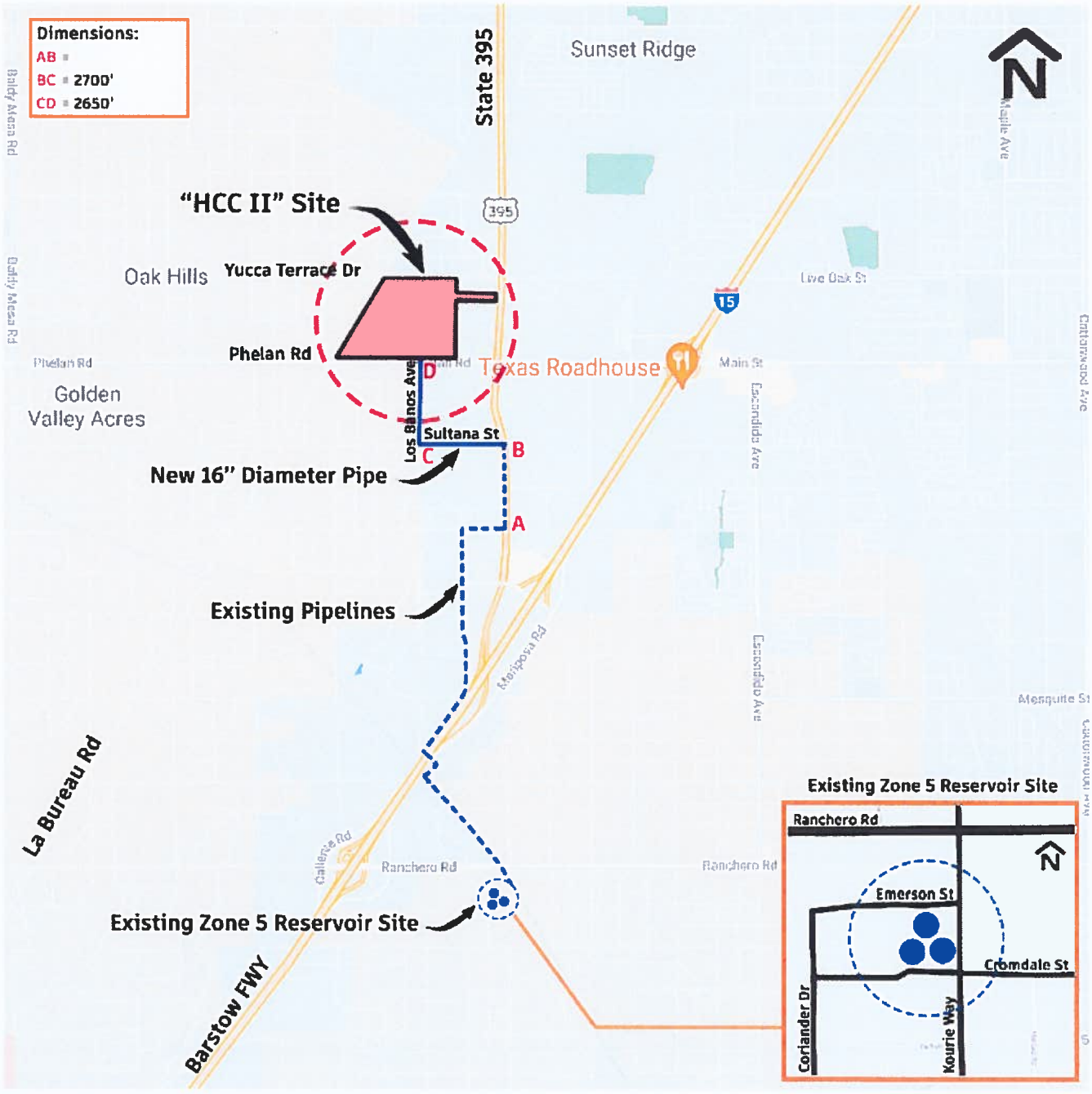
Fig 3. Regional and Recharge Recovery Project

Pressure Zone:

HCCII project is located in pressure zone #5 and being gravity fed from Plant #30 with three reservoirs (30-1, 30-2, and 30-3) of 15 million gallons combined storage capacity with High Water Level (HWL) of 3852 feet. The average general ground elevation of the proposed development is about 3565 feet. This elevation drop from the HWL to the project pad elevation will result in a static water pressure of about 124 psi which necessitate installation of pressure regulators for each of the proposed buildings.

Water Transmission Pipelines:

In accordance with the District's Water Master Plan, Plant #30 has an 18" transmission pipeline from the three reservoirs extending to the vicinity of Caliente Road and from there the transmission pipe diameter changes from 18-inch to a16-inch PVC traverses northerly to Muscatel Street then continues easterly to connect to a 12-inch PVC pipe in the vicinity of State Highway 395 and Sultana Street. Based on a fire flow test performed by the City staff on March 4, 2022; the available fire flow at the intersection of Sultana Street and HWY 395 is 4496 gpm at 30 psi residual pressure. KEC Engineers Inc. performed a hydraulic analysis and concluded that the 16" diameter pipe shall be extended from the intersection of HWY 395 and Sultana Street to the HCC-II site via Sultana Street and Los Banos Avenue (Approximately 5,350 feet of 16" diameter pipe).


Dimensions:
AB =
BC = 2700'
CD = 2650'
State 395
Sunset Ridge
"HCC II" Site
Oak Hills
Yucca Terrace Dr
Phelan Rd
Golden
Valley Acres
Texas Roadhouse
Los Banos Ave
Sultana St
D
C
B
A
New 16" Diameter Pipe
Existing Pipelines
La Bureau Rd
Ranchero Rd
Existing Zone 5 Reservoir Site
Barstow FWY
Mesquite St
Existing Zone 5 Reservoir Site
Ranchero Rd
Emerson St
Cromdale St
Coriander Dr
Kourie Way

Water Distribution pipelines:

A looped On-site water system for serving the four proposed warehouses for domestic and fire flow will be necessary. The on-site water system must be calculated for the size to deliver about 4,211 gpm for fire flow and maximum day demand. The on-site water distribution system are not shown in the exhibit "A" at this time.

Hesperia Water District Design Criteria:

The District's recommended water system design criteria from the 2015 Water Mater Plan is utilized to establish the water availability serving The HCC II. The design criteria includes the following:

- Distribution System Criteria
- Pump Station Criteria
- Pressure reducing Valve Criteria
- Storage Criteria

1- The distribution system criteria is to deliver Maximum Day Demand plus 4,000 gpm for the fire flow. Based on the 2015 Water Master Plan The water Duty Factor See Table 2 for industrial park is established at 866GPD/Unit.

Table 2, Water Duty Factor

Zoning Code	Zoning Description	Area	type	persons per Household	Water		Wastewater	
					Duty Factor (gpd/unit)	GPD/du	Duty Factor (gpd/unit)	GPD/du
AU	Airport Use	General Plan	Commercial	N/A	578	N/A	153	N/A
C1	Neighborhood Commercial	General Plan	Commercial	N/A	578	N/A	153	N/A
C2	General Commercial	General Plan	Commercial	N/A	578	N/A	153	N/A
C3	Service Commercial	General Plan	Commercial	N/A	578	N/A	153	N/A
P-GOVT	Government Facility	General Plan	Commercial	N/A	578	N/A	153	N/A
P-SCHOOL	Public School	General Plan	Commercial	N/A	578	N/A	153	N/A
Rec-Com	Recreational Commercial	General Plan	Commercial	N/A	578	N/A	153	N/A
ASC	Auto Sales Commercial	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
CIBP	Com/Ind Business park	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
MU	Mixed Use	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
NC	Neighborhood Commercial	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
OC	Office Commercial	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
OP	Office Park	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
PC	Pedestrian commercial	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
PIO	Public/Institutional Overlay	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
RC	Regional Commercial	Main Street/Freeway Corridor	Commercial	N/A	578	N/A	153	N/A
L1	Limited Manufacturing	General Plan	Industrial	N/A	866	N/A	230	N/A
L2	General Manufacturing	General Plan	Industrial	N/A	866	N/A	230	N/A
GI	General Industrial	Main Street/Freeway Corridor	Industrial	N/A	866	N/A	230	N/A

866 GPD/AC x 194.8 AC = 168,697 GPD
168,697 ÷ 24 = 7,029 GPH
7,029 ÷ 60 = 117.2 gpm (Average Day Demand)
117.2 x *1.8 = 211 gpm (MDD)

*1.8 is the MDD peaking factor for zone 5

zone	Average Day Demand (mgd)	Maximum Day Demand (mgd)	Operational Storage (MG)	Emergency Storage (MG)	Fire Flow Storage (MG)	Total Storage required	Storage Available (MG)	GW Supply Available @ 90% (MG)	Surplus/ Shortfall (MG)
1	2.0	3.4	1.0	9.9	1.0	11.9	11.5	22.9	22.5
2	5.9	10.2	3.1	29.3	1.0	33.3			
2A	0.1	0.2	0.1	0.7	0.6	1.4			
2B	0.9	1.5	0.5	4.4	1.0	5.8			
2/2A/2B	6.9	12.0	3.6	34.3	1.0	38.9	18.0	10.8	10.1
3	3.5	6.2	1.8	17.7	1.0	20.5	20.0	4.4	3.9
4	0.4	0.8	0.2	2.2	1.0	3.4			
5	1.4	2.5	0.7	7.1	0.6	8.5			
4/5	1.9	3.2	1.0	9.3	1.0	11.3	15.0	0.0	3.7
FC	0.3	0.5	0.2	1.4	0.6	2.2	0.0	0.0	2.2
TOTAL	14.5	25.3	7.6	72.7	4.5	84.8	64.5	38.2	17.9

Table 6 -2025 Storage Requirements

zone	Average Day Demand (mgd)	Maximum Day Demand (mgd)	Operational Storage (MG)	Emergency Storage (MG)	Fire Flow Storage (MG)	Total Storage required	Storage Available (MG)	GW Supply Available @ 90% (MG)	Surplus/ Shortfall (MG)
1	2.0	3.4	1.0	9.9	1.0	11.9	11.5	22.9	22.5
2	5.9	10.2	3.1	29.4	1.0	33.4			
2A	0.1	0.2	0.1	0.7	0.6	1.4			
2B	0.9	1.5	0.5	4.4	1.0	5.8			
2/2A/2B	6.9	12.0	3.6	34.5	1.0	39.1	18.0	10.8	10.2
3	4.4	7.7	2.3	22.0	1.0	25.3	20.0	4.4	0.9
4	0.4	0.8	0.2	2.2	1.0	3.4			
5	1.9	3.3	1.0	9.6	0.6	11.2			
4/5	2.4	4.1	1.2	11.8	1.0	14.0	15.0	0.0	1.0
FC	0.3	0.5	0.2	1.4	0.6	2.2	0.0	0.0	2.2
TOTAL	15.9	27.7	8.3	79.7	4.5	92.5	64.5	38.2	10.2

2- Pumping Stations:

This project is being served from Plant 30 reservoirs with the HWL of 3852' and thus, no pumping will be required.

See Exhibit "R" for the Clustered of existing reservoirs serving pressure zone #5.

3- Storage Criteria:

In Accordance with the District's water storage requirement consists of operational, fire flow, and emergency storage.

4- Operational Storage :

The City must provide sufficient storage under normal operating conditions to balance differences between water supply and weekly and diurnal variations in water demand.

In accordance with AWWA Manual of Standard Practice (M31 & M32), the minimum operational storage requirement averages at 30% maximum day demand which is consistent with the City's water master Plan.

5- **Fire Flow Storage**:

Fire flow storage requirements are based on the San Bernardino County Fire Department, which has been established at 4,000 gpm, for 4 hours duration at 20 psi residual pressure.

According to the City's Water Master Plan ,Table 5- 2025 Supply Requirements, it is states that:

The combined water pressure Zones 4/5:

Avg. Day Demand = 2.4 MG

Max Day Demand = 4.1 MG

The water storage requirement for both zones 4 and 5 are as follows:

1- Operational Storage =4.1 (MDD) x (30%)= 1.23 MG
2- Emergency Storage = 2.4 (ADD)x 500%= 12 MG
3- Fire flow Storage = 4,000 gpm x 4 x 60= 0.96 MG

Total storage required through 2025= 14.19MG

Knowing that the current available water storage in zone 4 and 5 is 15MG, There is more than 800,000 gallon surplus storage capacity for the proposed development.

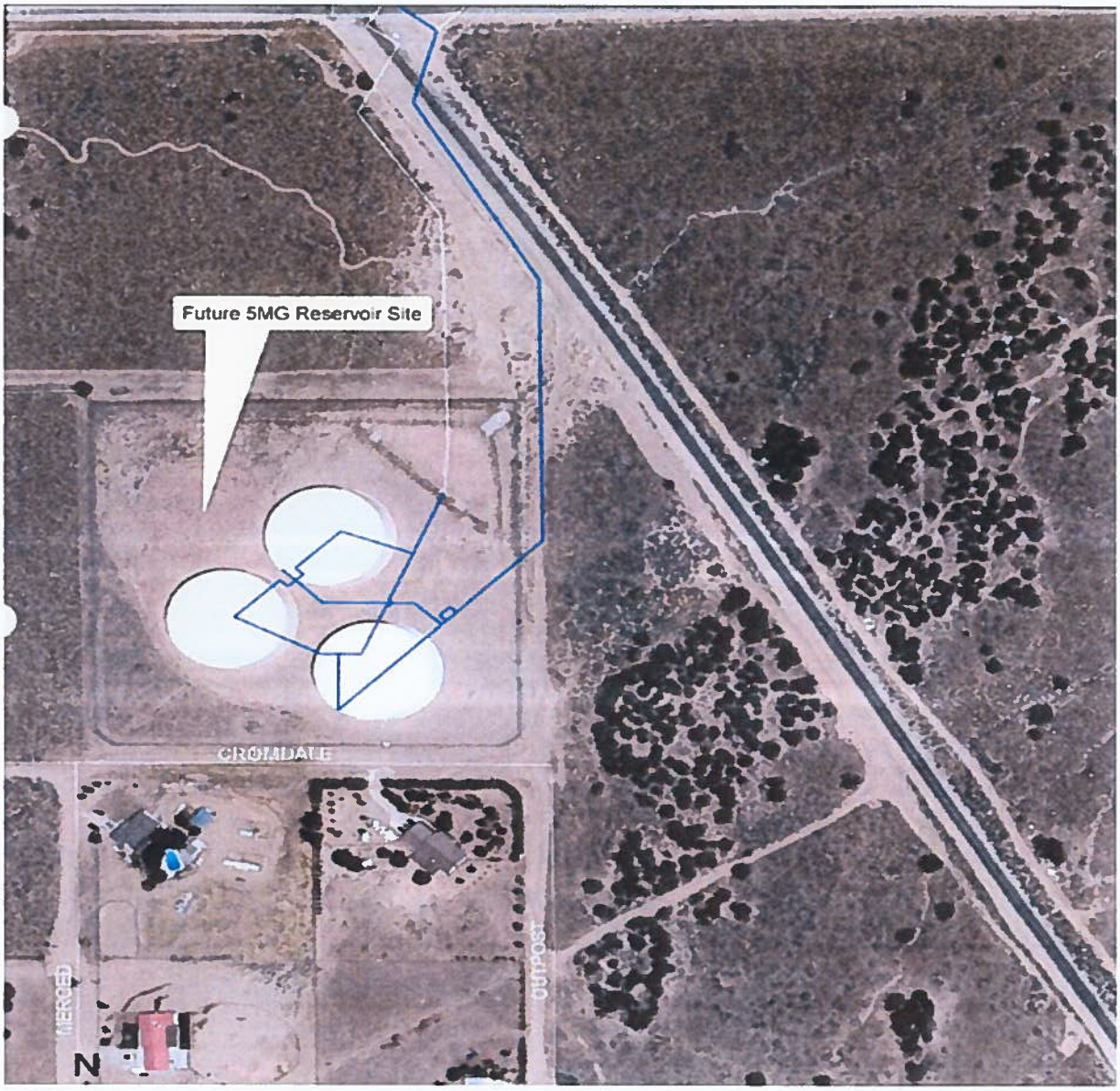


EXHIBIT "R"

Pressure Reducing Valve Criteria:

The on-site water distribution system for the proposed development would be delivering water at an average static water pressure of approximately 130 psi which is slightly high but within acceptable pressure range for a water distribution system. However, based on the Uniform Plumbing Code, water services with over 80 psi must be equipped with a pressure regulating valve which applies to all 4 services for this development.

Conclusion:

In accordance with the foregoing and the standards set forth by SB 610, this WSA concludes that the total projected water supplies available to Hesperia Water District during normal, single-dry, and multiple-dry water years over the next 20 years will be sufficient to meet the projected water demands for the proposed Project.

Appendix M-1

Draft EIR Comment Letters

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Table of Contents

NO.	COMMENT LETTER
A	San Bernardino County Department of Public Works
B	Mojave Desert Air Quality Management District
C	California Department of Water Resources
D	California Air Resources Board
E1	Golden State Environmental Justice Alliance
E2	Golden State Environmental Justice Alliance
F	Center for Biological Diversity
G1	Southwest Regional Council of Carpenters
G2	Southwest Regional Council of Carpenters

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Comment Letter A

Main Office - 825 East Third Street, San Bernardino, CA 92415-0835 | Phone: 909.387.7910 Fax: 909.387.7911
www.SBCounty.gov

SAN BERNARDINO COUNTY

Department of Public Works
- Flood Control
- Operations
- Solid Waste Management
- Special Districts
- Surveyor
- Transportation

Brendon Biggs, M.S., P.E.
Director

David Doublet, M.S., P.E.
Assistant Director

October 23, 2020 File: 10(ENV)-4.01

City of Hesperia,
Attn: Ryan Leonard, Senior Planner
Planning Department,
9700 Seventh Avenue,
Hesperia, California 92345.
Email: rleonard@cityofhesperia.us.

Transmitted Via Email

RE: CEQA– NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE HESPERIA COMMERCE CENTER II PROJECT

Dear Mr. Leonard:

Thank you for allowing the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project. **We received this request on September 17, 2020** and pursuant to our review, we have the following comments: A-1

Flood Control Planning & Water Resources Division (Michael Fam, Chief, 909-387-8120):

1. We are aware there may be storm drains in and around the site that may be affected by the proposed Project. When planning for or altering existing or future storm drains, be advised that the Project is subject to the Victorville MPD, dated March 1992. It is to be used as a guideline for drainage in the area and is available in the County's Flood Control District offices. Any revision to the drainage should be reviewed and approved by the City of Hesperia. Should construction of new, or alterations to existing storm drains be necessary as part of the Proposed Project, their impacts and any required mitigation should be discussed within the EIR before the document is adopted by the Lead Agency.

2. It is stated in Appendix D-6 Biological Resources Report for Off-Site Utilities Page 2 under No. 2 Project Description -Off-Site Storm Drain Alignment Paragraph that this project site and the section of the Oro Grande Wash is part of the Hesperia MPD. Our records do not show this to be accurate (it is under the Victorville MPD dated March 1992). In addition, in the same paragraph it states that the San Bernardino County Flood Control District maintains this section of the Oro Grande Wash which is also incorrect. The EIR should be updated to reflect the correct MPD and correct agency responsible for maintaining prior to certification. A-2

BOARD OF SUPERVISORS
Robert A. Lovingood, First District | Janice Rutherford, Second District | Dawn Rowe, Third District | Curt Hagman, Chairman, Fourth District | Josie Gonzales, Vice Chair, Fifth District
Leonard X. Hernandez, Chief Executive Officer

We respectfully request to be included on the circulation list for all project notices, public reviews, or public hearings. In closing, I would like to thank you again for allowing the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project. Should you have any questions or need additional clarification, please contact the individuals who provided the specific comment, as listed above.

A-3

Sincerely,

Michael Perry

MICHAEL R. PERRY
Supervising Planner
Environmental Management

MP:AJ:nl

Comment Letter B

Mojave Desert Air Quality Management District
Brad Poiriez, *Executive Director*
14306 Park Avenue, Victorville, CA 92392-2310
760.245.1661 • Fax 760.245.2022
www.MDAQMD.ca.gov • @MDAQMD

October 29, 2020

Ryan Leonard, Senior Planner
City of Hesperia, Planning Department
9700 Seventh Avenue
Hesperia, CA 92345

Project: Hesperia Commerce Center II

Dear Mr. Leonard:

The Mojave Desert Air Quality Management District (District) has reviewed the Draft EIR for the Hesperia Commerce Center II project. The Project would include construction of three industrial/warehouse buildings and associated improvements on vacant land. Building 1 (the northwesternmost building) would be 1,567,317 square feet; Building 2 (the southernmost building) would be 2,065,987 square feet, which would potentially be divided between two spaces within the same building; and Building 3 (the easternmost building) would be 112,125 square feet. Office space within each building would total up to 20,000 square feet. In total, the Project would provide 3,745,429 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and landscaping. Off-site improvements associated with the Project include street improvements along the Project frontage along Yucca Terrace, Phelan Road, and U.S. Highway 395. Off site improvements also include installation of new and upsizing of existing domestic water lines, storm drain lines, and sewer lines in the Project vicinity. B-1

The District has reviewed the project and the findings in the DEIR. Based on the information available at this time, the District recommends the City require that that the following:

- A Dust Control Plan will be required for this project. The most current Dust Control Plan Requirements and Dust Control Plan Submission Form are available at http://mdaqmd.ca.gov/permitting/compliance-forms. B-2
- The project proponent must also obtain any miscellaneous process equipment that may not be exempt under District Rule 219 including, but not limited to, Internal Combustion Engines with a manufacture's maximum continuous rating greater than 50 brake horsepower, and fire pumps. Permit application forms may be located at https://www.mdaqmd.ca.gov/permitting/forms. B-3
- The District concurs with the analysis and findings of air quality impacts in the DEIR. Pursuant to the MDAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, August 2016, this project is significant (a distribution center of 40 or more trucks per day within 100 feet of a sensitive receptor), and a Health Risk Assessment (HRA) must be submitted. B-4

It does not appear that the Mojave Desert Air Quality Management District is listed as a Reviewing Agency for this project. The MDAQMD is the appropriate agency to review the Air Quality portion of the DEIR. B-5

Thank you for the opportunity to review this planning document. If you have any questions regarding this letter, please contact me at (760) 245-1661, extension 6726, or Tracy Walters at extension 6122. B-6

Sincerely,

Alan J. De Salvio
Deputy Director – Mojave Desert Operations

AJD/tw Hesperia Hesperia Commerce Center II.doc

Comment Letter C

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STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **GAVIN NEWSOM**, *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

November 2, 2020

Mr. Ryan Leonard, Senior Planner
City of Hesperia
9700 Seventh Avenue
Hesperia, California 92345
(760) 947-1651
rleonard@cityofhesperia.us

SCH# 2019110418 Hesperia Commerce Center II Draft Environmental Impact Report (DEIR)

Dear Mr. Leonard:

The California Department of Water Resources' (DWR) State Water Project Division of Operations and Maintenance (O&M) has reviewed the proposed Hesperia Commerce Center II Draft EIR (the "Project"). O&M is providing these comments pursuant to DWR's regulatory responsibilities under Water Code section 12899.1, Cal. Code Regs. Tit. 23, §600 et seq. and Cal. Code Regs. Tit. 14 §15096.

Brief Project Description

The Project would include the construction of three industrial buildings totaling 3,745,429 square feet of industrial/warehouse space and associated improvements including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and landscaping. Off-site improvements include upgrading and installing domestic water lines, storm drain lines, and sewer in the project vicinity.

The Project would increase the amount of water produced at the Project site during a 100-year storm event by 1 million cubic feet. To manage the increased stormwater run-off, the Project would include infiltration basins designed to capture stormwater runoff from a 100-year 24-hour storm event by retaining 900,000 cubic feet of water which would drain over a 72- hour period. An additional 100,000 cubic feet of water from a 100-year 24-hour storm event that would exceed the capacity of proposed infiltration basins would flow into a new 96-inch diameter storm drain pipe that drains into the Oro Grande Wash (Wash) (See attached "Map Exhibit").

C-1

O&M has the following comments on the DEIR:

DWR is an Agency Whose Approval is Required

The new storm drainpipe in the proposed Project would discharge runoff flows onto the DWR right-of-way. Water is not allowed to be directed onto the DWR right-of-way (California Water Code Section 12899.6 and Code of Regulations, Title 23, Sections 600-635). Any activity which results in an alteration, improvement, encroachment or excavation within the State Water Project right-of-way requires an encroachment permit

C-2

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from DWR, including any element of the project design that utilizes a stormwater system that drains into the Wash. For this reason, DWR is an agency whose approval is required for the Project.

C-2 Cont.

VIII. Hydrology and Water Quality

Inadequate Impact Analysis

The analysis for the long-term operational impacts associated with erosion or siltation in the Initial Study were evaluated by significance criteria based on the CEQA Guidelines Appendix G checklist and relied on the San Bernardino County Hydrology Manual as the basis for the threshold of significance. The San Bernardino County Hydrology Manual is not intended to be applied to receiving waterways such as the Wash, and does not provide information as to how to evaluate off-site erosion and siltation impacts. Based on the findings in the IS, the lead agency decided not to include further analysis of the erosion or siltation impact in this DEIR.

As a result, the DEIR does not analyze the Project's impacts associated with off-site erosion and siltation. The Project site's stormwater currently drains naturally on- and off-site, with no runoff being directed towards the Wash and/or into the MP 394.5 culvert. The Project proposes that 100,000 cubic feet of water during a 100-year 24-hour storm event that exceeds the capacity of on-site infiltration basins would flow into a new 96-inch diameter storm drain pipe that would drain into the Wash, in addition to an already-existing storm pipe at the end of Cataba Road that presently drains into the Wash. The already-existing storm drainpipe at the end of Cataba Road that drains into the MP 394.5 culvert is causing substantial erosion and siltation buildup (see exhibits A-D). Thus, there is a strong likelihood the Project's new storm drain will either worsen the existing erosion and siltation or create new, substantial erosion and siltation. The off-site erosion and siltation impact of these stormwater flows on the Wash, the MP 394.5 culvert, and the California Aqueduct should be analyzed in the EIR.

C-3

Cumulative Impacts

The Project does not analyze the cumulative impacts of off-site stormwater drainage. The Project includes nearly 200 acres of proposed development, in addition to another proposed 80-acre Hesperia Cold Storage Facility, located northeast of the proposed Project (Map Exhibit). These two proposed projects would drastically increase the total acreage of developed land in the vicinity of the Wash from the approximately 110 acres of existing developed land to nearly 400 acres. Future development in the area is also reasonably foreseeable. In light of the already existing conditions, the proposed Project, other proposed projects such as the Hesperia Cold Storage Facility, and reasonably foreseeable future projects, without alterations to the retention basin designs or appropriate mitigation measures, the proposed Project would potentially significantly increase the amount of storm water runoff upslope of the Wash, exacerbating erosion and siltation, and further degrading the DWR right-of-way and clogging the culvert.

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O&M believes that the severity of the erosion and siltation above the culvert at MP 394.5 (as shown in Exhibits A-E) has reached a critical threshold that cannot be allowed to worsened by additional developments directing more stormwater towards and/or into the vicinity of the MP 394.5 culvert. The amount of cumulative soil erosion and sediment buildup in the vicinity of the DWR culvert at MP 394.5 that would result from the Project and other proposed projects in the area create a potentially significant impact under CEQA's cumulative impact test that has not been analyzed.

O&M has been consistent in its position that any new development approved by Hesperia within the Oro Grande Wash watershed upslope of the Aqueduct must contain a stormwater detention feature to prevent further erosion by attenuating peak run-off velocities and preventing sediment deposition at the DWR culvert inlet. As mentioned above, the Project's proposed basins are designed to hold only 90 percent of the additional runoff resulting from the development.

Development in Hesperia over the past several decades has led to increased flows into the Wash and constant flows of nuisance water into the DWR right-of-way. This nuisance water is accompanied by an increased sediment load that is brought into the DWR right-of-way. The sediment is deposited at the foot of the Aqueduct embankment and into the culvert which has resulted in recurring maintenance issue for DWR over the past several decades. This requires additional inspection and sediment removal to maintain an open culvert. The sediment load can be very heavy, plugging the culvert, requiring immediate attention to maintain an open channel.

C-3 Cont.

O&M**'s Requests and Additional Comments**

O&M requests the Project develop both an independent and cumulative impacts analysis of the off-site soil erosion and sedimentation issues identified above. Prior to approving an encroachment permit for this project, O&M requests the Project analyze and develop potential mitigation measures for stormwater runoff that will adequately prevent further cumulative soil erosion and sediment buildup in the vicinity of the California Aqueduct at MP 394.5, and/or to modify the stormwater detention facility on the project site to account for 100% of stormwater during a 100-year 24-hour storm event. O&M requests to review Hesperia's Master Plan of Drainage for the Oro Grande Wash Area to better assess how developments on the West Rim of the Wash may impact DWR facilities and right-of-way.

O&M requests the following information be included in the EIR:

1. An emergency water removal contingency plan for the stormwater detention basin included in the BMPs.

2. A study of the required maintenance for the proper functioning of the proposed retention basin, a maintenance plan for the retention basin, and the agency responsible for maintaining or monitoring compliance with the proposed retention basin maintenance plan for the life of the project.

C-4

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O&M is willing to work with the City of Hesperia to develop and implement a long-term solution to the stormwater runoff problem in the Wash, but will not approve future encroachment permits within the Wash without addressing the ongoing stormwater system drainage issue.

Encroachment Permit application information and regulations can be found at https://water.ca.gov/Work-With-Us/Real-Estate/Encroachment-Permits.

If you have any questions or need additional information, please contact Kristen Greenacre at (916) 653-4264 or Kristen.Greenacre@water.ca.gov. Please provide DWR with notice of any future project documents when available by informing Kristen Greenacre.

C-5

Sincerely,

Casey Pancaro

Casey Pancaro
Attorney

cc: Kristen Greenacre
Donald Walker
Jonathan Canuela
Moranda Dahl
Delia Grijalva
Leroy Ellinghouse
Frank Llamas, SFD
Stephen Nichols, SFD
Joseph Cruz, SFD

EXHIBITS A-E

C-6

EXHIBIT A



Photo taken facing South, Aqueduct is behind photographer

EXHIBIT B



Photo taken facing South, Aqueduct is behind photographer

EXHIBIT C



Photo taken facing Northwest, Aqueduct is in front of photographer

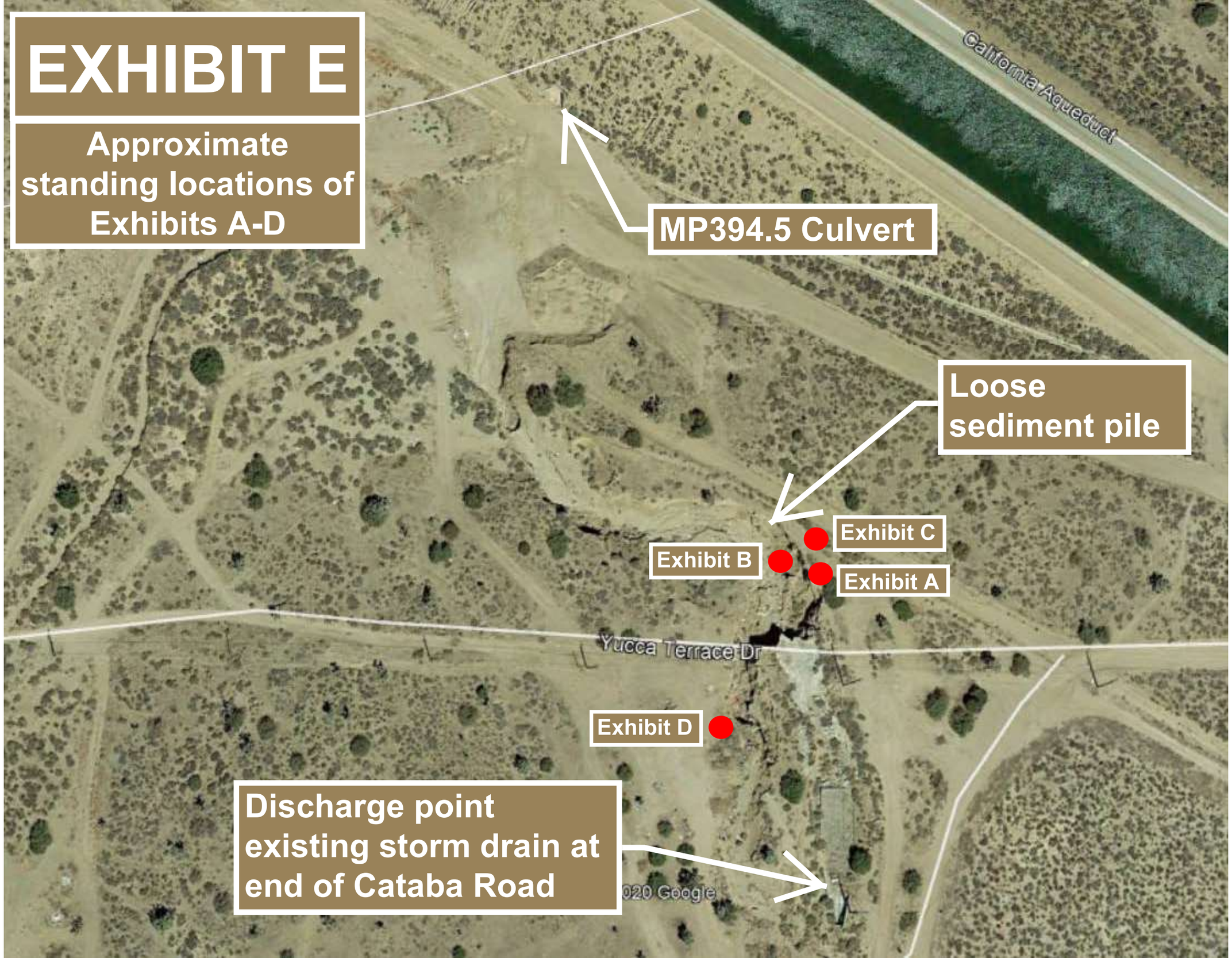
EXHIBIT D



Photo taken facing North, Aqueduct is in front of photographer.
Top of Aqueduct can be seen in top right corner of photo.

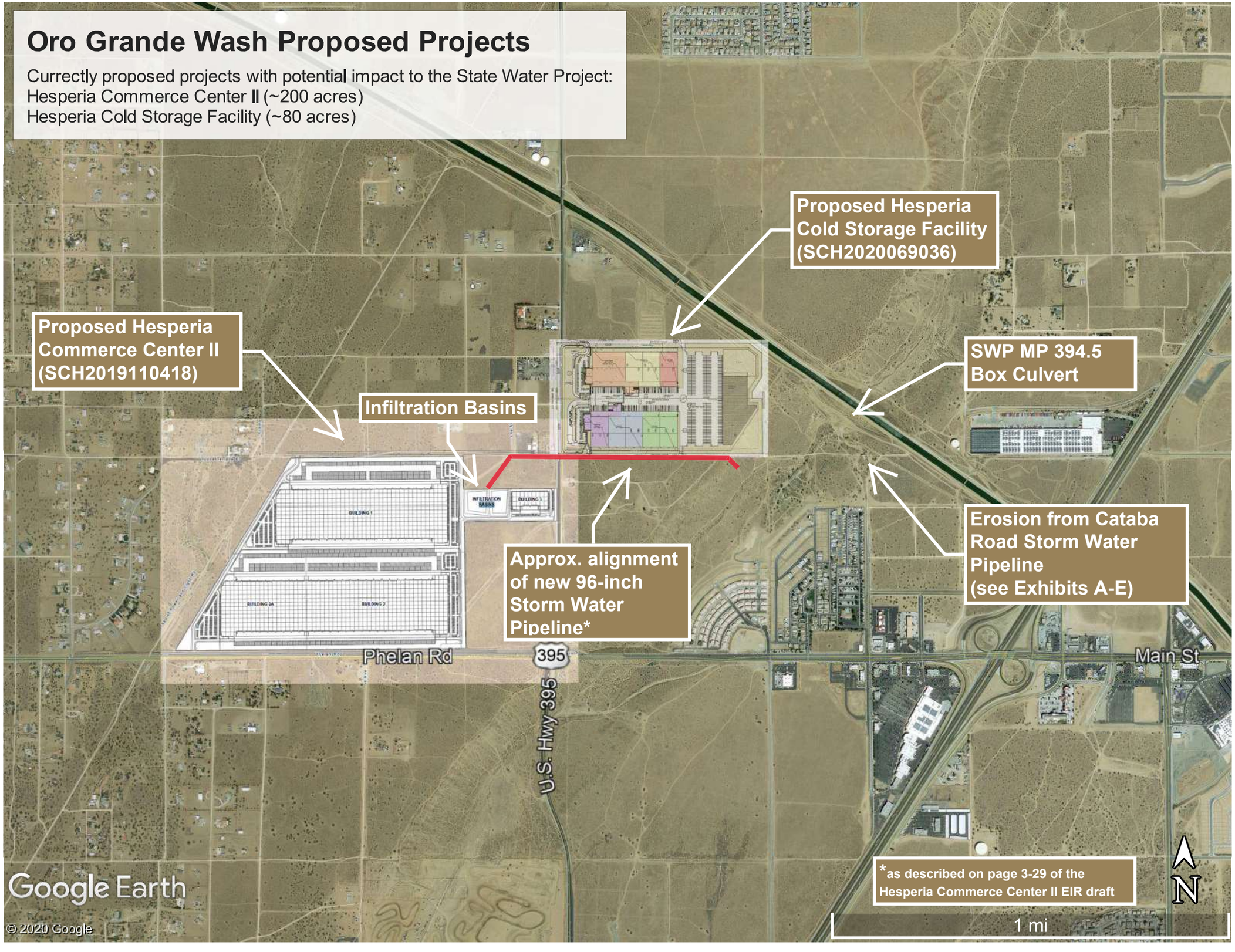
EXHIBIT E

Approximate standing locations of Exhibits A-D



Oro Grande Wash Proposed Projects

Currectly proposed projects with potential impact to the State Water Project:
Hesperia Commerce Center II (~200 acres)
Hesperia Cold Storage Facility (~80 acres)



Comment Letter D

CALIFORNIA AIR RESOURCES BOARD

Gavin Newsom, Governor
Jared Blumenfeld, CalEPA Secretary
Mary D. Nichols, Chair

November 4, 2020

Ryan Leonard
Senior Planner, Planning Division
9700 Seventh Avenue
Hesperia, California 92345
Submitted via email: rleonard@cityofhesperia.us

Dear Ryan Leonard:

Thank you for providing the California Air Resources Board (CARB) with the opportunity to comment on the Hesperia Commerce Center II Project (Project) Draft Environmental Impact Report (DEIR), State Clearinghouse No. 2019110418. The Project consists of the construction and operation of three industrial/warehouse buildings totaling 3,745,429 square feet. Once in operation, the Project would introduce 11,898 daily vehicle trips, including 2,368 daily heavy-duty truck trips, along local roadways. The Project is located within the City of Hesperia (City), California, which is the lead agency for California Environmental Quality Act (CEQA) purposes. D-1

Freight facilities, like the one proposed in the Project, can result in high volumes of heavy-duty diesel trucks, line-haul and switcher locomotive traffic, and operation of on-site equipment (e.g., forklifts and yard tractors) that emit toxic diesel emissions, and contribute to regional air pollution and global climate change.[1] CARB has reviewed the DEIR and is concerned about the air pollution and health risk impacts that would result should the City approve the Project.

I. The Project Would Increase Exposure to Air Pollution in Disadvantaged Communities

The Project, if approved, will expose nearby disadvantaged communities to elevated levels of air pollution. Residences are located north, south, east, and west of the Project with the closest residences located approximately 215 feet from the Project's southern boundary. In addition, two schools (Canyon Ridge High School and Mission Crest Elementary School) are located within two miles of the Project. The communities near the Project are exposed to existing toxic diesel particulate matter (diesel PM) emissions from vehicular traffic along Interstate 15 (I-15). Due to the Project's proximity to residences and schools already burdened by air pollution, CARB is concerned with D-2

[1] With regard to greenhouse gas emissions from this project, CARB has been clear that local governments and project proponents have a responsibility to properly mitigate these impacts. CARB's guidance, set out in detail in the Scoping Plan issued in 2017, makes clear that in CARB's expert view, local mitigation is critical to achieving climate goals and reducing greenhouse gases below levels of significance.

the potential cumulative health impacts associated with the construction and operation of the Project.

D-2 Cont.

The State of California has placed additional emphasis on protecting local communities from the harmful effects of air pollution through the passage of Assembly Bill (AB) 617 (Garcia, Chapter 136, Statutes of 2017). AB 617 is a significant piece of air quality legislation that highlights the need for further emission reductions in communities with high exposure burdens, like those in which the Project is located. Diesel PM emissions generated during the construction and operation of the Project would negatively impact the community, which is already disproportionally impacted by air pollution from traffic on I-15.

D-3

II. The FEIR Should Restrict the Operation of Transport Refrigeration Units within the Project Area

Chapter 1.4 (Project Description) of the DEIR states that no refrigerated warehouse space is currently proposed as part of the Project, and the Project applicant currently has no plans to lease to any tenant needing refrigerated space. Should the Project include cold storage uses in the future, it is very likely that trucks and trailers equipped with transport refrigeration units (TRU) would visit the site. If this were the case, residences near the Project site could be exposed to significantly higher levels of toxic diesel PM, as well as oxides of nitrogen (NO_x), and greenhouse gases. To ensure TRUs will not operate within the Project site without first quantifying and mitigating their potential impacts, CARB urges the City to include one of the following design measures in the Final Environmental Impact Report (FEIR):

D-4

- A Project design measure requiring contractual language in tenant lease agreements that prohibits tenants from operating TRUs within the Project site; or

- A condition requiring a restrictive covenant over the parcel that prohibits the applicant's use of TRUs on the property, unless the applicant seeks and receives an amendment to its conditional use permit allowing such use.

If the City and applicant later choose to allow TRUs to operate within the Project site, CARB urges the City to re-model the Project's air quality impact analysis and Health Risk Assessment (HRA) to account for the potential health risks. The updated air quality impact analysis and HRA should include the following air pollutant emission reduction measures:

- Include contractual language in tenant lease agreements that requires all loading/unloading docks and trailer spaces be equipped with electrical hookups for trucks with TRU or auxiliary power units. This requirement will substantially decrease the amount of time that a TRU powered by a fossil-fueled internal combustion engine can operate at the project site. Use of zero-emission all-electric plug-in TRUs, hydrogen fuel cell transport refrigeration, and cryogenic transport refrigeration are encouraged and should also be included in lease agreements.[2]

- Include contractual language in tenant lease agreements that requires all TRUs entering the project site be plug-in capable.

D-4 Cont.

III. The DEIR Did Not Account for Air Pollutant Emissions from Heavy-Duty Trucks During On-Site Grading

The DEIR did not account for mobile air pollutant emissions from grading operations during the Project's construction phase. Based on CARB's review of the California Emissions Estimator Model (CalEEMod) outputs found in Appendix C-1 of the DEIR, the City and applicant assumed that no heavy-duty truck trips would be required to import or export soil during the on-site grading. Furthermore, the DEIR does not explicitly state the quantity of soil needed to grade the Project site that would support this assumption. If soil must be imported or exported to grade the Project site, a large number of heavy-duty truck trips may be required to transport soil.

CARB urges the City and applicant to remodel the Project's construction air pollutant emissions using accurate heavy-duty truck trip estimates. Residences and other sensitive receptors (e.g., daycare facilities, senior care facilities, and schools) located near construction haul routes could be exposed to diesel exhaust emissions that were not evaluated in the DEIR. The DEIR should clearly state the total number of heavy-duty truck trips expected during Project construction so the public can fully understand the potential environmental effects of the Project on their communities.

D-5

IV. The DEIR Did Not Evaluate Potential Cancer Risk Impacts During Project Construction.

Chapter 4.2 (Air Quality) of the DEIR did not quantify or evaluate the potential health risk impact that would result during Project construction. The Office of Environmental Health Hazard Assessment's (OEHHA) guidance, recommends assessing cancer risks for construction projects lasting longer than two months. Since Project construction would occur over a period longer than two months and the Project will be located in close proximity to existing and future proposed residences, the City should revise the

D-6

[2] CARB's Technology Assessment for Transport Refrigerators provides information on the current and projected development of TRUs, including current and anticipated costs. The assessment is available at: https://www.arb.ca.gov/msprog/tech/techreport/tru_07292015.pdf.

Project's HRA to include the Project's construction cancer and noncancer risks and disclose the results in the FEIR. D-6 Cont.

V. The DEIR Does Not Include all Feasible Mitigation Measures to Reduce the Project's Significant and Unavoidable Impact on Air Quality

Chapter 4.2 (Air Quality) of the DEIR concludes that the Project's construction emissions of volatile organic compounds (VOC) and operational emissions of VOC, NO_x, and particulate matter less than 10 micrometers (PM_{10}) would exceed the Mojave Desert Air Quality Management District's (MDAQMD) significance thresholds. To lessen the Project's significant impact on air quality, the DEIR includes two mitigation measures (MM-AQ-1 and MM-AQ-2). These mitigation measures would require the use of "super-compliant" low-VOC paints during Project construction, restrict haul trucks that do not meet model year 2010 engine emission standards from accessing the Project site, require truck drivers to turn off their engines when not in use, restrict idling to no more than five minutes, and require the installation of electrical infrastructure to support electric vehicle charging stations. Although these mitigation measures would reduce the Project's construction emissions of VOC to a less than significant level, the DEIR concludes that the Project's impact on air quality would result in a significant and unavoidable impact on air quality. Even where impacts will remain significant and unavoidable after mitigation, CEQA requires that all feasible mitigation measures be incorporated (see California Public Resources Code § 21081; 14 CCR§ 15126.2(b)). To meet this requirement, CARB urges the City and applicant to implement all applicable air pollutant emission reduction measures provided in Appendix A of this letter. D-7

VI. Conclusion

CARB is concerned about the potential public health impacts should the City approve the Project. As concluded in Chapter 4.2 (Air Quality) of the DEIR, the Project's operation would expose residences to VOC, NO_x, and PM_{10} emissions that would result in a significant and unavoidable impact on air quality. To reduce the Project's impact on public health, CARB urges the City to implement all applicable mitigation measures listed in Attachment A of this letter. Although the Project, as proposed in the DEIR, is not anticipated to be used for cold storage, the City should restrict the proposed warehouse from servicing trucks and trailers with TRUs. Should the City later allow the Project to be used for cold storage, the City should update the Project's air quality analysis and HRA to account for the increase in air pollution and cancer risks resulting from trucks and trailers with TRUs visiting the Project site. The City and applicant should evaluate the Project's construction cancer and noncancer risks in the FEIR. D-8

Given the breadth and scope of projects subject to CEQA review throughout California that have air quality and greenhouse gas impacts, coupled with CARB's limited staff resources to substantively respond to all issues associated with a project, CARB must

prioritize its substantive comments here based on staff time, resources, and its assessment of impacts. CARB's deliberate decision to substantively comment on some issues does not constitute an admission or concession that it substantively agrees with the lead agency's findings and conclusions on any issues on which CARB does not substantively submit comments.

D-8
Cont.

CARB appreciates the opportunity to comment on the DEIR for the Project and can provide assistance on zero-emission technologies and emission reduction strategies, as needed. If you have questions, please contact Stanley Armstrong, Air Pollution Specialist, via email at stanley.armstrong@arb.ca.gov.

Sincerely,

Richard Boyd
Assistant Division Chief
Transportation and Toxics Division

Attachment

cc: See next page.

cc: State Clearinghouse
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ATTACHMENT

ATTACHMENT A

Recommended Air Pollution Emission Reduction Measures for Warehouses and Distribution Centers

The California Air Resources Board (CARB) recommends developers and government planners use all existing and emerging zero to near-zero emission technologies during project construction and operation to minimize public exposure to air pollution. Below are some measures, currently recommended by CARB, specific to warehouse and distribution center projects. These recommendations are subject to change as new zero-emission technologies become available.

Recommended Construction Measures

1. Ensure the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero equipment and tools.

2. Implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology vehicles and equipment that will be operating on site. Necessary infrastructure may include the physical (e.g., needed footprint), energy, and fueling infrastructure for construction equipment, on-site vehicles and equipment, and medium-heavy and heavy-heavy duty trucks.

3. In construction contracts, include language that requires all off-road diesel-powered equipment used during construction to be equipped with Tier 4 or cleaner engines, except for specialized construction equipment in which Tier 4 engines are not available. In place of Tier 4 engines, off-road equipment can incorporate retrofits, such that, emission reductions achieved equal or exceed that of a Tier 4 engine.

4. In construction contracts, include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) used during project construction be battery powered.

5. In construction contracts, include language that requires all heavy-duty trucks entering the construction site, during the grading and building construction phases be model year 2014 or later. All heavy-duty haul trucks should also meet CARB's lowest optional low-oxides of nitrogen (NO_x) standard starting in the year 2022.[1]

[1] In 2013, CARB adopted optional low-NO_x emission standards for on-road heavy-duty engines. CARB encourages engine manufacturers to introduce new technologies to reduce NO_x emissions below the current mandatory on-road heavy-duty diesel engine emission standards for model year 2010 and later. CARB's optional low-NO_x emission standard is available at: https://www.arb.ca.gov/msprog/onroad/optionnox/optionnox.htm.

6. In construction contracts, include language that requires all construction equipment and fleets to be in compliance with all current air quality regulations. CARB is available to assist in implementing this recommendation.

Recommended Operation Measures

1. Include contractual language in tenant lease agreements that requires tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site.

2. Include contractual language in tenant lease agreements that requires all loading/unloading docks and trailer spaces be equipped with electrical hookups for trucks with transport refrigeration units (TRU) or auxiliary power units. This requirement will substantially decrease the amount of time that a TRU powered by a fossil-fueled internal combustion engine can operate at the project site. Use of zero-emission all-electric plug-in TRUs, hydrogen fuel cell transport refrigeration, and cryogenic transport refrigeration are encouraged and can also be included in lease agreements.[2]

3. Include contractual language in tenant lease agreements that requires all TRUs entering the project site be plug-in capable.

4. Include contractual language in tenant lease agreements that requires future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans.

5. Include contractual language in tenant lease agreements requiring all TRUs, trucks, and cars entering the Project site be zero-emission.

