

HESPERIA GENERAL PLAN UPDATE

Transportation Technical Report

Prepared for:

Hogle-Ireland, Inc.

Prepared by:



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1. INTRODUCTION

1.1 Overview

This report has been prepared as part of the City of Hesperia's General Plan Update and provides a technical analysis of the future transportation needs in the City. This report addresses the local and regional traffic conditions associated with future buildout of the General Plan. The assumptions in the analysis take into account the San Bernardino County Congestion Management Program (CMP), the City's Master Plan of Arterial Highways, the City's currently adopted General Plan, potential alternative future land use scenarios in the City, and planned future growth in other parts of the Victor Valley.

The analysis serves as the basis for the recommended improvements to the future transportation system – including the roadway network, intersection enhancements, transit, freight rail and trucking, and bicycle and pedestrian facilities. The recommendations present policies and strategies for improving mobility in the Circulation Element of the General Plan Update.

This report is comprised of the following sections:

- Existing Conditions (including existing and planned components of the circulation system and existing traffic conditions);
- Transportation issues and opportunities;
- Evaluation of Alternatives (future traffic conditions under alternative future land use scenarios);
- Preferred Alternative (future traffic conditions with the preferred land use scenario); and
- Recommended Transportation Plan.

2. EXISTING CONDITIONS

2.1 Physical Setting

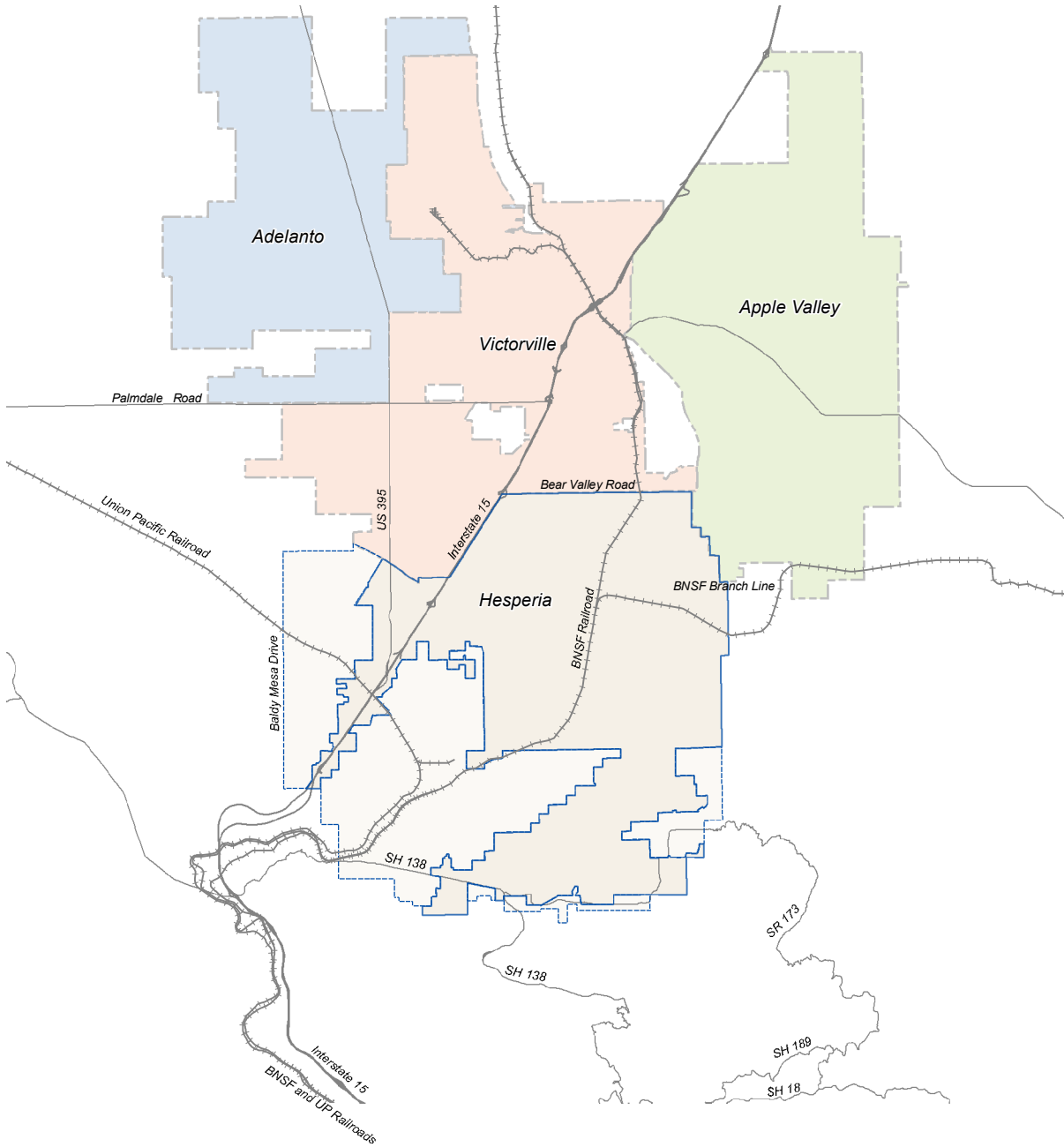
The City of Hesperia is shown in its regional setting on **Figure 2-1** (Vicinity Map). The City is served by one Interstate highway – Interstate 15 runs through the western portion of the city in a north-south direction.

In terms of local circulation facilities, the City is generally laid out in a grid pattern. Traffic circulation within the City is facilitated by a developing street system, with some specific areas in the City that experience barriers to efficient movement. The railroad is currently a significant barrier within the city, concentrating east-west traffic onto Bear Valley Road and Main Street, due to the lack of other grade separated crossings (a new grade separation at Ranchero Road is under construction.) The California Aqueduct is a barrier that transverses through the center of the city creating access limitations for all streets except Main Street, Maple Avenue, Mesquite Street, Cottonwood Avenue, and Ranchero Road. The Mojave River serves as a barrier at the city's eastern boundary with crossings only available at Bear Valley Road and Rock Springs Road.

Because the City has attracted industrial and warehousing businesses, a substantial number of trucks travel on City streets contributing to general traffic congestion.

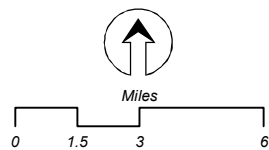
Three rail lines and a branch line traverse the City of Hesperia; one Union Pacific Railroad (UPRR) rail line in the northwest-southeast direction and two Burlington Northern Santa Fe (BNSF) rail lines in the north-south direction with a branch line running from the BNSF tracks easterly. The UPRR line connects West Colton to Palmdale through the southwest portion of Hesperia's sphere. The UPRR rail line is entirely utilized by freight trains. The BNSF rail lines that bisect the City are part of their major transportation corridor that transports goods and services from the ports in Long Beach and Los Angeles to the western and central portions of the United States. A branch line to Lucerne Valley runs easterly from the BNSF mainline, crossing Hesperia's eastern city boundary into Apple Valley near the Rock Springs Road crossing. The BNSF mainlines are also utilized by Amtrak passenger trains.

Hesperia General Plan Update



Legend

- City Of Hesperia Boundary
- Hesperia Sphere of Influence Boundary
- + Railroad



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2.2 Regulatory Setting

The City of Hesperia is affected by a number of other regulatory bodies due to its location in an area that includes state and local vehicular and rail facilities and a number of adjacent cities. These regulatory bodies include:

- The County of San Bernardino
- San Bernardino Associated Governments (SANBAG)
- Southern California Association of Governments (SCAG)
- Caltrans
- Adjacent cities: Victorville, Apple Valley, Adelanto

The preparation of the circulation portion of the general plan update must be cognizant of these agencies' plans and their potential effect on the City of Hesperia. In particular, plans for development in adjacent communities will contribute to traffic using Hesperia's street system, and SANBAG and Caltrans plans for the freeway system will affect regional mobility.

The process and standards applied to planning the City's roadway system in this study will be consistent with the regional traffic and level of service standards promulgated by SANBAG, as described below.

2.2.1 Regional Traffic Analysis Standards and Guidelines

Analysis of the existing roadway segments and intersections in the City of Hesperia follow standards set forth in the City of Hesperia General Plan Circulation Element and Appendix C of the Congestion Management Program (CMP) for San Bernardino County. Appendix C of the CMP document presents the Guidelines for CMP Traffic Impact Analysis Reports.

2.2.2 City of Hesperia and SANBAG CMP Level of Service Standards

Circulation Policy C.P.1 of the City of Hesperia General Plan Circulation Element states the City's Level of Service standard as follows: Strive to achieve and maintain level of service (LOS) C on all roadways and intersections; LOS D during peak hours shall be considered acceptable within commercial and industrial areas.

The SANBAG CMP document indicates that the CMP standard is LOS E. However, if the lead agency or affected jurisdiction requires mitigation to a higher LOS, that takes precedence over the CMP requirements. In the case of Hesperia, the City standards take precedence.

2.2.3 Methodologies Used to Determine Level of Service

Both the City of Hesperia and SANBAG require that intersection analysis be conducted using the methodologies following the most recent edition of the Highway Capacity Manual (HCM). In the case of this study, the HCM methodologies have been

accomplished through the SYNCHRO traffic analysis software. The specific input data as outlined in Appendices A and C of the CMP was used. A summary of each Level of Service (LOS) and the corresponding delay is provided in the **Table 2-1**.