6. Include contractual language in tenant lease agreements that requires all service equipment (e.g., yard hostlers, yard equipment, forklifts, and pallet jacks) used within the project site to be zero-emission. This equipment is widely available.

7. Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering or on the project site to be model year 2014 or later, expedite a transition to zero-emission vehicles, and be fully zero-emission beginning in 2030.

[2] CARB's Technology Assessment for Transport Refrigerators provides information on the current and projected development of TRUs, including current and anticipated costs. The assessment is available at: https://www.arb.ca.gov/msprog/tech/techreport/tru_07292015.pdf.

8. Include contractual language in tenant lease agreements that requires the tenant be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,[3] Periodic Smoke Inspection Program (PSIP),[4] and the Statewide Truck and Bus Regulation.[5]

9. Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than five minutes while on site.

10. Include contractual language in tenant lease agreements that limits on-site TRU diesel engine runtime to no longer than 15 minutes. If no cold storage operations are planned, include contractual language and permit conditions that prohibit cold storage operations unless a health risk assessment is conducted, and the health impacts fully mitigated.

11. Include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.

12. Including language in tenant lease agreements, requiring the installing of vegetative walls[6] or other effective barriers that separate loading docks and people living or working nearby.

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[3] In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: https://www.arb.ca.gov/cc/hdghg/hdghg.htm.

[4] The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: https://www.arb.ca.gov/enf/hdvip/hdvip.htm.

[5] The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.

[6] Effectiveness of Sound Wall-Vegetation Combination Barriers as Near-Roadway Pollutant Mitigation Strategies (2017) is available at: https://ww2.arb.ca.gov/sites/default/files/classic//research/apr/past/13-306.pdf.

Comment Letter E1

Golden State Environmental Justice Alliance
Green Jobs & Clean Communities
P.O. Box 79222
Corona, CA 92877

November 9, 2021

Members of the City of Hesperia City Council
Members of the City of Hesperia Planning Commission
9700 Seventh Avenue
Hesperia, CA 92345

Re: Hesperia Commerce Center II (SCH# 2019110418)

Dear Members of the City of Hesperia City Council and Planning Commission:

On behalf of the Golden State Environmental Justice Alliance ("GSEJA"), I am writing to you regarding the Hesperia Commerce Center II Project ("Project").

GSEJA is withdrawing its comment letter and opposition to the Project. The Project's developer has addressed GSEJA's concerns about environmental mitigation.

E1-1

Sincerely,

Joe Bourgeois
Executive Director

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Comment Letter E2

BLUM COLLINS, LLP
ATTORNEYS AT LAW
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October 27, 2020

Ryan Leonard, Senior Planner
Planning Department, City of Hesperia
9700 Seventh Avenue
Hesperia, California 92345
rleonard@cityofhesperia.us

Re: *Hesperia Commerce Center II Project (SCH Number: 2019110418)*

Dear Mr. Leonard:

On behalf of the Golden State Environmental Justice Alliance ("GSEJA"), we hereby submit comments under the California Environmental Quality Act ("CEQA") on the Draft Environmental Impact Report ("DEIR") for the Hesperia Commerce Center II Project ("Project").

GSEJA believes that, among other things, the Project's air quality, health risk, and greenhouse gas impacts are not adequately evaluated by the DEIR. See (1) the comments below; and (2) the comments of Soil Water Air Protection Enterprise ("SWAPE") which we are submitting herewith and incorporating by reference.

E2-1

For the foregoing reasons, GSEJA believes the DEIR is flawed and an amended DEIR must be prepared for the proposed project and recirculated for public review. GSEJA requests to be added to the public interest list regarding any subsequent environmental documents, public notices, public hearings, and notices of determination for this project. Send all communications to Golden State Environmental Justice Alliance, P.O. Box 79222, Corona, CA 92877.

1.0 Summary

The project proposes the construction and operation of three industrial/warehouse buildings totaling 3,745,429 square feet and associated improvements on a 194.8 acre site. Building 1 would be 1,567,317 square feet; Building 2 would be 2,065,987 square feet, which would potentially be divided between two spaces within the same building; and Building 3 would be 112,125 square feet. Office space within each building would total up to 20,000 square feet. In total, the Project would provide 3,745,429 square feet of industrial/warehouse space and associated improvements, including loading docks, tractor-trailer stalls, passenger vehicle parking spaces, and landscaping. Off-site improvements associated with the Project include street

E2-2

improvements along the Project frontage along Yucca Terrace, Phelan Road, and U.S. Highway 395. Off site improvements also include installation of new and upsizing of existing domestic water lines, storm drain lines, and sewer lines in the Project vicinity.

E2-2 Cont.

1.1 Internal Inconsistencies

The EIR is internally inconsistent and unreliable as an informational document. The Project Description states that the modeling assumptions used for the air quality, health risk assessment, greenhouse gas, energy, and traffic impact analyses assume a blend of "high-cube" warehouse and general light industrial uses. Under this modeling scenario, approximately 65% of Buildings 1 and 2 (i.e., 2,361,648 square feet) would support "high-cube" warehouse uses, and 35% of Buildings 1 and 2 (i.e., 1,271,656 square feet) and 100% of Building 3 (112,125 square feet) would support general light industrial uses. However, the Land Use and Planning section states the project includes "construction of a total of 3,745,429 square feet of warehousing use." The Hydrology and Water Quality section states the project includes "include three warehouse/distribution/logistics buildings." It is clear that the intended use of the buildings is for an entirely warehouse/distribution/logistics project and the project should be analyzed as such. The EIR must accurately describe the proposed project and consistently analyze the project for all sections of environmental analysis.

E2-3

1.2 Project Piecemealing

The EIR does not accurately or adequately describe the project, meaning "the whole of an action, which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment" (CEQA § 15378). The project proposed by Hesperia Commerce Center II is a piecemealed portion of a larger overall project to be developed known as Hesperia Commerce Center (3.5 million square foot warehouse/distribution center) which was approved by the Planning Commission on November 14, 20131 and the City Council on December 17, 20132. Hesperia Commerce Center has not been constructed since its 2013 approval.

CEQA § 15165 - Multiple and Phased Projects requires that "Where individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environmental effect, the Lead Agency shall prepare a single program EIR for the ultimate project as described in Section 15168." The EIR misleads the public and decision makers by circumventing adequate and accurate environmental analysis for the whole of the action - construction and operation of Hesperia Commerce Center and Hesperia Commerce Center II as a whole. A program EIR must be prepared which accurately represents the whole of the action without piecemealing the project into separate, smaller development projects to

E2-4

[1] November 14, 2013 PC Agenda http://www.cityofhesperia.us/ArchiveCenter/ViewFile/Item/1106
[2] December 17, 2013 CC Agenda http://www.cityofhesperia.us/ArchiveCenter/ViewFile/Item/1118

present unduly low environmental impacts. This is vital as Hesperia Commerce Center's 2013 EIR found that the project will result in significant and unavoidable Air Quality and Greenhouse Gas Emissions and Hesperia Commerce Center II will result in significant and unavoidable Air Quality, Noise, and Transportation impacts. The EIR must be revised to comply with CEQA § 15165 by preparing a Program EIR pursuant to CEQA § 15168.

E2-4 Cont.

4.2 Air Quality

E2-5

Please see attachments from SWAPE for technical commentary and analysis.

The EIR does not include for analysis relevant environmental justice issues in reviewing potential impacts, including cumulative impacts from the proposed project. This is especially significant as the surrounding community is highly burdened by pollution. According to CalEnviroScreen 3.0, CalEPA's screening tool that ranks each census tract in the state for pollution and socioeconomic vulnerability, the proposed project's census tract (6071010009) ranks worse than 55% of the rest of the state overall. The surrounding community, including residents to the south and west of the project site, bears the impact of multiple sources of pollution and is more polluted than average on every pollution indicator measured by CalEnviroScreen. For example, the project census tract has a higher burden of ozone than 98% of the state and a higher concentration of drinking water contaminants than 89% of the state.

E2-6

Further, the project's census tract is a diverse community including 44% Hispanic and 7% African-American residents, which are especially vulnerable to the impacts of pollution. The community has a high rate of low educational attainment, meaning 52% of the census tract over age 25 has not attained a high school diploma, which is an indication that they may lack health insurance or access to medical care. The community ranks in the 99th percentile for incidence of cardiovascular disease and 85th percentile for asthma, which are exacerbated by Air Quality and Greenhouse Gas impacts.

4.3 Biological Resources

According to the Biological Resources Appendix, a general reconnaissance level field survey was conducted on November 28, 2018. The survey concluded that burrowing owls have a high potential to occur onsite and suitable habitat is present. The timing and number of field investigations were not conducted in accordance with the Department of Fish and Game's 2012 Staff Report on Burrowing Owl Mitigation. The 2012 Report concludes that "current scientific literature indicates that it is most effective to conduct breeding and non- breeding season surveys and report in the manner that follows:

E2-7

<u>Breeding Season Surveys</u>

Number of visits and timing. Conduct 4 survey visits: 1) at least one site visit between 15 February and 15 April, and 2) a minimum of three survey visits, at least three weeks apart, between 15 April and 15 July, with at least one visit after 15 June."

The field investigation conducted as part of the Biological Resources analysis was not completed at times most effective as noted in the 2012 Report. The investigations conducted zero site visits between 15 February and 15 July. Only one site visit was conducted while the 2012 Report lists four total visits (each visit three weeks apart) as most effective. The site survey was not conducted in accordance with the most effective practices outlined by the 2012 Report. A revised EIR must be prepared which includes focused burrow and burrowing owl surveys conducted in accordance with the most effective practices of the 2012 Report for public review. A site map noting the location and quantity of observed burrows must also be included.

E2-7 Cont.

4.10 Transportation

The Appendix includes Table 1-3: Summary of Improvements by Analysis Scenario to list the necessary improvements and whether they will be constructed or include payment of fair share contribution. The EIR finds that improvements outside of the lead agency's jurisdiction that pay fees will be fully mitigated, without providing supporting evidence that the improvements are in the TUMF. An assessment of fees is appropriate when linked to a specific mitigation program. (Anderson First Coalition v. City of Anderson (2005) 130 Cal.App.4th 1173, Save our Peninsula Comm. v. Monterey County Bd. Of Supers. (2001) 87 Cal.App.4th 99, 141.) Payment of fees is not sufficient where there is no evidence mitigation will actually result. (Gray v. County of Madera (2008) 167 Cal.App.4th 1099,1122.) The assessment of fees here is not adequate as there is no evidence mitigation will actually result. The improvements required for intersections 9, 11, 12, 13, 14, 15, 23, 24, and 25 are not identified within a TUMF. Further, the table notes that intersections 8 - 10 are within jurisdiction of Caltrans and Victorville and intersections 8 - 15 are within Caltrans jurisdiction, which is beyond the jurisdiction of the City of Hesperia. The EIR includes uncertain mitigation as the completion of the necessary improvements are beyond the jurisdiction of the lead agency. The EIR must be revised to include enforceable mitigation that will reasonably result in quantifiably reduced traffic impacts. This also includes revising the improvements that the project will construct from designation as "project design features" to mitigation measures.

E2-8

5.5 Effects Found Not to be Significant: Land Use and Planning

The EIR does not include a consistency analysis with the City's General Plan. A revised EIR must be prepared which includes an analysis of the project in conjunction with all applicable General Plan goals and policies, such as the following:

E2-9

Goal LU-4 Promote industrial development within the City which will expand its tax base and provide a range of employment activities, while not adversely impacting the community or environment.

E2-10

Policy CI-2.1 Strive to achieve and maintain a LOS D or better on all roadways and intersections: LOS E during peak hours shall be considered acceptable through freeway interchanges and major corridors (Bear Valley Road, Main Street/Phelan Road, Highway 395).

E2-11

A finding of significance must be made in the Land Use and Planning analysis as the proposed project is inconsistent with the items listed above. The project will have significant and unavoidable impacts to Air Quality, Noise, and Transportation, resulting in inconsistency with Goal LU-4. The project traffic will conflict with the LOS goals of Policy CI-2.1, and the payment of impact fees to mitigate these impacts as noted in the EIR is not sufficient mitigation as noted in the Transportation section above.

E2-12

Table 5-2 Consistency with 2020-2045 RTP/SCS Goals is erroneous and misleading to the public and decision makers. For example, the EIR concludes that the project is consistent with Goal 2 to improve mobility, accessibility, reliability, and travel safety for people and goods, Goal 3 to enhance the preservation, security, and resilience of the regional transportation system, and Goal 4 to increase person and goods movement and travel choices within the transportation system because the project will construct adjacent roadway improvements and make payments to the City's Development Impact Fee (DIF) program. This is erroneous as the EIR finds the project will result in significant and unavoidable Transportation impacts. The mitigation provided by the items listed is not adequate to reduce Transportation impacts to a less than significant level. A revised EIR must be prepared which includes this information for analysis and a finding of inconsistency with these Goals.

E2-13

Further, the EIR also finds consistency with Goal 5 to reduce greenhouse gas emissions and improve air quality and Goal 6 to support healthy and equitable communities even though the project will even though the project will result in significant and unavoidable Air Quality impacts in an inequitable manner within a disadvantaged community as noted above. The EIR ultimately concludes the project is consistent with the RTP/SCS even though it is not consistent with Goals 2, 3, 4, 5, and 6. The EIR is inconsistent with more than half of the RTP/SCS' nine goals and must be revised to include a finding of significance due to the inconsistency.

E2-14

5.7 Effects Found Not to be Significant: Population and Housing

The EIR does not accurately analyze the proposed square footage of the project. The EIR models the entire project as warehouse space while the Project Description states the project proposes 2,361,648 sf of warehouse and 1,383,781 sf of light industrial. The EIR chooses to model the project this way, which present unduly low employment generation estimates to conclude the project will generate only 3,134 employees. The Southern California Association of

E2-15

Government (SCAG) Employment Density Study3 provides the following applicable employment generation rates for San Bernardino County:

1 employee per 1,195 sf of warehouse area

1 employee per 705 sf of light manufacturing area

Application of these ratios results in the following calculation:

Warehouse: 2,361,648 square feet / 1,195 sq ft = 1,997 employees

Light Manufacturing: 1,383,781 square feet / 705 sq ft = 1,962 employees

Total: 3,959 employees

E2-15 Cont.

The revised EIR must provide accurate employment generation estimates utilized for analysis. The EIR also utilizes uncertain language that the project's employment needs would "likely be met by the City's existing labor force without people needing to relocate into the Project region," without demonstrating that the City's existing labor force is qualified or interested in these jobs. Additionally, the EIR concludes the project would not exceed the General Plan's buildout estimate of 243,000 residents without providing any meaningful evidence to support this claim, such as the current number of residents or the anticipated increase in residents generated by approved projects or cumulative projects in the pipeline. The analysis must provide meaningful evidence to support the conclusion that the project will not induce unplanned indirect or direct population growth.

E2-16

Conclusion

For the foregoing reasons, GSEJA believes the EIR is flawed and an amended EIR must be prepared for the proposed project and recirculated for public review. Golden State Environmental Justice Alliance requests to be added to the public interest list regarding any subsequent environmental documents, public notices, public hearings, and notices of determination for this project. Send all communications to Golden State Environmental Justice Alliance P.O. Box 79222 Corona, CA 92877.

E2-17

[3] SCAG Employment Density Study
https://www.mwcog.org/file.aspx?A=QTTlTR24POOOUIw5mPNzK8F4d8djdJe4LF9Exj6lXOU%3D

Sincerely,



Gary Ho
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October 15, 2020

Gary Ho
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Subject: Comments on Hesperia Commerce Center II Project (SCH No. 2019110418)

Dear Mr. Ho,

We have reviewed the September 2020 Draft Environmental Impact Report ("DEIR") for the Hesperia Commerce Center II Project ("Project") located in the City of Hesperia ("City"). The Project proposes to construct three (3) industrial/warehouse buildings, including 1,567,317-SF of "Building 1," 2,065,987-SF of "Building 2," and 112,125-SF of "Building 3," 20,000-SF of office space per building, as well as 1,763 stalls for trailers and 1,631 parking spots on the 194.8-acre Project site.

Our review concludes that the DEIR fails to adequately evaluate the Project's hazards and hazardous material, air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated EIR should be prepared to adequately assess and mitigate the potential hazards and hazardous material, air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment.

E2-18

Hazards and Hazardous Materials

A Phase I Environmental Site Assessment (Appendix H) prepared for the Project site identified debris disposal and waste oil disposal that resulted in stained soil (see images below from Appendix 7.1.1 to the Phase I ESA).

E2-19



View of representative waste oil disposal/dumping



View of representative waste oil disposal/dumping

The Phase I ESA found "50+" of the 5-gallon buckets and 5-quart jugs of used motor oil and "several areas of stained soil" during the site inspection as pictured above (p. 30). On the basis of these observations, the Phase I ESA found the used oil dumping and stained soil areas to be a recognized environmental condition (REC), as acknowledged in the DEIR (p. 4.7-2). A REC, as defined by ASTM International, means "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."[1]

Mitigation in the DEIR (MM-HAZ-1) requires the disposal of oil containers from the Project site. In areas with the "potential for residual contamination" an environmental professional "shall screen soils in the identified area prior to excavation" and "in the event that potential contamination is encountered, the contamination shall be evaluated by a qualified environmental professional using the appropriate collection and sampling techniques" (p. 4.7-19).

These provisions in MM-HAZ-1 fail to provide for proper disclosure of the contamination that was identified in the Phase I ESA. Areas of petroleum-stained soil were clearly identified in the Phase I ESA and should therefore be sampled now to determine the extent and the severity of the soil contamination. Soil sampling results from the sampling effort should be included in an updated EIR to identify specific mitigation that would be required, including a listing of all contaminants found, potential health impacts on construction workers, and an estimate of the volume of contaminated soils that will be necessary for removal upon grading and excavation.

E2-19 Cont.

Air Quality

Failure to Implement All Feasible Mitigation

The DEIR concludes that the Project's operational VOC, NO_X, and PM_{10} emissions would be significant and unavoidable (p. 4.2-29). Specifically, the DEIR states:

E2-20

[1] https://www.astm.org/Standards/E2247.htm

> "[B]ecause operation of the Project could result in exceedances of MDAQMD significance thresholds for VOC, NO_X, and PM_{10}, even after implementation of MM-AQ-2, the potential health effects associated with criteria air pollutants are conservatively considered significant and unavoidable" (p. 4.2-29).

However, while we agree that the Project would result in significant air quality impacts, the DEIR's conclusion that these impacts are "significant and unavoidable" is incorrect. According to CEQA Guidelines § 15096(g)(2):

> "When an EIR has been prepared for a project, the Responsible Agency shall not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment."

As you can see, an impact can only be labeled as significant and unavoidable after all available, feasible mitigation is considered. However, while the DEIR includes mitigation measures MM-AQ-1 and MM-AQ-2, the DEIR fails to implement ***all feasible*** mitigation (p. 4.2-29). Therefore, the DEIR's conclusion that the Project's air quality impacts are significant and unavoidable is unsubstantiated. To reduce the Project's air quality impacts to the maximum extent possible, additional feasible mitigation measures should be incorporated, such as those suggested in the section of this letter titled "Feasible Mitigation Measures Available to Reduce Emissions."[2] Until all feasible mitigation is considered and incorporated into the Project's design, the Project's construction and operational criteria air pollutant emissions should not be considered significant and unavoidable.

E2-20 Cont.

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.[3] CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[4] Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.[5]

E2-21

[2] See section titled "Feasible Mitigation Measures Available to Reduce Emissions" on p. 25 of this comment letter. These measures would effectively reduce operational VOC, NO_X, and PM_{10} emissions.
[3] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.
[4] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 1, 9.
[5] CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 11, 12 – 13. A key feature of the

When reviewing the Project's CalEEMod output files, provided in the Air Quality Impact Analysis ("AQIA") as Appendix C-1 to the DEIR, we found that several model inputs were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

E2-21 Cont.

Failure to Include All Proposed Land Uses

According to the DEIR, "the Project site would include 1,763 stalls for trailers and 1,631 standard parking spaces for passenger vehicles and trailers" (p. 3-18). However, review of the Project's CalEEMod output files demonstrates that the models fail to account for the 1,763 trailer stalls (see excerpt below) (Appendix C-1, pp. 106, 177, 250, 321, 394, 461, 530, 597).

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1,383.78	1000sqft	31.77	1,383,781.00	0
Unrefrigerated Warehouse-No Rail	2,361.65	1000sqft	54.22	2,361,648.00	0
Other Asphalt Surfaces	3,493.87	1000sqft	80.21	3,493,865.00	0
Other Non-Asphalt Surfaces	594.00	1000sqft	13.64	593,998.00	0
Parking Lot	1,631.00	Space	14.96	652,400.00	0

As you can see in the excerpt above, the "Parking Lot" land use space only accounts for the 1,631 standard parking spaces and fails to include the 1,763 trailer stalls whatsoever. This omission presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations. For example, the square footage of a land use is used for certain calculations such as determining the space to be painted (i.e., VOC emissions from architectural coatings) and area that is lit (i.e., energy impacts). Furthermore, CalEEMod assigns each land use type with its own set of energy usage emission factors. Thus, by failing to include the proposed trailer stalls in any of the CalEEMod models, the DEIR fails to account for the construction-related and operational emissions associated with trailer parking stalls and should not be relied upon to determine Project significance.

E2-22

Unsubstantiated Reduction to CO_2 Intensity Factor

Review of the Project's CalEEMod output files demonstrate that the CO_2 intensity factor was manually reduced from the default value of 702.44 pounds per megawatt hour ("lbs/MWh") to 515 lbs/MWh in the "Hesperia Commerce Center II (Operations - Passenger Cars)" and "Hesperia Commerce Center II (Operations - Trucks)" CalEEMod models (see excerpt below) (Appendix C-1, pp. 397, 464, 533, 600).

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	CO2IntensityFactor	702.44	515

As you can see in the excerpt above, the CO_2 intensity factor was reduced by approximately 27% in the Project's operational CalEEMod models. As previously mentioned, the CalEEMod User's Guide requires

E2-23

CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.

any changes to model defaults be justified.[6] According to the "User Entered Comments & Non-Default Data" table and Project Description, the justification provided for this change is: "Estimated intensity factor for total energy delivered by SCE based on the total CO2 emission factors and SB100 requirements for year 2021" (Appendix C-1, pp. 395, 462, 531, 598). However, the DEIR and associated documents fail to provide calculations or any sources for the 27% reduction. In addition, just because SB100 has these requirements for 2021 does not guarantee that they will actually be achieved locally on the Project site. As a result, we cannot verify the revised CO_2 intensity factor inputted into the models. This unsubstantiated reduction presents an issue, as the CO_2 intensity factor is used by CalEEMod to calculate the Project's GHG emissions associated with electricity use. [7] By including an unsubstantiated reduction to the Project's CO_2 intensity factor, the models may underestimate the Project's GHG emissions and should not be relied upon to determine Project significance.

E2-23 Cont.

Unsubstantiated Reductions to Vendor and Worker Trip Numbers

Review of the Project's CalEEMod output files demonstrates that the "Hesperia Commerce Center II (Construction – Unmitigated)" and "Hesperia Commerce Center II (Construction – Mitigated)" CalEEMod models include unsubstantiated reductions to the Project's anticipated vendor and worker trip numbers (see excerpt below) (Appendix C-1, pp. 109, 180, 253, 324).

Table Name	Column Name	Default Value	New Value
tblTripsAndVMT	VendorTripNumber	1,391.00	696.00
tblTripsAndVMT	WorkerTripNumber	3,564.00	1,782.00

As you can see in the excerpt above, the number of vendor and worker trips were manually reduced by 695 and 1,782 trips, respectively. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[8] According to the "User Entered Comments & Non-Default Data" table and Project Description, the justification provided for this change is: "It is unlikely that the entire Project will be constructed simultaneously. As such, this analysis assumes 1/2 of the CalEEMod default worker/vendor trips" (Appendix C-1, pp. 107, 178, 251). Furthermore, the DEIR states:

> "Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod ***defaults***" (emphasis added) (p. 4.2-17).

However, this statement is contradictory to the changes in the models, as the models do not rely upon default vendor and worker trip numbers, but instead rely on ***manually reduced*** vendor and worker trip numbers. As such, the manual reductions to the vendor and worker trip numbers are inconsistent with the DEIR and thus, are underestimated. By including unsubstantiated reductions to the number of vendor and worker trips, the model underestimates the Project's construction-related emissions and should not be relied upon to determine Project significance.

E2-24

[6] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[7] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

Unsubstantiated Changes to Operational Vehicle Fleet Mix Percentages

Review of the Project's CalEEMod output files demonstrates that two (2) of the Project's CalEEMod models include several unsubstantiated changes to the Project's anticipated operational vehicle fleet mix percentages. As a result, the models may underestimate the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

First, the "Hesperia Commerce Center II (Operations - Passenger Cars)" CalEEMod model includes several manual changes to the Project's anticipated operational vehicle fleet mix (see excerpt below) (Appendix C-1, pp. 395-396, 462-463).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	HHD	0.06	0.00
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDA	0.55	0.62
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LDT2	0.18	0.20
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00

As you can see in the excerpt above, several vehicle fleet mix percentages were manually altered, resulting in a reduction of heavy heavy-duty truck ("HHD"), light heavy-duty truck ("LHD1" and "LHD2"), motorcycle ("MCY"), motor home ("MH"), medium heavy-duty truck ("MHD"), and all bus ("OBUS," "SBUS," and "UBUS") fleet mix percentages to zero, as well as an increase in light-duty auto ("LDA") vehicle, light-duty truck ("LDT1" and "LDT2"), and medium-duty truck ("MDV") fleet mix percentages.

E2-25

Second, the "Hesperia Commerce Center II (Operations - Trucks)" model includes several manual changes to the Project's anticipated operational vehicle fleet mix (see excerpt below) (Appendix C-1, pp. 531-532, 598-599).

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	200.00	0.00
tblFleetMix	HHD	0.06	0.44
tblFleetMix	HHD	0.06	0.79
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDA	0.55	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.37
tblFleetMix	LHD1	0.02	0.11
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	LHD2	5.2670e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MCY	6.0000e-003	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MH	1.0100e-003	0.00
tblFleetMix	MHD	0.02	0.18
tblFleetMix	MHD	0.02	0.11
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	OBUS	1.3480e-003	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	SBUS	8.1200e-004	0.00
tblFleetMix	UBUS	1.6070e-003	0.00
tblFleetMix	UBUS	1.6070e-003	0.00

As you can see in the excerpt above, several vehicle fleet mix percentages were manually altered, resulting in the reduction of light-duty auto ("LDA") vehicle, light-duty truck ("LDT1" and "LDT2"), motorcycle ("MCY"), medium-duty truck ("MDV"), motor home ("MH"), and all bus ("OBUS," "SBUS," and "UBUS") fleet mix percentages to zero, as well as an increase in heavy heavy-duty truck ("HHD"), light heavy-duty truck ("LHD1" and "LHD2"), and medium heavy-duty truck ("MHD") fleet mix percentages.

Furthermore, review of the Traffic Impact Analysis ("TIA"), provided as Appendix K-1 to the DEIR, demonstrates that 9,530 out of 11,898 average weekday vehicle trips, or approximately 80%, are modeled as passenger car trips, while only 2,368 out of 11,898 average weekday vehicle trips, or approximately 20%, are modeled as truck trips (see excerpt below) (Appendix K-1, p. 67, Table 4-2).

E2-25
Cont.

Land Use	Quantity	Units[4]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Project Trip Generation Summary (Actual)									
High-Cube Fulfillment Center Warehouse (65% of Bldg. 1, 2)	2,361.648	TSF							
Passenger Cars:			187	56	243	95	245	340	4,134
Truck Trips:									
2-4 axle:			15	4	19	7	19	26	384
5+-axle:			20	6	26	7	17	24	512
- Net Truck Trips			35	10	45	14	36	50	896
FULFILLMENT CENTER TOTAL NET TRIPS (Actual Vehicles)[4]			222	66	288	109	281	390	5,030
General Light Industrial (35% of Bldg. 1, 2)	1,271.656	TSF							
Passenger Cars:			616	84	700	82	548	630	4,958
Truck Trips:									
2-axle:			63	9	72	8	56	64	506
3-axle:			31	4	35	4	27	31	246
4+-axle:			74	10	84	10	66	76	600
- Net Truck Trips			168	23	191	22	149	171	1,352
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles)[4]			784	107	891	104	697	801	6,310
General Light Industrial (Bldg. 3)	112.125	TSF							
Passenger Cars:			54	7	61	7	48	55	438
Truck Trips:									
2-axle:			6	1	7	1	5	6	44
3-axle:			3	0	3	0	2	2	22
4+-axle:			7	1	8	1	6	7	54
- Net Truck Trips			16	2	18	2	13	15	120
GENERAL LIGHT INDUSTRIAL TOTAL NET TRIPS (Actual Vehicles)[4]			70	9	79	9	61	70	558
Passenger Car Total			857	147	1,004	184	841	1,025	9,530
Truck Total (Actual Vehicles)			219	35	254	38	198	236	2,368
TOTAL PROPOSED PROJECT (Actual Vehicles)			1,076	182	1,258	222	1,039	1,261	11,898

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[9] However, the revised operational vehicle fleet mix percentages are incorrect for the following three (3) reasons.

First, according to the "User Entered Comments & Non-Default Data" table and Project Description, the justification provided for these changes is: "Passenger Car Fleet Mix estimated based on the ratio of the vehicle classes in CalEEMod default fleet mix" and "Truck Fleet Mix estimated by rationing the Trip Rates for each truck type based on information provided in the TIA," respectively (Appendix C-1, pp. 395, 462, 531, 598). However, review of the TIA reveals that fleet mix percentages are not mentioned or discussed whatsoever.

Second, while the DEIR provides the assumed changes to the default vehicle fleet mix percentages, the sources provided for the revised values are the ***DEIR's own CalEEMod model*** (see excerpt below) (p. 4.2-20, Table 4.2-7, Table 4.2-8).

E2-25 Cont.

E2-26

[9] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

Table 4.2-7. Passenger Car Fleet Mix

Land Use	Vehicle Type	Percent[1]
High-Cube Fulfillment Center Warehouse/ General Light Industrial	LDA	62.06
	LDT1	4.19
	LDT2	20.27
	MDV	13.48

Source: Appendix C-1.

1 The Project-specific passenger car fleet mix used in this analysis is based on a proportional split utilizing the CalEEMod default percentage assigned to LDA, LDT1, LDT2, and MDV vehicle types.

Table 4.2-8. Truck Fleet Mix

Land Use	Vehicle Type	Percent[1]
High-Cube Fulfillment Center Warehouse	LHDT	10.71
	MHDT	10.71
	HHDT	78.57
General Light Industrial	LHDT	37.36
	MHDT	18.21
	HHDT	44.43

Source: Appendix C-1.

1 Project-specific truck fleet mix is based on the number of trips generated by each truck type (LHDT, MHDT, HHDT) relative to the total number of truck trips generated by the Project.

E2-26 Cont.

As you can see in the excerpt above, the DEIR's source for the revised vehicle fleet mix percentages is *the CalEEMod output file itself*. However, this is incorrect, as the Project documents should substantiate the vehicle fleet mix changes included in the model, not vice versa. As such, we cannot verify the inclusion of these changes in the models.

E2-27

Third, this fleet mix is not consistent with recommendations set forth by SCAQMD and does not accurately represent the percentage of trucks that are expected to access the site on a daily basis. Rather, SCAQMD recommends that lead agencies assume a truck fleet mix of 40%.[10] According to *Appendix E: Technical Source Documentation* of the 2013 CalEEMod User's Guide, "in order to avoid underestimating the number of trucks visiting warehouse facilities," SCAQMD staff "recommends that lead agencies conservatively assume that an average of 40% of total trips are truck trips [(0.48*10 + 0.2*4)/(10+4)=0.4)]."[11] If Project-specific data is not available, such as detailed trip rates based on a known tenant schedule, this average of 40% provides a reasonably conservative value based on currently available data. Since the future tenant is unknown, the tenant schedule is also not known; therefore, a 40% truck fleet mix should also be assumed.[12] Thus, according to SCAQMD and the CalEEMod User's Guide, the following fleet mix percentage should have been used within the Project's CalEEMod modeling (see table below).

CalEEMod Parameter	SWAPE Model Input

[10] "CalEEMod User's Guide, Appendix E." CAPCOA, July 2013, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixe.pdf, pp. 15.

[11] "Appendix E Technical Source Documentation." CalEEMod User's Guide, July 2013, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/high-cube-resource-caleemod-appendix-e.pdf?sfvrsn=2, pp. 15

[12] "CalEEMod User's Guide, Appendix E." CAPCOA, July 2013, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/caleemod-appendixe.pdf, pp. 15.

Operational Mobile Fleet Mix	Passenger Cars (LDA)	59.14%
	2 Axle Trucks (LHDT1)	6.92%
	3 Axle Trucks (MHD)	9.28%
	4+ Axle Trucks (HHDT)	24.66%

E2-27 Cont.

Therefore, to demonstrate consistency with analyses for other warehouse projects within SCAQMD jurisdiction, the DEIR should have used the truck fleet percentages recommended by the SCAQMD. As such, an updated air quality analysis should be prepared in an updated EIR that adequately assesses the Project's air quality and GHG impacts.

These unsubstantiated changes to the Project's anticipated operational vehicle fleet mix percentages present an issue, as CalEEMod uses the fleet mix percentages to calculate the Project's operational emissions associated with on-road vehicles.[13] Thus, by including several unsubstantiated changes to the Project's anticipated vehicle fleet mix, the models may underestimate the Project's mobile-related operational emissions and should not be relied upon to determine Project significance.

E2-28

Use of Incorrect Operational Vehicle Trip Rates

As previously mentioned, the TIA indicates that the proposed Project is expected to generate 9,530 passenger car daily trips and 2,368 truck daily trips throughout operation (TIA, p. 67, Table 7-1). However, review of the Project's CalEEMod output files demonstrates that two (2) of the models include an incorrect Saturday vehicle trip rate.

First, review of the "Hesperia Commerce Center II (Operations – Passenger Cars)" model demonstrates that the model only includes 6,298.44 Saturday vehicle trips (see excerpt below) (Appendix C-1, pp. 454, 521).

Hesperia Commerce Center II (Operations – Passenger Cars)

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	5,396.05	2,164.37	5438.26	17,083,953	17,083,953
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4,134.06	4,134.06	4134.06	14,295,596	14,295,596
Total	9,530.12	6,298.44	9,572.32	31,379,549	31,379,549

As you can see in the excerpt above, the Saturday vehicle trip rate was underestimated by 3,231.56 trips in this model. Second, review of the "Hesperia Commerce Center II (Operations – Trucks)" model demonstrates that the model only includes 1,485.36 Saturday vehicle trips (see excerpt below) (Appendix C-1, pp. 590, 657).

E2-29

[13] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 35.

Hesperia Commerce Center II (Operations –Trucks)

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	1,472.07	589.35	1480.65	19,615,085	19,615,085
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	896.01	896.01	896.01	13,045,895	13,045,895
Total	2,368.08	1,485.36	2,376.65	32,660,979	32,660,979

As you can see in the excerpt above, the Saturday truck trip rate was underestimated by 882.64 trips in the model. Thus, the trip rates inputted into the model are underestimated and inconsistent with the information provided by the TIA. This presents an issue, as CalEEMod uses the trip rates to calculate the emissions associated with operational on-road vehicles.[14] Thus, by including underestimated operational vehicle trip rates, the model underestimates the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

E2-29 Cont.

Unsubstantiated Changes to Operational Vehicle Emission Factors

Review of the Project's CalEEMod output files demonstrates that the models include several unsubstantiated manual changes to the Project's anticipated vehicle emission factors (Appendix C-1, pp. 397-446, 464-513, 533-582, 600-649). As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[15] According to the "User Entered Comments & Non-Default Data" table and Project Description, the justification provided for this change is: "EMFAC2017" (Appendix C-1, pp. 395, 462, 531, 598). Furthermore, the DEIR states:

> "[T]he latest version of CalEEMod uses vehicle emission rates obtained from the EMissions FACtor model (EMFAC) 2014 web database. EMFAC2014 emission rates of all vehicle categories are based on aggregated model year and aggregated speed for all counties, air basins, air districts and statewide average for 31 scenario years that each includes three seasons (annual, summer, and winter). Notably, the EPA approved the 2017 version of the EMFAC web database on August 19, 2019. Emission factors from EMFAC2017 were incorporated into CalEEMod for this analysis" (p. 4.2-16 – 4.2-17).

However, these justifications are insufficient, as EMFAC2017 refers to an ***entire database***, not a specific set of vehicle emission factors.[16] Thus, the DEIR and associated appendices should have either specified which input parameters were used to obtain the vehicle emission factors inputted in the model or disclosed the specific set of emission factors inputted into the model from the database. Absent the specific input parameters or a specific set of emission factors, we cannot verify the revised operational vehicle emission factors inputted into the models. This presents an issue, as the vehicle emission factors are used by CalEEMod to calculate the Project's emissions associated with operational on-road vehicles.[17] Thus, by including unsubstantiated changes to the Project's operational vehicle emission

E2-30

[14] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.caleemod.com/, p. 35.
[15] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[16] "EMFAC2017 Web Database." CARB, *available at:* https://arb.ca.gov/emfac/2017/.
[17] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

factors, the models may underestimate the Project's operational emissions and should not be relied upon to determine Project significance.

E2-30 Cont.

Unsubstantiated Change to Operational Off-Road Equipment Fuel Type

Review of the Project's CalEEMod output files demonstrates that the operational models assume that the Project's anticipated operational off-road equipment fuel type will be compressed natural gas ("CNG"), as opposed to the default Diesel fuel type (see excerpt below) (Appendix C-1, pp. 397, 464, 533, 600).

Table Name	Column Name	Default Value	New Value
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[18] According to the User Entered Comments and Non-Default Data table, the justification provided for this change is: "Based on SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results (2014)" (Appendix C-1, pp. 395, 462, 531, 598). However, review of the SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results reveals that the study fails to mention the use of compressed natural gas ("CNG") whatsoever.[19] Thus, we cannot verify that the fuel type of the anticipated operational off-road equipment will be CNG. By including an unsubstantiated change to the Project's anticipated operational off-road construction equipment fuel type, the model may underestimate the Project's operational emissions and should not be relied upon to determine Project significance.

E2-31

Incorrect Application of Operational Mitigation Measures

Review of the CalEEMod output files for the Project demonstrates that the models incorrectly include three (3) energy-, water-, and waste-related operational mitigation measures. As a result, the Project's operational emissions may be underestimated, and the model should not be relied upon to determine Project significance.

First, the Project's CalEEMod output files reveal that the model includes the "Exceed Title 24" energy mitigation measure (see excerpt below) (Appendix C-1, pp. 455, 522, 591 658).

5.1 Mitigation Measures Energy

Exceed Title 24

Second, the Project's CalEEMod output files reveal that the model includes the "Apply Water Conservation Strategy" water mitigation measure (see excerpt below) (Appendix C-1, pp. 459, 526, 595, 662).

E2-32

[18] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

[19] SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results (2014), *available at*: http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/business-survey-summary.pdf

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Third, the Project's CalEEMod output files revel that the model includes the "Institute Recycling and Composting Services" waste mitigation measure (see excerpt below) (Appendix C-1, pp. 459, 526, 595, 662).

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

However, the inclusion of the above-mentioned energy-, water-, and waste-related operational mitigation measures is unsubstantiated according to the relevant guidance. According to the CalEEMod User's Guide:

> "The mitigation measures included in CalEEMod are largely based on the CAPCOA Quantifying Greenhouse Gas Mitigation Measures (http://www.capcoa.org/wp-content/uploads/downloads/2010/09/CAPCOA-Quantification-Report-9-14-Final.pdf) document. The CAPCOA measure numbers are provided next to the mitigation measures in CalEEMod to assist the user in understanding each measure by referencing back to the CAPCOA document."[20]

However, review of CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* document demonstrates that the DEIR fails to substantiate several of the mitigation measures included in the model (see table below).

Measure	Consistency
CAPCOA's Quantifying Greenhouse Gas Mitigation Measures[21]	
Energy Measures	
Measure BE-1 Exceed Title 24 *"Greenhouse gases (GHGs) are emitted as a result of activities in residential and commercial buildings when electricity and natural gas are used as energy sources. New California buildings must be*	As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified. [22] Here, however, no justification was provided in the "User Entered Comments & Non-Default Data" table. Furthermore, while the DEIR provides the Project's total electricity

E2-32 Cont.

E2-33

[20] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.caleemod.com/, p. 53.
[21] "Quantifying Greenhouse Gas Mitigation Measures." CAPCOA, August 2010, *available at:* http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf.
[22] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

designed to meet the building energy efficiency standards of Title 24, also known as the California Building Standards Code. Title 24 Part 6 regulates energy uses including space heating and cooling, hot water heating, and ventilation. By committing to a percent improvement over Title 24, a development reduces its energy use and resulting GHG emissions." The following information needs to be provided by the Project Applicant: • Square footage of non-residential buildings • Number of dwelling units • Building/Housing Type • Climate Zone • Total electricity demand (KWh) per dwelling unit or per square feet • % reduction commitment (over 2008 Title 24 standards)	demand of 49,753,150 kBTU/yr and states the Project <u>*expects*</u> 30% less energy for non-residential buildings due to 2019 Title 24 Standards, the DEIR fails to actually commit to a 30% reduction, as required by CAPCOA for this measure (p. 4.5-11, 4.6-25). Furthermore, the DEIR fails to demonstrate how the Project will implement, monitor, and enforce this measure on the Project site. As such, this measure is unsubstantiated, and the model should not be relied upon to determine Project significance.
Water Measures	



E2-33
Cont.

Measure WUW-2 Water Conservation Strategy *"This mitigation measure describes how to calculate GHG emissions reductions from a Water Conservation Strategy which achieves X% reduction in water use (where X% is the specific percentage reduction in water use committed to by the Project Applicant). The steps taken to achieve this X% reduction in water use can vary in nature and may incorporate technologies which have not yet been established at the time this document was written. In order to take credit for this mitigation measure, the Project Applicant would need to provide detailed and substantial evidence supporting the percent reduction in water use."* The following information needs to be provided by the Project Applicant: • Total expected water demand, without implementation of Water Conservation Strategy (million gallons) • Percent reduction in water use after implementation of Water Conservation Strategy (%)	As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified. [23] Here, however, no justification was provided in the "User Entered Comments & Non-Default Data" table. The DEIR includes the following project design feature ("PDF"): "To reduce water demands and associated energy use, subsequent development proposals within the Project site would be required to implement a Water Conservation Strategy and demonstrate a minimum 20% reduction in indoor and outdoor water usage when compared to baseline water demand (total expected water demand without implementation of the Water Conservation Strategy)" (p. 4.6-25). However, this PDF applies to ***subsequent*** development proposals, not the currently proposed Project. Furthermore, while the DEIR provides the total expected water demand, the current Project fails to implement a Water Conservation Strategy or provide a percent reduction in water use value, as required by CAPCOA for this measure (p. 4.11-17). As such, this measure is unsubstantiated, and the model should not be relied upon to determine Project significance.
Waste Measures	
Measure SW-1 Institute Recycling and Composting Services *"Current protocols for quantifying emissions reductions from diverted landfill waste developed by the USEPA and the California Center for Integrated Waste Management Board (CIWMB) are based on life-cycle approaches, which reflect emissions and reductions in both the upstream and downstream processes around waste management. The Project Applicant should seek*	As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified. [24] Here, however, no justification was provided in the "User Entered Comments & Non-Default Data" table. The DEIR states that, "[i]n order to reduce the amount of waste disposed at landfills, the Project would implement a 75% waste diversion" and that "a large percentage of this waste [would] be diverted from landfills by a variety of means, such as reducing the amount of waste

E2-34

E2-35

[23] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[24] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

local agency guidance on comparing and/or combining operational emissions inventories and life cycle emissions inventories… To take credit for this measure, the Project Applicant would need to provide detailed and substantial evidence supporting the amount of waste reduced or diverted to recycling and composting due to the institution of extended recycling and composting services." *"USEPA's Waste Reduction Model (WARM) is used to quantify baseline emissions and emissions reductions from diverting landfill waste to composting or recycling. This webbased tool is available online… The required inputs are the tons of waste associated with one of three waste management practices: landfill (baseline scenario), recycled (mitigated scenario), combusted (not applicable in California), and composted (mitigated scenario)."*	generated, recycling, and/or composting" (p. 4.6-25, 4.6-24). However, the DEIR fails to discuss the specific policies and programs, which incorporate recycling and composting, that the Project would implement to achieve a 75% diversion rate. Thus, the DEIR fails to provide detailed and substantial evidence supporting the amount of waste reduced or diverted to recycling and composting due to the institution of extended recycling and composting services. As such, we are unable to verify that this reduction will actually be feasible and achieved on the Project site. Furthermore, the DEIR fails to seek local agency guidance on comparing and/or combining operational emissions inventories and life cycle emissions inventories, as the measure states. Finally, the DEIR fails to utilize WARM to quantify baseline emissions and emissions reductions, as CAPCOA indicates. As such, this measure is unsubstantiated, and the model should not be relied upon to determine Project significance.

E2-35 Cont.

As you can see in the table above, the DEIR fails to justify the energy-, water-, and waste-related operational mitigation measures included in the Project's CalEEMod models. As a result, the inclusion of these measures in the model is unsubstantiated and the model should not be relied upon to determine Project significance.

E2-36

Updated Analysis Indicates a Potentially Significant Air Quality Impact

In an effort to determine the construction-related emissions associated with the proposed Project, we prepared an updated CalEEMod model, using the Project-specific information provided by the DEIR. In our updated construction model, we omitted the unsubstantiated reductions to the Project's anticipated vendor and worker trip numbers. Our updated analysis demonstrates that the NO_X emissions associated with Project construction would exceed the 137 pounds per day ("lbs/day") threshold set by the MDAQMD, as referenced by the DEIR (see table below) (p. 4.2-23).

Model	NO_X
DEIR Mitigated Construction	126.37
SWAPE Mitigated Construction	210.41
% Increase	67%
MDAQMD Regional Threshold (lbs/day)	**137**

E2-37

Threshold Exceeded?	***Yes***

As demonstrated in the table above, when modeled correctly, the NO_x emissions associated with Project construction exceed the MDAQMD threshold of 137 lbs/day. Thus, our model demonstrates that the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the DEIR. Therefore, an updated EIR should be prepared and recirculated to adequately assess and mitigate the potential air quality impacts that the Project may have on the surrounding environment.

E2-37 Cont.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR concludes that the proposed Project would result in a less than significant health risk impact based on a quantified health risk assessment ("HRA") evaluating the impacts of heavy-duty diesel trucks accessing the site (p. 4.2-21). Regarding the results of the HRA, the DEIR states:

> "The maximum incremental cancer risk attributable to Project DPM source emissions at the MEIR is estimated at 7.37 in one million, which is less than the MDAQMD's significance threshold of 10 in one million" (p. 4.2-30).

E2-38

However, the DEIR's evaluation of the Project's health risk impacts, as well as the subsequent less than significant impact conclusion, is incorrect for two (2) reasons.

First, the omission of a quantified construction HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"), the organization responsible for providing guidance on conducting HRAs in California. In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*.[25] This guidance document describes the types of projects that warrant the preparation of an HRA. Construction of the Project will produce emissions of DPM, a human carcinogen, through the exhaust stacks of construction equipment over a construction period of approximately 2 years, starting in 2021 and ending in 2023 (p. 1-3). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.[26] Therefore, per OEHHA guidelines, we recommend that health risk impacts from Project construction be evaluated in an updated EIR. These recommendations reflect the most recent health risk policy, as adopted by the air district, and as such, an updated assessment of health risks to nearby sensitive receptors from Project construction and operation should be included in an updated EIR for the Project.

E2-39

Second, review of the DEIR demonstrates that, while the Project did conduct an operational HRA, evaluating the health risk impacts associated with heavy-duty diesel trucks accessing the site, the HRA fails to evaluate the ***cumulative*** lifetime cancer risk to nearby, existing receptors as a result of Project construction ***and*** operation ***together***. According to OEHHA guidance, "the excess cancer risk is calculated

E2-40

[25] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[26] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18

separately for each age grouping and then summed to yield cancer risk at the receptor location."[27] However, the HRA conducted in the DEIR fails to sum each age bin to evaluate the total cancer risk over the course of the Project's construction and operation. This is incorrect and thus, an updated EIR should quantify the entirety of the Project's construction and operational health risks and then sum them to compare to the MDAQMD threshold of 10 in one million, as referenced by the DEIR (p. 4.52-30).[28]

E2-40 Cont.

Screening-Level Assessment Indicates Significant Impact

In an effort to demonstrate the potential health risk posed by Project construction and operation to nearby sensitive receptors, we prepared a simple screening-level HRA. The results of our assessment as described below, provide substantial evidence that the Project's construction DPM emissions may result in a potentially significant health risk impact not previously identified by the DEIR.

In order to conduct our screening level risk assessment, we relied upon AERSCREEN, which is a screening level air quality dispersion model. [29] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[30] and the California Air Pollution Control Officers Associated ("CAPCOA")[31] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

E2-41

In an effort to determine the proposed Project's construction emissions and connect these emissions to potential health risk impacts, we prepared an updated CalEEMod model for the Project, using the Project-specific information provided by the DEIR. In our updated construction CalEEMod model, we omitted the unsubstantiated reductions to the Project's anticipated vendor and worker trips. Using the mitigated annual PM_{10} exhaust estimates from our updated CalEEMod model, we prepared a preliminary HRA of the Project's construction health-related impact to residential sensitive receptors. Consistent with recommendations set forth by OEHHA, we assumed exposure begins during the third trimester stage of life. SWAPE's updated annual CalEEMod output files indicate that construction activities will generate approximately 744 pounds of DPM over the 319-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in

[27] "Guidance Manual for preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf p. 8-4
[28] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 2-5.
[29] "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at:* http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf
[30] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf
[31] "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at:* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{744.4\ lbs}{319\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.01225\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.01225 grams per second (g/s). Construction activity was simulated as a 194.8-acre rectangular area source in AERSCREEN with dimensions of 1,011 meters by 780 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[32] Furthermore, according to the DEIR:

> "[T]he residential land use with the greatest potential exposure to Project DPM source emissions is at the existing West Main Villas apartments as 9800 Mesa Linda Street, approximately 2,165 feet southeast of the Project site" (p. 4.2-30).