Table 2-1 Intersection LOS Standards per the *Highway Capacity Manual (HCM)*

LOS	Average Total Delay Per Vehicle (seconds)	
	Signalized	Unsignalized
A	0 to 10.00	0 to 10.00
B	10.01 to 20.00	10.01 to 15.00
C	20.01 to 35.00	15.01 to 25.00
D	35.01 to 55.00	25.01 to 35.00
E	55.01 to 80.00	35.01 to 50.00
F	Over 80	Over 50

Table 2-2 is a description of the LOS standards for roadway segments for a LOS D capacity. LOS D capacity is the standard for industrial and commercial areas during peak periods, which are the areas of most traffic within the City of Hesperia. The capacities for LOS D volume thresholds for each facility type were determined based on the procedure outlined in the Florida Tables from the Florida Department of Transportation (FDOT). The LOS D volume thresholds are based on Class II State Two-way Arterials taken from the FDOT generalized annual average daily volumes table. The capacities for two-lane divided, four-lane undivided, six-lane undivided, and eight-lane divided were generated using appropriate percentages as defined in the table notes. (It should be noted that these daily capacity values relate to current conditions, in which the peak hour represents about 10% of total daily traffic and intersection capacity falls within the typical midblock cross-section, i.e., very few intersections have been widened to provide additional turn lanes.)

Table 2-2 Roadway Segment LOS Standards

Segment	LOS D Capacity (veh/day)
2/undivided	14,500
2/divided*	17,400
4/undivided**	24,480
4/divided	30,600
6/undivided***	36,880
6/divided	46,100
8/divided****	60,100
Note: * LOS D capacity is based on 2 lane undivided increased by 20% ** LOS D capacity is based on 4 lane divided decreased by 20% *** LOS D capacity is based on 6 lane divided decreased by 20% **** LOS D capacity is based on 6 lane divide increased by 14,000 veh/day	

2.3 Existing Traffic Conditions

2.3.1 Roadway Characteristics

The existing conditions roadway analysis is based on review of aerial photographs and field observations made in December 2006. These existing roadway characteristics are provided in **Table 2-3**.

2.3.2 Traffic Volumes on Roadway Segments

The existing traffic volumes were obtained from two sources: daily traffic count data collected as part of recent studies conducted for the City of Hesperia, and counts conducted by the City. Count volumes reflect conditions in the Year 2006. The existing average daily traffic volumes on roadways in the City of Hesperia are shown on Table 2-3, previously referenced. Count worksheets are provided in **Appendix A**.

2.3.3 Level of Service on Roadway Segments

Table 2-3, previously referenced, presents the number of travel lanes, the median type and a comparison of the daily traffic volume to the LOS D capacity of the roadway segment.

The results of the roadway analysis indicate that 16 of the 99 roadway segments currently operate at LOS E or F. **Figure 2-2** presents the levels of service on the study area roadway segments for existing conditions.

2.3.4 Intersection Characteristics

The existing intersection analysis includes 51 key intersections as identified with the assistance of City of Hesperia Traffic Engineering staff. **Figure 2-3** presents the locations of the study intersections. Traffic signals control traffic at 19 of the existing intersections while the remaining 32 intersections are stop sign-controlled.