Thus, we utilized the single-hour concentrations at 700 meters from the Project site. The single-hour concentration estimated by AERSCREEN for Project construction is approximately 0.7891 µg/m^3 DPM at approximately 700 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration 0.07891 µg/m^3 for Project construction at the MEIR.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA and the MDAQMD. Consistent with the construction schedule included in the DEIR's CalEEMod model the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years) and the first 0.62 years of the infantile stage of life (0 – 2 years). Consistent with the DEIR's methodology, we used Age Sensitivity Factors ("ASFs") to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution (Appendix C-2, p. 13). According to this guidance, the quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) as well as multiplied by a factor of three during the child stage of life (2 to 16 years). Furthermore, in accordance with guidance set forth

E2-41
Cont.

[32] "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." EPA, 1992, *available at*: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; *see also* "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 4-36

by OEHHA, we used the 95th percentile breathing rates for infants.[33] Finally, we used a Fraction of Time At Home ("FAH") value of 1 for the 3rd trimester and infant receptors. We used a cancer potency factor of 1.1 (mg/kg-day)$^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Maximum Exposed Individual at an Existing Residential Receptor (MEIR)					
Activity	**Duration (years)**	**Concentration (ug/m3)**	**Breathing Rate (L/kg-day)**	**ASF**	**Cancer Risk with ASFs***
Construction	0.25	0.07891	361	10	1.1E-06
3rd Trimester Duration	***0.25***			***3rd Trimester Exposure***	***1.1E-06***
Construction	0.62	0.07891	1090	10	8.1E-06
Operation	1.38	N/A	1090	10	N/A
Infant Exposure Duration	***2.00***			***Infant Exposure***	***8.1E-06***
Operation	14.00	N/A	572	3	N/A
Child Exposure Duration	***14.00***			***Child Exposure***	***N/A***
Operation	14.00	N/A	261	1	N/A
Adult Exposure Duration	***14.00***			***Adult Exposure***	***N/A***
Lifetime Exposure Duration	**30.00**			**Lifetime Exposure**	**9.2E-06**

* We, along with CARB and SCAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

** Operational cancer risk calculated separately by the DEIR.

The excess cancer risk posed to infants and during the third trimester of pregnancy at the closest residential receptor, located approximately 700 meters away, over the course of Project construction, are approximately 8.1 and 1.1 in one million, respectively. When summed with the DEIR's operational cancer risk estimate of 7.37 in one million, the excess cancer risk over the course of a residential lifetime (30 years) at the closest residential receptor, is approximately 17.6 in one million (p. 4.2-30).[34] The

E2-41 Cont.

[33] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6, p. 19.
"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[34] 8.1 in one million + 1.1 in one million + 7.37 in one million = 17.57 in one million.

lifetime cancer risk exceeds the MDAQMD threshold of 10 in one million,[35] thus resulting in a potentially significant impact not previously addressed or identified by the DEIR.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to be conservative and tends to err on the side of health protection. The purpose of the screening-level construction HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level construction HRA indicates a potentially significant impact, an updated EIR should include a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, an updated EIR should include a quantified air pollution model as well as an updated, quantified, refined health risk assessment which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

E2-41 Cont.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The DEIR estimates that the Project would generate net annual greenhouse gas ("GHG") emissions of 55,599 metric tons of carbon dioxide equivalents per year ("MT CO_2e/year"), which would not exceed the MDAQMD screening-level threshold of 90,719 MT CO_2e/year (see excerpt below) (p. 4.6-27, Table 4.6-7).

Project	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area Source	0.17	<0.01	0.00	0.18
Energy Source	6,600.86	0.29	0.09	6,635.45
Mobile Sources (Passenger Cars)	9,789.03	0.35	0.00	9,797.86
Mobile Sources (Trucks)	37,014.63	0.17	0.00	37,018.97
On-Site Equipment Sources	762.61	0.25	0.00	768.77
Waste	199.74	11.80	0.00	494.84
Water Usage	573.17	5.59	0.14	753.83
Annual construction-related emissions amortized over 30 years	129.21	0.01	0.00	129.51
			Total Project Emissions	55,599.41

As a result, the DEIR concludes that the Project's GHG emissions would not exceed the MDAQMD bright-line threshold of 90,719 MT CO_2e/year, stating:

> "[W]ith applicable regulatory requirements and PDFs, the Project would result in approximately 55,599 MT CO2e per year, which is below the MDAQMD GHG threshold of 90,719 MT CO2e per year. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that

E2-42

[35] "California Environmental Quality Act (CEQA) And Federal Conformity Guidelines." MDAQMD, August 2016, *available at:* https://www.mdaqmd.ca.gov/home/showdocument?id=192, p. 9.

may have a significant impact on the environment, and this would represent a cumulatively less than significant impact" (p. 4.6-27).

Furthermore, the DEIR relies upon the Project's consistency with CARB's 2017 *Scoping Plan*, the City's Climate Action Plan ("CAP"), as well as AB 32, SB 32, and Title 24, in order to determine that the Project would result in a less than significant GHG impact (p. 4.6-27 - 4.6-33). Specifically, the DEIR states:

> "The Project demonstrates consistency with the General Plan, CAP goals, measures, and emission reduction targets, and would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce GHG emissions, including Title 24, AB 32, and SB 32. Therefore, impacts would be less than significant" (p. 4.6-33).

E2-42 Cont.

However, the DEIR's quantitative and qualitative GHG analyses, as well as the subsequent less-than-significant impact conclusion, are incorrect for the following four (4) reasons.

(1) The DEIR's quantitative GHG analysis relies upon an incorrect and unsubstantiated air model;
(2) Title 24, AB 32, and SB 32 are not qualified GHG reduction plans or CAPs under CEQA;
(3) The DEIR incorrectly relies upon outdated sources; and
(4) The DEIR fails to demonstrate that the Project would not conflict with CARB's 2017 *Scoping Plan*;

E2-43

1) Incorrect and Unsubstantiated Quantitative Analysis of Emissions

As discussed above, the DEIR concludes that the proposed Project would generate net annual GHG emissions of 55,599 MT CO_2e/year. However, the DEIR's quantitative GHG analysis is unsubstantiated. As previously discussed, when we reviewed the Project's CalEEMod output files, provided as Appendix C-1 to the DEIR, we found that several of the values inputted into the model are not consistent with information disclosed in the DEIR and associated documents. As a result, the model underestimates the Project's GHG emissions, and the DEIR's quantitative GHG analysis should not be relied upon to determine Project significance. An updated EIR should be prepared that adequately assesses the potential GHG impacts that construction and operation of the proposed Project may have on the surrounding environment.

E2-44

2) Title 24, AB 32, and SB 32 are not Qualified GHG Reduction Plans

As discussed above, the DEIR relies upon the Project's consistency with Title 24, AB 32, and SB 32 to determine the Project's GHG significance. However, these plans do not qualify as adequate GHG Reduction Plans ("GGRPs") or climate action plans ("CAPs") according to CEQA. CEQA Guidelines §§ 15064.4(b)(3) and 15183(b) allows a lead agency to consider a project's consistency with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. When read in conjunction, CEQA Guidelines §§ 15064.4(b)(3) and 15183.5(b)(1) make clear qualified GHG reduction plans or CAPs should include the following features:

(1) **Inventory**: Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities (e.g., projects) within a defined geographic area (e.g., lead agency jurisdiction);

E2-45

(2) **Establish GHG Reduction Goal**: Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;

(3) **Analyze Project Types**: Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(4) **Craft Performance Based Mitigation Measures**: Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(5) **Monitoring**: Establish a mechanism to monitor the CAP progress toward achieving said level and to require amendment if the plan is not achieving specified levels;

E2-45 Cont.

Collectively, the above-listed features tie qualitative measures to quantitative results, which in turn become binding via proper monitoring and enforcement by the jurisdiction—all resulting in real GHG reductions for the jurisdiction as a whole, and substantial evidence demonstrating that a project's incremental contribution is not cumulatively considerable. Here, however, the DEIR fails to demonstrate that these plans and policies include the above-listed requirements to be considered qualified GGRPs or CAPs for the City. As such, the DEIR leaves an analytical gap showing that compliance with said plans can be used for a project-level significance determination for the Project. Thus, the DEIR's qualitative GHG analysis regarding Title 24, AB 32, and SB 32 should not be relied upon to determine Project significance.

3) Incorrect Reliance on Outdated Sources

As previously discussed, the DEIR relies upon the Project's consistency with AB 32 and the City's CAP in order to determine the significance of the Project's GHG impact. However, this is incorrect, as AB 32 and the City's CAP are outdated and inapplicable to the proposed Project. As a result, the DEIR's less-than-significant impact conclusion regarding the Project's consistency with AB 32 and the City's CAP is incorrect and should not be relied upon.

Specifically, AB 32 only sets emission reduction targets through 2020. Thus AB 32 is only applicable to projects that will become operational by 2020. Furthermore, review of the City's CAP demonstrates that the plan is based on reduction goals mandated by AB 32. Specifically, the City's CAP states:

> "The City of Hesperia (City) has prepared a Climate Action Plan (CAP) as its primary strategy for ensuring that the buildout of the General Plan Update will not conflict with the implementation of Assembly Bill 32 – the Global Warming Solutions Act of 2006. Assembly Bill 32 (AB 32) requires California to reduce statewide greenhouse gas emissions to 1990 levels by the year 2020, which is about a 29 percent reduction from 2020 business as usual. *This CAP is designed to reduce community-related and City operations-related greenhouse gas emissions to a degree that would not hinder or delay implementation of AB 32*."[36]

E2-46

[36] City of Hesperia – Climate Action Plan (July 2010), available at: http://www.cityofhesperia.us/DocumentCenter/View/1291/23660023-Hesperia-CAP-July-20?bidId=, p. 1

As the above excerpt demonstrates, the City's CAP is based upon the implementation of AB 32, which is *only* applicable to projects that will become operational by 2020. However, given that it is already October of 2020 and the Project has not yet been approved, both AB 32 and the City's CAP are inapplicable to the proposed Project. As a result, the DEIR's less than significant impact conclusion regarding the Project's consistency with AB 32 and the City's CAP is incorrect and should not be relied upon. We recommend that an updated EIR be prepared and recirculated to include further information and analysis utilizing a relevant GHG reduction plan.

E2-46 Cont.

4) Failure to Demonstrate Consistency with CARB's 2017 Scoping Plan

As previously discussed, the DEIR relies upon the Project's consistency with CARB's 2017 *Scoping Plan* to determine the Project's GHG significance. However, this is incorrect, as the DEIR fails to consider performance-based measures proposed by CARB.

E2-47

i. Passenger & Light Duty VMT Per Capita Benchmarks per SB 375

In reaching the State's long-term GHG emission reduction goals, CARB's 2017 *Scoping Plan* explicitly cites to SB 375 and the VMT reductions anticipated under the implementation of Sustainable Community Strategies.[37] CARB has identified the population and daily VMT from passenger autos and light-duty vehicles at the state and county level for each year between 2010 to 2050 under a "baseline scenario" that includes "current projections of VMT included in the existing Regional Transportation Plans/Sustainable Communities Strategies (RTP/SCSs) adopted by the State's 18 Metropolitan Planning Organizations (MPOs) pursuant to SB 375 as of 2015."[38] By dividing the projected daily VMT by the population, we calculated the daily VMT per capita for each year at the state level for 2010 (baseline year), 2021 (Project operational year), and 2030 (target years under SB 32) (see table below and Attachment B).

E2-48

2017 Scoping Plan Daily VMT Per Capita			
	State		
Year	**Population**	**LDV VMT Baseline**	**VMT Per Capita**
2010	37,335,085	836,463,980.50	22.40
2021	40,980,939	907,695,159.64	22.15
2030	43,939,250	957,178,153.20	21.78

The below table compares the 2017 *Scoping Plan* daily VMT per capita values against the daily VMT per capita values for the Project based on the DEIR's CalEEMod output files (see table below and Attachment C).

Daily VMT Per Capita from Passenger & Light-Duty Trucks,

[37] CARB (Nov. 2017) 2017 Scoping Plan, p. 25, 98, 101-103, https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
[38] CARB (Jan. 2019) 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals ("Supporting Calculations for 2017 Scoping Plan-Identified VMT Reductions"), Excel Sheet "Readme", https://ww2.arb.ca.gov/sites/default/files/2019-01/sp_mss_vmt_calculations_jan19_0.xlsx.

Exceedances under 2017 Scoping Plan Performance-Based SB 375 Benchmarks	
Sources	**Project**
	SWAPE Modeling
Annual VMT from Auto & Light-Duty Vehicles	44,380,125
Daily VMT from Auto & Light-Duty Vehicles	121,589
Service Population	3,134.00
Daily VMT Per Capita	38.80
2017 Scoping Plan Benchmarks, Statewide	
22.40 VMT (2010 Baseline) Exceed?	**Yes**
22.15 VMT (2021 Projected) Exceed?	**Yes**
21.78 VMT (2030 Projected) Exceed?	**Yes**

As shown above, the DEIR's modeling demonstrates that the Project exceeds the state-wide CARB 2017 *Scoping Plan* projections for 2010, 2021, and 2030. Because the Project exceeds the CARB 2017 *Scoping Plan* performance-based daily VMT per capita projections, the Project conflicts with the CARB 2017 *Scoping Plan* and SB 375. As such, the DEIR's claim that the proposed Project would not conflict with the CARB 2017 *Scoping Plan* is incorrect and unsubstantiated. An updated EIR should be prepared for the proposed Project to provide additional information and analysis to conclude less than significant GHG impacts.

E2-48 Cont.

Feasible Mitigation Measures Available to Reduce Emissions

Our analysis demonstrates that the Project's air quality, health risk, and GHG emissions may result in potentially significant impacts. In an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project. Feasible mitigation measures can be found in CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*.[39] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

E2-49

CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures*[40]
Measures – Energy
Building Energy Use
BE-1 Exceed Title-24 Building Envelope Energy Efficiency Standards (California Building Standards Code) by X% *Range of Effectiveness:* See document for specific improvement desired.
BE-2 Install Programmable Thermostat Timers

E2-50

[39] http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf
[40] "Quantifying Greenhouse Gas Mitigation Measures." California Air Pollution Control Officers Association (CAPCOA), August 2010, *available at:* http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, p.

Range of Effectiveness: Best Management Practice – Influences building energy use for heating and cooling.
BE-3 Obtain Third-party HVAC Commissioning and Verification of Energy Savings (to be grouped with BE-1) *Range of Effectiveness:* Not applicable on its own. This measure enhances the effectiveness of BE-1.
BE-4 Install Energy Efficient Appliances Typical reductions for energy-efficient appliances can be found in the *Energy Star and Other Climate Protection Partnerships* Annual Reports. *Range of Effectiveness:* Residential 2-4% GHG emissions from electricity use. Grocery Stores: 17-22% of GHG emissions from electricity use. See document for other land use types.
BE-5 Install Energy Efficient Boilers *Range of Effectiveness:* 1.2-18.4% of boiler GHG emissions.
Lighting
LE-1 Install Higher Efficacy Public Street and Area Lighting *Range of Effectiveness:* 16-40% of outdoor lighting.
LE-2 Limit Outdoor Lighting Requirements *Range of Effectiveness:* Best Management Practice, but may be quantified.
LE-3 Replace Traffic Lights with LED Traffic Lights *Range of Effectiveness:* 90% of emissions associated with existing traffic lights.
Alternative Energy Generation
AE-1 Establish Onsite Renewable or Carbon-Neutral Energy Systems – Generic *Range of Effectiveness:* 0-100% of GHG emissions associated with electricity use.
AE-2 Establish Onsite Renewable Energy System – Solar Power *Range of Effectiveness:* 0-100% of GHG emissions associated with electricity use.
AE-3 Establish Onsite Renewable Energy System – Wind Power *Range of Effectiveness:* 0-100% of GHG emissions associated with electricity use.
AE-4 Utilize a Combined Heat and Power System *Range of Effectiveness:* 0-46% of GHG emissions associated with electricity use.
AE-5 Establish Methane Recovery in Landfills *Range of Effectiveness:* 73-77% reduction in GHG emissions from landfills without methane recovery.
AE-6 Establish Methane Recovery in Wastewater Treatment Plants *Range of Effectiveness:* 95-97% reduction in GHG emissions from wastewater treatment plants without recovery.
Measures – Transportation
Land Use/Location
LUT-1 Increase Density *Range of Effectiveness:* 0.8-30% vehicle miles traveled (VMT) reduction and therefore a 0.8-30% reduction in GHG emissions.
LUT-2 Increase Location Efficiency

E2-50 Cont.

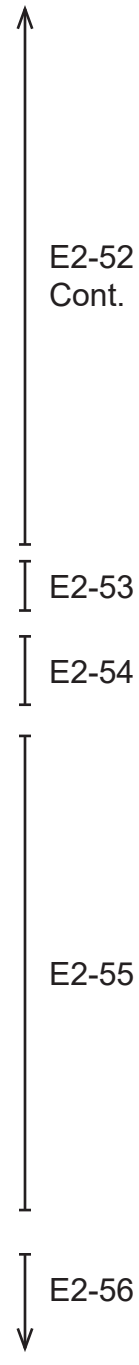
E2-51

E2-52

Range of Effectiveness: 10% vehicle miles traveled (VMT) reduction and therefore 10-65% reduction in GHG emissions.
LUT-3 Increase Diversity of Urban and Suburban Developments (Mixed Use) *Range of Effectiveness:* 9-30% vehicle miles traveled (VMT) and therefore 9-30% reduction in GHG emissions.
LUT-4 Increase Destination Accessibility *Range of Effectiveness:* 6.7-20% vehicle miles traveled (VMT) reduction and therefore 6.7-20% reduction in GHG emissions.
LUT-5 Increase Transit Accessibility *Range of Effectiveness:* 0.5-24.6% VMT reduction and therefore 0.5-24.6% reduction in GHG emissions.
LUT-6 Integrate Affordable and Below Market Rate Housing *Range of Effectiveness:* 0.04-1.20% vehicle miles traveled (VMT) reduction and therefore 0.04-1.20% reduction in GHG emissions.
LUT-7 Orient Project Toward Non-Auto Corridor *Range of Effectiveness:* Grouped strategy (see LUT-3).
LUT-8 Locate Project near Bike Path/Bike Lane *Range of Effectiveness:* Grouped strategy (see LUT-4).
Neighborhood/Site Enhancements
SDT-1 Provide Pedestrian Network Improvements, such as: • Compact, mixed-use communities • Interconnected street network • Narrower roadways and shorter block lengths • Sidewalks • Accessibility to transit and transit shelters • Traffic calming measures and street trees • Parks and public spaces • Minimize pedestrian barriers *Range of Effectiveness:* 0-2% vehicle miles traveled (VMT) reduction and therefore 0-2% reduction in GHG emissions.
SDT-2 Provide Traffic Calming Measures, such as: • Marked crosswalks • Count-down signal timers • Curb extensions • Speed tables • Raised crosswalks • Raised intersections • Median islands • Tight corner radii • Roundabouts or mini-circles • On-street parking • Planter strips with trees

E2-52
Cont.

• Chicanes/chokers *Range of Effectiveness:* 0.25-1% vehicle miles traveled (VMT) reduction and therefore 0.25-1% reduction in GHG emissions.
SDT-3 Implement a Neighborhood Electric Vehicle (NEV) Network. *Range of Effectiveness:* 0.5-12.7% vehicle miles traveled (VMT) reduction since NEVs would result in a mode shift and therefore reduce the traditional vehicle VMT and GHG emissions. Range depends on the available NEV network and support facilities, NEV ownership levels, and the degree of shift from traditional.
SDT-4 Create Urban Non-Motorized Zones *Range of Effectiveness:* Grouped strategy (see SDT-1).
SDT-5 Incorporate Bike Lane Street Design (on-site) *Range of Effectiveness:* Grouped strategy (see LUT-9).
SDT-6 Provide Bike Parking in Non-Residential Projects *Range of Effectiveness:* Grouped strategy (see LUT-9).
SDT-7 Provide Bike Parking with Multi-Unit Residential Projects *Range of Effectiveness:* Grouped strategy (see SDT-3).
SDT-8 Provide Electric Vehicle Parking *Range of Effectiveness:* Grouped strategy (see SDT-3).
SDT-9 Dedicate Land for Bike Trails *Range of Effectiveness:* Grouped strategy (see LUT-9).
Parking Policy/Pricing
PDT-1 Limit Parking Supply through: • Elimination (or reduction) of minimum parking requirements • Creation of maximum parking requirements • Provision of shared parking *Range of Effectiveness:* 5-12.5% vehicle miles traveled (VMT) reduction and therefore 5-12.5% reduction in GHG emissions.
PDT-2 Unbundle Parking Costs from Property Cost *Range of Effectiveness:* 2.6-13% vehicle miles traveled (VMT) reduction and therefore 2.6-13% reduction in GHG emissions.
PDT-3 Implement Market Price Public Parking (On-Street) *Range of Effectiveness:* 2.8-5.5% vehicle miles traveled (VMT) reduction and therefore 2.8-5.5% reduction in GHG emissions.
PDT-4 Require Residential Area Parking Permits *Range of Effectiveness:* Grouped strategy (see PPT-1, PPT-2, and PPT-3).
Commute Trip Reduction Programs
TRT-1 Implement Commute Trip Reduction (CTR) Program – Voluntary • Carpooling encouragement • Ride-matching assistance



- Preferential carpool parking
- Flexible work schedules for carpools
- Half time transportation coordinator
- Vanpool assistance
- Bicycle end-trip facilities (parking, showers and lockers)
- New employee orientation of trip reduction and alternative mode options
- Event promotions and publications
- Flexible work schedule for employees
- Transit subsidies
- Parking cash-out or priced parking
- Shuttles
- Emergency ride home

Range of Effectiveness: 1-6.2% commute vehicle miles traveled (VMT) reduction and therefore 1-6.2% reduction in commute trip GHG emissions.

TRT-2 Implement Commute Trip Reduction (CTR) Program – Required Implementation/Monitoring

- Established performance standards (e.g. trip reduction requirements)
- Required implementation
- Regular monitoring and reporting

Range of Effectiveness: 4.2-21% commute vehicle miles traveled (VMT) reduction and therefore 4.2-21% reduction in commute trip GHG emissions.

TRT-3 Provide Ride-Sharing Programs

- Designate a certain percentage of parking spaces for ride sharing vehicles
- Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
- Providing a web site or messaging board for coordinating rides
- Permanent transportation management association membership and funding requirement.

Range of Effectiveness: 1-15% commute vehicle miles traveled (VMT) reduction and therefore 1-15% reduction in commute trip GHG emissions.

TRT-4 Implement Subsidized or Discounted Transit Program

Range of Effectiveness: 0.3-20% commute vehicle miles traveled (VMT) reduction and therefore a 0.3-20% reduction in commute trip GHG emissions.

TRT-5 Provide Ent of Trip Facilities, including:

- Showers
- Secure bicycle lockers
- Changing spaces

Range of Effectiveness: Grouped strategy (see TRT-1 through TRT-3).

TRT-6 Encourage Telecommuting and Alternative Work Schedules, such as:

- Staggered starting times
- Flexible schedules
- Compressed work weeks

E2-56
Cont.

Range of Effectiveness: 0.07-5.5% commute vehicle miles traveled (VMT) reduction and therefore 0.07-5.5% reduction in commute trip GHG emissions.
TRT-7 Implement Commute Trip Reduction Marketing, such as: • New employee orientation of trip reduction and alternative mode options • Event promotions • Publications *Range of Effectiveness:* 0.8-4% commute vehicle miles traveled (VMT) reduction and therefore 0.8-4% reduction in commute trip GHG emissions.
TRT-8 Implement Preferential Parking Permit Program *Range of Effectiveness:* Grouped strategy (see TRT-1 through TRT-3).
TRT-9 Implement Car-Sharing Program *Range of Effectiveness:* 0.4-0.7% vehicle miles traveled (VMT) reduction and therefore 0.4-0.7% reduction in GHG emissions.
TRT-10 Implement School Pool Program *Range of Effectiveness:* 7.2-15.8% in school vehicle miles traveled (VMT) reduction and therefore 7.2-15.8% reduction in school trip GHG emissions.
TRT-11 Provide Employer-Sponsored Vanpool/Shuttle *Range of Effectiveness:* 0.3-13.4% commute vehicle miles traveled (VMT) reduction and therefore 0.3-13.4% reduction in commute trip GHG emissions.
TRT-12 Implement Bike-Sharing Programs *Range of Effectiveness:* Grouped strategy (see SDT-5 and LUT-9).
TRT-13 Implement School Bus Program *Range of Effectiveness:* 38-63% School VMT reduction and therefore 38-63% reduction in school trip GHG emissions.
TRT-14 Price Workplace Parking, such as: • Explicitly charging for parking for its employees; • Implementing above market rate pricing; • Validating parking only for invited guests; • Not providing employee parking and transportation allowances; and • Educating employees about available alternatives. *Range of Effectiveness:* 0.1-19.7% commute vehicle miles traveled (VMT) reduction and therefore 0.1-19.7% reduction in commute trip GHG emissions.
TRT-15 Implement Employee Parking "Cash-Out" *Range of Effectiveness:* 0.06-7.7% commute vehicle miles traveled (VMT) reduction and therefore 0.6-7.7% reduction in commute trip GHG emissions.
Transit System Improvements
TST-1 Transit System Improvements, including:

E2-56 Cont.

E2-57

• Grade-separated right-of-way, including bus only lanes (for buses, emergency vehicles, and sometimes taxis), and other Transit Priority measures. Some systems use guideways which automatically steer the bus on portions of the route. • Frequent, high-capacity service • High-quality vehicles that are easy to board, quiet, clean, and comfortable to ride. • Pre-paid fare collection to minimize boarding delays. • Integrated fare systems, allowing free or discounted transfers between routes and modes. • Convenient user information and marketing programs. • High quality bus stations with Transit Oriented Development in nearby areas. • Modal integration, with BRT service coordinated with walking and cycling facilities, taxi services, intercity bus, rail transit, and other transportation services. *Range of Effectiveness:* 0.02-3.2% vehicle miles traveled (VMT) reduction and therefore 0.02-3% reduction in GHG emissions.
TST-2 Implement Transit Access Improvements, such as: • Sidewalk/crosswalk safety enhancements • Bus shelter improvements *Range of Effectiveness:* Grouped strategy (see TST-3 and TST-4)
TST-3 Expand Transit Network *Range of Effectiveness:* 0.1-8.2% vehicle miles traveled (VMT) reduction and therefore 0.1-8.2% reduction in GHG emissions.
TST-4 Increase Transit Service Frequency/Speed *Range of Effectiveness:* 0.02-2.5% vehicle miles traveled (VMT) reduction and therefore 0.02-2.5% reduction in GHG emissions.
TST-5 Provide Bike Parking Near Transit *Range of Effectiveness:* Grouped strategy (see TST-3 and TST-4).
TST-6 Provide Local Shuttles *Range of Effectiveness:* Grouped strategy (see TST-4 and TST-5).
Road Pricing/Management
RPT-1 Implement Area or Cordon Pricing *Range of Effectiveness:* 7.9-22% vehicle miles traveled (VMT) reduction and therefore 7.9-22% reduction in GHG emissions.
RPT-2 Improve Traffic Flow, such as: • Signalization improvements to reduce delay; • Incident management to increase response time to breakdowns and collisions; • Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions; and • Speed management to reduce high free-flow speeds. *Range of Effectiveness:* 0-45% reduction in GHG emissions.
RTP-3 Required Project Contributions to Transportation Infrastructure Improvement Projects

E2-57 Cont.

E2-58

Range of Effectiveness: Grouped strategy (see RPT-2 and TST-1 through 7).
RTP-4 Install Park-and-Ride Lots *Range of Effectiveness:* Grouped strategy (see RPT-1, TRT-11, TRT-3, and TST-1 through 6).
Vehicles
VT-2 Utilize Alternative Fueled Vehicles, such as: • Biodiesel (B20) • Liquefied Natural Gas (LNG) • Compressed Natural Gas (CNG) *Range of Effectiveness:* Reduction in GHG emissions varies depending on vehicle type, year, and associated fuel economy.
VT-3 Utilize Electric or Hybrid Vehicles *Range of Effectiveness:* 0.4-20.3% reduction in GHG emissions.
Measures – Water
Water Supply
WSW-1 Use Reclaimed Water *Range of Effectiveness:* Up to 40% in Northern California and up to 81% in Southern California.
WSW-2 Use Gray Water *Range of Effectiveness:* Up to 100% of outdoor water GHG emissions if outdoor water use is replaced completely with graywater.
WSW-3 Use Locally Sourced Water Supply *Range of Effectiveness:* 0-60% for Northern and Central California, 11-75% for Southern California.
Water Use
WUW-1 Install Low-Flow Water Fixtures *Range of Effectiveness:* 20% of GHG emissions associated with indoor Residential water use; 17-31% of GHGH emissions associated with Non-Residential indoor water use.
WUW-2 Adopt a Water Conservation strategy *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. It is equal to the Percent Reduction in water commitment.
WUW-3 Design Water-Efficient Landscapes (see California Department of Water Resources Model Water Efficient Landscape Ordinance), such as: • Reducing lawn sizes; • Planting vegetation with minimal water needs, such as native species; • Choosing vegetation appropriate for the climate of the project site; • Choosing complimentary plants with similar water needs or which can provide each other with shade and/or water. *Range of Effectiveness:* 0-70% reduction in GHG emissions from outdoor water use.
WUW-4 Use Water-Efficient Landscape Irrigation Systems ("Smart" irrigation control systems) *Range of Effectiveness:* 6.1% reduction in GHG emissions from outdoor water.

E2-58 Cont.

E2-59

E2-60

E2-61

WUW-5 Reduce Turf in Landscapes and Lawns *Range of Effectiveness:* Varies and is equal to the percent commitment to turf reduction, assuming no other outdoor water use.
WUW-6 Plant Native or Drought-Resistant Trees and Vegetation *Range of Effectiveness:* Best Management Practice; may be quantified if substantial evidence is available.
Measures – Area Landscaping
Landscaping Equipment
A-1 Prohibit Gas Powered Landscape Equipment *Range of Effectiveness:* Best Management Practice, influences Area GHG emissions from landscape equipment.
A-2 Implement Lawnmower Exchange Program *Range of Effectiveness:* Best Management Practice, influences Area GHG emissions from landscape equipment.
A-3 Electric Yard Equipment Compatibility *Range of Effectiveness:* Best Management Practice, influences Area GHG emissions from landscape equipment. Not applicable on its own. This measure enhances effectiveness of A-1 and A-2.
Measures – Solid Waste
Solid Waste
SW-1 Institute Recycling and Composting Services *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
SW-2 Recycle Demolished Construction Material *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
Measures – Vegetation
Vegetation
V-1 Urban Tree Planting *Range of Effectiveness:* CO_2 reduction varies by number of trees. VOC emissions may increase.
V-2 Create New Vegetated Open Space *Range of Effectiveness: Varies based on amount and type of land vegetated.*
Measures – Construction
Construction
C-1 Use Alternative Fuels for Construction Equipment *Range of Effectiveness:* 0-22% reduction in GHG emissions.
C-1 Urban Tree Planting *Range of Effectiveness:* CO_2 reduction varies by number of trees. VOC emissions may increase.
C-2 Use Electric and Hybrid Construction Equipment *Range of Effectiveness:* 2.5-80% of GHG emissions from equipment that is electric or hybrid if used 100% of the time.
C-3 Limit Construction Equipment Idling Beyond Regulation Requirements *Range of Effectiveness:* Varies with the amount of Project Idling occurring and the amount reduced.

E2-61 Cont.

E2-62

E2-63

E2-64

E2-65

C-4 Institute a Heavy-Duty Off-Road Vehicle Plan, including: • Construction vehicle inventory tracking system; • Requiring hour meters on equipment; • Document the serial number, horsepower, manufacture age, fuel, etc. of all onsite equipment; and • Daily logging of the operating hours of the equipment. *Range of Effectiveness:* Not applicable on its own. This measure ensures compliance with other mitigation measures.	E2-65 Cont.
C-5 Implement a Construction Vehicle Inventory Tracking System *Range of Effectiveness:* Not applicable on its own. This measure ensures compliance with other mitigation measures.	
Measures – Miscellaneous	
Miscellaneous	
Misc-1 Establish a Carbon Sequestration Project, such as: • Geologic sequestration or carbon capture and storage techniques, in which CO_2 from point sources is captured and injected underground; • Terrestrial sequestration in which ecosystems are established or preserved to serve as CO_2 sinks; • Novel techniques involving advanced chemical or biological pathways; or • Technologies yet to be discovered. *Range of Effectiveness:* Varies depending on Project Applicant and projects selected. The GHG emissions reduction is subtracted from the overall baseline project emissions inventory.	E2-66
Misc-2 Establish Off-Site Mitigation *Range of Effectiveness:* Varies depending on Project Applicant and projects selected. The GHG emissions reduction is subtracted from the overall baseline project emissions inventory.	E2-67
Misc-3 Use Local and Sustainable Building Materials *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.	E2-68
Misc-4 Require best Management Practices in Agriculture and Animal Operations	E2-69
Misc-5 Require Environmentally Responsible Purchasing, such as: • Purchasing products with sustainable packaging; • Purchasing post-consumer recycled copier paper, paper towels, and stationary; • Purchasing and stocking communal kitchens with reusable dishes and utensils; • Choosing sustainable cleaning supplies; • Leasing equipment from manufacturers who will recycle the components at their end of life; • Choosing ENERGY STAR appliances and Water Sense-certified water fixtures; • Choosing electronic appliances with built in sleep-mode timers; • Purchasing 'green power' (e.g. electricity generated from renewable or hydropower) from the utility; and • Choosing locally-made and distributed products. *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.	E2-70

Misc-6 Implement an Innovative Strategy for GHG Mitigation *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
Measures – General Plans
General Plans
GP-1 Fund Incentives for Energy Efficiency, such as: • Retrofitting or designing new buildings, parking lots, streets, and public areas with energy-efficient lighting; • Retrofitting or designing new buildings with low-flow water fixtures and high-efficiency appliances; • Retrofitting or purchasing new low-emissions equipment; • Purchasing electric or hybrid vehicles; • Investing in renewable energy systems *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
GP-2 Establish a Local Farmer's Market *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
GP-3 Establish Community Gardens *Range of Effectiveness:* Varies depending on Project Applicant and strategies selected. Best Management Practice.
GP-4 Plant Urban Shade Trees *Range of Effectiveness:* The reduction in GHG emissions is not quantifiable at this time, therefore this mitigation measure should be implemented as a Best Management Practice. If the study data were updated to account for Title 24 standards, the GHG emissions reductions could be quantified, but would vary based on location, building type, and building size.
GP-5 Implement Strategies to Reduce Urban Heat-Island Effect, such as: • Planting urban shade trees; • Installing reflective roofs; and • Using light-colored or high-albedo pavements and surfaces. *Range of Effectiveness:* The reduction in GHG emissions is not quantifiable at this time, therefore this mitigation measure should be implemented as a Best Management Practice. If the study data were updated to account for Title 24 standards, the GHG emissions reductions could be quantified, but would vary based on location, building type, and building size.

E2-71

E2-72

Furthermore, in an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project from NEDC's *Diesel Emission Controls in Construction Projects.*[41] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

E2-73

[41] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

NEDC's *Diesel Emission Controls in Construction Projects*[42]	
Measures – Diesel Emission Control Technology	
a. Diesel Onroad Vehicles All diesel nonroad vehicles on site for more than 10 total days must have either (1) engines that meet EPA onroad emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.	E2-74
b. Diesel Generators All diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.	E2-75
c. Diesel Nonroad Construction Equipment i. All nonroad diesel engines on site must be Tier 2 or higher. Tier 0 and Tier 1 engines are not allowed on site ii. All diesel nonroad construction equipment on site for more than 10 total days must have either (1) engines meeting EPA Tier 4 nonroad emission standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines 50hp and greater and by a minimum of 20% for engines less than 50hp.	E2-76
d. Upon confirming that the diesel vehicle, construction equipment, or generator has either an engine meeting Tier 4 non road emission standards or emission control technology, as specified above, installed and functioning, the developer will issue a compliance sticker. All diesel vehicles, construction equipment, and generators on site shall display the compliance sticker in a visible, external location as designated by the developer.	E2-76
e. Emission control technology shall be operated, maintained, and serviced as recommended by the emission control technology manufacturer.	E2-77
f. All diesel vehicles, construction equipment, and generators on site shall be fueled with ultra-low sulfur diesel fuel (ULSD) or a biodiesel blend[43] approved by the original engine manufacturer with sulfur content of 15 ppm or less.	E2-78
Measures – Additional Diesel Requirements	
a. Construction shall not proceed until the contractor submits a certified list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following: i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment. ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation.	E2-79

[42] "Diesel Emission Controls in Construction Projects." Northeast Diesel Collaborative (NEDC), December 2010, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

[43] Biodiesel blends are only to be used in conjunction with the technologies which have been verified for use with biodiesel blends and are subject to the following requirements: http://www.arb.ca.gov/diesel/verdev/reg/biodieselcompliance.pdf.

	iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.
b.	If the contractor subsequently needs to bring on site equipment not on the list, the contractor shall submit written notification within 24 hours that attests the equipment complies with all contract conditions and provide information.
c.	All diesel equipment shall comply with all pertinent local, state, and federal regulations relative to exhaust emission controls and safety.
d.	The contractor shall establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities.
Reporting	
a.	For each onroad diesel vehicle, nonroad construction equipment, or generator, the contractor shall submit to the developer's representative a report prior to bringing said equipment on site that includes: i. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, and engine serial number. ii. The type of emission control technology installed, serial number, make, model, manufacturer, and EPA/CARB verification number/level. iii. The Certification Statement signed and printed on the contractor's letterhead.
b.	The contractor shall submit to the developer's representative a monthly report that, for each onroad diesel vehicle, nonroad construction equipment, or generator onsite, includes: i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date. ii. Any problems with the equipment or emission controls. iii. Certified copies of fuel deliveries for the time period that identify: 1. Source of supply 2. Quantity of fuel 3. Quality of fuel, including sulfur content (percent by weight)

E2-79 Cont.

E2-80

Finally, in an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project from the Sacramento Metropolitan Air Quality Management District's ("SMAQMD") *Basic Construction Emission Control Practices (Best Management Practices)* and *Enhanced Exhaust Control Practices*.[44, 45] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

E2-81

[44] "Basic Construction Emission Control Practices (Best Management Practices)." Sacramento Metropolitan Air Quality Management District (SMAQMD), July 2019, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

[45] "Enhanced Exhaust Control Practices." Sacramento Metropolitan Air Quality Management District (SMAQMD)October 2013, *available at:* http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf.

SMAQMD's *Basic Construction Emission Control Practices*[46]
The following Basic Construction Emissions Control Practices are considered feasible for controlling fugitive dust from a construction site. The practices also serve as best management practices (BMPs), allowing the use of the non-zero particulate matter significance thresholds. Lead agencies should add these emission control practices as Conditions of Approval (COA) or include in a Mitigation Monitoring and Reporting Program (MMRP).
Control of fugitive dust is required by District Rule 403 and enforced by District staff.
Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
The following practices describe exhaust emission control from diesel powered fleets working at a construction site. California regulations limit idling from both on-road and offroad diesel-powered equipment. The California Air Resources Board (CARB) enforces idling limitations and compliance with diesel fleet regulations.
Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1].
Although not required by local or state regulation, many construction companies have equipment inspection and maintenance programs to ensure work and fuel efficiencies
Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.
SMAQMD's *Enhanced Exhaust Control Practices*[47]
1. The project representative shall submit to the lead agency and District a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project.

E2-82

E2-83

[46] "Basic Construction Emission Control Practices (Best Management Practices)." Sacramento Metropolitan Air Quality Management District (SMAQMD), July 2019, *available at:* https://www.epa.gov/sites/production/files/2015-09/documents/nedc-model-contract-sepcification.pdf.

[47] "Enhanced Exhaust Control Practices." Sacramento Metropolitan Air Quality Management District (SMAQMD)October 2013, *available at:* http://www.airquality.org/LandUseTransportation/Documents/Ch3EnhancedExhaustControlFINAL10-2013.pdf.

• The inventory shall include the horsepower rating, engine model year, and projected hours of use for each piece of equipment. • The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. • This information shall be submitted at least 4 business days prior to the use of subject heavy-duty off-road equipment. • The District's Equipment List Form can be used to submit this information. • The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.	E2-83 Cont.
2. The project representative shall provide a plan for approval by the lead agency and District demonstrating that the heavy-duty off-road vehicles (50 horsepower or more) to be used in the construction project, including owned, leased, and subcontractor vehicles, will achieve a project wide fleet-average 20% NOX reduction and 45% particulate reduction compared to the most recent California Air Resources Board (ARB) fleet average. • This plan shall be submitted in conjunction with the equipment inventory. • Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. • The District's Construction Mitigation Calculator can be used to identify an equipment fleet that achieves this reduction.	E2-84
3. The project representative shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40% opacity for more than three minutes in any one hour. • Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately. • Non-compliant equipment will be documented and a summary provided to the lead agency and District monthly. • A visual survey of all in-operation equipment shall be made at least weekly. • A monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey.	E2-85
4. The District and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this mitigation shall supersede other District, state or federal rules or regulations.	E2-86

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce emissions released during Project construction and operation. An updated EIR should be prepared to include ***all feasible*** mitigation measures, as well as include an updated air quality and GHG analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible. E2-87

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

E2-88

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

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Comment Letter F

CENTER for BIOLOGICAL DIVERSITY Because life is good.

November 15, 2020

Sent via email (with references via FedEx)

Ryan Leonard
Senior Planner
City of Hesperia Planning Dep't
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Re: Comments on the Draft Environmental Impact Report for Hesperia Commerce Center II (State Clearinghouse No. 2019110418)

Dear Mr. Leonard:

The Center for Biological Diversity (the "Center") submits the following comments regarding the Draft Environmental Impact Report ("DEIR") for the Hesperia Commerce Center II Project ("Project"), State Clearinghouse No. 2019110418. The Center has reviewed the DEIR closely and is concerned about the Project's significant impacts to biological resources, air quality, and greenhouse gas emissions. The Center urges the City to correct the deficiencies identified below and recirculate a revised DEIR for public review and comment prior to approving the Project. F-1

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over 1.7 million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in San Bernardino County, including the vicinity of the Project.

I. THE DEIR'S ANALYSIS OF AND MITIGATION FOR THE PROJECT'S IMPACTS TO BIOLOGICAL RESOURCES IS INADEQUATE. F-2

A. The DEIR's Analysis of and Mitigation for Impacts to the Western Joshua Tree is Inadequate.

1. The Project Site Is Home to a Natural Community of Concern.

The Project site is located in the eastern part of the City, within San Bernardino's Victor Valley region. The City is located within the range of the western Joshua tree South population (YUBR South). The geographic area in which YUBR South is situated is comprised of 3.7 million acres, with just over 50% in private ownership, 48% federally owned, and just under 2% state, county and local owned (USFWS 2018). The USFWS (2018) estimates that 3,255,088 acres of this area was suitable for Joshua trees based on soils and other habitat factors. However, Joshua tree actually occupy only a fraction of this area, as they have a patchy and disjunct distribution, and large areas of former habitat have been lost to development or agricultural conversion.

Increasing development, climate change, increasing drought and wildfires, invasive species that adversely affect fire dynamics, and other threats have led to ongoing reductions in western Joshua trees and western Joshua tree habitat range-wide. Protecting western Joshua trees and their habitat from continued destruction and habitat loss is therefore of utmost importance to the persistence of the species in California. However, within the City and surrounding communities in particular, western Joshua tree habitat is shrinking at an alarming rate due to increasing development. While western Joshua trees currently persist in the less-developed areas of the City, they are absent from the more developed areas as well as the agricultural lands in the region, making the Project site all the more valuable.

The DEIR misleadingly describes the Project site as "vacant land" (DEIR at 4.3.2 and JTPR at 1), but the Project site is in fact comprised of ecologically significant habitat for Joshua trees. As the DEIR's supporting documents admit, the Project site is primarily "Joshua tree woodland," of which the Project will destroy 196 acres, resulting in a considerable loss of this natural community in the region (See Biological Resources Letter Report at 14). Joshua tree woodland is a community recognized by the California Department of Fish and Wildlife (CDFW) as a Natural Community of Concern (DEIR at 4.3-19). Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects (CDFW 2018). CDFW's List of California Terrestrial Natural Communities is based on the best available information, and indicates which natural communities are considered sensitive at the current stage of the California vegetation classification effort.[1] The DEIR fails to adequately evaluate the impacts from destroying nearly two hundred high-quality acres of this Natural Community of Concern.

F-2 Cont.

2. The DEIR Does not Adequately Analyze the Project's Significant Impacts on Western Joshua Trees.

The Project proposes to develop approximately 194.8 acres of valuable Joshua tree habitat into 3,758,908 square feet of industrial/warehouse space and associated improvements (Joshua Tree Relocation Plan ["JTRP"] at 2). Yet the DEIR describes the impacts that the Project will have on Joshua trees in only the most cursory manner. Despite its flawed analysis, the DEIR

F-3

[1] *See* the Vegetation Classification and Mapping Program (VegCAMP) website for additional information on natural communities and vegetation classification. Available at: https://www.wildlife.ca.gov/Data/VegCAMP

acknowledges that impacts to the species and its habitat will be "potentially significant" without mitigation (4.3-30).

a. Western Joshua Trees Are a Special Status Species, the Impacts to Which are Presumed to be Significant.

The CEQA Guidelines indicate that a Project can be expected to have significant impacts to biological resources if the Project has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (CEQA Guidelines, Appendix G, subd. IV(a).) Accordingly, the DEIR itself indicates that the Project's impacts will be significant if it will "have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate . . . species . . . by the California Department of Fish and Game." (DEIR at 4.3-18; see also CEQA Guidelines § 15065(a)(1) [when performing an initial study, agencies shall make a mandatory finding of significance where a proposed project has the potential to substantially reduce the number or restrict the range of a listed species], California Fish and Game Code § 2085 [CESA candidate species treated like threatened or endangered species]).

On September 22, 2020, the California Fish and Game Commission ("CFGC") advanced the western Joshua tree to candidacy under the California Endangered Species Act ("CESA"), protecting these imperiled plants from harm during the ongoing review process. (CFGC 2020.) Consequently, the Project's impacts to the western Joshua trees must be considered significant and fully evaluated and disclosed to the public.

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b. The DEIR Fails to Disclose the Baseline Environmental Conditions on the Project Site.

An EIR must describe "the physical environmental conditions in the vicinity of the project" which "will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant." CEQA Guidelines § 15125(a). Unfortunately, the DEIR's description of baseline conditions with respect to Joshua trees is wholly inadequate. For example, the DEIR fails to disclose the number of Joshua trees located on the Project site or the location of individual trees, instead asserting vaguely that the site is comprised of Joshua tree woodland. (See DEIR 4.3-2.) The JTRP asserts that surveys for Joshua trees will be conducted in the future, but it does not disclose when these surveys will be conducted, what survey protocols will be followed, or why such surveys could not be conducted as part of the environmental review for the Project *before* it was approved. (JTRP at 11). Without access now to this information about current conditions on the Project site, the public and decisionmakers are deprived of the basic facts necessary to evaluate the Project's significant impacts to western Joshua trees and to determine whether proposed mitigation measures or alternatives will be adequate to reduce those impacts to less than significant.

c. The DEIR Does not Adequately Analyze or Disclose the Extent of the Project's Impacts to Joshua Trees and Joshua Tree Habitat.

The Project's massive proposed warehouse will require the removal of vegetation from the site prior to the start of construction (DEIR 4.7-22), which will necessarily include any Joshua trees located in the Project footprint. Yet the DEIR does not disclose even the most basic information about impacts to this special status species, such as how many Joshua trees will be actually removed as a result of Project construction.

What's more, the DEIR fails to acknowledge any potentially significant direct or indirect impacts associated with the destruction or adverse modification of the western Joshua tree's *habitat*. Development, climate change, and increasing wildfire occurrences exacerbated by drought and invasive species negatively impact western Joshua trees and their habitat (DeFalco et al. 2010; Harrower and Gilbert 2018). Climate change, in particular, represents the single greatest threat to the continued existence of western Joshua trees. Even under the most optimistic climate scenarios, western Joshua trees will be eliminated from significant portions of their range by the end of the century; under warming scenarios consistent with current domestic and global emissions trajectories, the species will likely be close to being functionally extinct in the wild in California by century's end (Dole et al. 2003; Cole et al. 2011; Sweet et al. 2019). Studies indicate that the species' range is contracting at lower elevations, recruitment is limited, and mortality is increasing, all of which would likely reflect a population already starting to decline due to recent warming. Even greater changes are projected to occur over the coming decades.

The DEIR does not acknowledge significant impacts to Joshua trees associated with the reduction in habitat connectivity. Maintaining successful habitat connectivity nearby is particularly important to western Joshua trees: for successful reproduction and recruitment, Joshua trees require the presence of their obligate pollinator, rodents to disperse and cache seeds and nurse plants to shelter emerging seedlings. Therefore, to the degree that any Joshua trees are left remaining on the Project site, such moths and rodents must have access to and also be maintained on site in order for these remnant western Joshua trees to successfully reproduce. Construction on the project site will reduce habitat connectivity necessary for sustainable Joshua tree recruitment onsite. Moreover, construction on the Project site will result not just in the loss of Joshua trees and their pollinators and dispersers from the site itself, but will further fragment habitat, potentially resulting in significant adverse impacts to remnant Joshua tree woodland in nearby areas if pollinator or disperser populations are reduced. None of these impacts are analyzed in the DEIR.

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3. The Proposed Joshua Tree Relocation Plan is Inadequate to Mitigate the Project's Significant Impacts to Joshua Trees and Joshua Tree Habitat.

Despite its inadequate assessment of baseline conditions on the Project site relating to Joshua trees, and its inadequate analysis of the Project's impacts to Joshua trees and Joshua tree habitat, the DEIR concludes that the mitigation it proposes will reduce the Project's impacts to Joshua trees to less than significant. (DEIR at 4.3-21 ["With the incorporation of mitigation, and with adherence to both the CDNPA and the Hesperia Municipal Code, impacts associated with Joshua trees would be less than significant."].) But the DEIR's proposed measures do not comply with CEQA's and the CEQA Guidelines' requirements for legally adequate mitigation. The proposed mitigation is improperly deferred and lacks evidence of its effectiveness.