Table 2-3 Summary of Roadway Operations LOS, Existing Conditions

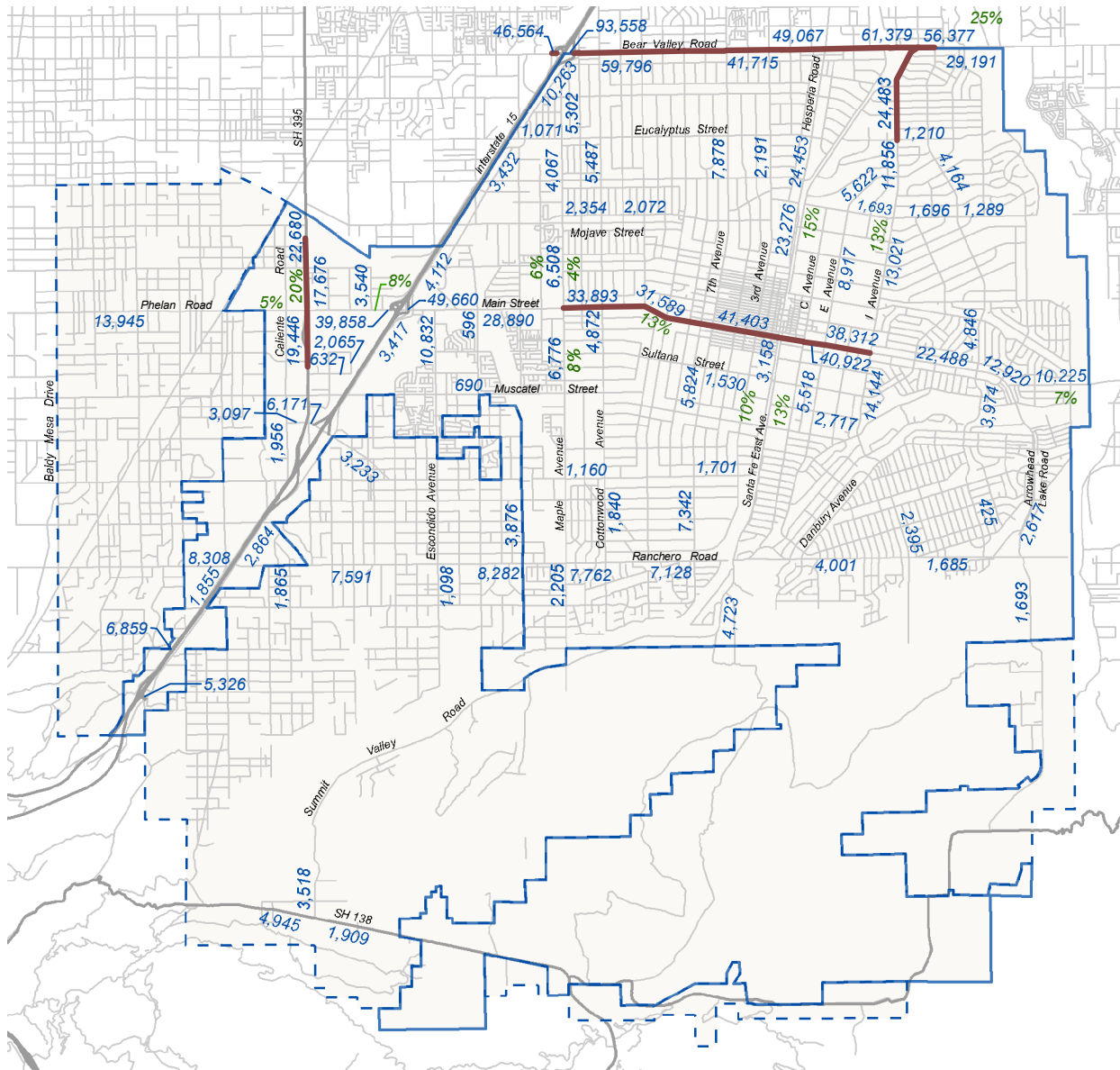
Roadway Segment	No. of Lanes/ Median Type	Existing ADT	LOS D Roadway Capacity	LOS D or better
Caliente Road				
South of Ranchero Rd	2/undivided	1,865	14,500	Yes
South of Joshua Street	2/undivided	1,956	14,500	Yes
North of Oak Hill Road	2/undivided	1,855	14,500	Yes
Escondido Avenue				
South of Ranchero Rd	2/undivided	1,098	14,500	Yes
South of Main Street	4/divided	10,832	30,600	Yes
Summit Valley Road				
South of Ranchero Road	2/undivided	4,723	14,500	Yes
North of SR 138	2/undivided	3,518	14,500	Yes
Arrowhead Lake Road				
South of Ranchero Road	2/undivided	1,693	14,500	Yes
Ranchero Road between				
Santa Fe Avenue and "I" Avenue	2/undivided	4,001	14,500	Yes
"I" Avenue and Peach Avenue	2/undivided	1,685	14,500	Yes
Mariposa Road and Escondido Avenue	2/undivided	7,951	14,500	Yes
Maple Avenue and Escondido Avenue	2/undivided	8,282	14,500	Yes
Maple Avenue and Cottonwood Avenue	2/undivided	7,762	14,500	Yes
Cottonwood Avenue and 7th Avenue	2/undivided	7,128	14,500	Yes
Joshua Street between				
NB 15 ramp and Mariposa Road	2/undivided	3,233	14,500	Yes
Caliente and US 395	2/undivided	3,097	14,500	Yes
US 395 and I-15 SB Ramp	2/undivided	6,171	14,500	Yes
Muscatel Street between				
Escondido Avenue and Fuente Avenue	2/undivided	690	14,500	Yes
Mesquite Street				
East of Maple Avenue	2/undivided	1,160	14,500	Yes
East of 7th Avenue	2/undivided	1,701	14,500	Yes
Baldy Mesa Road				
South of Phelan Road	2/undivided	2,683	14,500	Yes
North of Phelan Road	2/undivided	6,834	14,500	Yes
Phelan Road between				
Baldy Mesa Road and US 395	2/divided	13,945	17,400	Yes

Roadway Segment	No. of Lanes/ Median Type	Existing ADT	LOS D Roadway Capacity	LOS D or better
Main Street between				
Cataba Rd and SB 15 ramp	6/divided	39,858	46,100	Yes
NB 15 ramp and Mariposa Road	8/divided	49,660	60,100	Yes
Mariposa Road and Maple Avenue	6/divided	28,890	46,100	Yes
Maple Avenue and Cottonwood Avenue	4/divided	33,893	30,600	No
Cottonwood Avenue and 7th Avenue	4/divided	31,589	30,600	No
7th Avenue and Hesperia Road	6/undivided	41,403	36,880	No
"C" Avenue and "E" Avenue	4/divided	40,922	30,600	No
"E" Avenue and "I" Avenue	4/divided	38,312	30,600	No
"I" Avenue and Peach Avenue	4/undivided	22,488	24,480	Yes
Peach Avenue and Rock Springs Road	2/divided	12,920	17,400	Yes
Sultana Street between				
7th Avenue and Hesperia Road	2/undivided	1,530	14,500	Yes
"E" Avenue and "I" Avenue	2/undivided	2,717	14,500	Yes
Mauna Loa Street between				
Maple Avenue and Cottonwood Avenue	2/undivided	2,354	14,500	Yes
Cottonwood Avenue and 7th Avenue	2/undivided	2,072	14,500	Yes
7th Avenue and 3rd Avenue	2/undivided	251	14,500	Yes
Lemon Street between				
"E" Avenue and "I" Avenue	2/undivided	1,693	14,500	Yes
"I" Avenue and Peach Avenue	2/undivided	1,696	14,500	Yes
East of Peach Avenue	2/undivided	1,289	14,500	Yes
Eucalyptus Avenue between				
Mariposa Road and Maple Avenue	2/undivided	1,071	14,500	Yes
3rd Avenue and 7th Avenue	2/undivided	2,564	14,500	Yes
"I" Avenue and Peach Avenue	2/undivided	1,210	14,500	Yes
Bear Valley Road between				
Amargosa Road and SB 15 ramp	6/divided	46,564	46,100	No
NB 15 ramp and Mariposa Road	6/divided	93,558	46,100	No
Mariposa Road and 11th Avenue	6/divided	59,796	46,100	No
3rd Avenue and 7th Avenue	6/undivided	41,715	36,880	No
West of Ridgecrest Road	6/undivided	61,379	36,880	No

Roadway Segment	No. of Lanes/ Median Type	Existing ADT	LOS D Roadway Capacity	LOS D or better
I Avenue and Peach Avenue	6/divided	56,377	46,100	No
West of 2nd Avenue	6/divided	49,067	46,100	No
At Mojave River	6/undivided	29,191	36,880	Yes
Hwy 395 between				
South of Phelan Road	2/undivided	19,446	14,500	No
North of Phelan Road	2/undivided	17,676	14,500	No
South of Bear Valley Road	4/undivided	22,680	24,480	Yes
Cataba Road between				
North of Main Street	2/undivided	3,540	14,500	Yes
Mariposa Road between				
North of Main Street	2/undivided	4,112	14,500	Yes
South of Eucalyptus Street	2/undivided	3,432	14,500	Yes
South of Bear Valley Road	2/undivided	10,263	14,500	Yes
Joshua Street and Ranchero Road	2/undivided	2,864	14,500	Yes
Ranchero Road and Oak Hill Rd	2/undivided	8,308	14,500	Yes
Oak Hill Road and I-15 NB Ramp	2/undivided	6,859	14,500	Yes
South of Main Street	2/undivided	3,417	14,500	Yes
Maple Avenue between				
North of Ranchero Road	2/undivided	3,876	14,500	Yes
Muscatel Street and Sultana Street	4/undivided	6,776	24,480	Yes
Main Street and Willow Street	4/divided	6,508	30,600	Yes
Eucalyptus Street and Mariposa Road	2/undivided	5,302	14,500	Yes
South of Eucalyptus Street	2/undivided	4,067	14,500	Yes
South of Ranchero Road	2/undivided	2,205	14,500	Yes
Hesperia Road between				
Eucalyptus and Lemon Street	2/divided	24,453	17,400	Yes
Lemon Street and Main Street	2/divided	23,276	17,400	Yes
Santa Fe Avenue East				
South of Main Street	2/undivided	3,158	14,500	Yes
E Avenue between				
"I" Avenue and Lemon Street	2/undivided	5,622	14,500	Yes
Lemon Street and Main Street	2/undivided	8,917	14,500	Yes
South of Main Street	2/undivided	5,518	14,500	Yes
I Avenue between				
Bear Valley Road and Eucalyptus Street	2/divided	24,483	17,400	No
Eucalyptus Street and Lemon	2/divided	11,856	17,400	Yes