The DEIR's only stated mitigation for impacts to Joshua trees boils down to the Joshua Tree Relocation Plan ("JTRP") (DEIR at 4.3-20). The DEIR claims that the JTRP will successfully mitigate significant impacts to Joshua trees by conducting an initial survey of the site's Joshua trees, providing some specifications for the protection of trees to be preserved on site, and relocation requirements "for those trees requiring removal and relocation" (JTRP at 1). This amounts to unlawfully deferred mitigation. The CEQA Guidelines prohibit agencies from deferring the formulation of mitigation measures to after project approval except in certain, strictly limited circumstances. (CEQA Guidelines § 15126.4, subd. (a)(1)(B).) An agency may develop the specifics of mitigation after project approval only "when it is impractical or infeasible to include those details during the project's environmental review." (Id.) That is, "practical considerations" must "prevent[] the formulation of mitigations measures at the usual time in the planning process." (*POET, LLC v. State Air Res. Bd*. (2013) 218 Cal.App.4th 681, 736.) Unless those considerations are "readily apparent," an EIR must explain an agency's decision to defer finalizing the specifics of mitigation. (*Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281.) Here, the City failed to justify deferring mitigation to a later date post-approval.

Additionally, the DEIR's claim that the JTRP will successfully mitigates the Project's significant impacts is not supported by substantial evidence in the record. The DEIR wrongly assumes that the Project complies with all relevant state, federal, and local statutes. As stated in the JTRP, the only purpose of the JTRP is to fulfill the requirements of the city of Hesperia's Protect Plant Policy (Hesperia Municipal Code ["HMC"] § 16.24). HMC § 16.24, however, only provides minimal protection for western Joshua trees, which require much stricter requirements for take and removal under CESA. The DEIR incorrectly assumes that Incorporation of MM-BIO-1, that is, mere adherence to the Hesperia Municipal Code permit requirements, will alone be sufficient to mitigate Project impacts associated with Joshua tree woodland to less than significant levels (DEIR at 4.3-31). This is incorrect. As noted above, in September 2020, CFGC advanced the western Joshua tree to candidacy under CESA, protecting these imperiled plants from harm during the ongoing review to formally protect them under CESA until sometime next year. Under California Fish and Game Code section 2081, take authorization may be obtained by the project proponent from CDFW through an incidental take permit. To obtain such a permit, private developers must consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures. The DEIR does not analyze western Joshua trees as a candidate species, nor does the JTRP substitute for a permit under section 2081. No incidental take permit has been sought or issued for the Project, and therefore the DEIR wrongly assumes that the Project is in compliance with all relevant state, federal, and local statutes. No mitigation strategy can be complete or sufficient without fulfilling such statutory requirements.

What's more, the JTRP's focus is exclusively on the transplantation of Joshua trees removed as part of the Project. But relocation success rates for Joshua trees are low, *as the JTRP itself plainly acknowledges*. (See, e.g., JTRP at pp. 13 "Due to the low success rate of mature Joshua tree relocation…", 19 "Due to the low relocation success rate of Joshua trees..".) The CFGC also noted the inadequacy of translocation as mitigation. When it adopted its California Policy for Native Plants in 2015, CDFG stated that "transplantation as a means of mitigating for

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listed plant species" is "largely ineffectual over time and often damaging to species or population survival" as documented by "experience and numerous studies."[2] Moreover, even if individual trees were to survive transplantation, there is no guarantee of long-term viability of the species on the Project or translocation site. Successful recruitment would be constrained by lack of nurse plants and it remains highly uncertain whether pollinating moths, vital to Joshua tree pollination, will be able to persist with the resultant lower Joshua tree densities (Harrower and Gilbert 2018 ["Having robust, dense, flowering trees is important to support and attract enough moths for successful seed set"]). The JTRP itself acknowledges that "*Due to the low relocation success rate* of Joshua trees, the transplantation program would be considered successful following four growing seasons—including two growing seasons with supplemental irrigation and two without—and the transplanted trees maintain a minimum of 70% survivability" (JTRP at 19, emphasis added). The JTRP therefore relies on a mitigation strategy that the JTRP itself acknowledges has a low success rate, indicating that transplantation is not an effective mitigation strategy.

The JTRP does not include any information regarding where these trees will be transplanted. This information is vital to determining whether transplantation will be successful. Current descriptions of 'suitable habitat' ignore important recent work on demographic trends in Joshua trees that points out that suitable habitat of Joshua tree under current climate conditions is vastly overestimated. It is also unclear whether transplanted Joshua trees will be able to survive long-term in certain areas that are deemed current suitable habitat, even if initial transplants are successfully relocated (Cole et al. 2011, Smith 2018). Standards for measuring relocation success are arbitrarily set at a 70% success threshold in the JTRP, but the JTRP gives no further detail on how and why this threshold percentage was set. The available evidence therefore shows that the DEIR *cannot* conclude that the JTRP's proposed relocation plan will reduce the Project's impacts to the species to less than significant.

The JTRP also lacks meaningful requirements for monitoring the success of western Joshua tree translocation. The JTRP simply states that monitoring efforts will be conducted over the course of three years from the date of translocation and gives little specificity on what such monitoring efforts will entail. The JTRP does not even disclose the number of trees that will be removed from the Project site or where such trees will be moved to. The JTRP states that "a site observation report summarizing site conditions, observations, tree health, and recommendations for minimizing tree damage will be submitted by the qualified arborist or registered biologist following each inspection." (JTRP at 24.) The success of such translocation will be inaccurate if such monitoring efforts do not account for seedling recruitment, availability of obligate pollinators, and presence of rodent seed dispersers in addition to general tree health (Pellmyr and Segraves 2003; Yoder et al. 2013; Lenz 2001). While some impacts such as reduced recruitment may be readily observable, impacts such as adult mortality and consequent population declines and range reductions may have a lag time before their presence is felt on the landscape (Svenning and Sandel 2013). Accordingly, the DEIR's proposed mitigation lacks the required specific performance standards "for evaluating the efficacy of the measures implemented." (See *POET, LLC v. State Air Res. Bd*. (2013) 218 Cal.App.4th 681, 738.)

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[2] Available at https://fgc.ca.gov/About/Policies/Miscellaneous.

The JTRP states that if it should be found that all or some of the transplantable trees cannot be relocated on site, the applicant may qualify for an Approved Adoption Program (HMC Section 16.24, JTRP at 17). While these two scenarios regarding the fate of individual trees *may* have somewhat similar outcomes in terms of the short-term survival of those trees, they would have very different outcomes in terms of the impacts regarding long-term persistence of Joshua trees on the Project site as well as in terms of impacts stemming from habitat fragmentation that are felt offsite. The DEIR fails to take this into consideration.

4. The DEIR Fails to Consider Other, Feasible Mitigation Measures to Reduce the Project's Significant Impacts to Joshua Trees and Joshua Tree Habitat.

Because the available evidence demonstrates that the JTRP's transplantation plantation program is inadequate and does not comply with CEQA, and the Project's impacts will remain significant, the City must consider and adopt the following additional feasible mitigation measures under HMC Section 16.24.

In addition to Project design measures that will better avoid and minimize of impacts onsite, offsite mitigation will necessary. This should be in the form of protection and preservation of western Joshua trees in other areas at a suitable mitigation ratio. Given the Joshua Tree Woodland habitat onsite is a recognized Natural Community of Concern, and such high-quality woodland comprises only a small portion of the larger range of the western Joshua tree, a higher level of mitigation is warranted to offset the Project's significant impacts. A 5:1 mitigation ratio is appropriate here and is consistent with mitigation required by CDFW for projects impacting important desert tortoise habitat.[3]

There are multiple paths to meeting mitigation requirements that the City can and should adopt to more successfully mitigate the Project's significant impacts to western Joshua trees. For example, the City and/or Project proponent may purchase credits from a CDFW-approved conservation or mitigation bank, which is a privately or publicly owned land managed for its natural resource values. Credits are established for the specific CESA-listed species that occur on the site. As a result of the recent advancement to candidacy of the species under CESA, CDFW has established a Western Joshua Tree Mitigation Fund in which payments may be made for mitigation purposes. (See Cal. Code Regs., tit. 14, § 749.10.) This is likely the most straightforward path and would align CEQA mitigation requirements with those needed to meet incidental take permit conditions under CESA. Alternatively, the Project proponent could work with a land trust or other qualified organization to acquire a conservation easement over habitat of equal or greater value. (See Gov. Code § 65965 et seq., Civil Code § 813 et seq.) Regardless of which path the City and Project proponent follow, these mitigation approaches are eminently feasible; in order to comply with CEQA, the City must consider and adopt additional feasible mitigation for the Project's significant adverse impacts to western Joshua trees.

F-3
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[3] For example, a 5:1 mitigation ratio was required for a recent highway project in San Bernardino County impacting critical habitat for the tortoise. See http://www.sbcounty.gov/Uploads/lus/Environmental/CDFW%202081%20Permit%20-%20Kramer%20CMGC%20-%20Enviro%20Permits%2010-2-17.pdf.

B. The DEIR Does Not Adequately Describe the Environmental Baseline for Various Other Species.

The DEIR fails to provide adequate baseline information and description of the environmental setting for species other than the western Joshua tree. This deficiency extends to the DEIR's treatment of rare plants, animals, and communities, including desert tortoise, Mohave ground squirrel, burrowing owls and other imperiled and desert species, as well as more common species likely present on the Project site. For some species or habitats baseline conditions are lacking or totally absent and as a result no impact assessment is provided for these biological resources. The failure to address numerous species may be the result of inadequate surveys. For example, many of the sensitive plant species noted in Table A of Appendix D-1 are either annuals or herbaceous perennials. The plant list in Appendix A of Appendix D-1 only found non-native grasses (annuals) and no herbaceous perennials. Seasonally appropriate surveys (e.g., spring surveys after adequate precipitation) are necessary to accurately evaluate whether these sensitive annual and herbaceous perennial species are present on site.

While the DEIR includes pre-Project surveys of Desert tortoise and Mohave ground squirrels, the proposed off-site utilities alignment does not. Figure 2 of Appendix D-4 indicates that surveys of Oro Grande Wash at the location of the proposed off-site utilities alignment was not fully surveyed using protocol level surveys for desert tortoise. Appendix D-5 indicates that no protocol level surveys for the Mohave ground squirrel were done on the proposed off-site utilities alignment. Mojave ground squirrel surveys are necessary to evaluate if the species exist on the proposed off-site utilities alignment. CDFW's Conservation Strategy for the Mohave Ground Squirrel documented squirrels near the Project site during its most recent status review, most relevantly in the suburban/wildland interface in the general area south of Edwards Air force Base. (CDFW 2019.)

Consequently, because of the deficiencies of the baseline data for the proposed project area, the DEIR fails to adequately describe the environmental baseline for biological conditions on the Project site (including the proposed off-site utilities alignment). The DEIR should be revised to fully describe and disclose these baseline conditions, and that baseline must be used to evaluate the impacts of the proposed Project.

C. The DEIR Fails to Identify and Analyze Direct and Indirect Impacts to Other Species.

The DEIR fails to adequately analyze the direct, indirect, and cumulative impacts of the proposed Project on the environment. The City must look at avoidance, minimization and reasonable mitigation measures to avoid impacts in the DEIR but failed to do so here. Even in those cases where the extent of impacts may be somewhat uncertain due to the complexity of the issues, the City is not relieved of its responsibility to discuss avoidance through alternatives, minimization or mitigation of reasonably likely impacts at the outset.

F-4

In addition to inadequately describing the baseline of biological conditions, the DEIR fails to fully analyze or disclose the Project's direct, indirect, and cumulative impacts to numerous species, or to mitigate those impacts. For example, while the DEIR states that it will conduct burrowing owl surveys no more than 14 days before initiation of site preparation or grading activities, and a second survey will be completed within 24 hours of the start of site preparation or grading activities (DEIR at 4.3-33). But the DEIR does not include a burrowing owl translocation plan in the event that burrowing owls are found on the site. A burrowing owl translocation plan is required if burrowing owls are identified on the Project site. The DEIR does not have such a plan—instead it simply states that "where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation" (DEIR at 4.4-33).

F-4 Cont.

Failure to conduct adequate surveys and adopt proper management plans prior to Project approval and construction effectively eliminates the most important function of surveys: using the information from the surveys to avoid and minimize harm caused by the project and reduce the need for mitigation. Often efforts to mitigate harm are far less effective than avoiding and preventing the harm in the first place. In addition, without understanding the scope of harm before it occurs, it is difficult to quantify an appropriate amount and type of mitigation.

II. THE DEIR'S ANALYSIS OF AND MITIGATION FOR THE PROJECT'S IMPACTS TO AIR QUALITY IS INADEQUATE.

Air quality is a significant environmental and public health concern in California. Unhealthy, polluted air contributes to and exacerbates many diseases and increases mortality rates. The U.S. government estimates that between 10-12 percent of total health costs can be attributed to air pollution. (VCAPCD 2003) Many plants and trees, including agricultural crops, are also injured by air pollutants. This damage ranges from decreases in productivity, a weakened ability to survive drought and pests, to direct mortality. (*Id.*) Terrestrial wildlife is also affected by air pollution as the plants and trees that constitute their habitats are weakened or killed. Aquatic species and habitats are also affected by air pollution through the formation of acid rain that raises the pH level in oceans, rivers and lakes. (EPA 2016b) Greenhouse gases, such as the air pollutant carbon dioxide which is released by fossil fuel combustion, contribute directly to human-induced climate change (EPA 2016a), and in a positive feedback loop, poor air quality that contributes to climate change will in turn worsen the impacts of climate change and attendant air pollution. (BAAQMD 2016)

F-5

Air pollution and its impacts are felt most heavily by young children, the elderly, pregnant women and people with existing heart and lung disease. People living in poverty are also more susceptible to air pollution as they are less able to relocate to less polluted areas, and their homes and places of work are more likely to be located near sources of pollution, such as freeways or ports, as there areas are more affordable. (BAAQMD 2016; ALA 2020.) Some of the nation's most polluted counties are in Southern California, and San Bernardino County continually tops the list. (ALA 2020) According to the American Lung Association's 2020 "State of the Air" report, San Bernardino is the fifth-worst ranked county in the nation for year-round particulate matter ($PM_{2.5}$) pollution, with a "Fail" grade from the report. (*Id.*) Even more disturbing, the same report found that San Bernardino County is *the worst-ranked county in the*

nation for ozone pollution, with an "F" grade and an average number of 174.3 days per year with ozone levels in the unhealthy range. (*Id.*)

Although there are many different types of air pollution, Ozone, $PM_{2.5}$, and Toxic Air Contaminants are of greatest concern in San Bernardino County. These three air pollutants have been linked to an increased incidence and risk of cancer, birth defects, low birth weights and premature death, in addition to a variety of cardiac and lung diseases such as asthma, COPD, stroke and heart attack. (Laurent 2016; ALA 2020) Ozone (commonly referred to as smog) is created by the atmospheric mixing of gases from fossil fuel combustion and other volatile organic compounds and sunlight. Although it is invisible, ozone poses one of the greatest health risks, prompting the EPA to strengthen its National Ambient Air Quality Standard for Ozone in 2015. (ALA 2020) $PM_{2.5}$ is a common component of vehicle exhaust emissions, and contribute to visible air pollution. These tiny participles are dangerous because they are small enough to escape our body's natural defenses and enter the blood stream. Fugitive dust is a term used for fine particulate matter that results from disturbance by human activity such as construction and road-building operations. (VCAPCD 2003) Toxic Air Contaminants are released from vehicle fuels, especially diesel, which accounts for over 50% of the cancer risk from TACs. (BAAQMB 2016) This is especially relevant for Southern California with its abundance of diesel shipping traffic. (Bailey; Betancourt 2012)

The Project would have a profound negative impact on air quality in the region. The DEIR finds that the Project—even with the proposed mitigation—will result in significant impacts under *four of the five* CEQA Guidelines Appendix G thresholds of significance, finding a less than significant impact only for exposure to odors. (DEIR at 4.2-22 to -32.) Despite the Project's admitted significant impacts, the DEIR proposes only two mitigation measures, which neither comply with CEQA's requirements for mitigation, nor go nearly far enough toward reducing, avoiding, or minimizing the Project's air quality impacts.

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A. The DEIR's Proposed Air Quality Mitigation Measures Are Unenforceable and/or Impermissibly Deferred.

CEQA and the CEQA Guidelines require that an EIR's mitigation measures must be fully enforceable through legally binding means. (See Pub. Res. Code § 21081. ["A public agency shall provide that measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures."], CEQA Guidelines § 15126.4(a)(2) ["Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments."].) This is to ensure that mitigation measures will actually be implemented, not merely adopted and then neglected or disregarded. (*Federation of Hillside & Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1262 [EIR invalid where city failed to make a binding commitment to implement traffic mitigation measures].)

The DEIR's mitigation measure MM-AQ-2 fall far short of this standard. It provides that the Project "shall implement the following measures in order to reduce operational air pollutant emissions *to the extent feasible*:" before listing numerous operational measures. (DEIR at 4.2-33 [emphasis added].) As drafted, the mitigation measure's use of the phrase "to the extent feasible"

creates an enormous loophole and allows the Project applicant (and not the City) to determine—at a later date, without oversight or standards, and without supporting its decision with substantial evidence—that some or all of the measures listed in MM-AQ-2 are infeasible and will not therefore be adopted.

The proper time for determining the "feasibility" of the proposed mitigation measures is now, during the CEQA environmental review process, to ensure full transparency and public review. The City cannot delegate its responsibility to consider the feasibility of mitigation in the EIR. The Third District Court of Appeal recently found the County of San Diego's proposed carbon-offset mitigation program for greenhouse gas emissions to be invalid for this very reason. (*Golden Door Properties, LLC v. County of San Diego* (2020) 50 Cal.App.5th 467, 513 [mitigation measure invalid in part because it allowed the county planning director to determine, at his sole discretion after project approval and without reference to objective standards, whether the purchase of certain offsets was feasible].) Here, MM-AQ-2 is much less stringent than the greenhouse gas mitigation found invalid in *Golden Door Properties, LLC*: it allows the Project applicant, not even a representative of the City with expertise in the matter, to make the ultimate and private determination about the feasibility of actually implementing the measures. As such, MM-AQ-2 both lacks enforceability and is improperly deferred. (*See id.*, *see also Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 280 [finding mitigation measure improperly deferred where it lacked specific performance criteria by which to judge its success].)

Because MM-AQ-2 improperly defers a determination of the feasibility of mitigation to a later date at the discretion of the Project applicant, it is inadequate mitigation and the DEIR fails to comply with CEQA.

F-5
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B. The DEIR Fails to Consider Additional Feasible Mitigation to Reduce the Project's Significant Air Quality Impacts.

The DEIR also fails to meet the City's obligation to adopt all feasible mitigation to reduce the Project's air quality impacts. By proposing inadequate mitigation and then concluding that the Project's air quality impacts are significant and unavoidable, the City has fallen short of CEQA's requirement that lead agencies consider all feasible mitigation to reduce or avoid the Project's significant impacts. (See Pub. Res. Code § 21002 [It is the "policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which will avoid or substantially lessen the significant environmental effects of such projects."], CEQA Guidelines §§ 15092(b), 15043, 15126.4(a)(1).) Here, the EIR overlooks, or simply ignores, numerous feasible mitigation measures.

For example, the South Coast Air Quality Management District ("SCQAMD") has recently prepared and published Draft Proposed Rule 2305 - *Warehouse Indirect Source Rule—Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program)* (SCQAMD 2020). The rule will apply to individual warehouses and distribution facility projects and is intended to reduce air quality emissions from mobile sources associated with the projects. The draft rule contains a host of mitigation measures that warehouse facilities an adopt, which include, but are not limited to:

- Acquiring and using Zero Emissions yard trucks onsite. F-6
- Requiring that a certain percentage of trucks in warehouse operators' fleet(s) be Zero Emissions or Near Zero Emissions. F-7
- Installing and using onsite Zero Emissions vehicle charging stations beyond the minimum required by applicable laws, rules, or regulations. F-8
- Installing and using onsite solar panels. F-9
- Installing high-efficiency air filters or filtering systems in residences, schools, daycares, hospitals, or community centers. F-10

Additionally, the California Air Resources Board ("CARB") has compiled a list of "Recommended Air Pollution Emission Reduction Measures for Warehouses and Distribution Centers" (see CARB 2019, Attachment A). These include: F-11

Recommended Construction Measures

1. Ensure the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel:-powered equipment, and providing the necessary infrastructure (e.g. electrical hookups) to support zero and near-zero equipment and tools. F-12

2. Implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology vehicles and equipment that will be operating onsite. This includes the physical (e.g. needed footprint), energy, and fueling infrastructure for construction equipment, onsite vehicles and equipment, and medium-heavy and heavy-heavy duty trucks. F-13

3. In construction contracts, include language that requires all off-road diesel-powered equipment used during construction to be equipped with Tier 4 or cleaner engines, except for specialized construction equipment in which Tier 4 engines are not available. In lieu of Tier 4 engines, equipment can incorporate retrofits such that emission reductions achieved equal or exceed that of a Tier 4 engine. F-14

4. In construction contracts, include language that requires all off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers, etc.) used during project construction be battery powered. F-15

5. In construction contracts, include language that requires all heavy-duty trucks entering the construction site, during either the grading or building construction phases be model year 2014 or later. Starting in the year 2022, all heavy-duty haul trucks should also meet CARB's lowest optional low-NOx standard. F-16

6. In construction contracts, include language that requires all construction equipment and fleets to be in compliance with all current air quality regulations. CARB staff is available to provide assistance in implementing this recommendation. F-17

Recommended Operation Measures

1. Include contractual language in tenant lease agreements that require tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating onsite. F-18

2. Include contractual language in tenant lease agreements that requires all loading/unloading docks and trailer spaces be equipped with electrical hookups for trucks with transport refrigeration units (TRU) or auxiliary power units (APU). This will eliminate the amount of time that a TRU powered by a fossil-fueled internal combustion engine can operate from within the project site. Use of zero-emission all-electric plug-in TRUs, hydrogen fuel cell transport refrigeration, and cryogenic transport refrigeration are encouraged and can also be included lease agreements.2 F-19

3. Include contractual language in tenant lease agreements that requires all service equipment (e.g., yard hostlers, yard equipment, forklifts, and pallet jacks) used within the site to be electric or powered by compressed natural gas. F-20

4. Include contractual language in tenant lease agreements that requires all heavy-duty trucks entering the project site to be model year 2014 or later. F-21

5. Starting in the year 2022, include contractual language in tenant lease agreements that requires all trucks entering the project site to meet CARB's lowest optional low-NOx standard. F-22

6. Include contractual language in tenant lease agreements that requires the tenant be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,3 Periodic Smoke Inspection Program (PSIP),4 and the Statewide Truck and Bus Regulation.5 F-23

7. Include contractual language in tenant lease agreements restricting trucks and support equipment from idling longer than five minutes while onsite. F-24

8. Include contractual language in tenant lease agreements that limits onsite TRU diesel engine runtime to no longer than 15 minutes. If no cold storage operations are planned, include contractual language and permit conditions that prohibit cold storage operations unless a health risk assessment is conducted and the health impacts mitigated. F-25

9. To reduce indirect greenhouse gas (GHG) emissions, include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid.

F-26

Because the DEIR improperly failed to consider these and other feasible mitigation measures, the City cannot make the requisite CEQA findings prior to approving the Project. The DEIR should be revised to include these and other measures to reduce, avoid, or minimize the Project's admittedly significant impacts to air quality and recirculated for public review and comment.

F-27

III. THE DIER FAILS TO ADEQUATELY ANDALYZE AND MITIGATE THE PROJECT'S GREENHOUSE GAS EMISSIONS.

The DEIR's analysis of the proposed Project's greenhouse gas ("GHG") emissions (DEIR Section 4.6) is also deeply flawed. The Project would result in significant amounts of GHG emissions during construction and operation, yet the DEIR does not properly analyze the significance of, or attempt to mitigate, all the significant GHG impacts. (See CEQA Guidelines § 15126.2; Pub. Res. Code § 21002.)

A. Climate Change Is a Catastrophic and Pressing Threat to California.

A strong, international scientific consensus has established that human-caused climate change is causing widespread harms to human society and natural systems, and that the threats from climate change are becoming increasingly dangerous. The Intergovernmental Panel on Climate Change ("IPCC"), the leading international scientific body for the assessment of climate change, concluded in its 2014 Fifth Assessment Report that: "[w]arming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen," and further that "[r]ecent climate changes have had widespread impacts on human and natural systems." (IPCC 2014, p. 2) These findings were echoed in the United States' own 2014 Third National Climate Assessment and 2017 Climate Science Special Report, prepared by scientific experts and reviewed by the National Academy of Sciences and multiple federal agencies. The Third National Climate Assessment concluded that "[m]ultiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years" (Melillo et al. 2014, p. 7) and "[i]mpacts related to climate change are already evident in many regions and are expected to become increasingly disruptive across the nation throughout this century and beyond." (*Id*. at 10.) The 2017 Climate Science Special Report similarly concluded:

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> [B]ased on extensive evidence, … it is extremely likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century. For the warming over the last century, there is no convincing alternative explanation supported by the extent of the observational evidence.

In addition to warming, many other aspects of global climate are changing,

> primarily in response to human activities. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor.

(USGCRP 2017, p. 10.)

The U.S. National Research Council determined that "[c]limate change is occurring, is caused largely by human activities, and poses significant risks for—and in many cases is already affecting—a broad range of human and natural systems." (NRC 2010, p. 2.) Based on observed and expected harms from climate change, in 2009 the U.S. Environmental Protection Agency found that greenhouse gas pollution endangers the health and welfare of current and future generations. (74 Fed. Reg. 66496 (Dec. 15, 2009) [U.S. EPA, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act; Final Rule].)

These authoritative climate assessments decisively establish the dominant role of anthropogenic GHG emissions in driving climate change. As the Third National Climate Assessment explains: "observations unequivocally show that climate is changing and that the warming of the past 50 years is primarily due to human-induced emissions of heat-trapping gases." (Melillo et al. 2014, p. 2; *see also id.* at 15 [Finding 1: "The global warming of the past 50 years is primarily due to human activities, predominantly the burning of fossil fuels."].) The Assessment makes clear that "reduc[ing] the risks of some of the worst impacts of climate change" will require "aggressive and sustained greenhouse gas emission reductions" over the course of this century. (*Id*. at 13-14, 649; *see also id.* at 15 [Finding 3: "Human-induced climate change is projected to continue, and it will accelerate significantly if global emissions of heat-trapping gases continue to increase."].)

The impacts of climate change will be felt by humans and wildlife. Climate change is increasing stress on species and ecosystems—causing changes in distribution, phenology, physiology, vital rates, genetics, ecosystem structure and processes—in addition to increasing species extinction risk. (Warren et al. 2011.) Climate-change-related local extinctions are already widespread and have occurred in hundreds of species. (Weins 2016.) Catastrophic numbers of species extinctions are projected to occur during this century if climate change continues unabated. (Thomas, et al. 2004; Maclean et al. 2011; Urban 2015.) In California, climate change will transform our climate, resulting in impacts including, but not limited to, increased temperatures and wildfires and a reduction in snowpack and precipitation levels and water availability.

Therefore, immediate and aggressive GHG emission reductions are necessary to keep warming well below 2°C above pre-industrial levels. The IPCC Fifth Assessment Report and other expert assessments have established global carbon budgets, or the total amount of carbon that can be burned while maintaining some probability of staying below a given temperature target. According to the IPCC, total cumulative anthropogenic emissions of CO_2 must remain below about 1,000 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to

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2°C above pre-industrial levels, and to 400 $GtCO_2$ from 2011 onward for a 66 percent probability of limiting warming to 1.5°C. (IPCC 2013, p. 25; IPCC 2014, pp. 63-64, Table 2.2.) These carbon budgets have been reduced to 850 $GtCO_2$ and 240 $GtCO_2$, respectively, from 2015 onward. (Rogeli et al. 2016, Table 2.) Given that global CO_2 emissions in 2016 alone totaled 36 $GtCO_2$ (Le Quéré et al. 2017), humanity is rapidly consuming the remaining carbon budget needed to avoid the worst impacts of climate change. As of early 2018, climate policies by the world's countries would lead to an estimated 3.4°C of warming, and possibly up to 4.7°C of warming, well above the level needed to avoid the worst dangers of climate change. (Climate Action Tracker 2017.)

The United States has contributed more to climate change than any other country. The U.S. is the world's biggest cumulative emitter of GHGs, responsible for 27 percent of cumulative global CO_2 emissions since 1850, and the U.S. is the world's second highest emitter on an annual and per capita basis. (World Resources Institute 2014.) Nonetheless, U.S. climate policy is wholly inadequate to meet the international climate target to hold global average temperature rise to well below 2°C above pre-industrial levels to avoid the worst dangers of climate change.

In its 2018 *Special Report on Global Warming of 1.5°C*, the IPCC—the leading international scientific body for the assessment of climate change—describes the devastating harms that would occur at 2°C warming. The report highlights the necessity of limiting warming to 1.5°C to avoid catastrophic impacts to people and life on Earth (IPCC 2018). The report also provides overwhelming evidence that climate hazards are more urgent and more severe than previously thought, and that aggressive reductions in emissions within the next decade are essential to avoid the most devastating climate change harms.

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In response to inadequate action on the national level, California has taken steps through legislation and regulation to fight climate change and reduce statewide GHG emissions. Enforcement of and compliance with these measures is essential to help stabilize the climate and avoid catastrophic impacts to our environment. AB 32 mandates that California reach 1990 levels of GHG emissions by the year 2020, equivalent to approximately a 15 percent reduction from a business-as-usual projection. (Health & Saf. Code § 38550.) Based on the warning of the IPPC and leading climate scientists, Governor Brown issued an executive order in April 2015 requiring GHG emissions reductions to 40 percent below 1990 levels by 2030. (Executive Order B-30-15 (2015).) The Executive Order is line with a previous Executive Order mandating the state reduce emission levels to 80 percent below 1990 levels by 2050 in order to minimize significant climate change impacts. (Executive Order S-3-05 (2005).) In enacting SB 375, the legislature has also recognized the critical role that land use planning plays in achieving greenhouse gas emission reductions in California.

The legislature has found that failure to achieve GHG emissions reductions would be "detrimental" to California's economy. (Health & Saf. Code § 38501(b).) In his 2015 Inaugural Address, Governor Brown reiterated his commitment to reduce greenhouse gas emissions with three new goals for the next fifteen years:

- To increase electricity derived from renewable sources to 50 percent;
- To reduce petroleum use in cars and trucks by 50 percent;

- To double the efficiency of existing buildings and make heating fuels cleaner.

(Brown 2015.) In 2018, Governor Brown issued Executive Order B-55-18, in which he declared it to be a statewide goal to "achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter."

Although some sources of GHG emissions may appear insignificant in isolation, climate change is a problem with cumulative impacts and effects. (*Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin.*, (9th Cir. 2008) 538 F.3d 1172, 1217 ["the impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis" that agencies must conduct].) One source or one small project may not appear to have a significant effect on climate change, but the combined impacts of many sources can drastically damage California's climate as a whole. Therefore, project-specific GHG emissions disclosure, analysis and mitigation is vital to California meeting its climate goals and maintaining our climate.

The impacts of climate change are already being felt by humans and wildlife. Thousands of studies conducted by researchers around the world have documented changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric water vapor (USGCRP 2017). In California, climate change will result in impacts including, but not limited to, increased temperatures and wildfires and a reduction in snowpack and precipitation levels and water availability.

Given the increasingly urgent need for drastic action to reduce GHG emissions, the DEIR's failure to fully disclose, analyze, mitigate, or consider alternatives to reduce the Project's significant climate change effects is all the more alarming.

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B. The EIR's Use of a 100,000 MTCO2e Annual Emissions Threshold of Significance for GHG Emissions Drastically Downplays the Project's Significant Impacts and Is Not Supported by Substantial Evidence.

The DEIR estimates the Project's GHG emissions, (including the so-called "Project Design Features" and applicable regulatory requirements), to be over 55,000 $MTCO_2e$[4] annually during the life of the Project. (DEIR at , Table 4.6-7.) The DEIR then purports to evaluate this enormous emissions impact against the first of the CEQA Guidelines Appendix G thresholds, asking whether the project would "generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?" (DEIR at 4.6-21 [citing CEQA Guidelines Appendix G]; *see also* DEIR Appendix G [Greenhouse Gas Analysis Report] at p. 43.) In applying the threshold, however, the DEIR substitutes a numeric threshold of an astounding 100,000 $MTCO_2e$ annually, finding that the proposed Project would not exceed 100,000 $MTCO_2e$ annually and thus that the Project's GHG impacts are less than significant, requiring no mitigation. (DEIR at 4.6-25 to -27.)

F-29

[4] Metric tons of carbon dioxide equivalent gases.

A lead agency's selection of a threshold of significance must be supported with substantial evidence. Moreover, a determination that an environmental impact complies with a particular threshold of significance does not relieve a lead agency of its obligation to consider evidence that indicates the impact may be significant despite compliance with the threshold. CEQA Guidelines § 15064(b)(2). If evidence shows that an environmental impact might be significant despite the significance standard used in the EIR, the agency must address that evidence. *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th 1099, 1111.

The DEIR's use of 100,000 $MTCO_2e$ annual emissions as a threshold of significance is not supported by substantial evidence and drastically downplays the Project's significant GHG emissions impacts. The DEIR states:

> On May 13, 2010 EPA finalized the GHG Tailoring Rule (75 FR 31514, June 3, 2010). The Tailoring Rule sets major source emissions thresholds that define when federal operating permits under Prevention Significant Deterioration (PSD) or Title V are required. The Tailoring Rule establishes a threshold of 100,000 tons per year or 90,719 MT per year4 of GHGs from new sources above which sources are considered major sources requiring a federal operating permit.
>
> As such, the MDAQMD has adopted a significance threshold for GHGs of 100,000 tons per year and is thus applied to this Project. More specifically, 100,000 tons per year of GHG emissions from a single facility constitutes major sources that require a federal operating permit. Similarly, the MDAQMDs NOX significance threshold of 25 tons per year is equal to the major source threshold applicable to areas designated severe non-attainment for ozone. As such, use of the EPAs determination of whether a Project is a major source and consequently establishing a threshold based on that is supported by substantial evidence.

(DEIR at 4.6-22.) Neither justification for its attempted use of this threshold is valid.

The EIR determines that the threshold is justified because the EPA's prior "Tailoring Rule" established that new sources emitting GHGs in excess of 100,000 tons per year are considered "major sources" under the federal Clean Air Act and require a federal operating permit under that statute. (DEIR at 4.6-22.) But this is an attempt to compare apples and oranges, and the DEIR's logic does not hold. In developing its "Tailoring Rule" in 2010, the EPA was interpreting a federal statute and using its discretion to determine which U.S. stationary sources (as defined by federal law) of GHG emissions would be required to obtain a federal Title V operating permit. This determination has no bearing on whether *this land use Project's* GHG emissions may have a significant impact on the environment under CEQA and the CEQA guidelines. In any event, the EPA's "Tailoring Rule" was overturned by the U.S. Supreme Court in 2014 in *Util. Air Regulatory Group v. EPA* (2014) 573 U.S. 302.

The DEIR makes a second attempt at justifying its astounding 100,000 threshold by offering that "the MDAQMD has adopted a significance threshold for GHGs of 100,000 tons per year and is thus applied to this Project [*sic*]." (DEIR at 4.6-22.) As an initial matter, this

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statement is factually untrue. The DEIR appears to be referring to a guidance document entitled "MDAQMD California Environmental Quality Act (CEQA) And Federal Conformity Guidelines" that was issued by MDAQMD staff in 2016. (MDAQMD 2016.) The document was issued informally by staff and never approved, let alone "adopted" by the MDAQMD Board, nor was it subject to any notice and comment rulemaking process.[5] As such, it does not qualify for use as a CEQA threshold of significance of general applicability. (*See Golden Door Props. v County of San Diego* (2018) 27 CA5th 892, 901 [rejecting local GHG analysis guidance document as improperly adopted threshold of significance and because it applied state standards without justifying their application to local conditions]).

What's more, the MDAQMD guidance document invokes a 100,000 ton "threshold" only once, in passing, in a table that makes no reference to CEQA, and the document does not make any other reference to a 100,000 ton annual "significance threshold" for GHG emissions. (MDAQMD 2016 at p. 9, Table 6.) In fact, the document contains no discussion at all of how the 100,000 ton/yr number was derived, why it might be suitable for measuring projects' impacts under CEQA, or how it should be applied by local agencies considering land use proposals. (*Id.*) The document simply supplies no evidence to support the City's use and application of the 100,000 ton number as a threshold of significance for evaluating individual projects under CEQA. Nor has the MDAQMD separately provided any such evidence: the document was issued without a staff report or any supporting materials.[6] The City's use of a 100,000 $MTCO_2e$ annual GHG emissions threshold is therefore not supported by substantial evidence and violates CEQA; the EIR should be revised to include an adequate threshold of significance that does not obscure the Project's GHG impacts.

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C. The Project's GHG Impacts Are Significant.

In striking contrast to the DEIR's attempted approach to downplay the significance of the Project's considerable GHG emissions, evidence from other expert agencies strongly indicates that the Project's more than 55,000 $MTCO_2e$ annual emissions are indeed significant. For example, the BAAQMD's CEQA thresholds of significance (developed in 2016) for operational-related GHG emissions are:

- For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy; or annual emissions less than 1,100 metric tons per year (MT/yr) of CO2e; or 4.6 MTCO2e/SP/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.
- For stationary-source projects, the threshold is 10,000 metric tons per year (MT/yr) of CO2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. If annual emissions of operational-

[5] Personal telephone communication with Tracy Walters, MDAQMD Air Quality Planner, October 28, 2020.
[6] Personal telephone communication with Tracy Walters, MDAQMD Air Quality Planner, October 28, 2020.

> related GHGs exceed these levels, the proposed project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change

(BAAQMD 2017 at p. 2-4.)

Similarly, the South Coast Air Quality Management District (whose jurisdiction extends over the vast majority of the Inland Empire and whose border is immediately south of the Project site) has established a 10,000 $MTCO_2e$ CEQA threshold of significance for industrial facilities. (SCQAMD 2019.) Both the BAAQMD's and the SCAQMD's CEQA thresholds of significance were formally adopted by those agencies after long consideration and a formal notice and comment rulemaking process, and are supported by substantial evidence. By further comparison, the California Air Resources Board's threshold for covered entities that are subject to the state cap-and-trade requirements for GHGs—roughly analogous to the DEIR's attempted reliance on the EPA's "Tailoring Rule" is 25,000 $MTCO_2e$ annual GHG emissions. 17 CCR 95812(c)(1). Under any of these thresholds—or any threshold supported by substantial evidence—the Project's anticipated annual GHG emissions of over 55,000 $MTCO_2e$ annually is profoundly significant. The DEIR's attempt to claim otherwise through the use of a defective and misleading threshold of significance obscures the true extent of the Project's impacts and thwarts CEQA's purposes of informed decision-making and public transparency.

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Cont.

D. Because the DEIR Improperly Found that the Project's GHG Emissions Were Less Than Significant, It Failed to Consider, Much Less Adopt, Feasible Mitigation Measures to Reduce or Avoid the Project's GHG Impacts.

As the DEIR readily admits, it does not consider or adopt any mitigation measures to reduce avoid or mitigate the Project's more than 55,000 $MTCO_2e$ annual GHG emissions. (DEIR at 1-22, Table 1-1.) Because, as described above, the Project's GHG emissions impacts are significant, the EIR's failure to consider and adopt all feasible mitigation to reduce or avoid the Project's significant impacts violates CEQA. (See Pub. Res. Code § 21002 [It is the "policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which will avoid or substantially lessen the significant environmental effects of such projects."], CEQA Guidelines §§ 15092(b), 15043, 15126.4(a)(1).) The EIR should be revised to adequately analyze the Project's GHG impacts, acknowledge their significance, and consider and adopt feasible mitigation to reduce those impacts, and it should be recirculated for public review and comment.

IV. CONCLUSION

Thank you for the opportunity to submit comments on the Draft EIR for the Hesperia Commerce Center II Project. Due to the shortcomings described above, the City should make corrections to the EIR and Project—including properly analyzing and mitigating for the Projects

F-30

significant impacts to biological resources, air quality, and GHG emissions—and recirculate a revised and legally adequate EIR for public review and comment. F-30 Cont.

Given the possibility that the Center will be required to pursue legal remedies in order to ensure that the City complies with its legal obligations including those arising under CEQA, we note the City's statutory duty to maintain and preserve all documents and communications that may constitute part of the "administrative record" of this proceeding. (§ 21167.6(e); *Golden Door Properties, LLC v. Superior Court* (2020) 53 Cal.App.5th 733.) The administrative record encompasses any and all documents and communications that relate to any and all actions taken by the City with respect to the Project, and includes "pretty much everything that ever came near a proposed [project] or [] the agency's compliance with CEQA . . . ." (*County of Orange v. Superior Court* (2003) 113 Cal.App.4th 1, 8.) The administrative record further includes all correspondence, emails, and text messages sent to or received by the City's representatives or employees that relate to the Project, including any correspondence, emails, and text messages sent between the City's representatives or employees and the Project applicant's representatives or employees. Maintenance and preservation of the administrative record requires that, *inter alia*, the City (1) suspend all data destruction policies; and (2) preserve all relevant hardware unless an exact replica of each file is made. F-31

Please add the Center to your notice list for all future updates to the Project and do not hesitate to contact the Center with any questions at the number or email listed below.

Sincerely,



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Comment Letter G1

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VIA E-MAIL

September 24, 2021

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9700 Seventh Avenue
Hesperia, CA 92345
Em: rleonard@cityofhesperia.us

RE: Hesperia Commerce Center II Draft Environmental Impact Report (SCH No. 2019110418)

Dear Ryan Leonard,

On behalf of the Southwest Regional Council of Carpenters ("**Commenters**" or "**Carpenters**"), my Office is submitting these comments on the City of Hesperia's ("**City**" or "**Lead Agency**") Draft Environmental Impact Report ("**DEIR**") (SCH No. 2019110418) for the proposed Hesperia Commerce Center II Project ("**Project**").

The City proposes to adopt the Project, a development of a 194.8 acre site to include three warehouse buildings totaling 3,745,429 square feet, associated office space, 1,631 automobile parking spaces, 1,763 trailer stalls, 613 loading docks, and associated landscaping and improvements. As part of the Project, the City would be required to, among other things, a conditional use permit, a tentative parcel map, a development agreement, and grading, building, and encroachment permits.

The Southwest Carpenters is a labor union representing more than 50,000 union carpenters in six states and has a strong interest in well ordered land use planning and addressing the environmental impacts of development projects.

Individual members of the Southwest Carpenters live, work and recreate in the City and surrounding communities and would be directly affected by the Project's environmental impacts.

Commenters expressly reserve the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens*

G1-1

for Local Control v. Bakersfield (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121. G1-1 Cont.

Commenters incorporate by reference all comments raising issues regarding the EIR submitted prior to certification of the EIR for the Project. *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal. App. 4th 173, 191 (finding that any party who has objected to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, Commenters request that the Lead Agency provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act ("**CEQA**"), Cal Public Resources Code ("**PRC**") § 21000 *et seq*, and the California Planning and Zoning Law ("**Planning and Zoning Law**"), Cal. Gov't Code §§ 65000–65010. California Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body. G1-2

The City should require the Applicant provide additional community benefits such as requiring local hire and use of a skilled and trained workforce to build the Project. The City should require the use of workers who have graduated from a Joint Labor Management apprenticeship training program approved by the State of California, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state approved apprenticeship training program or who are registered apprentices in an apprenticeship training program approved by the State of California.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note: G1-3

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

G1-3 Cont.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the UC Berkeley Center for Labor Research and Education concluded:

> . . . labor should be considered an investment rather than a cost – and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

G1-4

Recently, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.[2]

Cities are increasingly adopting local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward 2040 General Plan requires the City to "promote local hiring . . . to help achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."[3]

G1-5

In fact, the City of Hayward has gone as far as to adopt a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its

[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10

[3] City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf.

Downtown area to requiring that the City "[c]ontribute to the stabilization of regional construction markets by spurring applicants of housing and nonresidential developments to require contractors to utilize apprentices from state-approved, joint labor-management training programs, . . ."[4] In addition, the City of Hayward requires all projects 30,000 square feet or larger to "utilize apprentices from state-approved, joint labor-management training programs."[5]

G1-5 Cont.

Locating jobs closer to residential areas can have significant environmental benefits. As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.[6]

In addition, local hire mandates as well as skill training are critical facets of a strategy to reduce vehicle miles traveled. As planning experts Robert Cervero and Michael Duncan noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions since the skill requirements of available local jobs must be matched to those held by local residents.[7] Some municipalities have tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. As Cervero and Duncan note:

G1-6

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing." The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When

[4] City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%20Specific%20Plan.pdf.
[5] City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).
[6] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf
[7] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

> needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

G1-6 Cont.

The City should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and mitigate greenhouse gas, air quality and transportation impacts.

G1-7

Sincerely,

Mitchell M. Tsai
Attorneys for Southwest Regional Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B);

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C);

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
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Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

G1-8

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

G1-8 Cont.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

G1-9

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the ***location*** and ***urbanization*** selected on the project characteristic screen. These values were ***supplied by the air districts or use a default average for the state***. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin

Air Basin	Rural (miles)	Urban (miles)
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

G1-9 Cont.

[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

G1-9 Cont.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

G1-10

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

G1-11

Sincerely,



Matt Hagemann, P.G., C.Hg.



Paul E. Rosenfeld, Ph.D.

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL WATER AIR PROTECTION ENTERPRISE
2656 29th Street, Suite 201
Santa Monica, California 90405
Attn: Paul Rosenfeld, Ph.D.
Mobil: (310) 795-2335
Office: (310) 452-5555
Fax: (310) 452-5550
Email: prosenfeld@swape.com

Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

Chen, J. A, Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.,** Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermod and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries.* Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution,* 123 (17), 319-327.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

Chollack, T. and **P. Rosenfeld. (**1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

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Comment Letter G2

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VIA E-MAIL

September 27, 2021

Ryan Leonard, Planner
City of Hesperia
9700 Seventh Avenue
Hesperia, CA 92345
Em: rleonard@cityofhesperia.us

RE: Hesperia Commerce Center II Draft Environmental Impact Report (SCH No. 2019110418)

Dear Ryan Leonard,

On behalf of the Southwest Regional Council of Carpenters ("**Commenters**" or "**Carpenters**"), my Office is submitting these comments on the City of Hesperia's ("**City**" or "**Lead Agency**") Draft Environmental Impact Report ("**DEIR**") (SCH No. 2019110418) for the proposed Hesperia Commerce Center II Project ("**Project**").

This letter is intended to supplement its comments submitted on the DEIR on September 24, 2021.

The City proposes to adopt the Project, a development of a 194.8 acre site to include three warehouse buildings totaling 3,745,429 square feet, associated office space, 1,631 automobile parking spaces, 1,763 trailer stalls, 613 loading docks, and associated landscaping and improvements. As part of the Project, the City would be required to, among other things, a conditional use permit, a tentative parcel map, a development agreement, and grading, building, and encroachment permits.

G2-1

The Southwest Carpenters is a labor union representing more than 50,000 union carpenters in six states and has a strong interest in well ordered land use planning and addressing the environmental impacts of development projects.

Individual members of the Southwest Carpenters live, work and recreate in the City and surrounding communities and would be directly affected by the Project's environmental impacts.

Commenters expressly reserve the right to supplement these comments at or prior to hearings on the Project, and at any later hearings and proceedings related to this

Project. Cal. Gov. Code § 65009(b); Cal. Pub. Res. Code § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield* (2004) 124 Cal. App. 4th 1184, 1199-1203; see *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121. G2-1 Cont.

Commenters incorporate by reference all comments raising issues regarding the EIR submitted prior to certification of the EIR for the Project. *Citizens for Clean Energy v City of Woodland* (2014) 225 Cal. App. 4th 173, 191 (finding that any party who has objected to the Project's environmental documentation may assert any issue timely raised by other parties).

Moreover, Commenters request that the Lead Agency provide notice for any and all notices referring or related to the Project issued under the California Environmental Quality Act ("**CEQA**"), Cal Public Resources Code ("**PRC**") § 21000 *et seq*, and the California Planning and Zoning Law ("**Planning and Zoning Law**"), Cal. Gov't Code §§ 65000–65010. California Public Resources Code Sections 21092.2, and 21167(f) and Government Code Section 65092 require agencies to mail such notices to any person who has filed a written request for them with the clerk of the agency's governing body. G2-2

The City should require the Applicant provide additional community benefits such as requiring local hire and use of a skilled and trained workforce to build the Project. The City should require the use of workers who have graduated from a Joint Labor Management apprenticeship training program approved by the State of California, or have at least as many hours of on-the-job experience in the applicable craft which would be required to graduate from such a state approved apprenticeship training program or who are registered apprentices in an apprenticeship training program approved by the State of California.

Community benefits such as local hire and skilled and trained workforce requirements can also be helpful to reduce environmental impacts and improve the positive economic impact of the Project. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. Local hire provisions requiring that a certain percentage of workers reside within 10 miles or less of the Project Site can reduce the length of vendor trips, reduce greenhouse gas emissions and providing localized economic benefits. As environmental consultants Matt Hagemann and Paul E. Rosenfeld note: G2-3

> [A]ny local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling.

Skilled and trained workforce requirements promote the development of skilled trades that yield sustainable economic development. As the California Workforce Development Board and the UC Berkeley Center for Labor Research and Education concluded:

> . . . labor should be considered an investment rather than a cost – and investments in growing, diversifying, and upskilling California's workforce can positively affect returns on climate mitigation efforts. In other words, well trained workers are key to delivering emissions reductions and moving California closer to its climate targets.[1]

Recently, on May 7, 2021, the South Coast Air Quality Management District found that that the "[u]se of a local state-certified apprenticeship program or a skilled and trained workforce with a local hire component" can result in air pollutant reductions.[2]

Cities are increasingly adopting local skilled and trained workforce policies and requirements into general plans and municipal codes. For example, the City of Hayward 2040 General Plan requires the City to "promote local hiring . . . to help achieve a more positive jobs-housing balance, and reduce regional commuting, gas consumption, and greenhouse gas emissions."[3]

In fact, the City of Hayward has gone as far as to adopt a Skilled Labor Force policy into its Downtown Specific Plan and municipal code, requiring developments in its

G2-3
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[1] California Workforce Development Board (2020) Putting California on the High Road: A Jobs and Climate Action Plan for 2030 at p. ii, *available at* https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

[2] South Coast Air Quality Management District (May 7, 2021) Certify Final Environmental Assessment and Adopt Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program, and Proposed Rule 316 – Fees for Rule 2305, Submit Rule 2305 for Inclusion Into the SIP, and Approve Supporting Budget Actions, *available at* http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2021/2021-May7-027.pdf?sfvrsn=10

[3] City of Hayward (2014) Hayward 2040 General Plan Policy Document at p. 3-99, *available at* https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf.