Roadway Segment	No. of Lanes/ Median Type	Existing ADT	LOS D Roadway Capacity	LOS D or better
Street				
Lemon Street and Main Street	2/divided	13,021	17,400	Yes
South of Main Street	2/divided	14,144	17,400	Yes
North of Ranchero Road	2/undivided	2,395	14,500	Yes
Arrowhead Lake Road				
North of Ranchero Road	2/undivided	2,617	14,500	Yes
SR 138 between				
West of Summit Valley Road	2/undivided	4,945	14,500	Yes
East of Summit Valley Road	2/undivided	1,909	14,500	Yes
Poplar				
East of Hwy 395	2/undivided	632	14,500	Yes
Mesa Linda				
South of Main Street	2/undivided	2,065	14,500	Yes
Cottonwood Avenue				
South of Eucalyptus Street	2/undivided	5,487	14,500	Yes
South of Main Street	2/undivided	4,872	14,500	Yes
North of Ranchero Road	2/undivided	1,840	14,500	Yes
7th Avenue between				
South of Eucalyptus Street	2/undivided	7,878	14,500	Yes
South of Main Street	2/undivided	5,284	14,500	Yes
Mesquite Street and Ranchero Road	2/undivided	7,342	14,500	Yes
3rd Avenue				
South of Eucalyptus Street	2/undivided	2,191	14,500	Yes
Peach Avenue				
South of Eucalyptus Street	2/undivided	4,164	14,500	Yes
North of Main Street	2/undivided	4,846	14,500	Yes
South of Main Street	2/undivided	3,974	14,500	Yes
North of Ranchero Road	2/undivided	425	14,500	Yes
Fuente Avenue				
South of Main Street	2/undivided	596	14,500	Yes
Oak Hill Road between				
I-15 SB Ramp and I-15 NB Ramp	2/undivided	5,326	14,500	Yes
Rock Springs Road				
At Mojave River	2/undivided	10,225	14,500	Yes

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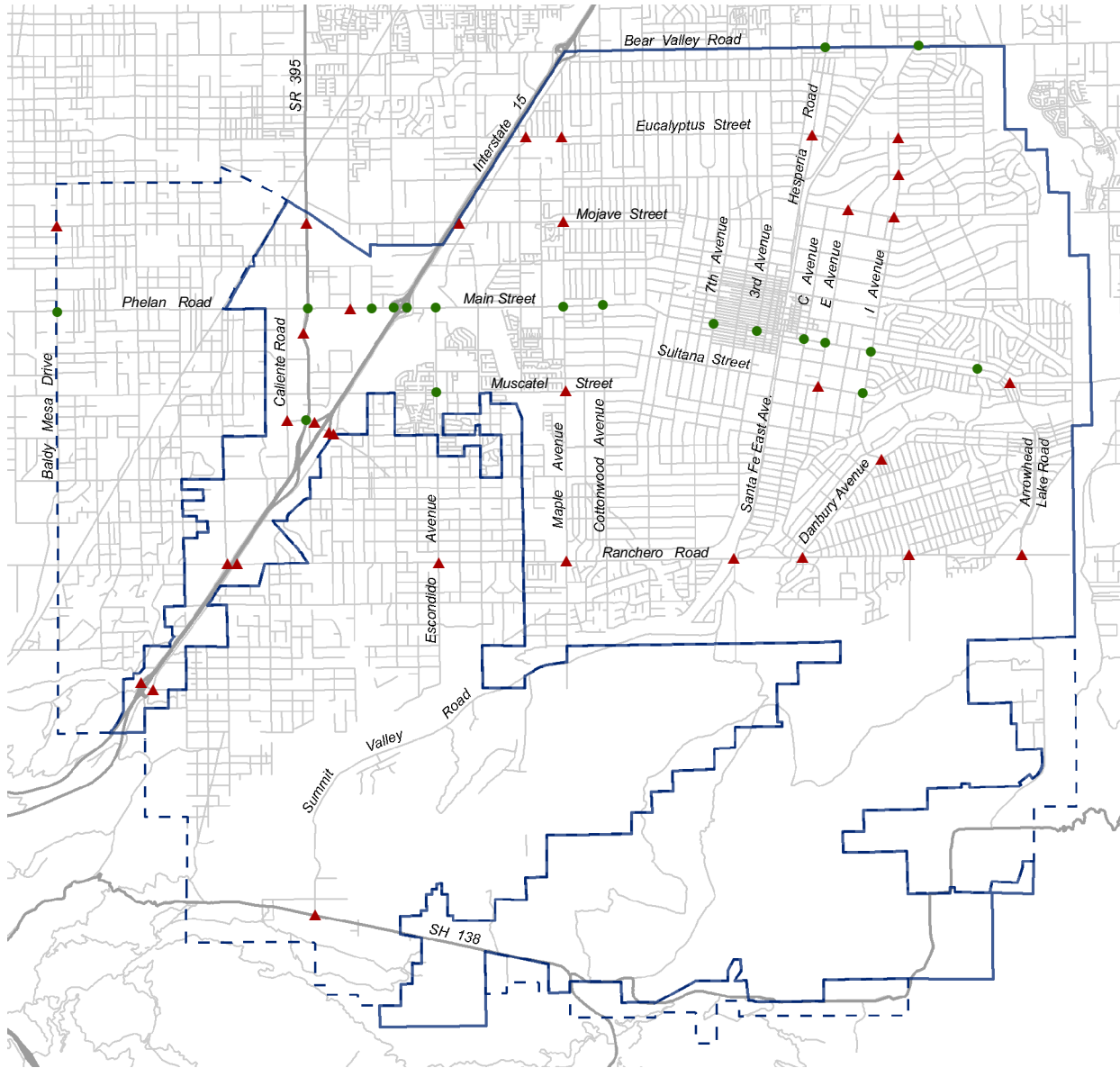
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Figure 2-2
Existing Average Daily Traffic
and Deficient Roadway Segments

Hesperia General Plan Update



Legend

- City Of Hesperia Boundary
- - - Sphere of Influence Boundary
- ▲ Non-Signalized Intersections
- Signalized Intersections



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Figure 2-3

Locations of Study Intersections

2.3.5 Peak Hour Traffic Volumes at Intersections

Morning and afternoon peak hour turning movement counts were obtained for 15 intersections from approved traffic studies provided by city staff, where available. New counts were conducted at 36 locations where counts were not available from the city. Count worksheets are provided in **Appendix A**.

2.3.6 Peak Hour Level of Service at Intersections

Table 2-4 summarizes the analysis results of the study intersections under existing traffic conditions generated from SYNCHRO traffic analysis software. All signalized intersections were analyzed as actuated-uncoordinated controller types. The results of the intersection analysis indicate that 11 of the 51 intersections analyzed operate at LOS F:

- Arrowhead Lake Rd/Main Street at Rock Springs Road
- Hwy 395 at Phelan Road
- I-15 SB Ramp at Oak Hill Rd
- I-15 NB Ramp at Bear Valley Road
- Baldy Mesa Drive at Phelan Road
- I Avenue at Bear Valley Road
- E Avenue at Main Street
- C Avenue at Main Street
- 3rd Avenue at Main Street
- Hwy 395 at Smoke Tree Road
- Hesperia Road at Eucalyptus Street

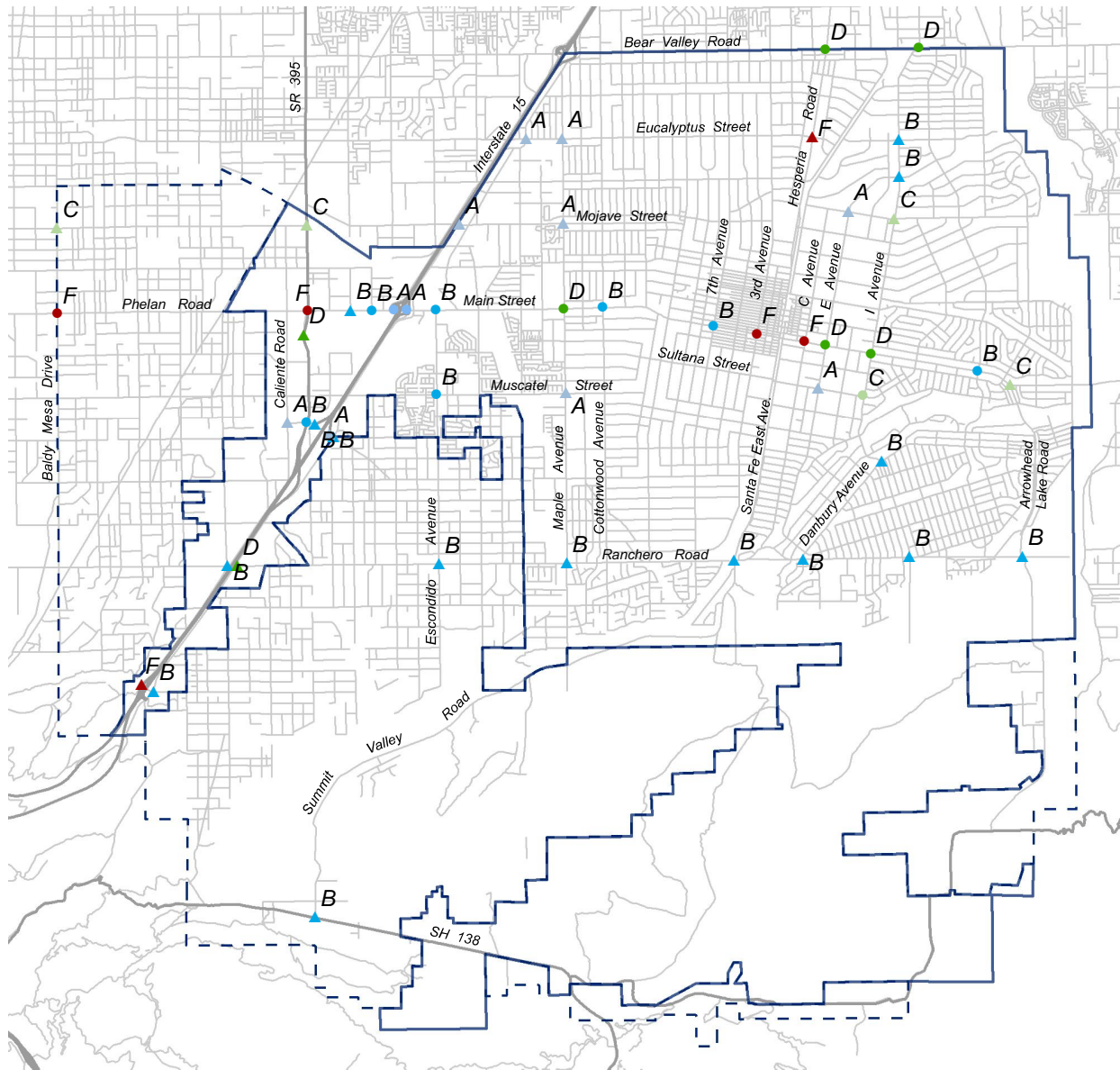
The remaining 40 intersections currently operate at LOS E or better. **Figures 2-4** and **2-5** present the LOS at the study intersections for existing conditions for the AM and PM peak hour periods, respectively. SYNCHRO analysis worksheets are provided in **Appendix B**.