Downtown area to requiring that the City "[c]ontribute to the stabilization of regional construction markets by spurring applicants of housing and nonresidential developments to require contractors to utilize apprentices from state-approved, joint labor-management training programs, . . ."[4] In addition, the City of Hayward requires all projects 30,000 square feet or larger to "utilize apprentices from state-approved, joint labor-management training programs."[5]

Locating jobs closer to residential areas can have significant environmental benefits. As the California Planning Roundtable noted in 2008:

> People who live and work in the same jurisdiction would be more likely to take transit, walk, or bicycle to work than residents of less balanced communities and their vehicle trips would be shorter. Benefits would include potential reductions in both vehicle miles traveled and vehicle hours traveled.[6]

In addition, local hire mandates as well as skill training are critical facets of a strategy to reduce vehicle miles traveled. As planning experts Robert Cervero and Michael Duncan noted, simply placing jobs near housing stock is insufficient to achieve VMT reductions since the skill requirements of available local jobs must be matched to those held by local residents.[7] Some municipalities have tied local hire and skilled and trained workforce policies to local development permits to address transportation issues. As Cervero and Duncan note:

> In nearly built-out Berkeley, CA, the approach to balancing jobs and housing is to create local jobs rather than to develop new housing." The city's First Source program encourages businesses to hire local residents, especially for entry- and intermediate-level jobs, and sponsors vocational training to ensure residents are employment-ready. While the program is voluntary, some 300 businesses have used it to date, placing more than 3,000 city residents in local jobs since it was launched in 1986. When

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[4] City of Hayward (2019) Hayward Downtown Specific Plan at p. 5-24, *available at* https://www.hayward-ca.gov/sites/default/files/Hayward%20Downtown%20Specific%20Plan.pdf.
[5] City of Hayward Municipal Code, Chapter 10, § 28.5.3.020(C).
[6] California Planning Roundtable (2008) Deconstructing Jobs-Housing Balance at p. 6, *available at* https://cproundtable.org/static/media/uploads/publications/cpr-jobs-housing.pdf
[7] Cervero, Robert and Duncan, Michael (2006) Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association 72 (4), 475-490, 482, *available at* http://reconnectingamerica.org/assets/Uploads/UTCT-825.pdf.

needed, these carrots are matched by sticks, since the city is not shy about negotiating corporate participation in First Source as a condition of approval for development permits.

The City should consider utilizing skilled and trained workforce policies and requirements to benefit the local area economically and mitigate greenhouse gas, air quality and transportation impacts.

The City should also require the Project to be built to standards exceeding the current 2019 California Green Building Code to mitigate the Project's environmental impacts and to advance progress towards the State of California's environmental goals.

G2-3 Cont.

I. THE PROJECT WOULD BE APPROVED IN VIOLATION OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

A. Background Concerning the California Environmental Quality Act

CEQA has two basic purposes. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project. 14 California Code of Regulations ("**CCR**" or "**CEQA Guidelines**") § 15002(a)(1).[8] "Its purpose is to inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made. Thus, the EIR 'protects not only the environment but also informed self-government.' [Citation.]" *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 564. The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal. App. 4th 1344, 1354 ("*Berkeley Jets")*; *County of Inyo v. Yorty* (1973) 32 Cal. App. 3d 795, 810.

G2-4

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. CEQA Guidelines § 15002(a)(2) and (3). *See also, Berkeley Jets,* 91 Cal. App. 4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400. The EIR serves to provide public agencies and the public in general with information about the effect that a

G2-5

[8] The CEQA Guidelines, codified in Title 14 of the California Code of Regulations, section 150000 *et seq*, are regulatory guidelines promulgated by the state Natural Resources Agency for the implementation of CEQA. (Cal. Pub. Res. Code § 21083.) The CEQA Guidelines are given "great weight in interpreting CEQA except when . . . clearly unauthorized or erroneous." *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal. 4th 204, 217.

proposed project is likely to have on the environment and to "identify ways that environmental damage can be avoided or significantly reduced." CEQA Guidelines § 15002(a)(2). If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible" and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081. CEQA Guidelines § 15092(b)(2)(A–B).

While the courts review an EIR using an "abuse of discretion" standard, "the reviewing court is not to 'uncritically rely on every study or analysis presented by a project proponent in support of its position.' A 'clearly inadequate or unsupported study is entitled to no judicial deference.'" *Berkeley Jets*, 91 Cal.App.4th 1344, 1355 (emphasis added) (quoting *Laurel Heights,* 47 Cal.3d at 391, 409 fn. 12). Drawing this line and determining whether the EIR complies with CEQA's information disclosure requirements presents a question of law subject to independent review by the courts. *Sierra Club v. Cnty. of Fresno* (2018) 6 Cal. 5th 502, 515; *Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48, 102, 131. As the court stated in *Berkeley Jets*, 91 Cal. App. 4th at 1355:

> A prejudicial abuse of discretion occurs "if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.

The preparation and circulation of an EIR is more than a set of technical hurdles for agencies and developers to overcome. The EIR's function is to ensure that government officials who decide to build or approve a project do so with a full understanding of the environmental consequences and, equally important, that the public is assured those consequences have been considered. For the EIR to serve these goals it must present information so that the foreseeable impacts of pursuing the project can be understood and weighed, and the public must be given an adequate opportunity to comment on that presentation before the decision to go forward is made. *Communities for a Better Environment v. Richmond* (2010) 184 Cal. App. 4th 70, 80 (quoting *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 449–450).

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G2-5
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B. CEQA Requires Revision and Recirculation of an Environmental Impact Report When Substantial Changes or New Information Comes to Light

Section 21092.1 of the California Public Resources Code requires that "[w]hen significant new information is added to an environmental impact report after notice has been given pursuant to Section 21092 … but prior to certification, the public agency shall give notice again pursuant to Section 21092, and consult again pursuant to Sections 21104 and 21153 before certifying the environmental impact report" in order to give the public a chance to review and comment upon the information. CEQA Guidelines § 15088.5.

Significant new information includes "changes in the project or environmental setting as well as additional data or other information" that "deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative)." CEQA Guidelines § 15088.5(a). Examples of significant new information requiring recirculation include "new significant environmental impacts from the project or from a new mitigation measure," "substantial increase in the severity of an environmental impact," "feasible project alternative or mitigation measure considerably different from others previously analyzed" as well as when "the draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded." *Id.*

An agency has an obligation to recirculate an environmental impact report for public notice and comment due to "significant new information" regardless of whether the agency opts to include it in a project's environmental impact report. *Cadiz Land Co. v. Rail Cycle* (2000) 83 Cal.App.4th 74, 95 [finding that in light of a new expert report disclosing potentially significant impacts to groundwater supply "the EIR should have been revised and recirculated for purposes of informing the public and governmental agencies of the volume of groundwater at risk and to allow the public and governmental agencies to respond to such information."]. If significant new information was brought to the attention of an agency prior to certification, an agency is required to revise and recirculate that information as part of the environmental impact report.

G2-6

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C. Due to the COVID-19 Crisis, the City Must Adopt a Mandatory Finding of Significance that the Project May Cause a Substantial Adverse Effect on Human Beings and Mitigate COVID-19 Impacts

CEQA requires that an agency make a finding of significance when a Project may cause a significant adverse effect on human beings. PRC § 21083(b)(3); CEQA Guidelines § 15065(a)(4).

Public health risks related to construction work requires a mandatory finding of significance under CEQA. Construction work has been defined as a Lower to High-risk activity for COVID-19 spread by the Occupations Safety and Health Administration. Recently, several construction sites have been identified as sources of community spread of COVID-19.[9]

SWRCC recommends that the Lead Agency adopt additional CEQA mitigation measures to mitigate public health risks from the Project's construction activities. SWRCC requests that the Lead Agency require safe on-site construction work practices as well as training and certification for any construction workers on the Project Site. G2-7

In particular, based upon SWRCC's experience with safe construction site work practices, SWRCC recommends that the Lead Agency require that while construction activities are being conducted at the Project Site:

Construction Site Design:

- The Project Site will be limited to two controlled entry points.
- Entry points will have temperature screening technicians taking temperature readings when the entry point is open.
- The Temperature Screening Site Plan shows details regarding access to the Project Site and Project Site logistics for conducting temperature screening.
- A 48-hour advance notice will be provided to all trades prior to the first day of temperature screening.

[9] Santa Clara County Public Health (June 12, 2020) COVID-19 CASES AT CONSTRUCTION SITES HIGHLIGHT NEED FOR CONTINUED VIGILANCE IN SECTORS THAT HAVE REOPENED, *available at* https://www.sccgov.org/sites/covid19/Pages/press-release-06-12-2020-cases-at-construction-sites.aspx.

- The perimeter fence directly adjacent to the entry points will be clearly marked indicating the appropriate 6-foot social distancing position for when you approach the screening area. Please reference the Apex temperature screening site map for additional details.
- There will be clear signage posted at the project site directing you through temperature screening.
- Provide hand washing stations throughout the construction site.

Testing Procedures:

- The temperature screening being used are non-contact devices.
- Temperature readings will not be recorded.
- Personnel will be screened upon entering the testing center and should only take 1-2 seconds per individual.
- Hard hats, head coverings, sweat, dirt, sunscreen or any other cosmetics must be removed on the forehead before temperature screening.
- Anyone who refuses to submit to a temperature screening or does not answer the health screening questions will be refused access to the Project Site.
- Screening will be performed at both entrances from 5:30 am to 7:30 am.; main gate [ZONE 1] and personnel gate [ZONE 2]
- After 7:30 am only the main gate entrance [ZONE 1] will continue to be used for temperature testing for anybody gaining entry to the project site such as returning personnel, deliveries, and visitors.
- If the digital thermometer displays a temperature reading above 100.0 degrees Fahrenheit, a second reading will be taken to verify an accurate reading.
- If the second reading confirms an elevated temperature, DHS will instruct the individual that he/she will not be

G2-7
Cont.

allowed to enter the Project Site. DHS will also instruct the individual to promptly notify his/her supervisor and his/her human resources (HR) representative and provide them with a copy of Annex A.

Planning

- Require the development of an Infectious Disease Preparedness and Response Plan that will include basic infection prevention measures (requiring the use of personal protection equipment), policies and procedures for prompt identification and isolation of sick individuals, social distancing (prohibiting gatherings of no more than 10 people including all-hands meetings and all-hands lunches) communication and training and workplace controls that meet standards that may be promulgated by the Center for Disease Control, Occupational Safety and Health Administration, Cal/OSHA, California Department of Public Health or applicable local public health agencies.[10]

G2-7 Cont.

The United Brotherhood of Carpenters and Carpenters International Training Fund has developed COVID-19 Training and Certification to ensure that Carpenter union members and apprentices conduct safe work practices. The Agency should require that all construction workers undergo COVID-19 Training and Certification before being allowed to conduct construction activities at the Project Site.

G2-8

D. The DEIR's Project Description is Not Accurate, Stable, and Finite

"[A]n accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient" environmental document. (*County of Inyo v. City of Los Angeles* (1977) 71 Cal. App. 3d 185, 200.) "A curtailed or distorted project description may stultify the objectives of the reporting process" as an accurate, stable and finite project description is necessary to allow "affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the "no project"

G2-9

[10] *See also* The Center for Construction Research and Training, North America's Building Trades Unions (April 27 2020) NABTU and CPWR COVIC-19 Standards for U.S Constructions Sites, *available at* https://www.cpwr.com/sites/default/files/NABTU_CPWR_Standards_COVID-19.pdf; Los Angeles County Department of Public Works (2020) Guidelines for Construction Sites During COVID-19 Pandemic, *available at* https://dpw.lacounty.gov/building-and-safety/docs/pw_guidelines-construction-sites.pdf.

alternative) and weigh other alternatives in the balance. (*Id.* at 192 – 93.) Courts determine *de novo* whether an agency proceeded "in a manner required by law" in maintaining a stable and consistent project description. (*Id.* at 200.)

G2-9 Cont.

A project description fails for not including sufficient detail when there is not enough information provided to accurately evaluate the project's environmental impacts. Here, the DEIR's project description is not accurate, stable, or finite, thus undermining much of the subsequent analysis in the DEIR. The DEIR's project description states that the Project's warehouses will not include any cold storage facilities or facilities to accommodate transport refrigeration units ("TRUs"). (DEIR, 3.17.) However, the DEIR notes that the Project is speculative in nature and that the future tenants of the Project are as-yet unknown. (*Id.*) Though the Project proposes that the buildings on site be used as high-cube warehousing and light industrial uses, (*Id.*), it is reasonably foreseeable that the ultimate tenant(s) of the warehouses might wish to modify the buildings to include cold storage and TRU accommodations, among other things.

Specificity is crucial when evaluating the environmental impacts of a warehouse project because the type of warehousing generally dictates the project's air quality, greenhouse gas emissions, and transportation impacts. The number of truck trips and vehicle miles travelled will substantially change depending on how the warehouse will be utilized.[11] Vehicle trip generation rates can change dramatically based upon the type of warehousing that is operated at a site.[12] For example, cold-storage uses generate significantly higher average daily vehicle trip rates than non-cold-storage uses.[13] High-cube sort and non-sort fulfillment centers may also generate dramatically different trip rates but the DEIR fails to justify its assumptions for future tenants.

G2-10

The DEIR wants to rule out a cold storage use scenario in its analysis but it cannot because by the DEIR's own language the future tenants, and thus the future uses, of the proposed warehouses are merely speculative. There is no mitigation measure that precludes or limits the use of cold storage. The proposed warehouses could accommodate cold storage uses. The DEIR should then assume for purposes of its analyses that *only* cold storage tenants will utilize the proposed warehouse buildings. Although an EIR is not required to include an analysis of an *unlikely* worst-case

[11] ITE Trip General Manual, 10th Ed., Land Use Codes, available at https://www.ite.org/pub/?id=794f62d6%2Df31f%2D9ea7%2D4506%2Def5df11de8f6.
[12] *High-Cube Warehouse Vehicle Trip Generation Analysis* (Oct. 2016), Institute of Transportation Engineers, available at https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498.
[13] *Id.* at 26-8.

scenario, it needs to evaluate impacts that are a reasonably foreseeable consequence of the project. *High Sierra Rural Alliance v. County of Plumas* (2018) 29 Cal. App. 5th 102, 122. Here, the Project Description unjustifiably narrows the future uses of the Project site.

The DEIR should take a more conservative approach as required by CEQA and assume that the Project could be used for cold storage purposes or any other uses that may generate higher average daily trip rates than the DEIR's current environmental analyses indicate. The DEIR needs to be revised to include a stable and finite description and worst-case scenario land use projections regarding cold storage to accurately reflect the potential environmental impacts of future tenants.

G2-10 Cont.

E. CEQA Bars the Deferred Development of Environmental Mitigation Measures

CEQA mitigation measures proposed and adopted into an environmental impact report are required to describe what actions that will be taken to reduce or avoid an environmental impact. CEQA Guidelines § 15126.4(a)(1)(B) [providing "[f]ormulation of mitigation measures should not be deferred until some future time."]. While the same Guidelines section 15126.5(a)(1)(B) acknowledges an exception to the rule against deferrals, but such exception is narrowly proscribed to situations where "measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." (Id.) Courts have also recognized a similar exception to the general rule against deferral of mitigation measures where the performance criteria for each mitigation measure is identified and described in the EIR. *Sacramento Old City Ass'n v. City Council* (1991) 229 Cal.App.3d 1011.

G2-11

Impermissible deferral can occur when an EIR calls for mitigation measures to be created based on future studies or describes mitigation measures in general terms but the agency fails to commit itself to specific performance standards. *Preserve Wild Santee v. City of Santee* (2012) 210 Cal. App. 4th 260, 281 [city improperly deferred mitigation to butterfly habitat by failing to provide standards or guidelines for its management]; *San Joaquin Raptor Rescue Center v. County of Merced* (2007) 149 Cal. App. 4th 645, 671 [EIR failed to provide and commit to specific criteria or standard of performance for mitigating impacts to biological habitats]; see also *Cleveland Nat'l Forest Found. v San Diego Ass'n of Gov'ts* (2017) 17 Cal. App. 5th 413, 442 [generalized air quality measures in the EIR failed to set performance standards]; *California Clean Energy Comm. v City of*

Woodland (2014) 225 Cal. App. 4th 173, 195 [agency could not rely on a future report on urban decay with no standards for determining whether mitigation required]; *POET, LLC v. State Air Resources Bd.* (2013) 218 Cal. App. 4th 681, 740 [agency could not rely on future rulemaking to establish specifications to ensure emissions of nitrogen oxide would not increase because it did not establish objective performance criteria for measuring whether that goal would be achieved]; *Gray v. County of Madera* (2008) 167 Cal. App. 4th 1099, 1119 [rejecting mitigation measure requiring replacement water to be provided to neighboring landowners because it identified a general goal for mitigation rather than specific performance standard]; *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal. App. 4th 777, 794 [requiring report without established standards is impermissible delay]. G2-11 Cont.

Here, the DEIR defers the development of the following mitigation measures for potentially significant environmental impacts:

- MM-CUL-5 proposes to retain a qualified paleontologist to evaluate and develop treatment plans for inadvertently discovered paleontological resources without detailing any specific standards for selection of a qualified paleontologist. G2-12
- MM-CUL-5 proposes to retain a qualified environmental specialist to evaluate refuse on the Project site for potentially hazardous materials, and to remove such refuse, without detailing any specific standards for selection of a qualified environmental specialist. G2-13
- MM-TRA-1 calls for the retention of a qualified transportation consultant and the development of a Transportation Demand Management Plan without detailing any criteria for the selection of the transportation consultant, or any specific plan that would be established using a generally accepted performance criteria or standard. G2-14

The DEIR needs to be amended to include specific mitigation measures with any applicable performance standards. The DEIR needs to be revised to specify what the plan is and what performance standard or measure will be used that complies with any rule or regulation cited. G2-15

F. <u>The DEIR Fails to Support Its Findings with Substantial Evidence</u>

When new information is brought to light showing that an impact previously discussed in the DEIR but found to be insignificant with or without mitigation in the DEIR's analysis has the potential for a significant environmental impact supported by substantial evidence, the EIR must consider and resolve the conflict in the evidence. See *Visalia Retail, L.P. v. City of Visalia* (2018) 20 Cal. App. 5th 1, 13, 17; see also *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal. App. 4th 1099, 1109. While a lead agency has discretion to formulate standards for determining significance and the need for mitigation measures—the choice of any standards or thresholds of significance must be "based to the extent possible on scientific and factual data and an exercise of reasoned judgment based on substantial evidence. CEQA Guidelines § 15064(b); *Cleveland Nat'l Forest Found. v. San Diego Ass'n of Gov'ts* (2017) 3 Cal. App. 5th 497, 515; *Mission Bay Alliance v. Office of Community Inv. & Infrastructure* (2016) 6 Cal. App. 5th 160, 206. And when there is evidence that an impact could be significant, an EIR cannot adopt a contrary finding without providing an adequate explanation along with supporting evidence. *East Sacramento Partnership for a Livable City v. City of Sacramento* (2016) 5 Cal. App. 5th 281, 302.

G2-16

In addition, a determination that regulatory compliance will be sufficient to prevent significant adverse impacts must be based on a project-specific analysis of potential impacts and the effect of regulatory compliance. In *Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal. App. 4th 1, the court set aside an EIR for a statewide crop disease control plan because it did not include an evaluation of the risks to the environment and human health from the proposed program but simply presumed that no adverse impacts would occur from use of pesticides in accordance with the registration and labeling program of the California Department of Pesticide Regulation. See also *Ebbetts Pass Forest Watch v Department of Forestry & Fire Protection* (2008) 43 Cal. App. 4th 936, 956 (fact that Department of Pesticide Regulation had assessed environmental effects of certain herbicides in general did not excuse failure to assess effects of their use for specific timber harvesting project).

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1. *The DEIR's Air Quality and Greenhouse Gas Emissions Analyses are Not Supported by Substantial Evidence.*

i. The DEIR Fails to Substantiate Proposed Warehousing Uses.

Though this Project is under the jurisdiction of the Mojave Desert Air Quality Management District ("**MDAQMD**"), the City should note that the South Coast Air Quality Management District's ("**SCAQMD**") Warehouse Truck Trip Study Data Results and Usage report, warehouse cold storage uses significantly increase truck trip rates.[14] While the DEIR's analysis assumes the proposed warehousing will not include any cold storage uses, the tenants for the Project are as-yet unknown and may include tenants making use of cold storage. As noted above, vehicle trip generation rates and trip lengths can change dramatically based upon the type of warehousing that is operated at a site.[15] SCAQMD's recommended air quality analysis approach, following the CEQA requirement to use a conservative analysis, is to *utilize the cold storage trip rates* when the tenant(s) is unknown and when the proposed warehousing may accommodate that use.[16] G2-17

Here, the DEIR's air quality and greenhouse gas emissions analyses are flawed and not based upon substantial evidence because they fail to use a conservative analysis which utilizes the highest daily emissions rates for cold storage or any other possible warehousing uses that were not considered. The WSP Trip Generation Rate Study relied on by the DEIR does not appear to differentiate between uses other than "Conventional Warehouse" and "Fulfillment Center," and does not mention cold storage, refrigeration, or TRUs at all.[17] The DEIR's trip generation analysis, which affects its conclusions regarding Air Quality, GHG Emissions, and Transportation impacts, should be revised and reconsidered using cold storage trip generation rates of 2.49 trips per 1,000 square feet. G2-18

Moreover, the DEIR's analysis of GHG impacts is unsupported by substantial evidence as it relies on outdated modeling. The DEIR's analysis of Air Quality and GHG impacts throughout the DEIR relies on data created using CalEEMod version G2-19

[14] SCAQMD, Warehouse Truck Trip Study Data Results and Usage (June 2014). Available at https://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/final-ielc_6-19-2014.pdf?sfvrsn=2.

[15] *High-Cube Warehouse Vehicle Trip Generation Analysis* (Oct. 2016), Institute of Transportation Engineers, available at https://www.ite.org/pub/?id=a3e6679a%2De3a8%2Dbf38%2D7f29%2D2961becdd498.

[16] *Id.* at 28-2.

[17] WSP, Technical Memorandum re: TUMF High-Cube Warehouse Trip Generation Study (January 29, 2019). Available at https://www.wrcog.us/AgendaCenter/ViewFile/Agenda/_02142019-290.

2016.3.2. (See, e.g., DEIR, 4.6-22). A newer version of this software (currently CalEEMod version 2020.4.0) became available prior to the release of the DEIR. The DEIR and its appendices provide no discussion or justification for use of the outdated 2016 version of the software. The use of outdated modeling software may result in underestimation of the Project's GHG emissions, calling the DEIR's conclusions into question. The DEIR's reliance on inaccurate modeling also affects its analysis of air quality impacts and energy impacts. The DEIR potentially vastly undercounts the Project's emissions, and should be reevaluated.

G2-19 Cont.

2. The DEIR is Required to Consider and Adopt All Feasible Air Quality and GHG Mitigation Measures

A fundamental purpose of an EIR is to identify ways in which a proposed project's significant environmental impacts can be mitigated or avoided. Pub. Res. Code §§ 21002.1(a), 21061. To implement this statutory purpose, an EIR must describe any feasible mitigation measures that can minimize the project's significant environmental effects. PRC §§ 21002.1(a), 21100(b)(3); CEQA Guidelines §§ 15121(a), 15126.4(a).

If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible"[18] and find that 'specific overriding economic, legal, social, technology or other benefits of the project outweigh the significant effects on the environment."[19] "A gloomy forecast of environmental degradation is of little or no value without pragmatic, concrete means to minimize the impacts and restore ecological equilibrium." *Environmental Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018, 1039.

G2-20

Here, the DEIR finds that the Project will have a significant and unavoidable impact on air quality, and as discussed above, the Project may have significant impacts on greenhouse gas emissions. Yet the DEIR proposes mitigation measures that fall short of the "all feasible mitigation measures" standard set by CEQA. The DEIR fails to justify with substantial evidence why U.S. EPA Tier 4 Final-compliant should not be required during construction of the Project, or why CalGreen Tier 2 building standards should not be applied to the Project. As detailed below, the SCAG 2016-2040 RTP/SCS and the Connect SoCal 2020-2045 RTP/SCS list several project level

[18] PRC §§ 21002; 21002.1, 21081; CEQA Guidelines §§ 15091, 15092(b)(2)(A).
[19] PRC §§ 21002; 21002.1, 21081; CEQA Guidelines §§ 15091, 15092(b)(2)(B).

mitigation measures and strategies to reduce Project impacts. The DEIR fails to address the feasibility of these measures, which should be considered and incorporated into the Project's mitigation monitoring and management plan as required.

G2-20 Cont.

II. THE PROJECT VIOLATES THE STATE PLANNING AND ZONING LAW AS WELL AS THE CITY'S GENERAL PLAN

A. Background Regarding the State Planning and Zoning Law

An EIR must identify, fully analyze and mitigate any inconsistencies between a proposed project and the general, specific, regional, and other plans that apply to the project. CEQA Guidelines § 15125(d); *Pfeiffer v. City of Sunnyvale City Council* (2011) 200 Cal.App.4th 1552, 1566; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal.App.4th 859, 881. There does not need to be a direct conflict to trigger this requirement; even if a project is "incompatible" with the "goals and policies" of a land use plan, the EIR must assess the divergence between the project and the plan, and mitigate any adverse effects of the inconsistencies. *Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001) 91 Cal.App.4th 342, 378-79; *see also Pocket Protectors v. City of Sacramento* (2004) 124 Cal.App.4th 903 (holding under CEQA that a significant impact exists where project conflicts with local land use policies); *Friends of "B" Street v. City of Hayward* (1980) 106 Cal.App.3d 988, 998 (held county development and infrastructure improvements must be consistent with adopted general plans) (citing Gov. Code 65302).

G2-21

B. The DEIR Fails to Demonstrate Consistency with SCAG's RTP/SCS Plans

Senate Bill No. 375 requires regional planning agencies to include a sustainable communities strategy in their regional transportation plans. Gov. Code § 65080, sub.(b)(2)(B).) CEQA Guidelines § 15125(d) provides that an EIR "shall discuss any inconsistencies between the proposed project and…regional plans. Such regional plans include…regional transportation plans." Thus, CEQA requires analysis of any inconsistencies between the Project and the relevant RTP/SCS plan.

Senate Bill No. 375 requires regional planning agencies to include a sustainable communities strategy in their regional transportation plans. Gov. Code § 65080, sub.(b)(2)(B).) CEQA Guidelines § 15125(d) provides that an EIR "shall discuss any inconsistencies between the proposed project and…regional plans. Such regional plans

G2-22

include…regional transportation plans." Thus, CEQA requires analysis of any inconsistencies between the Project and the relevant RTP/SCS plan.

In April 2012, SCAG adopted its 2012-2035 RTP/ SCS ("2012 RTP/SCS"), which proposed specific land use policies and transportation strategies for local governments to implement that will help the region achieve GHG emission reductions of 9 percent per capita in 2020 and 16 percent per capita in 2035. In April 2016, SCAG adopted the 2016-2040 RTP/SCS ("2016 RTP/SCS")[20], which incorporates and builds upon the policies and strategies in the 2012 RTP/SCS[21],that will help the region achieve GHG emission reductions that would reduce the region's per capita transportation emissions by eight percent by 2020 and 18 percent by 2035.[22] SCAG's RTP/SCS plan ais based upon the same requirements outlined in CARB's 2017 Scoping Plan and SB 375.

On September 3, 2020, SCAG adopted the 2020 – 2045 RTP / SCS titled Connect SoCal ("2020 RTP/ SCS" or "Connect SoCal").[23] The 2020 RTP / SCS adopts policies and strategies aimed at reducing the region's per capita greenhouse gas emissions by 8% below 2005 per capita emissions levels by 2020 and 19% below 2005 per capita emissions levels by 2035. [24]

Here, the DEIR includes insufficient analysis of compliance with SCAG's Connect SoCal regional RTP/SCS plan which includes specific warehouse project mitigation strategies that apply to the Project.[25] SoCal Connect specifies that industrial warehouses and other "goods movement" activities need to integrate sustainable strategies to reduce emissions to near-zero because the SCAG region "does not meet federal ozone and fine particulate air quality standards, and goods movement is a major source of greenhouse gas emissions…the region will need to aggressively pursue the reduction of freight emissions that contributes to regional air pollution problems and localized 'hot spots' that have adverse health impacts…**Connect SoCal proposes an**

G2-22
Cont.

[20] Southern California Association of Governments ("SCAG") (Apr. 2016) 2026-2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life ("SCAG 2016 RTP/SCS"), *available at* https://scag.ca.gov/sites/main/files/file-attachments/f2016rtpscs.pdf?1606005557.
[21] SCAG 2016 RTP/SCS, p. 69, 75-115.
[22] *Id.*, p. 8, 15, 153, 166.
[23] SCAG (Sept 2020) Connect Socal: The 2020 – 2045 Regional Transportation Plan / Sustainable Communities Strategy of the Southern California Association of Governments, *available at* https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176
[24] *Id.* At xiii.
[25] SCAG Connect SoCal Plan, p. 78. Available at https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal-plan_0.pdf?1606001176.

environmental strategy to address the air quality impacts of goods movements…"

G2-22 Cont.

Connect SoCal's Goods Movement Technical Report outlines specific steps that lead agencies should take to ensure that goods movement projects comply with the goals and strategies of Connect SoCal.[26] Some of these steps include:

- Use of heavy-duty vehicles that are model year 2010 or newer;
- Use of low NO_x engines in heavy-duty vehicles;
- Use of electric, hybrid-electric and near-zero emissions trucks;
- Operating time limits on TRUs and transition to use of zero emission TRUs;
- Extended truck warranties and improved maintenance protocols on diesel after treatment systems; and
- Increase fleet fuel emissions standards.

G2-23

For both the 2016 RTP/SCS and Connect SoCal, SCAG prepared Program Environmental Impact Reports ("PEIR") that include Mitigation Monitoring and Reporting Programs ("MMRP") that list project-level environmental mitigation measures that directly and/or indirectly relate to a project's GHG impacts and contribution to the region's GHG emissions.[27] These environmental mitigation measures serve to help local municipalities when identifying mitigation to reduce impacts on a project-specific basis that can and should be implemented when they identify and mitigate project-specific environmental impacts.[28]

G2-24

Here, the DEIR does not consider consistency with the still-extant 2016-2040 RTP/SCS, and claims the Project is consistent with Connect SoCal through the

[26] SCAG Connect SoCal Goods Movement Technical Report, pp. 57-69, available at https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_goods-movement.pdf.

[27] SCAG (April 7, 2016) Resolution No. 16-578-1: A Resolution of the Southern California Association of Government Certifying the Final Program Environmental Impact Report Prepared for the 2016 – 2040 Regional Transportation Plan / Sustainable Communities Strategy (SCH#2015031035) and Adopting Findings of Fact, a Statement of Overriding Considerations and a Mitigation, Monitoring and Reporting Program Pursuant to the California Environmental Quality Act, Exhibit B, "Mitigation Monitoring and Reporting Program," *available at* https://scag.ca.gov/sites/main/files/file-attachments/2016fpeir_exhibitb_mmrp.pdf?1623887711; *see also* SCAG (Sept. 3, 2020) Connect SoCal Program Environmental Impact Report Addendum #1, *available at* https://scag.ca.gov/sites/main/files/file-attachments/fpeir_connectsocal_addendum_complete.pdf?1606004379 , at pp. 4.0-1 through 4.0-28..

[28] SCAG 2012 RTP/SCS, p. 77; see also SCAG 2016 RTP/SCS, fn. 41, p. 115.

analysis of ten general goals or policies of that plan. However, the goals that the DEIR analyzes for Project consistency are not applicable at the project level, only at a plan level to inform implementation of the RTP/SCS Plan. Thus, the DEIR incorrectly relies upon plan level goals outlined in the RTP/SCS. In the 2016 RTP/SCS Plan, SCAG states that:

> The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health. Ultimately, the Plan is intended to help guide transportation and land use decisions and public investments…This Plan's goals are intended to help carry out our vision for improved mobility, a strong economy and sustainability."[29]

G2-24 Cont.

The DEIR simply does not demonstrate that it is consistent with many of the RTP/SCS Plan's *project-level* goals, as described in the Mitigation Measures for the 2016 RTP/SCS and Connect SoCal. Connect SoCal requires that the Project incorporate concrete strategies to reduce its GHG emissions impacts, regardless of its overall emissions outputs. Connect SoCal does not exempt projects from its requirements. As such, the DEIR fails to demonstrate consistency with Connect SoCal and needs to incorporate a consistency analysis with that plan in a revised and recirculated EIR for the Project.

III. CONCLUSION

Commenters request that the City revise and recirculate the Project's DEIR and/or prepare an environmental impact report which addresses the aforementioned concerns. If the City has any questions or concerns, feel free to contact my Office.

G2-25

Sincerely,



Mitchell M. Tsai
Attorneys for Southwest Regional Council of Carpenters

Attached:

March 8, 2021 SWAPE Letter to Mitchell M. Tsai re Local Hire Requirements and Considerations for Greenhouse Gas Modeling (Exhibit A);

[29] SCAG 2016-2040 RTP/SCS Plan, pp. 63, 65 (emphasis added).

Air Quality and GHG Expert Paul Rosenfeld CV (Exhibit B);

Air Quality and GHG Expert Matt Hagemann CV (Exhibit C);

EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 8, 2021

Mitchell M. Tsai
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Pasadena, CA 91101

Subject: Local Hire Requirements and Considerations for Greenhouse Gas Modeling

Dear Mr. Tsai,

Soil Water Air Protection Enterprise ("SWAPE") is pleased to provide the following draft technical report explaining the significance of worker trips required for construction of land use development projects with respect to the estimation of greenhouse gas ("GHG") emissions. The report will also discuss the potential for local hire requirements to reduce the length of worker trips, and consequently, reduced or mitigate the potential GHG impacts.

Worker Trips and Greenhouse Gas Calculations

The California Emissions Estimator Model ("CalEEMod") is a "statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects."[1] CalEEMod quantifies construction-related emissions associated with land use projects resulting from off-road construction equipment; on-road mobile equipment associated with workers, vendors, and hauling; fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads; and architectural coating activities; and paving.[2]

The number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[3]

G2-26

[1] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[2] "California Emissions Estimator Model." CAPCOA, 2017, *available at:* http://www.aqmd.gov/caleemod/home.
[3] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.

Specifically, the number and length of vehicle trips is utilized to estimate the vehicle miles travelled ("VMT") associated with construction. Then, utilizing vehicle-class specific EMFAC 2014 emission factors, CalEEMod calculates the vehicle exhaust, evaporative, and dust emissions resulting from construction-related VMT, including personal vehicles for worker commuting.[4]

Specifically, in order to calculate VMT, CalEEMod multiplies the average daily trip rate by the average overall trip length (see excerpt below):

> "$VMT_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$
>
> Where:
>
> n = Number of land uses being modeled."[5]

Furthermore, to calculate the on-road emissions associated with worker trips, CalEEMod utilizes the following equation (see excerpt below):

> "$\text{Emissions}_{pollutant} = VMT * EF_{running,pollutant}$
>
> Where:
>
> $\text{Emissions}_{pollutant}$ = emissions from vehicle running for each pollutant
>
> VMT = vehicle miles traveled
>
> $EF_{running,pollutant}$ = emission factor for running emissions."[6]

Thus, there is a direct relationship between trip length and VMT, as well as a direct relationship between VMT and vehicle running emissions. In other words, when the trip length is increased, the VMT and vehicle running emissions increase as a result. Thus, vehicle running emissions can be reduced by decreasing the average overall trip length, by way of a local hire requirement or otherwise.

G2-26 Cont.

Default Worker Trip Parameters and Potential Local Hire Requirements

As previously discussed, the number, length, and vehicle class of worker trips are utilized by CalEEMod to calculate emissions associated with the on-road vehicle trips required to transport workers to and from the Project site during construction.[7] In order to understand how local hire requirements and associated worker trip length reductions impact GHG emissions calculations, it is important to consider the CalEEMod default worker trip parameters. CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act ("CEQA") requires that such changes be justified by substantial evidence.[8] The default number of construction-related worker trips is calculated by multiplying the

[4] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14-15.
[5] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 23.
[6] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 1, 9.

number of pieces of equipment for all phases by 1.25, with the exception of worker trips required for the building construction and architectural coating phases.[9] Furthermore, the worker trip vehicle class is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively."[10] Finally, the default worker trip length is consistent with the length of the operational home-to-work vehicle trips.[11] The operational home-to-work vehicle trip lengths are:

> "[B]ased on the ***location*** and ***urbanization*** selected on the project characteristic screen. These values were ***supplied by the air districts or use a default average for the state***. Each district (or county) also assigns trip lengths for urban and rural settings" (emphasis added). [12]

Thus, the default worker trip length is based on the location and urbanization level selected by the User when modeling emissions. The below table shows the CalEEMod default rural and urban worker trip lengths by air basin (see excerpt below and Attachment A).[13]

Worker Trip Length by Air Basin

Air Basin	Rural (miles)	Urban (miles)
Great Basin Valleys	16.8	10.8
Lake County	16.8	10.8
Lake Tahoe	16.8	10.8
Mojave Desert	16.8	10.8
Mountain Counties	16.8	10.8
North Central Coast	17.1	12.3
North Coast	16.8	10.8
Northeast Plateau	16.8	10.8
Sacramento Valley	16.8	10.8
Salton Sea	14.6	11
San Diego	16.8	10.8
San Francisco Bay Area	10.8	10.8
San Joaquin Valley	16.8	10.8
South Central Coast	16.8	10.8
South Coast	19.8	14.7
Average	**16.47**	**11.17**
Minimum	**10.80**	**10.80**
Maximum	**19.80**	**14.70**
Range	**9.00**	**3.90**

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[9] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 34.
[10] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 15.
[11] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 14.
[12] "Appendix A Calculation Details for CalEEMod." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/02_appendix-a2016-3-2.pdf?sfvrsn=6, p. 21.
[13] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-84 – D-86.

As demonstrated above, default rural worker trip lengths for air basins in California vary from 10.8- to 19.8-miles, with an average of 16.47 miles. Furthermore, default urban worker trip lengths vary from 10.8- to 14.7-miles, with an average of 11.17 miles. Thus, while default worker trip lengths vary by location, default urban worker trip lengths tend to be shorter in length. Based on these trends evident in the CalEEMod default worker trip lengths, we can reasonably assume that the efficacy of a local hire requirement is especially dependent upon the urbanization of the project site, as well as the project location.

Practical Application of a Local Hire Requirement and Associated Impact

To provide an example of the potential impact of a local hire provision on construction-related GHG emissions, we estimated the significance of a local hire provision for the Village South Specific Plan ("Project") located in the City of Claremont ("City"). The Project proposed to construct 1,000 residential units, 100,000-SF of retail space, 45,000-SF of office space, as well as a 50-room hotel, on the 24-acre site. The Project location is classified as Urban and lies within the Los Angeles-South Coast County. As a result, the Project has a default worker trip length of 14.7 miles.[14] In an effort to evaluate the potential for a local hire provision to reduce the Project's construction-related GHG emissions, we prepared an updated model, reducing all worker trip lengths to 10 miles (see Attachment B). Our analysis estimates that if a local hire provision with a 10-mile radius were to be implemented, the GHG emissions associated with Project construction would decrease by approximately 17% (see table below and Attachment C).

Local Hire Provision Net Change	
Without Local Hire Provision	
Total Construction GHG Emissions (MT CO_2e)	3,623
Amortized Construction GHG Emissions (MT CO_2e/year)	120.77
With Local Hire Provision	
Total Construction GHG Emissions (MT CO2e)	3,024
Amortized Construction GHG Emissions (MT CO_2e/year)	100.80
% Decrease in Construction-related GHG Emissions	***17%***

As demonstrated above, by implementing a local hire provision requiring 10 mile worker trip lengths, the Project could reduce potential GHG emissions associated with construction worker trips. More broadly, any local hire requirement that results in a decreased worker trip length from the default value has the potential to result in a reduction of construction-related GHG emissions, though the significance of the reduction would vary based on the location and urbanization level of the project site.

This serves as an example of the potential impacts of local hire requirements on estimated project-level GHG emissions, though it does not indicate that local hire requirements would result in reduced construction-related GHG emission for all projects. As previously described, the significance of a local hire requirement depends on the worker trip length enforced and the default worker trip length for the project's urbanization level and location.

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[14] "Appendix D Default Data Tables." CAPCOA, October 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/05_appendix-d2016-3-2.pdf?sfvrsn=4, p. D-85.

Disclaimer

SWAPE has received limited discovery. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

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Cont.

Sincerely,



Matt Hagemann, P.G., C.Hg.



Paul E. Rosenfeld, Ph.D.

EXHIBIT B

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

SOIL WATER AIR PROTECTION ENTERPRISE
2656 29th Street, Suite 201
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Paul Rosenfeld, Ph.D.

Chemical Fate and Transport & Air Dispersion Modeling

Principal Environmental Chemist

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health.* 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P**., (2015) Modeling the Effect of Refinery Emission On Residential Property Value. Journal of Real Estate Research. 27(3):321-342

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Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

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Tam L. K.., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

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Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities.* Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004.* New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS–6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality.* 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

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Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society.* Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution.* Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluoroctanoic Acid (PFOA) and Perfluoroactane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States" Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P**. (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water.* Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The *23rd Annual International Conferences on Soils Sediment and Water*. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting.* Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida
Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.
Case Number CACE07030358 (26)
Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma
Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.
Case No. 5:12-cv-01152-C
Rosenfeld Deposition: July 2014

In the County Court of Dallas County Texas
Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant.*
Case Number cc-11-01650-E
Rosenfeld Deposition: March and September 2013
Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio
John Michael Abicht, et al., *Plaintiffs,* vs. Republic Services, Inc., et al., *Defendants*
Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)
Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division
Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs,* vs. BP Products North America, Inc., *Defendant.*
Case 3:10-cv-00622
Rosenfeld Deposition: February 2012
Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland
Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants
Case Number: 03-C-12-012487 OT
Rosenfeld Deposition: September 2013

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Industrial Stormwater Compliance
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 25 years of experience in environmental policy, assessment and remediation. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) while also working with permit holders to improve hydrogeologic characterization and water quality monitoring.

Matt has worked closely with U.S. EPA legal counsel and the technical staff of several states in the application and enforcement of RCRA, Safe Drinking Water Act and Clean Water Act regulations. Matt has trained the technical staff in the States of California, Hawaii, Nevada, Arizona and the Territory of Guam in the conduct of investigations, groundwater fundamentals, and sampling techniques.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 100 environmental impact reports since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, Valley Fever, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at industrial facilities.
- Manager of a project to provide technical assistance to a community adjacent to a former Naval shipyard under a grant from the U.S. EPA.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.
- Expert witness on two cases involving MTBE litigation.
- Expert witness and litigation support on the impact of air toxins and hazards at a school.
- Expert witness in litigation at a former plywood plant.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.

- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9. Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt taught physical geology (lecture and lab and introductory geology at Golden West College in Huntington Beach, California from 2010 to 2014.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examination, 2009-2011.

Appendix M-2

Response to Comments

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ACRONYMS AND ABBREVIATIONS III

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
BMP	best management practice
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
City	City of Hesperia
CO_2e	carbon dioxide equivalent
DPM	diesel particulate matter
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
GHG	greenhouse gas
GSEJA	Golden State Environmental Justice Alliance
HRA	Health Risk Assessment
MDAQMD	Mojave Desert Air Quality Management District
MM	Mitigation Measure
MMRP	Mitigation Monitoring and Reporting Program
MT	metric ton
NO_x	oxides of nitrogen
PM_{10}	particulate matter with an aerodynamic diameter equal to or less than 10 microns
Project	Hesperia Commerce Center II Project
RTP	Regional Transportation Plan
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCS	Sustainable Communities Strategy
SWAPE	Soil/Water/Air Protection Enterprise
TAC	toxic air contaminant
VOC	volatile organic compound

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Response to Comments

This appendix of the Final Environmental Impact Report (EIR) includes a copy of all comment letters that were submitted during the public review period for the Draft EIR, along with responses to comments in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15088. The public review period for the Draft EIR began on September 6, 2020, and ended on November 16, 2020.

All written comment letters received on the Draft EIR have been coded with a letter and number to facilitate identification and tracking (see Table 1). The comment letters were reviewed and divided into individual comments, with each comment containing a single theme, issue, or concern. Individual comments and the responses to them were assigned corresponding numbers (e.g., A-1, B-2, C-3). To aid readers and commenters, electronically bracketed comment letters have been reproduced in this document, with the corresponding responses provided immediately following each comment letter. The interested parties listed in Table 1 submitted letters during the public review period for the Draft EIR.

Table 1. Comments Received on the Draft EIR

Comment Letter	Commenter	Date
Comments Received During the Draft EIR Comment Period		
A	San Bernardino County Department of Public Works	October 23, 2020
B	Mojave Desert Air Quality Management District	October 29, 2020
C	California Department of Water Resources	November 2, 2020
D	California Air Resources Board	November 4, 2020
E	Golden State Environmental Justice Alliance	October 27, 2020
F	Center for Biological Diversity	November 15, 2020
Comments Received After the Draft EIR Comment Period		
G1	Southwest Regional Council of Carpenters	September 24, 2021
G2	Southwest Regional Council of Carpenters	September 27, 2021

To finalize the EIR for the proposed Hesperia Commerce Center II Project (Project), the following responses were prepared to comments that were received during and after the public review period. These responses will be distributed to the commenters and the City of Hesperia, as the lead agency.

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Response to Comment Letter A

San Bernardino County Department of Public Works
Michael R. Perry, Supervising Planner, Environmental Management
October 23, 2020

A-1 This comment is an introduction by the San Bernardino County Department of Public Works of comments to follow. No further response is required or necessary.

A-2 This comment states that the Project is subject to the Victorville Master Plan of Drainage, and advises that any revisions to drainages in the area should be reviewed and approved by the City of Hesperia. Additionally, the comment states that the EIR should discuss impacts associated with the construction of new, or alterations to existing, storm drains prior to adoption of the EIR. Lastly, the comment points out that the EIR incorrectly states that the Oro Grande Wash is part of the Hesperia Master Plan of Drainage and maintained by the San Bernardino County Flood Control District, when Oro Grande Wash is actually part of the Victorville Master Drainage Plan.

The Project's stormwater drainage system is discussed in Chapter 3, Project Description, of the EIR. Chapter 3 explains that the Project would involve the installation of a new, engineered stormwater drainage system that would capture and treat on-site stormwater generated by design storm events, as defined by the City of Hesperia and the County of San Bernardino. Stormwater collected by the Project's stormwater system would be conveyed above-ground, earthen basins and underground infiltration basins, which would both be designed to infiltrate and retain all of the stormwater generated by the 2-year through 100-year, 24-hour storm event. In accordance with the San Bernardino County Hydrology Manual, the infiltration/retention basin system would be designed to treat water quality for a 2-year, 24-hour storm event, and sized to accommodate the volumes and flow rates of a 100-year, 24-hour storm event. The underground infiltration/retention basin would be located between the two buildings and the two above ground basins at the northeastern end of the site. Stormwater within the infiltration basins would infiltrate through the bottom of the basin into the underlying soils over a 72-hour period. Flows exceeding the total capacity of the infiltration/retention basins (5,107,731 cubic feet), which is well above the calculated total volume of the 100-year 24-hour storm event (3,958,659 cubic feet), would occur as sheet flow across the site similar to existing conditions towards Yucca Terrace Drive during extreme conditions. Given the existing hydrological conditions of the area, excess flows would sheet flow towards a culvert within the California Aqueduct north of Oro Grande Wash. As noted by the San Bernardino County Department of Public Works, the EIR incorrectly states that the Oro Grande Wash is part of the Hesperia Master Plan of Drainage and maintained by the San Bernardino County Flood Control District (EIR page 3-29). The EIR has been revised to state that Oro Grande Was is part of the Victorville Master Drainage Plan and that this segment of Oro Grande Wash is maintained by the City of Hesperia. This change is reflected in Chapter 3, Project Description, of the EIR.

Stormwater drainage is also discussed in Section 4.8, Hydrology and Water Quality, of the EIR. Section 4.8 summarizes the Project's stormwater drainage system and discusses impacts associated with the construction of new, or alterations to existing, storm drains prior to adoption of the EIR. Section 4.8 concludes that construction of the Project's stormwater drainage system would result in less-than-significant impacts. Lastly, Section 4.8 states that prior to installation of this stormwater drainage system, the Project Applicant would obtain the necessary approvals from the City of Hesperia, including an encroachment permit to construct a connection to the Oro Grande Wash. The Project Applicant's engineer is currently

coordinating with the City Engineering Department on these improvements, which will ensure consistency with any applicable requirements, including those outlined in the Victorville Master Plan of Drainage.

Also refer to Responses to Comments C-3 through C-6, in which the Project's potential erosion and sedimentation impacts within Oro Grande Wash are discussed.

A-3 This comment concludes the comment letter and requests that the San Bernardino County Department of Public Works be included on the circulation list for all Project notices, public reviews, and public hearings. The City of Hesperia acknowledges this request and can confirm that the San Bernardino County Department of Public Works will be included on the circulation list of all Project notices, public reviews, and public hearings.

Response to Comment Letter B

Mojave Desert Air Quality Management District
Alan J. De Salvio, Deputy Director, Mojave Desert Operations
October 29, 2020

B-1 This comment states that the Mojave Desert Air Quality Management District (MDAQMD) has reviewed the EIR and provides a brief summary of the Project. This comment serves as an introduction to comments that follow.

B-2 The comment states that a Dust Control Plan will be required for the Project, and provides a web link to the Dust Control Plan's requirements and submission form. As discussed in Section 4.8, Hydrology and Water Quality, of the EIR (page 4.8-20), the Project Applicant will be required to submit an Erosion and Sediment Control Plan (ESCP) for approval to the City of Hesperia (City). The ESCP will document the best management practices (BMPs) that will be implemented during Project construction to prevent, to the maximum extent practicable, wind and soil erosion. BMPs that will be included in the ESCP include, but are not limited to, covering soil stockpiles when not in use, watering soils during earth-moving activities, and limiting vehicle travel on unpaved roads to 15 miles per hour. The BMPs in the ESCP will be implemented year-round, as appropriate based on construction activities. Because the Project Applicant will be required to submit a Dust Control Plan to the MDAQMD, the Project Applicant intends for the ESCP to meet the requirements of the Dust Control Plan, and will submit the plan to the MDAQMD for review and approval prior to the start of construction. Additionally, as discussed in Section 4.2, Air Quality, of the EIR (page 4.2-22), the Project would be required to comply with all applicable MDAQMD Rules and Regulations, including, but not limited to, Rule 401 (Visible Emissions), Rule 402 (Nuisance), and Rule 403 (Fugitive Dust). Compliance with these rules would be achieved through implementation of the ESCP/Dust Control Plan, and would minimize fugitive dust generated during Project construction to the maximum extent practical.

B-3 The comment states that the Project must obtain a permit for miscellaneous process equipment that is not exempt under MDAQMD Rule 219. A detailed summary of construction equipment was provided in Table 4.2-6 of Section 4.2, Air Quality, of the EIR (page 4.2-18). This list was developed based on consultation with the Project Applicant and their previous project experience. It is noted that the Project-specific construction fleet may vary due to specific Project needs at the time of construction, and that the duration of construction activities and associated equipment represent a reasonable approximation of the expected construction fleet as required per the CEQA Guidelines. At this time, it is not anticipated that miscellaneous process equipment will be required. Should a miscellaneous process equipment permit be needed, the Project Applicant will contact the MDAQMD to obtain the permit.

B-4 The comment states that the MDAQMD agrees with the analysis and findings of the Air Quality section of the EIR, and states that a Health Risk Assessment (HRA) must be submitted. The Project's HRA is included as Appendix C-2 of the EIR, and the methodology and results of the HRA are summarized in Section 4.2, Air Quality, of the EIR (pages 4.2-12 and 4.2-21). As discussed in the EIR, the HRA evaluated the potential impact of toxic air contaminants (i.e., diesel particulate matter) emitted by heavy trucks on sensitive receptors in the vicinity of the Project site, including existing residences to the north, south, east, and west of the Project site. The maximum incremental cancer risk attributable to Project diesel particulate matter source emissions at the maximally exposed individual receptor is

estimated to be 7.37 in 1 million, which is less than the MDAQMD's significance threshold of 10 in 1 million. At this same location, non-cancer risks were estimated to be 0.003, which would not exceed the applicable significance threshold of 1.0. Therefore, the EIR concluded that impacts associated with toxic air contaminants and cancer and non-cancer health risk would be less than significant.

B-5 The comment states that the MDAQMD was not listed as a Reviewing Agency for the Project despite it being the appropriate agency to review the air quality portion of the EIR. Although the City appreciates MDAQMD's review of the EIR and concurs that the MDAQMD is the appropriate agency to review the air quality portion of the EIR, the EIR did not contain a list of agencies that would be responsible for reviewing portions of the EIR. The EIR did include a list of responsible and trustee agencies for the Project in Chapter 2, Introduction (page 2-3). However, as provided in that discussion, that list was limited to agencies for whom discretionary approvals were required or who are statutorily listed as trustee agencies "having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California." Because no discretionary approvals are required from the MDAQMD for the Project, the MDAQMD was not listed as a responsible or trustee agency. Nonetheless, the City thanks the MDAQMD for its review of the EIR.

B-6 The comment serves as a conclusion and provides contact information for questions about the letter. This comment does not raise a specific concern related to the adequacy of the EIR; therefore, no further response is required.

Response to Comment Letter C

California Department of Water Resources
Casey Pancaro, Attorney
November 2, 2020

C-1 This comment states that the California Department of Water Resources' (DWR) State Water Project Division of Operations and Maintenance has reviewed the EIR, and provides a brief summary of the Project and the Project's stormwater system. This comment serves as an introduction to comments that follow.

C-2 The comment states that DWR is a responsible agency for the Project because the proposed storm drain would discharge runoff flows onto the DWR right-of-way within Oro Grande Wash. Pursuant to the California Water Code Section 12899.6 and the California Code of Regulations, Title 23, Sections 600–635 California Water Code, any activity that results in an alteration, improvement, encroachment, or excavation within the State Water Project right-of-way; or any project that directs water onto the DWR right-of-way requires an encroachment permit from DWR. This comment provides factual regulatory information and does not raise an environmental issue related to the project. While no further response is necessary, this response is noted.

C-3 The comment states that the EIR's analysis of long-term operational impacts associated with erosion or siltation is inadequate because it did not assess the potential downstream erosion and siltation impacts associated with flows discharged into Oro Grande Wash via the Project's off-site storm drain pipe within Oro Grande Wash. The comment explains that existing storm drainage facilities in the Project vicinity that discharge into Oro Grande Wash (namely the storm drain pipe at the northern terminus of Cataba Road) cause substantial erosion within Oro Grande Wash, leading to siltation buildup within the Milepost 394.5 culvert beneath the California Aqueduct. This buildup decreases the capacity of the culvert to convey stormwater flows, which could potentially threaten the California Aqueduct should flows breach the California Aqueduct's southern bank. The comment states that the Project could potentially exacerbate this existing condition when flows from the Project site are discharged into Oro Grande Wash (during storms that are larger than the 100-year 24-hour design storm) and that this issue should be analyzed within the EIR. The comment also states that additional future development in the area that would contribute flows to Oro Grande Wash is reasonably foreseeable, and the EIR should evaluate the potential cumulative impact of the Project and other projects upslope of the California Aqueduct within the Oro Grande Wash watershed. The comment requests that the City analyze and develop potential mitigation measures for stormwater runoff that will adequately prevent further cumulative soil erosion and sediment buildup in the vicinity of the California Aqueduct at Milepost 394.5, or to modify the stormwater detention facility on the Project site to account for 100% of stormwater during a 100-year 24-hour storm event.

In response to this comment, the Project's stormwater system has been redesigned to accommodate more than 100% of stormwater for up to a 100-year, 24-hour storm event. As part of these efforts, an underground infiltration basin has been added to the site plan and the off-site stormwater line within Yucca Terrace Drive has been removed from the Project. Stormwater collected by the Project's stormwater system would be conveyed to above-ground, earthen basins and underground infiltration basins, which would both be designed to infiltrate and retain all of the stormwater generated by the 2-year

through 100-year, 24-hour storm event. In accordance with the San Bernardino County Hydrology Manual, the infiltration/retention basin system would be designed to treat water quality for a 2-year, 24-hour storm event, and sized to accommodate the volumes and flow rates of a 100-year, 24-hour storm event. The underground infiltration/retention basin would be located between the two buildings and the two above ground basins at the northeastern end of the site. Stormwater within the infiltration basins would infiltrate through the bottom of the basin into the underlying soils over a 72-hour period. Flows exceeding the total capacity of the infiltration/retention basins (5,107,731 cubic feet), which is well above the calculated total volume of the 100-year 24-hour storm event (3,958,659 cubic feet), would occur as sheet flow across the site similar to existing conditions towards Yucca Terrace Drive during extreme conditions. Given the existing hydrological conditions of the area, excess flows would sheet flow towards the Milepost 393.1 Overchute Crossing at the California Aqueduct north of Oro Grande Wash.

In summary, the Project would no longer contribute stormwater flows to Oro Grande Wash west of the California Aqueduct. Additional detail about the Project's redesigned stormwater system is available in Chapter 3, Project Description, of the EIR.

The environmental impacts associated with this change are provided in Section 4.8, Hydrology and Water Quality, of the EIR. With the revisions to the Project's stormwater system and removal of the Yucca Terrace Drive Storm Drain, the Project would not contribute stormwater flows that would pass through the Milepost 394.5 culvert. As such, the Project would not have the potential to cause to downstream flooding, erosion, or siltation, including within Oro Grande Wash. The Project would also not have the potential to result in cumulative impacts to the Oro Grande Wash watershed, including those impacts associated with ongoing erosion and sedimentation issues upstream of the Milepost 394.5 culvert. As discussed in Section 4.8, the Project's impacts with regard to hydrology and water quality would be less than significant.

Notwithstanding, the City notes DWR's concern with ongoing issues within Oro Grande Wash and will continue to work with DWR to develop a long-term solution to resolve these issues. Currently, the City is in the planning phases to construct a desilting basin within Oro Grande Wash. This project would capture sediments within stormwater flows before they pass under the Milepost 394.5 culvert, ameliorating deposition issues within the culvert. The City is also in the planning phases for an emergency project to address the condition on the south bank of the wash where a stormwater drain currently discharges flows at the top of the bank, causing substantial erosion as water flows across the bank. The City will ensure that DWR is involved in the planning and design efforts for both of these projects. In summary, given that the Project's stormwater system has been redesigned such that 100% of flows during a 100-year, 24-hour storm event would be retained on-site, the Project would not have the potential to result in or contribute to erosion, sedimentation, or flooding issues within Oro Grande Wash that may affect the California Aqueduct. Revisions to the EIR have been made within Chapter 3 and Section 4.8 to capture these changes and their potential environmental impacts. As discussed, the Project's impacts with regard to hydrology and water quality would be less than significant.

C-4 This comment requests that the EIR include an emergency water removal contingency plan for the Project's stormwater infiltration/detention basins, and an analysis of the required maintenance for the proper functioning of the Project's stormwater infiltration/detention basins, and a maintenance plan for the infiltration/detention basins, and to specify the party responsible for maintaining or monitoring compliance with the proposed infiltration/retention basin maintenance plan for the life of the Project.

It is assumed that these requests are related to DWR's concerns about off-site erosion, sedimentation, and flooding issues within Oro Grande Wash that may affect the California Aqueduct. As discussed in Response to Comment C-3, the Project's stormwater system has been redesigned such that the Project would not contribute flows into Oro Grande Wash or contribute to these issues. Nonetheless, a discussion regarding the proper function of the Project's stormwater basins is provided below.

The Project's stormwater system has been designed consistent with the *Mojave River Watershed Technical Guidance Document for Water Quality Management Plans* (County of San Bernardino 2016). Pursuant to this document, a Water Quality Management Plan must be prepared, implemented, and adhered to throughout the life of the Project. As discussed in Section 4.8 of the EIR, a Preliminary WQMP has been prepared for the Project[1] (Appendix I-2). A Final WQMP will be prepared during the Project's final engineering phase. The WQMP includes a plan for the ongoing maintenance and inspection of the Project's stormwater facilities. As detailed in the WQMP, the Project applicant and any successor(s) in interest would be required to perform the following maintenance and inspection activities:

- **Underground Infiltration Basin.** The Project applicant and any successor(s) in interest shall be responsible for regularly inspecting the underground infiltration basin to observe sediment build up and infiltration capacity. Inspections shall occur monthly and within 48 hours following a significant storm event to verify there is no standing water in the chambers. They shall be responsible for removing accumulated trash, debris, and sediment as determined by inspections. Cleaning will be conducted during dry weather.
- **Aboveground Infiltration Basins.** The Project applicant and any successor(s) in interest shall be responsible for ensuring that water infiltrates into the subsurface completely in 48 hours or less. Visual inspections shall occur monthly and within 48 hours following a significant storm event to verify there is no standing water in the chambers. They shall be responsible for landscape maintenance, debris removal and erosion damage repair if observed.
- **On site Storm Drain Catch Basins and Piping.** The Project applicant and any successor(s) in interest shall be responsible for inspecting on-site catch basins for debris buildup and evidence of illegal dumping. Inspections shall occur on a quarterly basis. They shall be responsible for cleaning of these facilities whenever debris/sediment accumulates. Removal can be accomplished by vac-truck or other equally effective method.

These requirements will be included within a Maintenance Agreement that must be completed, signed, notarized, and submitted to the County Stormwater Department prior to the completion of construction. Covenants, Conditions and Restrictions (CC&Rs) would also be established for the Project's three warehouse buildings. The CC&Rs would require compliance with the WQMP and compel the owner of the Project and any successor(s) in interest to comply with the WQMP's Maintenance Agreement. Compliance may also be verified by the City and/or County pursuant to conditions of approval imposed on the Project and the Municipal Separate Storm Sewer Systems (MS4) Permit, for which the County is responsible for implementing and monitoring.

[1] A revised Preliminary WQMP with the Project's updated stormwater system was prepared in December 2021 and replaces the previous Preliminary WQMP in the EIR.

In summary, compliance with the WQMP would ensure that the Project's stormwater infiltration/detention basins are appropriately inspected and maintained for their proper functioning.

C-5 The comment states that DWR is willing to work with the City to develop a long-term solution to stormwater runoff issues within Oro Grande Wash, provides information on how to apply for an encroachment permit from DWR, provides information on how contact DWR for questions pertaining to the comment letter, and serves as a concluding comment. The City appreciates DWR's review of the EIR, and affirms its commitment to work proactively with DWR to develop and implement a long-term solution to stormwater issues within Oro Grande Wash.

C-6 The comment contains four exhibits, documenting the erosion and siltation issues of the culvert mentioned in Response to Comment C-4. These exhibits were included to provide context to Comment C-3. No response is required.

Response to Comment Letter D

California Air Resources Board
Richard Boyd, Assistant Division Chief, Transportation and Toxics Division
November 4, 2020

D-1 This comment summarizes the proposed Project and expresses a concern with the Project's potential to result in diesel emissions, which can contribute to regional air pollution and global climate change. This comment serves as an introduction to comments that follow.

D-2 This comment expresses a concern that the Project will expose nearby communities to elevated levels of air pollution, particularly given that that communities near the Project site are exposed to existing diesel particulate matter (DPM) from vehicular traffic along Interstate 15. The comment identifies sensitive receptors nearby the Project site, including residents south of the Project site and two schools within 2 miles of the Project site. To assess the long-term health risks associated with the Project, a mobile source operational Health Risk Assessment (HRA) was prepared for Project operation. The HRA is included as Appendix C-2 of the EIR, and the methodology and results of the HRA are summarized in Section 4.2, Air Quality, of the EIR (pages 4.2-12 and 4.2-21).

The HRA was prepared to estimate the health risk from long-term exposure to toxic air contaminant (TAC) emissions generated from trucks traveling on site and off site, and truck idling at on-site loading docks. The HRA was prepared following the most current 2015 Office of Environmental Health Hazard Assessment Guidelines, and in accordance with the Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis. This document contains all relevant and appropriate procedures presented by the United States Environmental Protection Agency, California Environmental Protection Agency, and the Mojave Desert Air Quality Management District (MDAQMD). The air dispersion modeling was performed using the Environmental Protection Agency's American Meteorological Society/Environmental Protection Agency Regulatory Model, as required by the MDAQMD. Then cancer risk and noncancer health impacts were evaluated using a spreadsheet model that incorporates factors from the 2015 Office of Environmental Health Hazard Assessment Guidelines and Project-specific ground-level concentrations of DPM. As discussed in the EIR, the HRA evaluated the potential impact of TACs (i.e., DPM emitted by heavy trucks) on sensitive receptors in the vicinity of the Project site, including existing residences to the north, south, east, and west of the Project site. It should be noted that the HRA evaluated health risks at the maximally exposed individual receptor (i.e., the receptor with the greatest potential exposure to Project DPM source emissions), which was determined to be existing West Main Villas apartments at 9800 Mesa Linda Street, approximately 2,165 feet southeast of the Project site, and immediately adjacent to the north of Main Street, which is along the Project's primary truck travel route. Although all of the residences surrounding the Project site have been accounted for in the analysis, the analysis focused on the residential land use with the greatest potential exposure to Project DPM source emissions, as any residences located farther away from the Project site or primary truck travel route than the residence with the greatest potential for exposure would experience a lesser impact because concentrations dissipate with distance. The maximum incremental cancer risk attributable to Project DPM source emissions at the maximally exposed individual receptor is estimated at 7.37 in 1 million, which is less than the MDAQMD's significance threshold of 10 in 1 million. At this same location, non-cancer risks were estimated to be 0.003, which would not exceed the applicable significance threshold of 1.0.

Therefore, the EIR concluded that the Project's impacts with regard to TACs and cancer and non-cancer health risk on sensitive receptors within the community would be less than significant.

D-3 The comment provides background on Assembly Bill 617 that addresses the need to protect communities in areas where exposure to air pollutants is elevated from the harmful effects associated with different pollutants. Please refer to Response to Comment D-2, in which the EIR's air quality analysis is discussed. As discussed, the EIR analyzed the Project's potential impacts on sensitive receptors within the community, and concluded that the Project would have a less-than-significant impact on sensitive receptors with regard to TACs and cancer and non-cancer health risks. This comment is noted and forwarded to the decision-makers for their consideration; however, the EIR's analysis is adequate as provided and no further response is required.

D-4 The comment notes that no refrigerated warehouse space is currently proposed as part of the Project, and the Project Applicant currently has no plans to lease to any tenant needing refrigerated space. The comment further identifies that should the Project include cold storage uses in the future, trucks and trailers with transport refrigeration units would likely be required, which would result in greater criteria air pollutant and DPM emissions than included in the EIR. To address this concern, Mitigation Measure (MM-)AQ-5 has been added to Section 4.2, Air Quality, of the EIR to prohibit cold storage and transport refrigeration unit operations unless additional environmental review is conducted pursuant to CEQA.

D-5 This comment states that the EIR did not account for mobile air pollutant emissions from grading operations during the Project's construction phase, and expresses a concern that sensitive receptors located near construction haul routes could be exposed to diesel exhaust emissions that were not evaluated in the EIR. The Project's construction scenario was developed based on consultation with the Project Applicant and their best understanding of the Project at the time. However, since preparation of the EIR, the Project Applicant has refined the Project's construction scenario and determined that approximately 112,438 cubic yards of imported soil would be required. Assuming that the average heavy-duty truck can carry approximately 16 cubic yards of soil, it is assumed that approximately 7,027 truck trips (14,055 one-way truck trips) would be required to bring the needed soil onto the Project site. To account for these trips that would now be required for the Project, the Project's construction air pollutant emissions have been remodeled. Tables 4.2-9 and 4.2-10 in Section 4.2, Air Quality, of the EIR have been updated to reflect these new emissions. These changes are also provided below for ease of reference (deletions in ~~strikeout~~, additions in <u>underline</u>).

Table 4.2-9. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions - Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
2021	144.81	~~126.72~~132.97	144.41	0.48	41.47	14.14
<u>2022</u>	<u>12.21</u>	<u>102.03</u>	<u>98.37</u>	<u>0.39</u>	<u>21.28</u>	<u>7.05</u>
Winter						
2021	144.71	~~126.37~~133.12	133.29	0.46	41.47	14.14
<u>2022</u>	<u>12.19</u>	<u>101.52</u>	<u>91.68</u>	<u>0.37</u>	<u>21.28</u>	<u>7.05</u>
Maximum Daily Emissions	**144.81**	**~~126.72~~133.12**	**144.41**	**0.48**	**41.47**	**14.14**
MDAQMD Threshold	*137*	*137*	*548*	*137*	*82*	*65*
Threshold Exceeded?	**Yes**	**No**	**No**	**No**	**No**	**No**

Source: Appendix C-1.

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; MDAQMD = Mojave Desert Air Quality Management District.

Table 4.2-10. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Mitigated

Year	*VOC*	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
	Pounds per Day					
Summer						
2021	52.23	~~126.72~~132.97	144.41	0.48	41.47	14.14
2022	12.21	102.03	98.37	0.39	21.28	7.05
Winter						
2021	52.12	~~126.37~~	133.29	0.46	41.47	14.14
2022	12.19	101.52	91.68	0.37	21.28	7.05
Maximum Daily Emissions	**52.23**	**~~126.72~~133.12**	**144.41**	**0.48**	**41.47**	**14.14**
MDAQMD Threshold	*137*	*137*	*548*	*137*	*82*	*65*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix C-1 and C-4.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; MDAQMD = Mojave Desert Air Quality Management District.

These changes are also reflected in the Supplemental Air Quality Impact Assessment (Appendix A-4 of the EIR).

As provided, after accounting for the mobile air pollutant emissions from grading operations during the Project's construction phase, the Project's air quality impacts during construction would be less than significant. Please also refer to Response to Comment D-6, which discusses the EIR's analysis of potential health risks associated with construction.

D-6 As discussed in the EIR in Section 4.2, Air Quality, and the Air Quality Impact Analysis technical report (see EIR Appendix C-1), Project construction would result in emissions of DPM from heavy construction equipment and trucks accessing the site. However, a construction HRA was not conducted because construction activities do not lend themselves to analysis of long-term health risks because of their temporary and variable nature. The following is provided from the Bay Area Air Quality Management District:[2]

Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70% at a distance of approximately 500 feet… In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk.

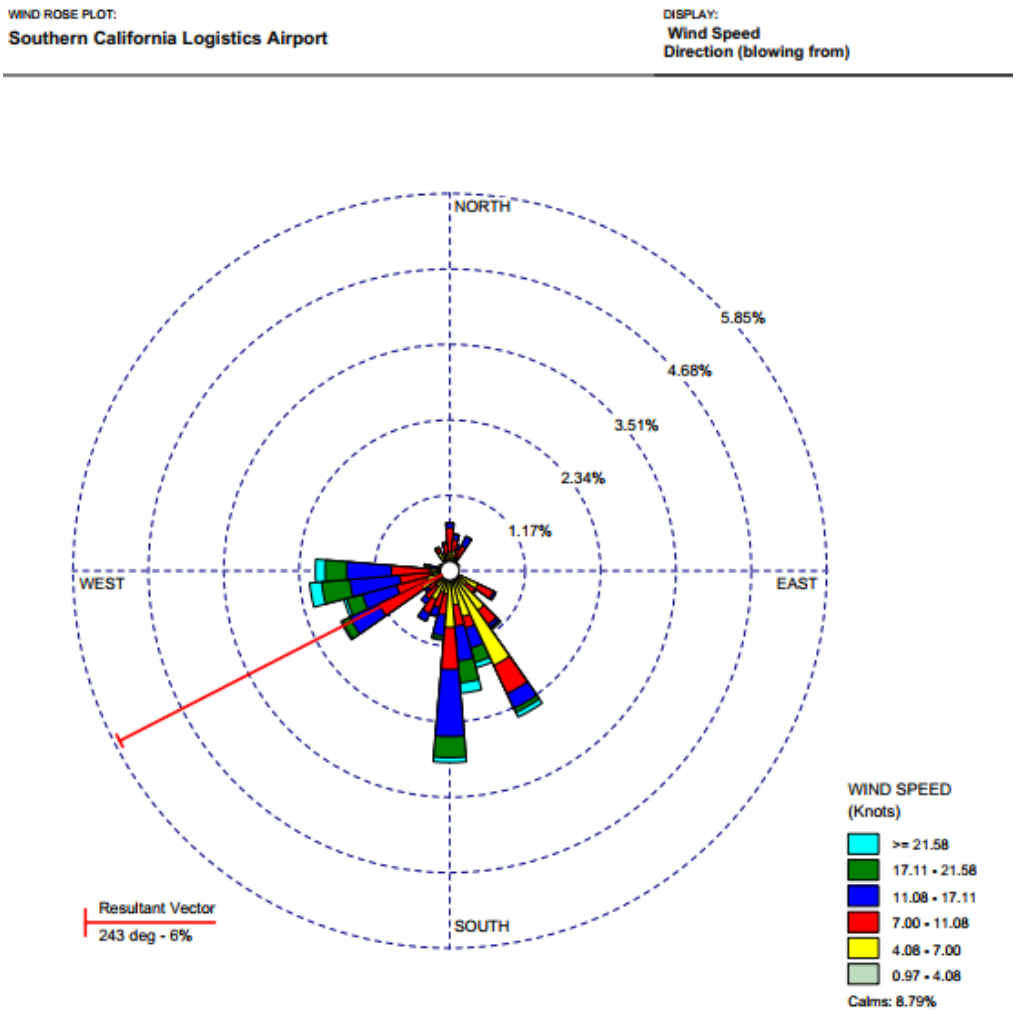
Therefore, project-level analyses of construction activities tend to produce overestimated assessments of long-term health risks. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts; however, no short-term, acute relative exposure level has

[2] Bay Area Air Quality Management District 2017. *CEQA Air Quality Guidelines*, May 2017.

been established for DPM. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 30-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment's risk-assessment methodology for residential receptors. Total Project construction would last approximately 10 months, which represents a short duration of exposure (3% of a 30-year exposure period), and cancer and chronic risk from DPM are typically associated with long-term exposure. Thus, Project construction would not result in a long-term source of TAC emissions. In addition, any operation of heavy-duty diesel construction equipment is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure for in-use diesel construction equipment to reduce DPM emissions, and any operation of diesel trucks are also subject to a CARB Airborne Toxics Control Measure. Finally, based on the most recent meteorological data from CARB for the most representative meteorological station (Southern California Logistics Airport, Station ID 23131), the predominant wind direction (i.e., the "resultant vector" in the wind rose) is toward the northeast, and, thus, away from all residential receptors located in proximity (i.e., within 1,000 feet) to the south and west of the Project site. The wind rose for this meteorological station is depicted in the figure below.

Based on the preceding considerations, a construction HRA was not deemed appropriate or necessary for the Project. However, MM-AQ-3, which requires higher tier engines in all construction equipment, was added to Section 4.2, Air Quality, of the EIR to implement all feasible mitigation. The Tier 4 compliant equipment specified in MM-AQ-3 can reduce potential DPM emissions from construction equipment by up to 93% to 96% compared to equipment with engines meeting Tier 1 or Tier 2 emission standards,[3] substantially reducing any potential health risk levels and providing further justification for a less-than-significant health risk impact from Project construction. As such, the EIR's analysis is adequate as provided, and no changes to the EIR are necessary.

[3] Particulate matter emissions benefits are estimated by comparing off-road particulate matter emission standards for Tier 1 and Tier 2 with Tier 4 final emissions standards. Tier 1 particulate matter emissions standards were established for equipment with 25 to <50 horsepower and equipment with horsepower <175. Tier 1 emissions standards for these engines were compared against Tier 4 final emissions standards, resulting in a 96% reduction in particulate matter. The U.S. Environmental Protection Agency established particulate matter standards for engines with horsepower from 50 to <175 as part of the Tier 2 emission standards. For these engines, Tier 2 emissions standards were compared against Tier 4 final emissions standards, resulting in a 93%–95% reduction in particulate matter.



D-7 The comment summarizes the EIR's air quality analysis and states that the EIR does not include all feasible mitigation measures to reduce the Project's significant and unavoidable impacts on air quality. The Project's contribution to the existing cumulative regional air quality impact was determined to be significant and unavoidable because the Project's operation-generated volatile organic compound (VOC), oxides of nitrogen (NO_x), and particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM_{10}) emissions would exceed the respective MDAQMD thresholds of significance, even with implementation of mitigation measures. The comment provides sample mitigation measures that may be implemented to reduce air pollutant emissions in an appendix of the letter.

Refer to Response to Comments F-12 through F-34. As discussed within these responses, these mitigation measures have been added to the EIR. The inclusion of these mitigation is reflected within Section 4.2, Air Quality, of this EIR, and the changes are provided below for ease of reference (deletions in ~~strikeout~~, additions in <u>underline</u>).

Short-Term Construction Impacts

MM-AQ-1 The Project shall utilize "Super-Compliant" low VOC paints which have been reformulated to exceed the regulatory VOC limits put forth by MDAQMD's Rule 1113. Super-Compliant low VOC paints shall be no more than 10 grams per liter (g/L) of VOC. Alternatively, the Project Applicant may utilize tilt-up concrete buildings that do not require the use of architectural coatings.

MM-AQ-2 The Project shall implement the following measures in order to reduce construction air pollutant emissions to the extent feasible:

- Ensure the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero emission equipment and tools.
- Implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology, vehicles, and equipment that will be operating on site during construction. Necessary infrastructure may include the physical (e.g. needed footprint), energy, and fueling infrastructure for construction equipment, on-site vehicles and equipment, and medium-heavy and heavy-heavy duty trucks.

MM-AQ-3 The Project shall include the following language within construction contracts in order to reduce construction air pollutant emissions to the extent feasible:

- All off-road diesel-powered equipment used during construction shall be equipped with Tier 4 or cleaner engines. If the operator lacks Tier 4 equipment, and it is not available for lease or short-term rental within 50 miles of the project site, Tier 3 or cleaner off-road construction equipment may be utilized subject to City approval.
- Heavy-duty trucks entering the construction site during grading and building construction phases should be model year 2014 or later. All heavy-duty trucks should also meet CARB's lowest optional low oxides of nitrogen (NO_X) standard starting in the year 2022.[4]
- All construction equipment and fleets shall be in compliance with all current air quality regulations.

Long-Term Operational Impacts

MM-AQ-~~2~~4 The Project shall implement the following measures in order to reduce operational air pollutant emissions to the extent feasible:

- Only haul trucks meeting model year 2010 engine emission standards shall be used for the on-road transport of materials to and from the Project site.
- Legible, durable, weather-proof signs shall be placed at truck access gates, loading docks, and truck parking areas that identify applicable California Air Resources Board (CARB) anti-idling regulations. At a minimum, each sign shall include: 1) instructions for truck drivers

[4] In 2013, CARB adopted optional low-NO_X emission standards for on-road heavy-duty engines. CARB encourages engine manufacturers to introduce technologies to reduce NO_X emissions below the current mandatory on-road heavy-duty diesel engine emission standards for model year 2010 and later. CARB's optional low-NO_X emission standard is available at: https://ww2.arb.ca.gov/our-work/programs/optional-reduced-nox-standards.

to shut off engines when not in use; 2) instructions for drivers of diesel trucks to restrict idling to no more than 5 minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager and the CARB to report violations. Prior to the issuance of an occupancy permit, the City of Hesperia shall conduct a site inspection to ensure that the signs are in place.

- Prior to tenant occupancy, the Project Applicant or successor in interest shall provide documentation to the City of Hesperia demonstrating that occupants/tenants of the Project site have been provided documentation on funding opportunities, such as the Carl Moyer Program, that provide incentives for using cleaner-than-required engines and equipment.
- ~~The minimum number of a~~Automobile electric vehicle (EV) charging stations with Level 2 or faster chargers ~~required by the California Code of Regulations Title 24~~ shall be provided. The number of EV charging stations shall equal at least 25% employee parking spots.
- In addition, the buildings shall include electrical infrastructure sufficiently sized to accommodate the potential installation of additional auto and truck EV charging stations in the future.
- Conduit shall be installed to tractor trailer parking areas in logical locations determined by the Project Applicant during construction document plan check, for the purpose of accommodating the future installation of EV truck charging stations at such time this technology becomes commercially available.
- The Project shall include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid. The Project Applicant or successor in interest shall maintain, replace, and upgrade the solar panels per manufacturers recommendations through the life of the Project. Should the capacity for solar connections increase, additional solar panels shall be added to the Project.

MM-AQ-5 The Project shall include the following language within tenant lease agreements in order to reduce operational air pollutant emissions to the extent feasible:

- Require tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles, equipment, and appliances that would be operating on site. This requirement shall apply to equipment such as forklifts, handheld landscaping equipment, yard trucks, office appliances, etc.
- Require future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans, when economically feasible.

- Tenants shall be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation[5], Periodic Smoke Inspection Program (PSIP)[6], and the Statewide Truck and Bus Regulation[7].
- Cold storage operations shall be prohibited unless additional environmental review, including a Health Risk Assessment, is conducted and certified pursuant to the California Environmental Quality Act.

MM-AQ-6 Low-VOC/Green Cleaning Product Educational Program. Prior to the occupancy of any on-site development, the Applicant or its designee shall provide evidence to the City of Hesperia that the Applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental offices, leasing spaces, and/or on websites.

Although the EIR conservatively assumes that the Project's impacts would remain significant and unavoidable, implementation of these mitigation measures are anticipated to reduce the Project's air pollutant emissions.

D-8 This comment summarizes comments made previously within the comment letter and is a concluding statement. Please refer to Responses to Comments D-2 through D-7. The City of Hesperia thanks CARB for its review of the EIR.

5 In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: https://www.arb.ca.gov/cc/hdghg/hdghg.htm.

6 The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: https://www.arb.ca.gov/enf/hdvip/hdvip.htm.

7 The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.

Response to Comment Letter E1

Golden State Environmental Justice Alliance
Joe Bourgeois, Executive Director
November 9, 2021

E1-1 This comment introduces the Golden State Environmental Justice Alliance (GSEJA) and references its comment letter submitted on the Draft EIR, dated October 27, 2020 (Comment Letter E2). The comment states that after further review, GSEJA is withdrawing its original comment letter in response to actions taken by the Project Applicant to address GSEJA's environmental concerns with the Project. The environmental concerns raised by GSEJA are included in Comment Letter E2. While GSEJA's original letter was rescinded, responses to these concerns, as well as additional actions that will be undertaken by the Project Applicant to address these concerns (i.e., additional mitigation measures that have been added to the Final EIR), are provided in Response to Comment Letter E2.

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Response to Comment Letter E2

Golden State Environmental Justice Alliance
Gary Ho, Attorney, Blum Collins, LLP
October 27, 2020

E2-1 The comment notes that the comment letter has been submitted by Blum Collins on behalf of the Golden State Environmental Justice Alliance. The comment states that the EIR's air quality, health risk, and greenhouse gas (GHG) analyses were not adequate. Additionally, the comment states that the environmental consulting firm Soil/Water/Air Protection Enterprise (SWAPE) reviewed the EIR. This comment serves as an introduction to comments that follow. The concerns introduced in this comment are addressed in Responses to Comments E2-2 through E2-87.

E2-2 This comment summarizes the proposed Project and does not identify specific areas where the EIR is inadequate; therefore, no further response is required.

E2-3 The comment states that the EIR is inconsistent because the modeling assumptions described a blend of high-cube warehouse and light industrial uses for analyses, while other sections had a description of general light industrial uses or warehouse/distribution/logistics uses. As described in Chapter 3, Project Description, of the EIR, because an end user of the three proposed buildings has not yet been identified, specific details regarding future operational activities on the Project site are not yet available. However, for the purposes of CEQA and to ensure full disclosure on all potential allowable uses on the Project site, the environmental impact assessment assume a blend of "high-cube" warehouse and general light industrial uses. Under this modeling scenario, approximately 65% of Buildings 1 and 2 (i.e., 2,361,648 square feet) would support "high-cube" warehouse uses, and 35% of Buildings 1 and 2 (i.e., 1,271,656 square feet) and 100% of Building 3 (112,125 square feet) would support general light industrial uses. The trip generation rates were intended to capture a reasonable worst-case scenario should future tenants of the Project have operations that generate more trips than a standard warehousing land use code. Table 2 presents trip generation rates for land uses considered for use within the Project's environmental analysis.

Table 2. Trip Generation Rates Considered for Use within the Project's Environmental Analyses

Use	ITE Code	Unit	Trip Generation Rates		
			Daily Trip Generation	*AM*	*PM*
General Light Industrial	110	TSF	4.96	0.70	0.63
High-Cube Fulfillment Center Warehousing	WSP Study	TSF	2.13	0.12	0.17
Warehousing	150	TSF	1.74	0.17	0.19

Notes: ITE = Institute of Traffic Engineers (referring to land use codes from the Trip Generation Manual, 10th Edition [ITE 2017]); TSF = thousand square feet; trip generation rates provided in passenger car equivalents; WSP Study = High-Cube Warehouse Trip Generation Study (WSP 2019).

As shown, the use of a blend of "high-cube" warehouse and general light industrial uses would capture a reasonable worst-case scenario for purposes of full disclosure of the Project's potential environmental impacts.

Section 4.8, Hydrology and Water Quality, and Section 5.5, Land Use and Planning, in Chapter 5, Effects Found Not to be Significant, categorized the Project more broadly because the specific details regarding future operational activities on the Project site are not yet available. Therefore, light industrial and warehouse/distributing/logistics are accurate representations of future uses for the purpose of the analyses in those sections.

E2-4 The comment states that preparing a single, standalone EIR for the Project is piecemealing because the City of Hesperia (City) should prepare an EIR for both the Project and Hesperia Commerce Center. The Hesperia Commerce Center project is an approximately 3.5-million-square-foot warehouse project located approximately 1.5 miles south of the Project. The Hesperia Commerce Center project was approved in 2013 (and a comprehensive EIR was certified) and is currently under construction. According to *Banning Ranch Conservancy v. City of Newport Beach*, no piecemealing occurs when projects can be implemented independently. Here, the Hesperia Commerce Center project and the proposed Project are two separate disconnected projects that each have independent utility, meaning that neither project is dependent on the other. Additionally, the EIR accounted for the Hesperia Commerce Center project in its list of cumulative development projects. Because an EIR has already been certified for the Hesperia Commerce Center project, the Hesperia Commerce Center project and the Project are separate, individual projects, and because the Project's EIR fully accounts for the cumulative impacts of the Hesperia Commerce Center project and the proposed Project, preparation of a single, standalone EIR for the Project does not constitute piecemealing under CEQA.

E2-5 The comment refers to comments provided by SWAPE, which are included as an attachment to the comment letter. Refer to Responses to Comments E2-20 through E2-87 in which these comments are addressed.

E2-6 This comment expresses a concern regarding the EIR's analysis of the Project's air quality impacts on the surrounding community. Please refer to Response to Comment D-3 regarding air pollution exposure in disadvantaged communities. Additionally, because the Project is consistent with the City's General Plan land use designation and zoning, it would keep industrial uses in industrial zoned areas. Development of the Project at the Project site would provide quick and efficient access to Highway 395 and Interstate 15, thereby eliminating the need for truck traffic to take longer routes through residential or commercial/retail areas.

E2-7 The comment states that the burrowing owl (*Athene cunicularia*) survey was not conducted in accordance with the California Department of Fish and Wildlife's 2012 Staff Report on Burrowing Owl Mitigation. Refer to Response to Comment F-4 in which this comment is addressed. As discussed, a Burrowing Owl Translocation Plan has been added to the EIR to identify when passive displacement of burrowing owls will be used, the methods that will be implemented to perform passive displacement, and the monitoring and reporting that will be required if passive displacement is performed. Implementation of the Burrowing Owl Relocation Plan would ensure that potential impacts to burrowing owls are less than significant.

E2-8 The comment expresses a concern regarding the EIR's analysis of the Project's traffic impacts and the EIR's mitigation measures (which are to pay fair share fees for the construction of roadway improvements that will address these impacts). Since the passage of Senate Bill (SB) 743, congestion-based impacts are no longer a CEQA concern. However, when a project contributes traffic to roadway facilities and that traffic results in a hazard or results in inadequate emergency access, congestion-based impacts may be considered under CEQA.

The Project's congestion-based impacts are discussed in Section 4.10, Transportation. As discussed, the Project could result in potentially significant impacts associated with increasing hazards related to queuing. Improvement measures required to mitigate the Project's impact would include the Project Applicant contributing fair-share improvement fees to Intersections #9, #12, #13, #14, and #15. The EIR states that because the City does not have jurisdiction over these facilities, these improvements cannot be assumed to be in place prior to the Project's occupancy. Therefore, the EIR concludes that the Project's impact to increase in hazardous conditions (i.e., queuing) would be significant and unavoidable.

With regard to improvements that are not identified within a Transportation Uniform Mitigation Fee, these improvements are part of the Project and were included within the EIR's Project Description. Additionally, construction of these improvements has been included within the Project's Development Agreement, and the Project Applicant would be contractually obligated to construct them. As such, no revisions to the EIR are necessary.

E2-9 The comment states that the EIR did not include a consistency analysis with the City's General Plan. As described in Tables 5-1 and 5-2 of Chapter 5, Effects Found Not to Be Significant, of the EIR, the Project would be consistent with the applicable goals and policies set forth by the Specific Plan, General Plan, and Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Regional Comprehensive Plan. The Project is also consistent with the City's General Plan and zoning. Applicable goals and policies of the Project are included throughout the EIR within individual resource chapters. Therefore, the EIR's analysis of the Project's consistency with the General Plan is adequate as provided.

E2-10 The comment provides the City's General Plan Goal LU-4 to be included in the consistency analysis requested in Comment E2-9. Specifically, Goal LU-4 states that it is a goal of the General Plant to "Promote industrial development within the City which will expand its tax base and provide a range of employment activities, while not adversely impacting the community or environment." As discussed in the EIR, the Project would promote industrial development within the City and provide a range of employment activities, which is outlined in Goal LU-4. The Project would also be required to implement all feasible mitigation measures to reduce impacts to the maximum extent practical. As such, the Project would be consistent with the goal's intent of minimizing impacts to the community and environment.

E2-11 The comment requests that General Plan Policy CI-2.1 be included in the EIR. Policy CI-2 pertains to level of service. As discussed in Response to Comment E2-8, since the passage of SB 743, level-of-service-based impacts are no longer a CEQA concern. Nonetheless, a comprehensive Transportation Impact Analysis (Appendix K-1) has been prepared for the Project and provides improvement measures to comply with this policy. No revisions to the EIR are required.

E2-12 The comment summarizes that the Project is inconsistent with the General Plan for reasons stated in Comments E2-9 through E2-11. Refer to Responses to Comments E2-9 through E2-11 in which these concerns are addressed.

E2-13 The comment states that Table 5-2, Consistency with 2020–2045 RTP/SCS Goals, in Chapter 5 of the EIR was misleading because the Project's transportation impacts were not included in the discussion. However, traffic impacts were discussed in Goal 3, stating that a traffic impact analysis was prepared for the Project, and improvements to adjacent roadways would be implemented as part of the Project. Additionally, the table analyzes how the Project is consistent with the goals of the Southern California

Association of Governments, which are not requirements. Refer to Responses to Comments E2-8 through E2-11 for additional information about traffic impacts relating to level of service and fair-share payments.

E2-14 The comment states that the Project is not consistent with Goals 5 and 6 of the 2020–2045 RTP/SCS. The comment states that Goal 5 is intended to reduce GHG emissions and improve air quality, and Goal 6 is intended to support healthy and equitable communities. The comment implies that because the Project would result in new air pollutant and GHG emissions, the Project is inconsistent with these goals. These goals are precisely that—goals—and are not intended to stop all projects that would result in new air pollutant or GHG emissions. As discussed in Tables 5-1 and 5-2 of Chapter 5, Effects Found Not to Be Significant, of the EIR, the Project would, in fact, be consistent with these goals. The development of the Project at the Project site would provide quick and efficient access to Highway 395 and Interstate 15, thereby eliminating the need for truck traffic to take longer routes through residential or commercial/retail areas. The Project would also facilitate a reduction in the number of trips into the San Bernardino area by providing approximately 3,134 jobs in an area with a housing/jobs imbalance. The Project would also include a number of components that are designed to reduce energy use, such as incorporating energy efficiency design features in compliance with California Green Building Standards Code (CALGreen) standards. Lastly, the Project would incorporate a number of mitigation measures that would reduce the Project's air pollutant and GHG emissions (refer to Responses to Comments F-5 through F-29). For these reasons, the Project would be consistent with Goals 5 and 6.

The comment also states that the Project is inconsistent with Goals 2, 3, and 4; however, no further context is provided. The EIR discusses the Project's consistency with these goals in Chapter 5, Effects Found Not to Be Significant, and determined that the Project would be consistent with these goals. No further response is required.

E2-15 The comment states that the Project is modeled as entirely warehouse space to keep employment generation rates intentionally low, while the EIR's Project Description uses a combination of warehouse and light industrial square footage for analysis. Refer to Response to Comment E2-3 for information on where in the EIR a combination of warehouse and light industrial square footage was used in the analysis. As stated in Chapter 5, Effects Found Not to Be Significant, of the EIR, Project employment rates for the three warehouse buildings were calculated using the Southern California Association of Governments' median number of jobs supported for warehouse space in San Bernardino County. Given that the Project would primarily support and is designed for warehousing activities, the Project's employee generation analysis is adequate as provided, and no further response is necessary.

E2-16 The comment states that the EIR uses uncertain language concerning the Project's employment needs, and does not demonstrate that the City's existing labor force would want or need these jobs. As stated within the Purpose and Need in Chapter 3, Project Description, of the EIR, the High Desert/Victor Valley region has long been identified as an area having a low jobs-to-housing ratio. Approximately 73% of workers residing in Hesperia commute out of the area to the Inland Empire cities and the broader Los Angeles region. Recognizing these trends, community leaders and officials have long sought to stimulate economic development within the High Desert region and provide residents with local employment opportunities. One strategy that community leaders and planners have used is to attract development of warehousing and distribution centers, which can provide hundreds of jobs per million square feet of development. As such, the Project would help meet the needs of the growing logistics

sector while producing new jobs in a region that is typically viewed as housing rich and jobs poor. No further response is required.

E2-17 The comment serves as a conclusion to the letter, and requests that the City add the commenter to the City's public interest list for the Project. The comment is noted and the City has added the commenter to its list of parties to be notified for the Project. The comment does not identify specific areas where the EIR is inadequate; therefore, no further response is required.

E2-18 The comment serves as an introduction to the attached SWAPE letter, introduces the Project, and summarizes the conclusion of the letter. The comment does not raise any specific issues concerning the adequacy of the EIR.

E2-19 This comment expresses a concern with regard to several debris and refuse piles that are located throughout the Project site. These debris and refuse piles are discussed in Section 4.7, Hazards, Hazardous Materials, and Wildfire, of the EIR, and within the Phase I Environmental Site Assessment (Appendix H). As discussed, observed refuse generally consisted of domestic waste (e.g., paper, plastic) and construction debris (e.g., lumber, sheetrock, brick), and materials of specific environmental concern, including motor oil containers and used automotive tires, were observed in refuse piles on the east and northwest portions of the subject property. Multiple (50+) 5-gallon buckets and 5-quart jugs labeled as containing motor oil were observed in these areas. The containers were observed to be full, partially full, or empty, and several areas of stained soil were observed in the areas around these containers. To address these concerns, Mitigation Measure (MM-)HAZ-1 is provided. MM-HAZ-1 requires that prior to the issuance of a grading permit, the Project Applicant retain a qualified environmental specialist who has documented experience in the identification, characterization, and removal of hazardous materials. MM-HAZ-1 also requires that a California licensed professional engineer, geologist, or hydrogeologist remove and dispose of all refuse located on the Project site, including the illegally dumped tires and oil containers currently found on site. The removal, transport, and disposal of refuse will be done in accordance with all applicable local, state, and federal guidelines related to hazardous materials handling. Prior to the removal of refuse deposits from the site, the environmental specialist will inspect each refuse pile for indications that the refuse may contain, or may have once contained, hazardous materials, including motor oil, solvents, paints, and/or other petroleum products. In addition, the environmental specialist will inspect the soils surrounding each refuse deposit for evidence of any contamination (staining) or volatilization of contaminants (odors).

If contamination indicators are identified, work will stop in the immediate proximity of the potential contamination. The Project Applicant and/or its construction contractor will be responsible for engaging a qualified environmental specialist to design and perform an investigation to verify the presence and extent of contamination on the Project site. Subsurface investigation will determine appropriate worker protection and hazardous material and disposal procedures appropriate for the Project site. Contaminated soil or groundwater determined to be hazardous will be removed by personnel who have been trained through the Occupational Safety and Health Administration–recommended 40-hour safety program with an approved plan for groundwater extractions, soil excavation, control of contaminant releases to the air, and off-site transport or on-site treatment.

Implementation of this mitigation measure would result in a comprehensive evaluation of all contaminants present within these refuse piles. Soils requiring removal would be placed into plastic barrels that would be transported to an approved disposal facility. Extensive excavations (such as those

required for remediation of Brownfield sites) would not be necessary, and the removal and disposal of these materials have been accounted for in the site preparation phase of the Project's air quality analysis as part of typical debris hauling. Implementation of MM-HAZ-1 would ensure that impacts associated with hazardous materials would be less than significant. As such, no changes to the EIR are required as a result of this comment.

E2-20 This comment expresses a concern that the EIR failed to include all feasible mitigation measures. Refer to Responses to Comments F-5 through F-26 in which additional mitigation measures have been added to the EIR.

E2-21 This comment states that the EIR's air quality impacts are underestimated because the EIR does not disclose what parameters were used in calculating the Project's air pollutant emissions. This comment serves as an introduction to follow. Refer to Responses to Comments E2-22 through E2-36 in which these concerns are addressed.

E2-22 This comment states that the Project's trailer stalls are not accounted for in the Project's air quality/GHG analysis. However, this Project component was accounted for in the "Other Asphalt Surfaces" land use. As such, the EIR's analysis is adequate as provided.

E2-23 This comment states that the EIR's air quality analysis does not provide sufficient evidence for why the Project's carbon dioxide intensity factor was reduced by approximately 27% in the Project's operational California Emissions Estimator Model (CalEEMod) models. First, carbon intensity factor values are only applicable to estimated GHG emissions and are not relevant to criteria air pollutant emission estimates. Second, the EIR's justification for the applied carbon intensity factor is supported by substantial evidence, including the fact that state law mandates renewable energy procurement in specified amounts and, under CEQA, the lead agency may presume that such law will be faithfully implemented and is not required to speculate that some electricity providers may at some unspecified time in the future fail to satisfy their legal renewable portfolio obligations. Specifically, the EIR assumed that Southern California Edison would meet the SB x1 2 Renewal Portfolio Standard of 33% of total electricity sold to retail customers in California by December 31, 2020, and make progress toward the SB 350 50% of the total electricity sold to retail customers in California per year by December 31, 2030 (i.e., 34.7% renewables). Per the 2018 Power Content Label for Southern California Edison, Southern California Edison's power mix already includes 36% renewables, exceeding what was assumed in the EIR (https://www.energy.ca.gov/sites/default/files/202001/2018_PCL_Southern_California_Edison.pdf). Therefore, the GHG intensity values for power provided to the Project and associated GHG emissions are conservatively estimated. Therefore, the EIR's analysis is adequate as presented.

E2-24 This comment states that the EIR's description of the air quality/GHG modeling's methodology is inconsistent with the modeling that was conducted, noting that the EIR states that CalEEMod default values were used when the number of vendor and worker trips were manually reduced. As discussed in Section 4.2, Air Quality, CalEEMod default values were primarily used for the air quality/GHG modeling. However, in the case of vendor and worker trips, some modifications were made to specific inputs to account for the specific characteristics of the Project. In this case, considering that the Project's buildings would not be constructed at the same time (they would rather be constructed in sequential order), these default values were then reduced by half.

As such, the EIR has been revised to state that the default values for construction worker and vendor trips were then reduced by half, considering that the Project's buildings would be constructed in sequential order. This change is reflected in Section 4.2, Air Quality, of the EIR.

E2-25 This comment states that the EIR's air quality and GHG modeling incorrectly used modified operational vehicle fleet mix inputs and provides an overview of the inputs that were used. This comment serves as an introduction to comments that follow. Refer to Responses to Comments E2-26 and E2-27 in which these concerns are addressed.

E2-26 This comment states that the source provided for the Project's operational passenger and truck fleet mix used within the EIR for air quality modeling purposes is the CalEEMod output file itself. However, this comment is incorrect. The source provided is the Air Quality Impact Analysis (Appendix C-1), which documents the methodology for how the Project's passenger car and truck fleet mix was developed. As such, the EIR's analysis is adequate as provided and no changes to the EIR are necessary.

E2-27 This comment states that the Project's operational passenger and truck fleet mix used within the EIR for modeling purposes is inconsistent with the recommendations provided by the South Coast Air Quality Management District (SCAQMD). The comment suggests that the EIR should have assumed that 40% of total trips would be truck trips and that 60% of total trips would be passenger trips. Section 4.2, Air Quality, explains that the Project's operational fleet mix was based on the Hesperia Commerce Center II Traffic Impact Analysis (Appendix K-1). As explained in the Traffic Impact Analysis, the Project's operational fleet mix was based on published information included in the Institute of Traffic Engineers' Trip Generation Manual, 10th Edition; the WSP High-Cube Warehouse Trip Generation Study; and the City of Fontana's Truck Trip Generation Study. Use of these available data sources provides for an analysis that is tailored to the specific characteristics of the Project and is based on substantial evidence. Additionally, the Project's operational passenger and truck fleet mix was reviewed and approved by the City during the traffic scoping process and prior to commencement of technical modeling. The Traffic Impact Analysis' approved scoping agreement is provided as Appendix 1.1 of the Traffic Impact Analysis.

E2-28 This comment summarizes points previously made in Comments E2-24 through E2-27. Refer to Responses to Comments E2-24 through E2-27. No further response is required.

E2-29 This comment states that the EIR's air quality modeling analysis uses an incorrect Saturday trip generation rate, noting that the air quality analysis uses modified passenger and truck trip generation rates for the portion of the Project modeled as "General Light Industry" for Saturdays. Although the commenter correctly points out that the Project would generate 9,530 daily passenger trips and 2,368 daily truck trips, the commenter assumes that these rates would apply for every single day of the Project. However, according to the Institute of Traffic Engineers' Trip Generation Manual, 10th Edition, trip rates associated with "general light industrial" uses vary between weekdays and weekends. As such, the air quality modeling accounts for these variations. As a conservative measure, the portion of the Project modeled as High-Cube Fulfillment Center Warehousing is conservatively assumed to have no variation in operational characteristics depending on the day of the week. As such, the EIR's analysis is adequate as provided, and no changes to the EIR are necessary.

E2-30 This comment states that the EIR did not specify which vehicle emission factors were used within CalEEMod to calculate the Project's emissions associated with operational on-road vehicles. However,

as provided in Section 3.3.2, Emission Factors Model, of the Air Quality Impact Analysis (Appendix C-1), EMFAC2017 emission rates used in the EIR's analysis were provided in Appendix 3.5 of the Air Quality Impact Analysis (Appendix C-1 of the EIR). As such, the EIR's analysis is adequate as provided, and no changes to the EIR are necessary.

E2-31 This comment expresses a concern regarding a change made to the operational off-road equipment fuel type within the EIR's air quality analysis, stating that the justification provided for changing the fuel type used for off-road equipment from diesel to compressed natural gas is inadequate because the SCAQMD High Cube Warehouse Truck Trip Study White Paper Summary of Business Survey Results does not mention the use of compressed natural gas. The SCAQMD Survey was referenced because it addresses information specific to forklifts. The survey reported average forklift and pallet jack usage based on high cube warehouse square footage, and the survey was used to inform the number and type of off-road equipment that would be used. However, as discussed in Section 4.2, Air Quality, of the EIR, the fuel type assumed within the analysis was tailored to the specific characteristics of the Project. For this particular Project, based on the maximum square footage of building space permitted by the Project, on-site modeled operational equipment includes a total of 15 200-horsepower non-diesel yard tractors. Nonetheless, as discussed in Response to Comment D-7, MM-AQ-5 has been added to the EIR, which requires that tenants use the cleanest technologies available and that the Project provide the necessary infrastructure to support zero-emission equipment, including forklifts and yard trucks. Therefore, the EIR's analysis conservatively overestimates the ultimate emissions that would result from operational off-road equipment. As such, the EIR's analysis is adequate as provided, and no changes to the EIR are necessary.

E2-32 This comment provides a summary of comments to follow. Refer to Responses to Comments E2-32 through E2-35.

E2-33 This comment states that the EIR's air quality analysis incorrectly assumes that the Project would exceed Title 24 requirements by 30% and states that this assumption is unsubstantiated. As stated within Section 4.2, Air Quality, CalEEMod default values for energy consumption assume compliance with the 2016 Title 24 Building Energy Efficiency Standards. However, because the Project would be required to comply with the more stringent 2019 Title 24 Building Energy Efficiency Standards that became effective January 1, 2020, a 30% reduction in energy use was applied in CalEEMod based on the California Energy Commission's estimate that, compared to the 2016 standards, "nonresidential buildings [built to 2019 standards] will use about 30% less energy due mainly to lighting upgrades."[8] As such, the EIR's analysis is adequate as provided and no changes to the EIR are necessary.

E2-34 This comment states that the EIR's air quality analysis incorrectly assumes that the Project would reduce water demands and associated energy use by implementing a water conservation strategy. Although this was originally included within the air quality modeling to account for mandatory compliance with CALGreen, as discussed in Response to Comment F-29, MM-GHG-1 has been added to the EIR. MM-GHG-1 requires that the Project implement water conservation measures, including installing low-water-use appliances and fixtures, restricting the use of water for cleaning outdoor surfaces and prohibiting systems that apply water to non-vegetated surfaces, implementing water-

8 California Energy Commission. 2018. *2019 Building Energy Efficiency Standards Fact Sheet*. March 2018.

sensitive urban design practices in new construction, and installing rainwater collection systems where feasible. Inclusion of these measures would ensure that these water reductions are realized.

E2-35 This comment states that the EIR's air quality analysis incorrectly assumes that the Project would reduce the amount of solid waste that would be landfilled. Although the EIR's assumption that the Project would reduce the amount of solid waste that would be landfilled by 75% was based on mandatory compliance with Assembly Bill (AB) 939, AB 341, and AB 1826 (as discussed in Section 4.6, Greenhouse Gas Emissions), as discussed in Response to Comment F-29, MM-GHG-2 has been added to the EIR. MM-GHG-2 requires that the Project implement solid waste reduction measures, including providing storage areas for recyclables and green waste, as well as food waste storage, if a pick-up service is available. Inclusion of this measure and mandatory compliance with AB 939, AB 341, and AB 1826 would ensure that the anticipated solid waste reductions are realized.

E2-36 The comment summarizes concerns of incorrect application of operational mitigation measures. Refer to Responses to Comments E2-32 through E2-35.

E2-37 This comment states that the commenter estimated construction-related emissions associated with the Project using different vendor and worker trip numbers and concluded that the Project would exceed Mojave Desert Air Quality Management District (MDAQMD) thresholds for oxides of nitrogen (NO_x). Refer to Response to Comment E2-24 in which it is explained that the number of vendor and worker trips assumed in the EIR's air quality analysis are accurate and reflect the Project's realistic construction scenario. As such, the EIR's air quality analysis is adequate as provided, and no changes to the EIR are necessary.

E2-38 The comment introduces the idea that diesel particulate matter was incorrectly evaluated in the EIR, summarizes the analysis used, and serves as an introduction to comments to follow. Refer to Responses to Comments E2-39 and E2-40.

E2-39 This comment recommends that health risk impacts from Project construction be evaluated. Refer to Response to Comment D-6 in which this topic is addressed.

E2-40 This comment states that a cumulative construction and operational health risk assessment should be prepared. The MDAQMD does not have guidance requiring that construction and operational health risk be evaluated together. However, based on an email from Michael Krause, Planning and Rule Manager with the South Coast Air Quality Management District, who is an expert at another California air district, a project's construction and operational health risks need to be evaluated separately.[9] Thus, the Health Risk Assessment is analyzed in accordance with industry guidance.

E2-41 This comment states that the commenter prepared a screening-level health risk assessment using changed CalEEMod inputs and with the assumption that health risks should be combined for construction and operation of the Project. As discussed throughout previous responses to comments to this comment letter, the commenter has not provided any substantive comments that would alter model inputs or the findings of the emissions calculations in the EIR. As such, the use of the air quality modeling results is correct and is appropriately relied upon. As detailed in Response to Comments B-4

[9] Krause, M. 2019. "AQMD HRA Thresholds." Email from M. Krause (South Coast Air Quality Management District Planning and Rules Manager) to A. Poll (Dudek). February 27, 2019.

and D-6, the EIR adequately evaluated the Project's potential health risk impacts and determined that they would be less than significant.

E2-42 This comment summarizes the EIR's analysis of the Project's GHG emissions and provides context for comments to follow. No response is necessary. No changes to the EIR are necessary.

E2-43 The comment introduces four reasons why the commenter states that the EIR's GHG analysis was incorrect, and serves as an introduction to comments that follow. Refer to Responses to Comments E2-44 through E2-48.

E2-44 The commenter states that the EIR's GHG analysis relies on incorrect CalEEMod inputs, insinuating that the EIR thus underestimates the Project's GHG emissions. However, as discussed throughout previous responses to comments to this comment letter, the commenter has not provided any substantive comments that would alter model inputs or the findings of the emissions calculations in the EIR. Therefore, the inputs used in the GHG modeling are appropriate, as are the Project's modeled emissions. As such, the EIR's analysis is adequate as provided and no changes to the EIR are necessary.

E2-45 This comment states that the EIR incorrectly relies on the Project's consistency with Title 24, AB 32, and SB 32 to determine the Project's GHG significance. As discussed in Section 4.6, Greenhouse Gas Emissions, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions. As such, the Project's consistency with SB 32 (2017 Scoping Plan) and the City's Climate Action Plan (CAP), were discussed in the EIR. As determined in the EIR, the Project demonstrates consistency with the General Plan's and CAP's goals, measures, and emission reduction targets, and would not conflict with any applicable plan, policy, or regulation of an agency adopted to reduce GHG emissions, including Title 24, AB 32, and SB 32. As such, the EIR determined that impacts would be less than significant. Therefore, the EIR's analysis is adequate as provided.

E2-46 This comment states that the EIR's analysis of the Project's GHG impacts with regard to the Project's consistency with the City's CAP is incorrect because the CAP is applicable to projects that will become operational by 2020. As discussed in Response to Comment E2-45, a lead agency may rely on qualitative analysis or performance-based standards to determine the significance of impacts from GHG emissions. As such, the Project's consistency with SB 32 (2017 Scoping Plan) and the CAP were discussed in the EIR. Given that the CAP is intended to apply to projects that would become operational by 2020, use of the CAP alone to determine a project's significance could be construed as inappropriate for the purposes of CEQA. However, as provided in Section 4.6, Greenhouse Gas Emissions, the Project demonstrates consistency with other applicable plans that may be used to determine the significance of GHG impacts, including SB 32. As such, the EIR's analysis is adequate as provided.

E2-47 The comment expresses a concern with the EIR's analysis of the Project's consistency with the California Air Resources Board's 2017 Scoping Plan. This comment serves as an introduction to comments that follow. Refer to Response to Comment E2-48.

E2-48 The comment claims that the EIR did not consider performance-based standards under the California Air Resources Board's (CARB) 2017 Scoping Plan. Section 4.6, Greenhouse Gas Emissions, presents a robust analysis of the Project's consistency with the 2017 Scoping Plan. The comment attempts to conflate Scoping Plan consistency with how the Project's vehicle miles traveled compares to the

supposed 2017 Scoping Plan performance-based SB 375 requirements. First, it is important to understand the intent and purpose of SB 375, which is to determine if a project is eligible for CEQA streamlining. As shown in the SB 375 CEQA Chart published by the Office of Planning and Research (https://opr.ca.gov/docs/SB375-IntroCharts.pdf), a project that does not qualify for SB 375 CEQA provisions simply needs to go through the standard CEQA process to determine its project-specific impacts. As such, even if a project is not consistent with SB 375 and cannot rely on its CEQA streamlining provisions, this does not constitute an inconsistency with the 2017 Scoping Plan. Furthermore, the intent and goal of SB 375 is to provide residential and mixed-use developments in proximity to transit hubs to reduce vehicle miles traveled. It is not necessarily applicable to individual development projects, and instead its purpose is to create a regional blueprint for agencies to follow. As such, the Project is not required to demonstrate consistency with SB 375, and further, the vehicle miles traveled targets identified by the commenter are not applicable or based on any substantial evidence by which the Project is required to comply.

E2-49 The comment states that the EIR should include additional mitigation measures to reduce the Project's air quality and GHG emissions. The measures provided are taken from the California Air Pollution Control Officers Association's Quantifying Greenhouse Gas Mitigation Measures. This serves as an introduction to comments that follow. Refer to Responses to Comments E2-50 through E2-72 for responses to the commenter's suggested mitigation measures.

E2-50 The comment states that the EIR should include a mitigation measure requiring that the Project exceed compliance with Title 24. The comment also suggests the use of energy-efficient lighting. These measures are accommodated through mandatory compliance with CALGreen. As discussed in Response to Comment D-7, MM-AQ-5 has been included in the EIR. MM-AQ-5 requires tenants of the Project's buildings to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles, equipment, and appliances that would be operating on site. This requirement includes office appliances.

E2-51 The comment states that the EIR should include a mitigation measure requiring the use of alternative energy systems. The suggestions in the comment pertain to landfills, wastewater treatment plants, and other off-site locations that go beyond the scope of the Project and Project site, and lack a nexus to the Project. The comment also suggests on-site systems, such as wind or solar. Refer to MM-AQ-4 and the addition thereto presented in Response to Comment F-5, which requires the Project to include rooftop solar panels for each proposed warehouse to the extent feasible.

E2-52 This comment states that the EIR should include mitigation measures that generally involve City-level planning initiatives that can reduce air pollutant and GHG emissions, such as increasing density, location efficiency, the diversity of urban and suburban developments, destination accessibility, transit accessibility, providing traffic-calming measures, and creating urban non-motorized zones, among others. These measures go beyond the scope of the Project and Project site, and lack a nexus to the Project. Moreover, these measures would be implemented by the City as part of long-term planning efforts, and the Project Applicant would have no ability to implement them as part of the Project. Thus, these mitigation measures were not included within the EIR.

E2-53 This comment states that the EIR should include a mitigation measure requiring that the Project provide electric vehicle parking. Refer to MM-AQ-4 and the addition thereto presented in Response to Comment

F-5, which requires the Project to include automotive electric vehicle charging stations with Level 2 or faster chargers at 25% of the employee parking spots.

E2-54 This comment states that the EIR should include a mitigation measure requiring that the Project dedicate land for bike trails. Although the Project would include bicycle parking facilities, as discussed in Section 4.10, Transportation, according to the City's General Plan Bike Plan, no bicycle facilities are planned within or immediately adjacent to the Project site. The Project would also not conflict with any plans or policies regarding existing or proposed bicycle and pedestrian facilities in the Project area, and would be consistent with the City of Hesperia General Plan Bike Plan. Given that this measure is primarily a City-level planning initiative, this measure was not included within the EIR.

E2-55 The comment makes broad and generalized suggestions related to parking concepts that are not applicable to the proposed Project or acceptable to the City for this Project because they involve the elimination of minimum parking requirements, shared parking between uses, the provision of public parking, and residential parking permits. These concepts are not appropriate for a large, private industrial warehouse building like the proposed Project.

E2-56 The comment provides numerous suggestions related to carpooling, use of transit, flexible work schedules, and other items related to commuter trip reduction. Many, if not all, of these items are related to the private business practices of the building user and are not within the City's authority to require or control. Refer to MM-TRA-1 in Section 4.10, Transportation, of the EIR, which requires the Project Applicant to submit a Transportation Demand Management Plan that would encourage alternative modes of transportation, including car-sharing programs, alternative work schedules, and other trip reduction measures.

E2-57 The comment makes suggestions for the improvement of public transit systems. Improvements to the City's and region's public transit systems go beyond the scope of the Project and Project site, and lack nexus to the Project.

E2-58 The comment makes broad suggestions about the improvement of traffic flow in public roadway infrastructure systems that are beyond the scope of the Project or Project site. The Project would involve off-site improvements that include street improvements along the frontage of the Project on Yucca Terrace, along Phelan Road, and along a portion of U.S. Highway 395. The Traffic Impact Analysis prepared for the Project (Appendix K-1 of the EIR) identifies several additional on- and off-site improvements that the Project would incorporate into site design, construct prior to Project implementation, or pay its fair share cost to fund future implementation of the required improvement.

E2-59 The comment states that the Project should use alternatively fueled vehicles, including electric, biodiesel, liquefied natural gas, and compressed natural gas. Refer to MM-AQ-2 and the addition thereto presented in Response to Comment F-5, which requires construction practices and infrastructure to support zero and near-zero emission vehicles. Additionally, refer to MM-AQ-4, which is also presented in Response to Comment F-5, which requires the Project to include electrical infrastructure sufficiently sized to accommodate the potential installation of additional auto and truck electric vehicle charging stations in the future.

E2-60 The comment states that the Project should use reclaimed, gray, and locally sourced water. As stated in Section 4.11, Utilities and Service Systems, of the EIR, the Hesperia Water District provides water to

the City. The Hesperia Water District receives approximately 88.0% of its water from groundwater, 5.5% from purchased water, and 6.5% from recycled water. Changes to the Hesperia Water District's water supply origins go beyond the scope of the Project and Project site, and lack a nexus to the Project.

E2-61 The comment provides a variety of water reduction mitigation measures for the Project to incorporate, including water-efficient landscapes and low-flow water fixtures. As stated in Section 4.1, Aesthetics, of the EIR, the Project would be required to include water-efficient landscapes and drought-resistant vegetation to comply with the Main Street and Freeway Corridor Development Standards for the CIBP Zone. In addition, refer to MM-GHG-1 and the addition thereto presented in Response to Comment F-29, which requires the Project to install low-water-use appliances and fixtures.

E2-62 The comment provides landscaping equipment mitigation measures to be implemented by the Project. These mitigation measures are better suited for residential and business uses, and are not appropriate for a large, private industrial warehouse building like the proposed Project.

E2-63 The comment provides solid waste mitigation measures to be implemented by the Project. As stated in Section 4.11, Utilities and Service Systems, of the EIR, at least 65% of construction and demolition waste must be diverted from landfills per CALGreen standards. The City currently recycles 75% or more of all solid waste produced in the City, exceeding the minimum requirement of 65% per CALGreen requirements. In addition, refer to MM-GHG-2 and the addition thereto presented in Response to Comment F-29, which requires the Project to include additional solid waste reduction measures.

E2-64 The comment states that the Project should include mitigation measures that would create new vegetated open space and tree planting. As stated in Section 4.1, Aesthetics, of the EIR, the Project would incorporate natural desert vegetation and would feature a variety of trees, shrubs, plants, and landcovers. The Project would provide a minimum of 10% on-site landscaping.

E2-65 The comment provides construction mitigation measures for the Project to implement. These mitigation measures include the use of electric and hybrid construction equipment, idling limits, and construction vehicle plans and tracking systems. Refer to MM-AQ-1 through MM-AQ-3 and the addition thereto presented in Response to Comment F-5, which contain construction mitigation measures similar to those requested by the commenter.

E2-66 The comment states that the Project should include mitigation measures that help aid carbon sequestration, including geological storage and underground injection, terrestrial ecosystems, novel chemical, and biological means, and the use of technologies that are not yet discovered. This suggestion goes beyond the scope of the Project because the sequestration concepts involve complex systems for which no nexus has been established to the Project's impacts and for which no evidence of feasibility has been provided. Refer to Responses to Comments E2-61 and E2-64, as trees and other plantings that are part of the Project would aid in carbon sequestration.

E2-67 The comment states that the Project should include off-site mitigation. This comment goes beyond the scope of the Project, and no off-site mitigation suggestions were offered by the commenter.

E2-68 The comment suggests the use of local and sustainable building materials. It is beyond the authority of the City to stipulate building material sources, and the commenter provides no data on a proportional nexus between the Project's impacts and this suggestion.

E2-69 The comment suggests best practices in agriculture. The proposed Project is not an agricultural project; therefore, this suggestion does not apply.

E2-70 The comment suggests environmentally responsible purchasing. It is beyond the authority of the City to stipulate how consumer goods are packaged and used in daily business operations, and the commenter provides no data on a proportional nexus between the Project's impacts and this suggestion.

E2-71 The comment contains a broad statement about implementation of an innovative GHG mitigation strategy. Refer to Responses to Comments E2-61 and E2-63 for more information about the Project's GHG mitigation measures.

E2-72 The comment contains suggestions for energy efficiency and the reduction of urban heat islands. Refer to Responses to Comments E2-50, E2-51, E2-53, E2-59, E2-61, E2-63, E2-64, and E2-66 for more information about the Project's landscaping plans and energy efficiency components.

E2-73 The comment serves as an introduction for suggested mitigation measures from the Northeast Diesel Collaborative's Diesel Emission Controls in Construction Projects. Refer to Responses to Comments E2-74 through E2-80 for responses to the commenter's suggested mitigation measures.

E2-74 This comment suggests that the EIR contain a mitigation measure requiring that all diesel nonroad vehicles on site for more than 10 total days must have either (1) engines that meet U.S. Environmental Protection Agency (EPA) on-road emissions standards or (2) emission control technology verified by EPA or CARB to reduce particulate matter emissions by a minimum of 85%. Refer to Response to Comment D-7, in which it is discussed that MM-AQ-3 has been added to the EIR. MM-AQ-3 requires that all off-road diesel-powered equipment used during construction be equipped with Tier 4 or cleaner engines.

E2-75 This comment suggests that the EIR contain a mitigation measure requiring that all diesel generators on site for more than 10 total days must be equipped with emission control technology verified by EPA or CARB to reduce particulate matter emissions by a minimum of 85%. Refer to Response to Comment D-7, in which it is discussed that MM-AQ-2 has been added to the EIR. MM-AQ-2 requires that the Project Applicant ensure that the cleanest possible construction practices and equipment are used. Additionally, MM-AQ-3 requires that all construction equipment and fleets be in compliance with all current air quality regulations.

E2-76 This comment suggests that the EIR contain a mitigation measure requiring that all off-road diesel engines on site be Tier 2 or higher, off-road diesel construction equipment on site for more than 10 total days have engines meeting EPA Tier 4 emission standards, and equipment meeting Tier 4 emission standards be issued compliance sticker. Refer to Response to Comment D-7 in which it is discussed that MM-AQ-3 has been added to the EIR. MM-AQ-3 requires that all off-road diesel-powered equipment used during construction be equipped with Tier 4 or cleaner engines. Because issuance of a compliance sticker would not have any effect on emissions and all off-road construction equipment would already be required to meet Tier 4 emissions requirements, the City rejects the comment's request to require that equipment meeting Tier 4 emission standards be issued compliance stickers.

E2-77 This comment suggests that the EIR contain a mitigation measure requiring that emission control technology be operated, maintained, and serviced as recommended by the emission control technology manufacturer. Refer to Responses to Comments D-7 and E2-75 in which it is explained that the Project Applicant will be

required to ensure that the cleanest possible construction practices and equipment are used and that all construction equipment and fleets be in compliance with all current air quality regulations.

E2-78 This comment suggests that the EIR contain a mitigation measure requiring that all diesel generators, construction equipment, and generators used during construction be fueled with ultra-low sulfur diesel or a biodiesel blend approved by the original engine manufacturer with a sulfur content of 15 parts per million or less. As discussed in Section 4.2, Air Quality, the Project would generate sulfur dioxide emissions (a byproduct resulting from the combustion of diesel fuel containing sulfur) that are below applicable thresholds. Thus, there would be no nexus between the suggested mitigation measure and the Project. Nonetheless, federal diesel fuel regulations already require that all nonroad, locomotive, and marine diesel fuel must be ultra-low sulfur diesel. Therefore, this suggestion would be accommodated through compliance with applicable federal regulations.

E2-79 This comment suggests that the EIR include additional mitigation measures relating to the reporting of the Project's construction contractor's use of diesel-powered construction equipment. Refer to Responses to Comments D-7 and E2-75. The EIR's mitigation measures would be tracked by the City during Project implementation via a Mitigation Monitoring and Reporting Program (MMRP), included within this EIR as Appendix N.

E2-80 This comment suggests that the EIR include a mitigation measure requiring that the Project's construction contractor submit reports for each piece of equipment used during construction. As discussed in Response to Comment E2-79, the EIR's mitigation measures would be tracked by the City during Project implementation via an MMRP, included within this EIR as Appendix N.

E2-81 The comment serves as an introduction for suggested mitigation measures from the Sacramento Metropolitan Air Quality Management District's Basic Construction Emission Control Practices (Best Management Practices) and Enhanced Exhaust Control Practices. Refer to Responses to Comments E2-81 through E2-86 for responses to the commenter's suggested mitigation measures.

E2-82 This comment suggests that the EIR include mitigation measures to reduce fugitive dust emissions. Refer to Response to Comment B-2 in which it is explained that the Project Applicant will be required to submit an Erosion and Sediment Control Plan for approval to the City of Hesperia and a Dust Control Plan to the MDAQMD. The Project would also be required to comply with all applicable MDAQMD Rules and Regulations, including Rule 401 (Visible Emissions), Rule 402 (Nuisance), and Rule 403 (Fugitive Dust). Compliance with these rules would be achieved through implementation of the Erosion and Sediment Control Plan/Dust Control Plan, and would minimize fugitive dust generated during Project construction to the maximum extent practical.

E2-83 This comment suggests that the EIR include mitigation measures limiting emissions from diesel-powered fleets during construction, and requiring reporting of the Project's construction contractor's use of diesel-powered construction equipment. Refer to Responses to Comments D-7, E2-75, and E2-79. These suggestions pertaining to limiting emissions from diesel-powered fleets would be required of the Project either by way of additional mitigation measures that have been added to the EIR or as required by existing regulations. The EIR's mitigation measures would be tracked by the City during Project implementation via an MMRP, included within this EIR as Appendix N.

E2-84 This comment suggests that the EIR include a mitigation measure requiring the Project Applicant to provide a plan demonstrating that heavy-duty off-road vehicles (50 horsepower or more) would achieve a Project-wide fleet average 20% NO_x reduction and a 45% particulate matter reduction compared to the most recent CARB fleet average. Refer to Response to Comment D-7 in which it is explained that the Project would be constructed with Tier 4 equipment. Because Tier 4 construction equipment would be the cleanest available construction equipment, this reduction would be realized.

E2-85 This comment suggests that the EIR include a mitigation measure requiring the Project Applicant to ensure that emissions from all off-road diesel-powered equipment used on the Project site do not exceed 40% opacity (referring to the opacity of emissions from construction equipment) for more than 3 minutes in any 1 hour. Refer to Responses to Comments B-2 and D-7. As discussed in Response to Comment B-2, the Project would be required to comply with MDAQMD Rule 401, which would address visible emissions. As discussed in Response to Comment D-7, MM-AQ-2 requires that the Project Applicant ensure that the cleanest possible construction practices and equipment are used.

E2-86 This comment suggests that the EIR include a mitigation measure that would allow officials to conduct periodic site inspections during construction of the Project to determine compliance with air quality mitigation measures. As discussed in Response to Comment E2-79, the EIR's mitigation measures would be tracked by the City during Project construction via an MMRP, included within this EIR as Appendix N. As required by the MMRP, the Project Applicant would be required to demonstrate compliance with the EIR's mitigation measures, and City staff would be permitted to conduct periodic site inspections during construction of the Project to confirm compliance with the EIR's mitigation measures.

E2-87 This comment summarizes previous comments in which it is stated that all feasible mitigation measures should be required of the Project. Refer to Responses to Comments E2-50 through E2-86, in which the inclusion of the suggested mitigation measures is discussed. This is a summary comment, and no additional response is required.

E2-88 The comment refers to a disclaimer specific to the review conducted for the Project. The comment is noted and forwarded to the decision-makers for their consideration. The comment does not identify specific areas where the EIR is inadequate; therefore, no further response is required.

Response to Comment Letter F

Center for Biological Diversity
Peter Broderick, Staff Attorney
November 16, 2020

F-1 This comment expresses a concern regarding the EIR's analysis of the Project's impacts to biological resources, air quality, and greenhouse gas emissions, and introduces the Center for Biological Diversity. This comment serves as an introduction to comments that follow, and no further response is required.

F-2 This comment expresses a concern regarding the EIR's analysis of the Project's impact to western Joshua tree (*Yucca brevifolia)* woodland, which is recognized by the California Department of Fish and Wildlife (CDFW) as a Sensitive Natural Community, and provides background information on the western Joshua tree south population (YUBR South). The comment suggests that the EIR be revised to include additional information about YUBR South and to account for the Project's impacts to western Joshua tree woodland.

This request has been accommodated, and Section 4.3, Biological Resources, of the EIR has been revised to include a discussion that western Joshua tree is a CDFW-identified Sensitive Natural Community. Background information about the YUBR South population, including the ecological significance of the YUBR South population within the Project site, has also been added. The EIR was also revised to address direct and indirect impacts to western Joshua tree woodland under the CEQA Appendix G checklist question, "Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?" The Project would result in permanent impacts to 192.5 acres of Joshua tree woodland. As discussed in Response to Comment F-3, mitigation measures are provided to reduce these impacts to less than significant. Specifically, Mitigation Measure (MM-)BIO-1 would require that the Project Applicant conserve western Joshua tree through purchase of credits at a CDFW-approved mitigation bank or other conservation mechanism approved by the City of Hesperia (City) and CDFW. Conservation efforts for western Joshua tree would focus on the conservation of large, interconnected Joshua tree woodlands on lands where edge effects are limited, versus lands in urban settings that are subject to habitat fragmentation and edge effects, such as the Project site. Thus, mitigation for impacts to western Joshua tree would also mitigate for impacts to Joshua tree woodland. These changes are reflected in Section 4.3, Biological Resources, of the EIR. Refer to Response to Comment F-3, which discuss the EIR's analysis of the Project's impacts to western Joshua tree.

F-3 This comment expresses a concern regarding the EIR's analysis of the Project's impact to western Joshua tree. The comment states that western Joshua tree has been designated as a candidate species under the California Endangered Species Act (CESA), and states that the EIR did not acknowledge the species' special-status listing; the Project's direct and indirect impacts to the species; or other threats to the species, including habitat fragmentation and climate change. The comment notes that the EIR disclosed that western Joshua tree is a protected species under the California Desert Native Plants Act and the City's Municipal Code, and that pursuant to the City's Municipal Code, a Joshua Tree Relocation Plan would be required to address impacts to western Joshua trees. Preparation of a Joshua Tree Relocation Plan was included in the EIR as MM-BIO-1. However, the comment states that the Joshua

Tree Relocation Plan would not meet the requirements for take and removal under the CESA, and that the Joshua Tree Relocation Plan would not fully mitigate the Project's impacts to western Joshua tree. The comment states that additional mitigation, such as preservation of western Joshua trees at an off-site location, should be required of the Project.

At the time that the EIR was publicly circulated (September 6, 2020), the California Fish and Game Commission (Commission; i.e., the body responsible for listing species as threatened or endangered under the CESA) had not yet included western Joshua tree as a candidate species for listing under the CESA; this occurred later, on September 22, 2020.

As such, Section 4.3, Biological Resources, of the EIR has been revised to reflect western Joshua tree's listing as a candidate special-status species. Section 4.3.2, Relevant Plans, Policies, and Ordinances, has been revised to include a discussion of the Commission's decision to consider western Joshua tree as a candidate species under the CESA. Although no final decision regarding the species' status has yet been made by the Commission, it is noted that when a plant or wildlife species is granted candidacy under the CESA, the species is given the same protection as a threatened or endangered species while the Commission evaluates whether formal listing as threatened or endangered under the CESA is warranted. Section 4.3.1, Existing Conditions, has also been revised to provide information regarding the number and location of western Joshua trees on the Project site, as well as their height class (≤1 meter; >1 meter but <5 meters; and ≥5 meters). Information regarding known threats to the species, including habitat fragmentation and climate change, has also been added to this section. Section 4.3.4, Impact Analysis, has been revised to include a discussion of the Project's direct and indirect impacts to western Joshua trees. This analysis notes that transplantation of western Joshua trees cannot be relied upon to meaningfully mitigate impacts to the species, and that removal of a western Joshua tree constitutes take of the species, even if the western Joshua tree is transplanted. As provided in the revisions to Section 4.3, Biological Resources, the EIR was revised to state that the Project would result in direct impacts to 1,367 western Joshua tree individuals. All ground-disturbing activities, even areas temporarily impacted, are considered permanent impacts to western Joshua trees. As such, the EIR has been revised to include new mitigation measures that would fully mitigate the Project's impacts to western Joshua tree. These mitigation measures are included within Section 4.3, Biological Resources, and are reproduced below for ease of review (deletions in ~~strikeout~~, additions in underline).

MM-BIO-1 **Conservation of Western Joshua Tree Lands.** Mitigation for direct impacts to western Joshua trees will be fulfilled through conservation of western Joshua trees at a 1:1 habitat replacement of equal or better functions and values to those impacted by the project. Mitigation can be through purchases of credits at a CDFW-approved mitigation bank for western Joshua tree or through conservation lands that meet the functions and values criteria. Additionally, no take of western Joshua tree will occur without authorization from CDFW in the form of an Incidental Take Permit pursuant to Fish and Game Code 2081. The Project Applicant will adhere to measures and conditions set forth within the Incidental Take Permit.

MM-BIO-3 **Designated Biologist Authority**. The Designated Biologist shall have authority to immediately stop any activity that does not comply with the biological resources mitigation measures and/or to order any reasonable measure to avoid the unauthorized take of an individual western Joshua tree.

MM-BIO-4 **Compliance Monitoring**. The Designated Biologist shall be on site daily when impacts occur. The Designated Biologist shall conduct compliance inspections to minimize incidental take of western Joshua trees and impacts to other sensitive biological resources; prevent unlawful take of western Joshua trees; and ensure that signs, stakes, and fencing are intact, and that impacts are only occurring within the permitted impact footprint. Weekly written observation and inspection records that summarize oversight activities and compliance inspections and monitoring activities required by the Incidental Take Permit shall be prepared.

MM-BIO-5 **Education Program**. An education program (Worker Environmental Awareness Program [WEAP]) for all persons employed or otherwise working in the Project area shall be administered before performing impacts. The WEAP shall consist of a presentation from the Designated Biologist that includes a discussion of the biology and status of western Joshua tree, burrowing owl, and loggerhead shrike; and other biological resources mitigation measures described in the CEQA document. Interpretation for non-English-speaking workers will be provided, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project area. Upon completion of the WEAP, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees who will be conducting work in the Project area.

MM-BIO-6 **Construction Monitoring Notebook**. The Designated Biologist shall maintain a construction-monitoring notebook on site throughout the construction period, which shall include a copy of the biological resources mitigation measures with attachments and a list of signatures of all personnel who have successfully completed the education program. The permittee shall ensure that a copy of the construction monitoring notebook is available for review at the Project site upon request by the California Department of Fish and Wildlife.

MM-BIO-7 **Delineation of Property Boundaries**. Before beginning activities that would cause impacts, the contractor shall, in consultation with the Designated Biologist, clearly delineate the boundaries, consistent with the grading plan, within which the impacts will take place with fencing, stakes, or flags. All impacts within the fenced, staked, or flagged areas shall be avoided and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area.

MM-BIO-8 **Hazardous Waste**. The Applicant shall immediately stop work and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so.

MM-BIO-9 **Herbicides.** The Applicant shall limit herbicide use for invasive plant species and shall use herbicides only it has been determined that hand or mechanical efforts are infeasible. To prevent drift, the permittee shall apply herbicides only when wind speeds are less than 7 miles per hour. All herbicide application shall be performed by a licensed applicator and in accordance with all applicable federal, state, and local laws and regulations.

MM-BIO-13 **Restoration of Temporary Impacts.** Site construction areas subjected to temporary ground disturbance shall be recontoured to natural grade (if the grade was modified during the temporary disturbance activity), and revegetated with an application of a native seed mix, if necessary, prior to or during seasonal rains to promote passive restoration of the area to pre-project conditions. An area subjected to "temporary" disturbance means any area that is disturbed but will not be subjected to further disturbance as part of the Project. This measure does not apply to areas that are disturbed habitat and urban/developed lands. Prior to seeding temporary ground disturbance areas, the Designated Biologist will review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur.

As provided in the revisions to Section 4.3, Biological Resources, MM-BIO-1 would mitigate for these impacts through purchase of mitigation credits at a CDFW-approved mitigation bank or through an off-site conservation program approved by CDFW. MM-BIO-1 includes a provision requiring that take of the species be authorized by CDFW in the form of an Incidental Take Permit that would be issued pursuant to California Fish and Game Code Section 2081. The Project Applicant has applied for an Incidental Take Permit and is in consultation with CDFW to identify the requisite quantity of western Joshua tree habitat that would be conserved in perpetuity. At the least, per MM-BIO-1, the Project Applicant would be required to conserve western Joshua trees at a 1:1 ratio within western Joshua tree lands that are equal to or better than the western Joshua tree lands that would be impacted by the Project. The final mitigation ratio will be determined in consultation with CDFW. It is anticipated that the Project's participation in the CDFW Incidental Take Permit issuance will ensure that an acceptable mitigation ratio is identified to fully mitigate take of the species, as required by California Fish and Game Code Section 2081. After an acceptable mitigation ratio has been identified, a conservation easement will be placed on the to-be-conserved lands in perpetuity, The conservation easement would be managed by a qualified natural lands management entity, and would be funded by an endowment that would be established by the Project Applicant. Alternatively, mitigation credits would be purchased at a CDFW-approved mitigation bank. Compliance with the CDFW Incidental Take Permit would ensure that the Project's impacts to western Joshua trees are less than significant.

Although compliance with California Fish and Game Code Section 2081 would ensure that the Project's impacts to western Joshua trees are fully mitigated, the Project would still be required to comply with Chapter 16.24 of the Hesperia Municipal Code (Protected Plants). Chapter 16.24 of the Hesperia Municipal Code requires that a permit be obtained by the City prior to removal of any protected plant within the City, including western Joshua tree. For western Joshua tree, Chapter 16.24 of the Hesperia Municipal Code requires that a Joshua Tree Relocation Plan be prepared and implemented. At the request of this comment, the Joshua Tree Relocation Plan has been revised to include additional information detailing which specific western Joshua trees will be relocated, where on site they will be relocated, and how their transplantation will occur and be monitored (both during transplantation and post-transplantation). The Joshua Tree Relocation Plan has been revised to also include measures to address the removal of other plants listed within Chapter 16.24 of the Hesperia Municipal Code. As such, the Joshua Tree Relocation Plan has been renamed the Joshua Tree Preservation, Protection, and Relocation Plan, and Desert Native Plant Relocation Plan. This document is included within the EIR as Appendix D-3, and replaces the previously publicly circulated Joshua Tree Relocation Plan.

Lastly, the Project Applicant has been in ongoing coordination with the commenter to ensure that impacts to western Joshua trees are adequately mitigated. Although the mitigation measures identified

within this EIR would fully mitigate the Project's impacts to western Joshua tree, the Project Applicant has agreed to contribute $1,400,000 to the Center for Biological Diversity in support of its ongoing efforts to preserve and conserve western Joshua tree lands throughout the species' range. It is anticipated that this contribution will further address cumulative impacts to western Joshua tree beyond those resulting from the Project.

F-4 This comment expresses a concern about the EIR's analysis with regard to other species, including desert tortoise (*Gopherus agassizii*), Mohave ground squirrel (*Spermophilus [Xerospermophilus] mohavensis*), burrowing owl (*Athene cunicularia*), and other desert native species. Specifically, the comment states that protocol surveys for desert tortoise and Mohave ground squirrel should be conducted within the Project's off-site utilities alignment, and that seasonally appropriate surveys should be conducted to evaluate whether sensitive annual and herbaceous perennial species are present on site. Additionally, the comment expresses a concern regarding MM-BIO-3 of the EIR, which requires that burrowing owl surveys be conducted no more than 14 days before initiation of site preparation or grading activities, and a second survey be completed within 24 hours of the start of site preparation or grading activities. The comment states that a Burrowing Owl Translocation Plan is required if burrowing owls are identified on the Project site.

These comments are noted, and the EIR has been revised to address these comments (see Section 4.3, Biological Resources). Since circulation of the EIR, focused surveys have been conducted for desert tortoise and Mohave ground squirrel in the Off-Site Utilities Alignments. The results of these surveys are included within the report Desert Tortoise Protocol Survey Results for Off-Site Utilities Alignments, prepared by Dudek in June 2021, and Mohave Ground Squirrel Protocol Survey Results for Off-Site Utilities Alignments, prepared by Dipodomys Ecological Consulting in August 2021. These reports are included as Appendices D-8 and D-9 of the EIR, respectively. As determined within these reports, no desert tortoises or Mojave ground squirrels were detected within the Off-Site Utilities Alignments. The results of these reports are included within Section 4.3, Biological Resources, of the EIR.

Additionally, Dudek biologists conducted focused surveys on the Project site and Off-Site Utilities Alignment for special-status plants on May 12 and 13, 2021, to evaluate whether sensitive annual and herbaceous perennial species are present on the Project site and Off-Site Utilities Alignments. The results of these surveys are included within Results of Special-Status Plant Survey of the Project Site and Off-Site Utilities and Desert Native Plant Protection Act Survey for Off-Site Utilities Alignments prepared by Dudek in June 2021. This report is included as Appendix D-9 of the EIR. As determined within this report, no special-status plant species were detected within the Project site or Off-Site Utilities Alignments (note that the Desert Native Plant Survey Results prepared by Dudek in December 2019 [circulated with the EIR] identified 66 wiggin's cholla [*Opuntia wigginsii*] individuals on the Project site; however, wiggin's cholla is not a special-status species, and the Project's impacts to this species were addressed within the EIR). The results of these reports are included within Section 4.3, Biological Resources, of the EIR.

With regard to the comment's concern regarding the EIR's burrowing owl mitigation measure, a Burrowing Owl Relocation Plan has been prepared and is included within the EIR as Appendix D-10. The inclusion of this plan is reflected in Section 4.3, Biological Resources, of the EIR. The Burrowing Owl Relocation Plan is intended to provide for specific measures that would be implemented should burrowing owls be detected on the Project site and Off-Site Utilities Alignments (as required by MM-BIO-10 [formerly MM-BIO-3]). Included within the Burrowing Owl Relocation Plan are measures to identify

when passive displacement of burrowing owls will be used, the methods that will be implemented to perform passive displacement, and the monitoring and reporting that will be required if passive displacement is performed. Implementation of the Burrowing Owl Relocation Plan would ensure that potential impacts to burrowing owls are less than significant.

As discussed above, the EIR has been revised to include additional discussion of desert tortoise, Mohave ground squirrel, burrowing owls, and other desert native species. These changes are reflected in Section 4.3, Biological Resources, of the EIR. As discussed, the Project would have a less-than-significant impact on these species (with mitigation incorporated for burrowing owl).

F-5 This comment provides an overview of air quality as an important environmental and public health concern in California, and provides a summary of potential health effects associated with air pollution. The comment also expresses a concern regarding the EIR's analysis of the Project's air quality impacts, stating that the EIR did not consider all feasible mitigation measures, and that additional mitigation measures should be adopted to reduce the Project's air quality impacts. This comment serves as an introduction to comments that follow, in which additional mitigation measures are suggested for inclusion within the EIR. Refer to Responses to Comments F-6 through F-29 where these mitigation measures are considered for inclusion within the EIR. Note that the majority of these mitigation measures have been included within the EIR.

F-6 This comment suggests that the Project Applicant should acquire and use zero-emissions yard trucks on site. This suggestion has been accommodated and included within MM-AQ-5. This change has been reflected in Section 4.2, Air Quality, of the EIR.

F-7 This comment suggests that the Project Applicant require that a certain percentage of trucks in the warehouse operator's fleet(s) be zero emissions or near-zero emissions. Per MM-AQ-5, the EIR would require that the tenant lease agreements include language requiring that future tenants exclusively use zero-emission light- and medium-duty delivery trucks and vans, when economically feasible, and that tenants be in compliance with, and monitor, all current air quality regulations for on-road trucks, including the California Air Resources Board's (CARB) Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation,[10] Periodic Smoke Inspection Program (PSIP),[11] and the Statewide Truck and Bus Regulation. This change has been reflected in Section 4.2, Air Quality, of the EIR.

F-8 This comment suggests that the Project Applicant install on-site zero-emissions vehicle charging stations beyond the minimum required by applicable laws, rules, or regulations. This suggestion has been accommodated and included within MM-AQ-4, which requires automobile electric vehicle charging stations with Level 2 or faster chargers to be provided. The number of electric-vehicle charging stations would equal at least 25% of employee parking spots. This change is reflected in Section 4.2, Air Quality, of the EIR.

10 In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at https://www.arb.ca.gov/cc/hdghg/hdghg.htm.

11 The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at https://www.arb.ca.gov/enf/hdvip/hdvip.htm.

F-9 This comment suggests that the Project Applicant install and use on-site solar panels. This suggestion has been accommodated and included within MM-AQ-4, which requires that the Project Applicant include rooftop solar panels for each proposed warehouse, with a capacity that matches the maximum allowed for distributed solar connections to the grid. The mitigation measure also requires that the Project Applicant or successor in interest maintain, replace, and upgrade the solar panels per manufacturer recommendations through the life of the Project. Should the capacity for solar connections increase, additional solar panels must be added to the Project. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-10 This comment suggests that the Project Applicant install high-efficiency air filters or filtering systems in residences, schools, daycares, hospitals, and community centers. This measure originated from a list of potential measures that warehouse operators within the South Coast Air Quality Management District (SCAQMD) region could use to earn points that would be used determine a mitigation obligation pursuant to Rule 2305, Warehouse Indirect Source Rule—Warehouse Actions and Investments to Reduce Emissions (WAIRE) Program. This measure in particular is intended to address potential impacts that warehouses and the associated truck traffic could have on sensitive receptors that are adversely affected by localized air pollutant emissions by installing air filtering systems at sensitive receptors. As discussed in Response to Comment B-4, the EIR concluded that the Project's localized air quality impacts would be less than significant, and that the Project would not have a significant adverse effect on sensitive receptors. As such, there is no nexus for this measure to the Project's impacts. Therefore, this mitigation measure will not be included within the EIR.

F-11 The comment states that CARB has compiled a list of "Recommended Air Pollution Emission Reduction Measures for Warehouses and Distribution Centers." This serves as an introduction to comments that follow. Refer to Responses to Comments F-12 through F-26 for responses to the commenter's suggested mitigation measures.

F-12 This comment suggests that the Project Applicant ensure the cleanest possible construction practices and equipment are used. This suggestion has been accommodated and included within MM-AQ-2, which requires the Project Applicant to ensure that the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero emission equipment and tools. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-13 This comment suggests that the Project Applicant implement zero and near-zero emission technology vehicles and equipment during construction. This suggestion has been accommodated and included within MM-AQ-2, which requires that the Project Applicant implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology, vehicles, and equipment that will be operating on site during construction. Necessary infrastructure may include the physical (e.g., needed footprint), energy, and fueling infrastructure for construction equipment, on-site vehicles and equipment, and medium-heavy and heavy-heavy duty trucks. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-14 This comment suggests that the Project Applicant use Tier 4 construction equipment. This suggestion has been accommodated and included within MM-AQ-3, which requires that all off-road diesel-powered equipment used during construction be equipped with Tier 4 or cleaner engines. If the operator lacks Tier 4 equipment and it is not available for lease or short-term rental within 50 miles of the Project site,

Tier 3 or cleaner off-road construction equipment may be used, subject to City approval. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-15 This comment suggests that the Project Applicant use battery-powered off-road equipment with a power rating below 19 kilowatts (e.g., plate compactors, pressure washers) during Project construction. This suggestion has been accommodated and included within MM-AQ-2, which requires that the Project Applicant ensure that the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero emission equipment and tools. This change has been made and is reflected in Section 4.2, Air Quality, of the EIR.

F-16 This comment suggests that the Project Applicant require all heavy-duty trucks be model year 2014 or later. This suggestion has been accommodated and is included within MM-AQ-3, which requires heavy-duty trucks entering the construction site during grading and building construction phases to be model year 2014 or later. All heavy-duty trucks will be required to meet CARB's lowest oxides of nitrogen (NO_x) standard starting in the year 2022. This change has been made and is reflected in Section 4.2, Air Quality, of the EIR.

F-17 This comment suggests that the Project Applicant require compliance with all current air quality regulations. This suggestion has been accommodated and is included within MM-AQ-3, which requires all construction equipment and fleets to be in compliance with all current air quality regulations. This change has been made and is reflected in Section 4.2, Air Quality, of the EIR.

F-18 This comment suggests that the Project Applicant require use of the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site. This suggestion has been accommodated and is included within MM-AQ-5, which requires tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles, equipment, and appliances that would be operating on site. This requirement will apply to equipment such as forklifts, handheld landscaping equipment, yard trucks, and office appliances. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-19 This comment suggests that the Project Applicant require all loading docks and trailer spaces to be equipped with electrical hookups for transport refrigeration units or auxiliary power units. Given that cold storage would not be permitted for the Project, this mitigation measure would not apply. Should cold storage and the need to accommodate transport refrigeration units be required, mitigation measures would be implemented as part of a subsequent CEQA document that would be required per MM-AQ-5. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-20 This comment suggests that the Project Applicant require service equipment (e.g., yard hostlers, yard equipment, forklifts, and pallet jacks) used within the site to be electric or powered by compressed natural gas. This suggestion has been accommodated and included within MM-AQ-5. Refer to Response to Comment F-18, which states that the Project Applicant require use of the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that will be operating on site.

F-21 This comment suggests that the Project Applicant require that heavy-duty trucks entering the Project site to be model year 2014 or later. Refer to Response to Comment F-16, which explains that this request has been accommodated.

F-22 This comment suggests that the Project Applicant should require trucks entering the Project site to meet CARB's lowest optional low-NO_x standard. Refer to Response to Comment F-16, which explains that this request has been accommodated.

F-23 This comment suggests that the Project Applicant require that the tenant be in compliance with and monitor compliance with all current air quality regulations for on-road trucks. This suggestion has been accommodated and included within MM-AQ-5, which requires that tenants be in compliance with and monitor compliance with all current air quality regulations for on-road trucks, including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation, Periodic Smoke Inspection Program (PSIP), and the Statewide Truck and Bus Regulation. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-24 This comment suggests that the Project Applicant restrict trucks and support equipment from idling longer than 5 minutes while on site. This suggestion has been accommodated and included within MM-AQ-4, which requires that legible, durable, weather-proof signs be placed at truck access gates, loading docks, and truck parking areas that identify applicable CARB anti-idling regulations. At a minimum, each sign will include instructions for truck drivers to shut off engines when not in use; instructions for drivers of diesel trucks to restrict idling to no more than 5 minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and telephone numbers of the building's facilities manager and CARB to report violations. Prior to the issuance of an occupancy permit, the City will conduct a site inspection to ensure that the signs are in place. This change is reflected in Section 4.2, Air Quality, of the EIR.

F-25 This comment suggests that the Project Applicant ensure that transport refrigeration unit diesel engine runtime is no longer than 15 minutes. As stated in Response to Comment F-19, cold storage would not be permitted by this Project, so this mitigation measure has not been included in the EIR.

F-26 This comment suggests that the Project Applicant include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid. As stated in Response to Comment F-9, the Project Applicant would include rooftop solar panels for each proposed warehouse to the extent feasible, as outlined in MM-AQ-4.

F-27 This comment concludes previous comments in which additional feasible mitigation measures are suggested for inclusion within the EIR. Refer to Responses to Comments F-6 through F-26, in which it is noted that the majority of these mitigation measures have been included for adoption within the EIR. As provided within revisions to Section 4.2, Air Quality, of the EIR, implementation of these mitigation measures would reduce the Project's air quality impacts; however, impacts that were determined to be significant would remain significant.

F-28 This comment provides an overview of the threat that climate change presents to human society and natural systems, and states the central role that greenhouse gas (GHG) emissions play in exacerbating this threat. The comment also expresses a concern regarding the EIR's analysis with regard to GHG emissions. This comment serves as an introduction to the comment that follows. Refer to Response to Comment F-29.

F-29 This comment summarizes the EIR's analysis of the Project's GHG impacts, noting that the EIR quantified the Project's GHG emissions (approximately 55,000 metric tons of carbon dioxide equivalent [MT CO_2e] annually during the life of the Project) and compared those emissions to the Mojave Desert Air Quality Management District's (MDAQMD) 100,000 MT CO_2e threshold. The comment notes that the EIR concluded that the Project's GHG impacts would be less than significant because the Project's emissions would be less than the MDAQMD's 100,000 MT CO_2e threshold. The comment takes issue with this analysis and states that the use of 100,000 MT CO_2e threshold is inappropriate for use in the EIR because it is not supported by substantial evidence. The comment states that the Project's GHG emissions should instead be compared to thresholds of significance that are supported by substantial evidence, such as those used by the Bay Area Air Quality Management or SCAQMD. The comment states that when compared to a threshold that is supported by substantial evidence, the Project's GHG impacts would be significant, and mitigation measures should be required to reduce emissions.

This comment is noted and the requests within the comment have been accommodated. Section 4.6, Greenhouse Gas Emissions, of the EIR has been revised to include a discussion of the numeric thresholds of significance that have been adopted by the SCAQMD. As provided, the EIR has been revised to state that the City will rely on use of the 3,000 MT CO_2e per year threshold because it has been recommended by the SCAQMD, and the SCAQMD is an expert agency in the region. Further, the EIR has been revised to explain that the use of this threshold is supported by substantial evidence that the thresholds are consistent with policy goals and 2050 GHG emissions reduction targets set by the state, as detailed by the SCAQMD. The Project's GHG emissions are then compared to the SCAQMD's 3,000 MT CO_2e per year threshold. As discussed, the Project's approximately 55,599 MT CO_2e per year would exceed the SCAQMD's GHG threshold of 3,000 MT CO_2e per year, and the Project's GHG emissions are identified as significant.

As discussed in Responses to Comments F-6 through F-27, additional mitigation measures have been added to Section 4.2, Air Quality, at the suggestion of the commenter. Although these measures were suggested to reduce the Project's air quality pollutant emissions, implementation of these measures would also reduce the Project's GHG emissions. Implementation of MM-AQ-2 and MM-AQ-3 would reduce construction-related GHG emissions. Specifically, MM-AQ-2 would reduce construction exhaust emissions by supporting zero and near-zero emissions construction equipment and vehicles, and MM-AQ-3 would reduce exhaust emissions by requiring newer (model year 2014 or later) heavy-duty trucks during grading and building construction phases. Implementation of MM-AQ-4 and MM-AQ-5 would also reduce operation-related GHG emissions. Specifically, MM-AQ-4 would reduce operational mobile source and energy GHG emissions by requiring newer truck engines (model year 2010 or newer), ensuring truck idle limits are enforced, encouraging electric-vehicle use by installing electric-vehicle charging stations, and installing rooftop solar, as feasible. Additionally, MM-GHG-1 and MM-GHG-2 have been included within the EIR to reduce the Project's GHG impacts. These changes are reflected in Section 4.6, Greenhouse Gas Emissions, of the EIR, and are also provided below for ease of reference (deletions in ~~strikeout~~, additions in underline).

MM-GHG-1 **Water Conservation.** Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that include the following water conservation measures:

- Install low-water use appliances and fixtures

- Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces
- Implement water-sensitive urban design practices in new construction
- Install rainwater collection systems where feasible.

MM-GHG-2 **Solid Waste Reduction.** Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that include the following solid waste reduction measures:

- Provide storage areas for recyclables and green waste in new construction, and food waste storage, if a pick-up service is available.
- Evaluate the potential for on-site composting.

Specifically, MM-GHG-1 requires that the Project implement water conservation measures, and MM-GHG-2 requires that the Project implement solid waste reduction strategies to reduce GHG emissions generated during operation of the Project.

Implementation of MM-AQ-2 through MM-AQ-5 and MM-GHG-1 and MM-GHG-2 would reduce the Project's GHG emissions impacts; however, the effectiveness of the mitigation and the associated emission reductions cannot be accurately quantified at this time. As such, impacts would remain significant and unavoidable. It is also noted that because the Project's project-level GHG impact is significant and unavoidable, and GHG emissions are largely a cumulative impact, Project GHG emissions would be cumulatively significant. Implementation of MM-AQ-2 through MM-AQ-5 and MM-GHG-1 and MM-GHG-2 would reduce these emissions, but Project GHG emissions would be cumulatively significant. This change is reflected in Section 4.6, Greenhouse Gas Emissions, of the EIR.

F-30 This comment summarizes comments made in previous comments. Please refer to Responses to Comments F-1 through F-29 in which these comments are addressed. No further response is required.

F-31 This comment requests that the City maintain and preserve all documents that may constitute part of the Project's administrative record, and that the City add the commenter to its noticing list for the Project. The City acknowledges this comment. As is a standard practice of the City, all documents that may constitute part of a project's administrative record are kept on file with the City. The City has also added the commenter to its noticing list. No further response is necessary.

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Response to Comment Letter G1

Southwest Regional Council of Carpenters
Mitchell M. Tsai, Attorney, Mitchel M. Tsai
September 24, 2021

G1-1 The comment notes that the comment letter has been submitted by Mitchel M. Tsai on behalf of the Southwest Regional Council of Carpenters. The comment summarizes the Project, introduces the Southwest Regional Council of Carpenters, and serves as an introduction to comments that follow.

G1-2 The comment reserves the commenter's right to provide additional comments on the Project and incorporates "all comments raising issues regarding the EIR". The comment does not raise any specific issues concerning the adequacy of the EIR. The comment also requests that the City of Hesperia (City) provide the commenter with all notices pertaining to the Project. The City has added the commenter to its list of parties to be notified for the Project.

G1-3 The comment provides information about local hires and the community benefits of local hires, such as how they can reduce greenhouse gas emissions, air pollutant emissions, and vehicle miles traveled. The comment also urges the City to require the Project Applicant to provide for the community in the form of a requirement to hire locally and use a skilled and trained workforce to build the Project. Although this comment has been forward to the City's decision-makers for their consideration, the provision of community benefits is not an environmental concern under CEQA. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G1-4 The comment goes into further detail on how local hires can reduce greenhouse gas emissions and air pollutant emissions. This comment is noted and forwarded to the City's decision-makers for their consideration; however, the comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G1-5 The comment suggests methods that other cities have used to implement local workforce policies into their general plans and municipal codes. This comment is noted and forwarded to the City's decision-makers for their consideration; however, the comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G1-6 The comment goes into further detail on how local hires can reduce vehicle miles traveled and vehicle hours traveled. The comment also discusses how creating local jobs in areas with ample housing is more effective than developing housing in areas with a surplus of jobs. This comment is noted and forwarded to the City's decision-makers for their consideration; however, the comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G1-7 The comment states that the City should consider implementing local workforce policies to benefit the local economy, and mitigate greenhouse gas, air quality, and transportation impacts. This comment is noted and forwarded to the City's decision-makers for their consideration; however, the comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G1-8 This comment from Soil Water Air Protection Enterprise (SWAPE) is an exhibit to the comment letter, and explains the significance of worker trips in relation to greenhouse gas emissions using CalEEMod. This comment serves as a general advisory document and does not raise any specific issues concerning the adequacy of the EIR. This comment is forwarded to the City's decision-makers for their consideration; however, no further response is required.

G1-9 The comment provides guidance on how default worker trip length and trips are calculated in CalEEMod, and provides an explanation on how urban worker trip lengths tend to be shorter. This comment serves as a general guideline and does not raise any specific issues concerning the adequacy of the EIR. This comment is forwarded to the City's decision-makers for their consideration; however, no further response is required.

G1-10 The comment provides an example to demonstrate how local hire provisions reduce construction-related greenhouse gas emissions. This comment is forwarded to the City's decision-makers for their consideration; however, no further response is required.

Response to Comment Letter G2

Southwest Regional Council of Carpenters
Mitchell M. Tsai, Attorney, Mitchel M. Tsai
September 27, 2021

G2-1 The comment notes that the comment letter has been submitted by Mitchel M. Tsai on behalf of the Southwest Regional Council of Carpenters. The comment summarizes the Project, introduces the Southwest Regional Council of Carpenters, and states that the comment letter is intended to supplement comments submitted on September 24, 2021 (Comment Letter G1). This comment serves as an introduction to comments that follow.

G2-2 The comment reserves the commenter's right to provide additional comments on the Project, and incorporates "all comments raising issues regarding the EIR". The comment does not raise any specific issues concerning the adequacy of the EIR. The comment also requests that the City of Hesperia (City) provide the commenter with all notices pertaining to the Project. The City has added the commenter to its list of parties to be notified for the Project.

G2-3 The comment discusses the use of local hires and a skilled and trained workforce during a project's construction. This comment is included in Comment Letter G1. Refer to Responses to Comments G1-3 through G1-7, in which this comment is addressed.

G2-4 The comment provides background information on CEQA, including CEQA's role of informing the public and decision-makers about the potential environmental effects of a project, and CEQA's direction to avoid or reduce impacts by requiring alternatives or mitigation measures. The comment provides background information on CEQA and serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-5 The comment provides background information on CEQA, including CEQA's role of informing the public and decision-makers about the potential environmental effects of a project, and CEQA's direction to avoid or reduce impacts by requiring alternatives or mitigation measures. The comment provides background information on CEQA and serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-6 The comment provides factual background information regarding CEQA and Public Resources Code Section 21092.1 regarding recirculation when substantial new information comes to light. The comment provides background information on CEQA and serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-7 The comment states that due to the current COVID-19 crisis, the City must adopt a mandatory finding of significance that the Project may cause a substantial adverse effect on humans and must mitigate COVID-19 impacts. The comment provides information related to construction workplace safety during the COVID-19 pandemic, and states that several construction sites have been identified as sources of community spread. The comment recommends that the City adopt CEQA mitigation to mitigate public health risks from the Project's construction activities, and provides a list of such measures. As noted

in the comment, construction activities range in their safety levels, and have been defined from low to high risk for COVID-19 spread. Construction activities were allowed to continue throughout the COVID-19 pandemic as an "essential" activity. The California Occupational Safety and Health Administration and other agencies oversee workplace safety and require implementation of safety-related protocols and procedures, including those related to COVID-19. Therefore, with regulatory compliance, the Project would not be reasonably expected to result in an impact to human health, and no mitigation is required.

G2-8 The comment concludes that the City should require all construction workers undergo COVID-19 training before being allowed to conduct construction activities on the Project site. Refer to Response to Comment G2-7.

G2-9 The comment provides background information on the requirements for project descriptions within CEQA documents. The comment serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-10 The comment states that the EIR's project description is not accurate, stable, or finite because the future tenants are not yet known and because without this knowledge, it is not possible to determine whether cold storage will be required, or what the trip generate rate will be because tenants who use cold storage generate higher average daily trip rates than non-cold-storage uses. The comment concludes that the EIR does not justify or attempt to justify this assumption, but should have assumed cold storage use to be more conservative.

As discussed in Response to Comment E2-3, Chapter 3, Project Description, of the EIR states that because an end user of the three proposed buildings has not been identified, specific details regarding future operational activities on the Project site are not yet available. However, for the purposes of CEQA and to ensure full disclosure on all potential allowable uses on the Project site, the environmental impact assessment assumed development of a "blend" of industrial uses. Thus, the modeling assumptions used for the air quality, health risk assessment, greenhouse gas, energy, and traffic impact analyses, summarized in subsequent chapters of the EIR, assumed a blend of "high-cube" warehouse and general light industrial uses. Use of this "blend" of industrial uses captures a worst-case scenario of the tenants that could reasonably occupy the Project's three industrial buildings.

Additionally, as stated in Response to Comment D-4, no refrigerated warehouse space is currently proposed as part of the Project, and the Project Applicant currently has no plans to lease to any tenant needing refrigerated space. To address this concern, Mitigation Measure (MM-)AQ-5 has been added to Section 4.2, Air Quality, of the EIR. This mitigation measure prohibits cold storage and transport refrigeration unit operations unless additional environmental review is conducted pursuant to CEQA. This change is reflected in Section 4.2, Air Quality, of this EIR.

G2-11 The comment provides factual background information on CEQA and mitigation. The comment states that CEQA does not allow for the deferral of mitigation that is based on future studies or mitigation that fails to commit to specific performance standards. The comment serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-12 The comment states that MM-CUL-5 is deferred mitigation for paleontological resources. As provided in Section 4.4, Cultural, Tribal Cultural, and Paleontological Resources, MM-CUL-5 specifies the following:

> If paleontological resources (sites, features, or fossils) are exposed during Project construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified paleontologist can evaluate the significance of the find and determine whether or not additional study is warranted. If the discovery proves significant under the California Environmental Quality Act, discovered fossils or samples of such fossils shall be collected and identified by the qualified paleontologist. Significant specimens recovered shall be properly recorded, treated, and donated to the San Bernardino County Museum, Division of Geological Sciences, or other repository with permanent retrievable paleontological storage. A final report shall be prepared and submitted to the City of Hesperia that itemizes any fossils recovered, with maps to accurately record the original location of recovered fossils and evidence that the resources were curated by an established museum repository.

Section 4.4 of the EIR provides an analysis of the Project's paleontological sensitivity, and concludes that the potential to encounter paleontological resources on the Project site during construction is considered low, and no known paleontological resources have been identified on the Project site. As such, further evaluation of paleontological resources is not warranted, and the EIR does not defer the evaluation of a known paleontological resource to a later time, as none are known to exist on the Project site. Nonetheless, MM-CUL-5 is provided in the event that paleontological resources are encountered within subsurface soils. As provided in MM-CUL-5, specific steps are prescribed should paleontological resources be encountered. Should any encountered resources be deemed significant, specific procedures would be implemented to preserve their integrity. Therefore, MM-CUL-5 is not deferred mitigation, and no revisions to this mitigation measure are required.

G2-13 The comment states that MM-CUL-5 (*sic.*) is deferred mitigation for potentially hazardous materials. It is assumed that this comment is referring to MM-HAZ-1 (MM-CUL-5 is discussed above in Response to Comment G2-12). Assuming that the comment is referring to MM-HAZ-1, the comment states that MM-HAZ-1 does not specify standards for the selection of a qualified environmental specialist to remove and dispose of all refuse located on the Project site. In response to this comment, MM-HAZ-1 has been revised to specify that the qualified environmental specialist must have "documented experience in the identification, characterization, and removal of hazardous materials and includes a California licensed professional engineer, geologist, or hydrogeologist". This change has been made in Section 4.7, Hazards, Hazardous Materials, and Wildfire, of the EIR.

G2-14 The comment states that MM-TRA-1 is deferred mitigation because it does not detail any criteria for the selection of a transportation consultant to develop a Transportation Demand Management Plan. However, the mitigation measure specifies that the transportation consultant must be approved by the City. It is anticipated that the City's engineering or planning staff would be well-qualified based on their professional expertise to select a qualified transportation consultant. As such, no revisions to this mitigation measure are required.

G2-15 The comment summarizes previous comments in which it is stated that the EIR's mitigation measures should be revised. Please refer to Responses to Comments G2-12 through G2-14, which address this concern.

G2-16 The comment provides background information on CEQA procedures for when "new information" is brought to light that demonstrates an impact discussed in an EIR that was found to be insignificant has

the potential for a significant effect that is supported by substantial evidence. The comment serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR. Please refer to Responses to Comments G2-17 through G2-20, below.

G2-17 The comment states that the vehicle trip generation rates are incorrect because cold storage was not analyzed. No refrigerated warehouse space is currently proposed as part of the Project. Refer to Response to Comment G2-10.

G2-18 The comment states that the vehicle trip generation rates are incorrect because cold storage was not analyzed. No refrigerated warehouse space is currently proposed as part of the Project. Refer to Response to Comment G2-10.

G2-19 This comment states that the EIR's air quality and greenhouse gas analysis is unsupported by substantial evidence because it relies on the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 as opposed to CalEEMod Version 2020.4.0.

At the time the EIR was circulated for public review (September 6, 2020), the current version of CalEEMod was Version 2016.3.2, which was also the current CalEEMod version when the Notice of Preparation was released (November 21, 2019). CalEEMod Version 2020.4.0 was released in June 2021. As with previous updates of CalEEMod, CalEEMod 2020.4.0 includes updates per current industry values and bug fixes. The key changes incorporated into CalEEMod 2020.4.0 were incorporating the California Air Resources Board's EMissions FACtor model (EMFAC) 2017, including the Institute of Transportation Engineers 10th edition trip rates released in 2017, and updating the energy values to reflect compliance with the 2019 update to the California Title 24 Building Energy Efficiency Standards. As noted in Section 4.2, Air Quality (methodology), the emissions modeling for the Project replaced the EMFAC 2014 values assumed in CalEEMod 2016.3.2 with EMFAC 2017 emission rates; therefore, no changes to the estimate Project-generated criteria air pollutant (including exhaust PM_{10}) and greenhouse gas emissions would occur per this CalEEMod update. As stated in Section 4.10, Transportation (Project Trip Generation), the trip rates applied were from the Institute of Transportation Engineers as provided in their Trip Generation Manual and the High-Cube Warehouse Trip Generation Study (2017, 2019), which reflect the most recent relevant data available and would also not result in changes if using CalEEMod 2020.4.0. Lastly, as explained in Section 4.2, Air Quality (Energy Source Emissions), because CalEEMod default values assume compliance with 2016 Title 24 Building Energy Efficiency Standards, a good faith effort to adjust the Project's energy consumption was conducted per the California Energy Commission's estimate of 2019 Title 24 efficiency compared to 2016 Title 24 efficiency; therefore, use of CalEEMod 2020.4.0 is not anticipated to substantially change the Project's energy-related emissions. Other CalEEMod 2020.4.0 revisions are either not expected to result in any changes to the Project modeling, or are anticipated to result in changes that would not be substantial. As such, although use of CalEEMod 2016.3.2 was appropriate because it was the current model when the Notice of Preparation was released, it is also noted for public disclosure that use of the current CalEEMod version would not substantially change the Project's estimated emissions or associated CEQA significance conclusions. Therefore, no revisions to the EIR are required as a result of this comment.

G2-20 The comment summarizes the EIR's air quality analysis and states that the EIR does not include all feasible mitigation measures to reduce the Project's significant and unavoidable impacts on air quality. Refer to Responses to Comment D-7 and F-12 through F-34.

G2-21 The comment provides background information on California planning and zoning law and states that an EIR must identify, fully analyze, and mitigate inconsistencies between a project and the general, specific, regional, and other plans that apply to the project. The comment serves as an introduction to comments that follow. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-22 The comment serves as an introduction to comments that follow concerning the Southern California Association of Governments' Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy. Refer to Responses to Comments G2-23 and G2-24.

G2-23 The comment outlines truck-related mitigation measures to comply with the Connect SoCal Plan. Refer to Responses to Comments E2-13 and E2-14 and F-5 through F-29 in which the Project's consistency with the Connect SoCal Plan is discussed.

G2-24 The comment states that the EIR did not include discussion of the Southern California Association of Governments' 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy or the current Connect SoCal 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy. Consistency with the Project is provided in Table 5-2 of Chapter 5, Effects Found Not To Be Significant, of the EIR. Refer also to Responses to Comments E2-13 and E2-14 and F-5 through F-29 in which the Project's consistency with the Connect SoCal Plan is discussed.

G2-25 The comment provides concluding remarks to the comment letter. The comment does not raise any specific issues concerning the adequacy of the EIR, and no further response is required.

G2-26 The comment provides an attachment to the comment letter. The attachment is a March 8, 2021, letter from the Soil Water Air Protection Enterprise regarding Local Hire Requirements and Considerations for Greenhouse Gas Modeling. Refer to Responses to Comments G1-3 through G1-7 in which the topics raised in this comment are addressed. This comment is forwarded to the City's decision-makers for their consideration; however, no further response is required.

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Appendix N

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

HESPERIA COMMERCE CENTER II

MARCH 2022



Printed on 30% post-consumer recycled material.

Hesperia Commerce Center II

Mitigation Monitoring and Reporting Program

MARCH 2022

Prepared for:

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1 Introduction

California Public Resources Code Section 21081.6 requires that, upon certification of an Environmental Impact Report, "the public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation."[1]

This Mitigation Monitoring and Reporting Program (MMRP) was developed in compliance with Section 21081.6 of the California Public Resources Code and Section 15097 of the California Environmental Quality Act Guidelines,[2] and includes the following information:

- A list of mitigation measures
- The timing for implementation of the mitigation measures
- The party responsible for implementing or monitoring the mitigation measures
- The date of completion of monitoring

The City of Hesperia must adopt this MMRP, or an equally effective program, if it approves the proposed Hesperia Commerce Center II Project (Project) with the mitigation measures that were adopted or made conditions of Project approval.

1 California Public Resources Code, Section 21000–21177. California Environmental Quality Act, as amended.
2 14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

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2 Mitigation Monitoring and Reporting Program Table

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Aesthetics			
MM-AES-1: Project buildings and elements shall include colors and tones that mimic the natural desert environment. The Project applicant shall present to the City of Hesperia a materials board showing the proposed building color palette for review and approval prior to issuance of the first building permit. City staff shall review the color palette to ensure that the selected colors and tones largely conform to those colors and tones already found in the surrounding natural desert landscape. The color palette, along with the Project design as a whole, shall also be reviewed to assure conformance with the development standards of the Hesperia Municipal Code and the Main Street and Freeway Corridor Specific Plan in order to promote the visual character and quality of the surrounding area.	Prior to issuance of the first building permit	City of Hesperia	
Air Quality			
MM-AQ-1: The Project shall utilize "Super-Compliant" low VOC paints which have been reformulated to exceed the regulatory VOC limits put forth by MDAQMD's Rule 1113. Super-Compliant low VOC paints shall be no more than 10 grams per liter (g/L) of VOC. Alternatively, the Project Applicant may utilize tilt-up concrete buildings that do not require the use of architectural coatings.	During construction and during Project operation	City of Hesperia	
MM-AQ-2: The Project shall implement the following measures in order to reduce construction air pollutant emissions to the extent feasible: ▪ Ensure the cleanest possible construction practices and equipment are used. This includes eliminating the idling of diesel-powered equipment and providing the necessary infrastructure (e.g., electrical hookups) to support zero and near-zero emission equipment and tools. ▪ Implement, and plan accordingly for, the necessary infrastructure to support the zero and near-zero emission technology, vehicles, and equipment that will be operating onsite. Necessary	Prior to and during construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
infrastructure may include the physical (e.g. needed footprint), energy, and fueling infrastructure for construction equipment, onsite vehicles and equipment, and medium-heavy and heavy-heavy duty trucks.			
MM-AQ-3: The Project shall include the following language within construction contracts in order to reduce construction air pollutant emissions to the extent feasible: ▪ All off-road diesel-powered equipment used during construction shall be equipped with Tier 4 or cleaner engines. If the operator lacks Tier 4 equipment, and it is not available for lease or short-term rental within 50 miles of the project site, Tier 3 or cleaner off-road construction equipment may be utilized subject to County approval. ▪ Heavy-duty trucks entering the construction site during grading and building construction phases should be model year 2014 or later. All heavy-duty trucks should also meet CARB's lowest optional low oxides of nitrogen (NO_x) standard starting in the year 2022.[3] ▪ All construction equipment and fleets shall be in compliance with all current air quality regulations.	Prior to and during construction	City of Hesperia	
MM-AQ-4: The Project shall implement the following measures in order to reduce operational air pollutant emissions to the extent feasible: ▪ Only haul trucks meeting model year 2010 engine emission standards shall be used for the on-road transport of materials to and from the Project site. ▪ Legible, durable, weather-proof signs shall be placed at truck access gates, loading docks, and truck parking areas that identify applicable California Air Resources Board (CARB) anti-idling	During occupancy	City of Hesperia	

[3] In 2013, CARB adopted optional low-NO_x emission standards for on-road heavy-duty engines. CARB encourages engine manufacturers to introduce technologies to reduce NOx emissions below the current mandatory on-road heavy-duty diesel engine emission standards for model year 2010 and later. CARB's optional low-NO_x emission standard is available at: https://ww2.arb.ca.gov/our-work/programs/optional-reduced-nox-standards.

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
regulations. At a minimum, each sign shall include: 1) instructions for truck drivers to shut off engines when not in use; 2) instructions for drivers of diesel trucks to restrict idling to no more than 5 minutes once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged; and 3) telephone numbers of the building facilities manager and the CARB to report violations. Prior to the issuance of an occupancy permit, the City of Hesperia shall conduct a site inspection to ensure that the signs are in place. ▪ Prior to tenant occupancy, the Project Applicant or successor in interest shall provide documentation to the City of Hesperia demonstrating that occupants/tenants of the Project site have been provided documentation on funding opportunities, such as the Carl Moyer Program, that provide incentives for using cleaner-than-required engines and equipment. ▪ Automobile electric vehicle (EV) charging stations with Level 2 or faster chargers shall be provided. The number of EV charging stations shall equal at least 25% employee parking spots. ▪ In addition, the buildings shall include electrical infrastructure sufficiently sized to accommodate the potential installation of additional auto and truck EV charging stations in the future. ▪ Conduit shall be installed to tractor trailer parking areas in logical locations determined by the Project Applicant during construction document plan check, for the purpose of accommodating the future installation of EV truck charging stations at such time this technology becomes commercially available. ▪ The Project shall include rooftop solar panels for each proposed warehouse to the extent feasible, with a capacity that matches the maximum allowed for distributed solar connections to the grid. The Project Applicant or successor in interest shall maintain, replace, and upgrade the solar panels per manufacturers recommendations through the life of the Project. Should the capacity for solar			

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
connections increase, additional solar panels shall be added to the Project.			
MM-AQ-5: The Project shall include the following language within tenant lease agreements in order to reduce operational air pollutant emissions to the extent feasible: ▪ Require tenants to use the cleanest technologies available, and to provide the necessary infrastructure to support zero-emission vehicles and equipment that would be operating on site. ▪ Require future tenants to exclusively use zero-emission light and medium-duty delivery trucks and vans, when economically feasible. ▪ Tenants shall be in, and monitor compliance with, all current air quality regulations for on-road trucks including CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation[4], Periodic Smoke Inspection Program (PSIP)[5], and the Statewide Truck and Bus Regulation[6].	Prior to occupancy	City of Hesperia	
MM-AQ-6: **Low-VOC/Green Cleaning Product Educational Program.** Prior to the occupancy of any on-site development, the Applicant or its designee shall provide evidence to the City of Hesperia that the Applicant/phase developer has developed a Green Cleaning Product and Paint education program to be made available at rental offices, leasing spaces, and/or on websites.	Prior to occupancy	City of Hesperia	

4 In December 2008, CARB adopted a regulation to reduce greenhouse gas emissions by improving the fuel efficiency of heavy-duty tractors that pull 53-foot or longer box-type trailers. The regulation applies primarily to owners of 53-foot or longer box-type trailers, including both dry-van and refrigerated-van trailers, and owners of the heavy-duty tractors that pull them on California highways. CARB's Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation is available at: https://www.arb.ca.gov/cc/hdghg/hdghg.htm.

5 The PSIP program requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. CARB's PSIP program is available at: https://www.arb.ca.gov/enf/hdvip/hdvip.htm.

6 The regulation requires that newer heavier trucks and buses must meet particulate matter filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. CARB's Statewide Truck and Bus Regulation is available at: https://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm.

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Biological Resources			
MM-BIO-1: Conservation of Western Joshua Tree Lands. Mitigation for direct impacts to western Joshua trees will be fulfilled through conservation of western Joshua trees at a 1:1 habitat replacement of equal or better functions and values to those impacted by the project. Mitigation can be through purchases of credits at a CDFW-approved mitigation bank for western Joshua tree or through conservation lands that meet the functions and values criteria. If mitigation is not purchased through a mitigation bank and lands are conserved separately, a cost estimate will be prepared to estimate the initial start-up costs, and ongoing annual costs, of management activities for the management of the conservation easement(s) area in perpetuity. The funding source will be in the form of an endowment to help the qualified natural lands management entity that is ultimately selected to hold the conservation easement(s). The endowment amount will be established following the completion of a project-specific Property Analysis Record (PAR) to calculate the costs of in perpetuity land management. The PAR will take into account all of the management activities required in the ITP to fulfill the requirements of the conservation easement(s), which are currently in review and development. Additionally, no take of western Joshua tree will occur without authorization from CDFW in the form of an Incidental Take Permit pursuant to Fish and Game Code 2081. The applicant will adhere to measures and conditions set forth within the Incidental Take Permit.	Prior to issuance of grading permits	City of Hesperia	
MM-BIO-2: Relocation of Desert Native Plants. Prior to the issuance of grading permits, the Project Applicant shall submit an application and applicable fee paid to the City of Hesperia for removal or relocation of protected native desert plants under Hesperia Municipal Code Chapter 16.24 as required and schedule a pre-construction site inspection with the Planning Division and the Building Division. The application shall include certification from a qualified Joshua tree and native	Prior to issuance of grading permits	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
desert plant expert(s) to determine that proposed removal or relocation of protected native desert plants are appropriate, supportive of a healthy environment, and in compliance with the City of Hesperia Municipal Code. Protected plants subject to Hesperia Municipal Code Chapter 16.24 may be relocated on-site, or within an area designated as an area for species to be adopted later. The application shall include a detailed plan for removal of all protected plants on the Project site. The plan shall be prepared by a qualified Joshua tree and native desert plant expert(s). The plan shall include, but not be limited to, the following measures: ▪ Salvaged plants shall be transplanted expeditiously to either their final on-site location, or to an approved off-site area. If the plants cannot be expeditiously taken to their permanent relocation area at the time of excavation, they may be transplanted in a temporary area (stockpiled) prior to being moved to their permanent relocation site(s). ▪ Western Joshua trees shall be marked on their north facing side prior to excavation. Transplanted western Joshua trees shall be planted in the same orientation as they currently occur on the Project site, with the marking on the north side of the trees facing north at the relocation site(s). ▪ Transplanted plants shall be watered prior to and at the time of transplantation. The schedule of watering shall be determined by the qualified tree expert and desert native plant expert(s) to maintain plant health. Watering of the transplanted plants shall continue under the guidance of qualified tree expert and desert native plant expert(s) until it has been determined that the transplants have become established in the permanent relocation site(s) and no longer require supplemental watering.			
MM-BIO-3: Designated Biologist Authority. The Designated Biologist shall have authority to immediately stop any activity that does not comply with the biological resources mitigation measures and/or to	During construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
order any reasonable measure to avoid the unauthorized take of an individual western Joshua tree.			
MM-BIO-4: Compliance Monitoring. The Designated Biologist shall be on site daily when impacts occur. The Designated Biologist shall conduct compliance inspections to minimize incidental take of western Joshua trees and impacts to other sensitive biological resources; prevent unlawful take of western Joshua trees; and ensure that signs, stakes, and fencing are intact, and that impacts are only occurring within the permitted impact footprint. Weekly written observation and inspection records that summarize oversight activities and compliance inspections and monitoring activities required by the Incidental Take Permit shall be prepared.	During construction	City of Hesperia	
MM-BIO-5: Education Program An education program (Worker Environmental Awareness Program [WEAP]) for all persons employed or otherwise working in the Project area shall be administered before performing impacts. The WEAP shall consist of a presentation from the Designated Biologist that includes a discussion of the biology and status of western Joshua tree, burrowing owl, and loggerhead shrike; and other biological resources mitigation measures described in the CEQA document. Interpretation for non-English-speaking workers will be provided, and the same instruction shall be provided to any new workers before they are authorized to perform work in the Project area. Upon completion of the WEAP, employees shall sign a form stating they attended the program and understand all protection measures. This training shall be repeated at least once annually for long-term and/or permanent employees who will be conducting work in the Project area.	After issuance of grading permits; prior to vegetation clearing activities	City of Hesperia	
MM-BIO-6: Construction Monitoring Notebook. The Designated Biologist shall maintain a construction-monitoring notebook on site throughout the construction period, which shall include a copy of the biological resources mitigation measures with attachments and a list of signatures of all personnel who have successfully completed the	During construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
education program. The permittee shall ensure that a copy of the construction monitoring notebook is available for review at the Project site upon request by the California Department of Fish and Wildlife.			
MM-BIO-7: Delineation of Property Boundaries. Before beginning activities that would cause impacts, the contractor shall, in consultation with the Designated Biologist, clearly delineate the boundaries, consistent with the grading plan, within which the impacts will take place with fencing, stakes, or flags. All impacts within the fenced, staked, or flagged areas shall be avoided and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area.	Prior to vegetation clearing	City of Hesperia	
MM-BIO-8: Hazardous Waste. The Project Applicant shall immediately stop work and, pursuant to pertinent state and federal statutes and regulations, arrange for repair and clean up by qualified individuals of any fuel or hazardous waste leaks or spills at the time of occurrence, or as soon as it is safe to do so.	During construction (if applicable)	City of Hesperia	
MM-BIO-9: Herbicides. The Project Applicant shall limit herbicide use for invasive plant species and shall use herbicides only it has been determined that hand or mechanical efforts are infeasible. To prevent drift, the permittee shall apply herbicides only when wind speeds are less than 7 miles per hour. All herbicide application shall be performed by a licensed applicator and in accordance with all applicable federal, state, and local laws and regulations.	During operation	City of Hesperia	
MM-BIO-10: Pre-Construction Surveys for Burrowing Owl and Avoidance. One pre-construction burrowing owl clearance survey shall be completed no more than 14 days before initiation of site preparation or grading activities, and a second survey shall be completed within 24 hours of the start of site preparation or grading activities. If ground-disturbing activities are delayed or suspended for more than 30 days after the pre-construction surveys, the Project site shall be resurveyed. Surveys for burrowing owl shall be conducted in	First Survey: At least 14 days prior to site preparation or grading activities Second Survey: Within 24 hours to the start of site preparation or grading activities	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
accordance with protocols established in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version. If burrowing owls are detected, disturbance to burrows shall be avoided during the nesting season (February 1 through August 31). Buffers will be established around occupied burrows in accordance with guidance provided in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version. No Project activities shall be allowed to encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until it is determined that occupied burrows have been vacated or the nesting season has completed. Outside of the nesting season, passive owl relocation techniques approved by the California Department of Fish and Wildlife (CDFW) shall be implemented. Owls shall be excluded from burrows in the immediate Project area and within a buffer zone by installing one-way doors in burrow entrances. These doors will be placed at least 48 hours prior to ground-disturbing activities. Compensatory mitigation for permanent loss of owl habitat will be provided following the guidance in the Staff Report on Burrowing Owl Mitigation (CDFW 2012) or current version. The Project area shall be monitored daily for one week to confirm owl departure from burrows prior to any ground-disturbing activities. Where possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe shall be inserted into the tunnels during excavation to maintain an escape route for any wildlife inside the burrow. See Burrowing Owl Relocation Plan (Appendix D-10 of the Final EIR) for more details on avoidance buffers and relocation methods.			
MM-BIO-11: Lighting. Lighting for construction activities and operations within 50 feet of the outside edge of the impact footprint containing habitat for special-status wildlife will be directed away from natural areas.	During construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
MM-BIO-12: Trash and Debris. The following avoidance and minimization measures shall be implemented during project construction. (1) Fully covered trash receptacles that are animal-proof will be installed and used by the operator to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles will be removed at least once a week from the Project site. (2) Construction work areas shall be kept clean of debris, such as cable, trash, and construction materials. All construction/contractor personnel shall collect all litter, vehicle fluids, and food waste from the Project site on a daily basis.	During construction	City of Hesperia	
MM-BIO-13: Restoration of Temporary Impacts. Site construction areas subjected to temporary ground disturbance shall be recontoured to natural grade (if the grade was modified during the temporary disturbance activity), and revegetated with an application of a native seed mix, if necessary, prior to or during seasonal rains to promote passive restoration of the area to pre-project conditions. An area subjected to "temporary" disturbance means any area that is disturbed but will not be subjected to further disturbance as part of the Project. This measure does not apply to areas that are disturbed habitat and urban/developed lands. Prior to seeding temporary ground disturbance areas, the Designated Biologist will review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur.	After completion of work where temporary ground disturbance will occur (i.e., off-site utilities alignments)	City of Hesperia	
MM-BIO-14: Pre-Construction Survey for American Badger and Desert Kit Fox and Avoidance. A pre-construction survey for American badger and desert kit fox shall be conducted in suitable habitat areas on the Project site and Off-Site Utilities Alignments within 10 days prior to the start of construction to determine the presence/absence of either species. If either species is discovered during the survey, an American	At least 10 days prior to the start of construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Badger/Desert Kit Fox Mitigation and Monitoring Plan shall be developed as recommended by the California Department of Fish and Wildlife (CDFW) in their Notice of Preparation comment letter dated December 19, 2019. The Mitigation and Monitoring Plan shall include avoidance and minimization measures to reduce potential impacts to either species, as well as compensatory mitigation to offset direct or indirect impacts. The plan will be developed in consultation with CDFW. At a minimum, the plan shall: ▪ Identify pre-construction survey methods for American badger and desert kit fox ▪ Describe feasible pre-construction and construction-phase avoidance methods ▪ Describe pre-construction and construction-phase relocation methods, including the possibility for passive relocation ▪ For burrows that will not be impacted by the Project, identify an appropriate construction exclusion zones for both active and natal burrows ▪ Coordinate survey findings prior to and during construction to meet the information needs of wildlife health officials in monitoring the health of kit fox populations			
MM-BIO-15: Pre-Construction Nesting Bird Surveys and Avoidance. Construction activities shall avoid the migratory bird nesting season (typically February 1 through August 31), to reduce any potential significant impact to birds that may be nesting on the survey area. If construction activities must occur during the migratory bird nesting season, an avian nesting survey of the Project site and within 500 feet of all impact areas must be conducted to determine the presence/absence of protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist within 72 hours prior to the start of construction in accordance with the MBTA (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513. If an active bird nest is found, the	If site preparation and grading activities commence between February 1 through August 31, the avian nesting survey shall be performed by a qualified wildlife biologist within 72 hours prior to the start of vegetation clearing activities	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
nest shall be flagged and mapped on the construction plans along with an appropriate buffer established around the nest, which will be determined by the biologist based on the species' sensitivity to disturbance (typically 300 feet for passerines and 500 feet for raptors and special-status species). The nest area shall be avoided until the nest is vacated and the juveniles have fledged. The nest area shall be demarcated in the field with flagging and stakes or construction fencing. On-site construction monitoring shall also be conducted when construction occurs in close proximately to an active nest buffer. No Project activities may encroach into established buffers without the consent of a monitoring biologist. The buffer shall remain in place until is determined the nestlings have fledged and the nest is no longer considered active.			
MM-BIO-16: Jurisdictional Waters of the State Mitigation. To the extent practicable, the Project shall be designed to avoid impacts to the jurisdictional waters of the state within the Project site, and the following avoidance/minimization measures shall be implemented: If jurisdictional waters cannot be avoided, minimization measures shall be applied and all necessary resource agency permits shall be obtained. This may include Waste Discharge Requirements from the Regional Water Quality Control Board (RWQCB) and a Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW). All temporary impacts to state-jurisdictional waters will be restored on site. Restoration will include recontouring and erosion control with a native seed mix. Prior to seeding temporary ground disturbance areas, the Designated Biologist will review the seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur. Compensatory mitigation for permanent impacts shall occur either off site, at a mitigation bank, or with an in-lie fee program and would	Prior to issuance of grading permits *Note: The Project's design, as depicted in the site plan considered by the City's Planning Commission and City Council, avoids impacts to waters of the state. As such, the Project is currently in compliance with this mitigation measure. The Project's site plan should be reviewed prior to issuance of grading permits to ensure that disturbance footprints have not changed. Should changes have been made that result in impacts to waters of the state, resource agency permits shall be obtained prior to the*	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
occur at a ratio not less than 1:1 for the impact to jurisdictional waters or at a ratio determined in the jurisdictional waters permits. If a mitigation bank or in-lieu fee program is not utilized and the Applicant proceeds with off-site mitigation, a waters mitigation and monitoring plan shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW. Mitigation lands shall be comprised of drainages similar to those impacted. Off-site mitigation lands shall be preserved through a conservation easement and the waters mitigation and monitoring plan shall identify an approach for funding assurance for the long-term management of the conserved land. Suitable mitigation lands provided for species and vegetation communities may be used for jurisdictional waters of the state mitigation.	*issuance of grading permits. The limits of jurisdictional waters are depicted on Figure 4.3-5 within Section 4.3 of the Final EIR.*		
Cultural Resources			
MM-CUL-1: Prior to start of ground-disturbing activities, a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (or an archaeologist working under the direct supervision of the qualified archaeologist) shall be retained by the Project Applicant and shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. The construction contractor shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.	Prior to construction	City of Hesperia	
MM-CUL-2: If construction of the Off-Site Utilities Alignments requires deviation from the routes and disturbance footprints shown in the conceptual plans for these off-site utilities (domestic water, stormwater drain, sanitary sewer), and thus, results in increased potential for construction equipment and activities to come into close	Prior to and during construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
proximity or to traverse the locations of the potential historic resources observed in the vicinity of the Off-Site Utilities Alignments, a historic resources survey shall be conducted by a qualified historic resources expert to determine the significance of these potential resources. The survey shall entail the taking of detailed notes and photographs of potential resources, including documentation of character defining features, spatial relationships, and overall existing conditions of the resources. The potential historic resources shall be recorded on State of California Department of Parks and Recreation Series 523 Forms (DPR forms), and will be evaluated in consideration of National Register of Historic Places and California Register of Historic Resources designation criteria and integrity requirements. Archival research, as applicable, shall also be conducted to develop the appropriate historic context for the potential historic resources. The findings of this evaluation shall be included in a historic resources report. If the resources are found to be historically significant and/or eligible for listing pursuant to National Register of Historic Places and California Register of Historic Resources designation criteria, and if avoidance of these resources and redesign of the off-site utilities is deemed infeasible, the report shall include detailed procedures to the City and Project Applicant on how to minimize effects to these resources to acceptable levels of significance, and these recommendations must be implemented by the Project Applicant. This requirement shall be noted on all grading plans, and the construction contractor shall be obligated to comply with the note.			
MM-CUL-3: If archaeological resources (sites, features, or artifacts) or tribal cultural resources are exposed during construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Additionally, the San Manuel Band of Mission Indians	During construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
Cultural Resources Department (SMBMI) shall be contacted regarding any pre-contact finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment. Construction activities may continue on other parts of the Project site while evaluation occurs. If the find is determined by the archaeologist to constitute a potentially significant archaeological resource, time allotment sufficient to allow for implementation of avoidance measures shall be made available. In accordance with CEQA Guidelines Section 15064.5(f) and/or California Public Resources Code, Sections 21083.2(b), if the discovery proves significant under the California Environmental Quality Act (CEQA), a treatment and monitoring plan shall be prepared by a qualified archaeologist for the resource(s), in coordination with SMBMI. The drafts of the treatment and monitoring plan shall be provided to SMBMI for review and comment. All subsequent finds shall be subject to the treatment and monitoring plan. The treatment and monitoring plan shall allow for a monitor to be present that represents SMBMI for the remainder of the Project, should SMBMI elect to place a monitor on site. Treatment may include preservation in place or implementation of archaeological data recovery excavations to remove the resource along with subsequent analysis. Any archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the material. If the find is Native American in origin, the tribe(s) that consider the Project area to be within their ancestral land or traditional use area, including the SMBMI, shall be contacted by the City of Hesperia to coordinate treatment and curation. Any and all archaeological/cultural documents created as a part of the Project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied by the Project Applicant and City of Hesperia for			

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
dissemination to SMBMI. The City of Hesperia and/or Project Applicant shall, in good faith, consult with SMBMI throughout the life of the Project. This requirement shall be noted on all grading plans, and the construction contractor shall be obligated to comply with the note.			
MM-CUL-4: In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant of the deceased Native American. The most likely descendant shall complete her/his inspection within 48 hours of being granted access to the site. The designated Native American representative shall then determine, in consultation with the property owner, the proper disposition of the human remains. This requirement shall be noted on all grading plans, and the construction contractor shall be obligated to comply with the note.	During construction	City of Hesperia	
MM-CUL-5: If paleontological resources (sites, features, or fossils) are exposed during Project construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified paleontologist can evaluate the significance of the find and determine whether or not additional study is warranted. If the discovery proves significant under the California Environmental Quality Act, discovered fossils or samples of such fossils shall be collected and identified by the qualified paleontologist. Significant specimens	During construction	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
recovered shall be properly recorded, treated, and donated to the San Bernardino County Museum, Division of Geological Sciences, or other repository with permanent retrievable paleontological storage. A final report shall be prepared and submitted to the City of Hesperia that itemizes any fossils recovered, with maps to accurately record the original location of recovered fossils and evidence that the resources were curated by an established museum repository. This requirement shall be noted on all grading plans, and the construction contractor shall be obligated to comply with the note.			
Greenhouse Gas Emissions			
MM-GHG-1: Water Conservation. Prior to the issuance of building permits for the Project, the Project Applicant shall provide building plans that include the following water conservation measures: ▪ Install low-water use appliances and fixtures. ▪ Restrict the use of water for cleaning outdoor surfaces and prohibit systems that apply water to non-vegetated surfaces. ▪ Implement water-sensitive urban design practices in new construction. ▪ Install rainwater collection systems where feasible.	Prior to issuance of building permits	City of Hesperia	
MM-GHG-2: Solid Waste Reduction. Prior to the issuance of building permits for the Project, the Project applicant shall provide building plans that include the following solid waste reduction measures: ▪ Provide storage areas for recyclables and green waste in new construction, and food waste storage, if a pick-up service is available. ▪ Evaluate the potential for onsite composting.	Prior to issuance of building permits	City of Hesperia	
Hazards and Hazardous Materials			
MM-HAZ-1. Prior to the issuance of a grading permit, the Project Applicant shall retain a qualified environmental specialist that has documented experience in the identification, characterization, and removal of hazardous materials and includes a California licensed	A qualified environmental specialist shall be retained by the Project Applicant prior to issuance of grading permits. Inspections,	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
professional engineer, geologist, or hydrogeologist to remove and dispose of all refuse located on the Project site, including but not limited to, the illegally-dumped tires and oil containers currently found on site. The removal, transport, and disposal of refuse shall be done in accordance with all applicable local, state, and federal guidelines related to hazardous materials handling. Prior to the removal of refuse deposits from the site, the environmental specialist shall inspect each refuse pile for indications that the refuse may contain – or may have once contained – hazardous materials, including, but not limited to, motor oil, solvents, paints, and/or other petroleum products. In addition, the environmental specialist shall inspect the soils surrounding each refuse deposit for evidence of any contamination (staining) or volatilization of contaminants (odors). If contamination indicators are identified, work shall stop in the proximity of the potential contamination. The Project applicant and/or their construction contractor shall be responsible for engaging a qualified environmental specialist to design and perform an investigation to verify the presence and extent of contamination on the Project site. Subsurface investigation shall determine appropriate worker protection and hazardous material and disposal procedures appropriate for the Project site. Contaminated soil or groundwater determined to be hazardous shall be removed by personnel who have been trained through the Occupational Safety and Health Administration–recommended 40-hour safety program with an approved plan for groundwater extractions, soil excavation, control of contaminant releases to the air, and off-site transport or on-site treatment.	characterizations, and removal of contamination may occur during site preparation activities. The qualified environmental specialist shall verify to the City of Hesperia that the site is suitable for development and occupancy prior to issuance of building permits.		
Transportation			
MM-TRA-1: The Project applicant shall submit a Transportation Demand Management (TDM) plan prepared by a qualified transportation consultant acceptable to the City of Hesperia to reduce Project's vehicle miles traveled. The TDM plan shall be approved by	Prior to issuance of occupancy permit	City of Hesperia	

Table 1. Mitigation Monitoring and Reporting Program Table

Mitigation Measure	Implementation Timing	Agency Responsible for Monitoring	Date of Completion
the City prior to the issuance of the first occupancy permit. The TDM plan shall apply to Project tenants through tenant leases. The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. Examples of trip reduction measures may include, but are not limited to: ▪ Transit passes ▪ Car-sharing programs ▪ Telecommuting and alternative work schedules ▪ Ride sharing programs			

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