Table 2-4 Summary of Intersection Operations, Existing Conditions

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	Summit Valley Rd at Hwy 138	CSS	11.5	B	10.8	B
5	I-15 SB Ramp at Oak Hill Rd	CSS	64.5	F	20.2	C
6	I-15 NB Ramp at Mariposa Ave	CSS	12.9	B	65.6	F
9	Caliente Rd at Ranchero Rd	CSS	10.0	B	10.7	B
12	Mariposa Road at Ranchero Rd	AWS	29.1	D	14.9	B
13	Escondido Ave at Ranchero Rd	CSS	15.0	B	18.8	C
14	Maple Ave at Ranchero Rd	AWS	13.5	B	30.4	D
15	I Ave at Ranchero Rd	CSS	13.5	B	9.4	A
16	Arrowhead Lake Rd at Ranchero Rd	CSS	10.0	B	11.5	B
17	Caliente Rd at Joshua St	CSS	9.5	A	9.2	A
18	Mariposa Rd at Joshua St	CSS	10.7	B	11.0	B
19	Escondido Ave at Muscatel St	S	10.6	B	27.9	C
20	Arrowhead Lake Rd at Main St	CSS	24.7	C	526.2	F
21	Baldy Mesa Dr at Phelan Rd	S	188.0	F	35.5	D
22	Hwy 395 at Phelan Rd	S	147.7	F	128.6	F
23	Maple Avenue at Eucalyptus St	AWS	9.2	A	10.6	B
24	Mesa Linda at Main St	CSS	11.1	B	11.5	B
25	Cataba Rd at Main St	S	10.8	B	12.3	B
26	I-15 SB Ramp at Main St	S	5.8	A	6.6	A
27	Escondido Ave at Main St	S	16.4	B	27.4	C
28	Maple Ave at Main St	S	49.1	D	29.9	C
29	I Ave at Bear Valley Rd	S	48.0	D	216.6	F
30	3 rd Ave at Main St	S	178.3	F	355.8	F
31	C Ave at Main St	S	169.5	F	314.1	F
32	E Ave at Main St	S	39.2	D	345.3	F
33	I Ave at Main St	S	53.1	D	53.3	D
34	Baldy Mesa Dr at Smoke Tree Rd	CSS	20.8	C	12.4	B
35	Hwy 395 at Smoke Tree Rd	CSS	21.4	C	62.3	F
36	Mariposa Rd at Mojave St	CSS	0.1	A	13.6	B
40	Maple Ave at Mojave St	CSS	9.7	A	12.4	B
41	Hesperia Rd at Bear Valley Road	S	35.2	D	53.1	D
42	E Ave at Lemon St	AWS	8.3	A	8.8	A
43	I Ave at Lemon St	AWS	22.9	C	47.7	E
46	Mariposa Rd at Eucalyptus St	CSS	9.8	A	11.7	B
47	Hesperia Rd at Eucalyptus St	CSS	185.5	F	147.1	F
48	E Ave at I Ave	AWS	11.4	B	15.4	C
49	I Ave at Eucalyptus St	AWS	12.9	B	13.5	B

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
52	I-15 SB Ramp at Joshua St	CSS	13.9	B	12.0	B
53	I-15 NB Ramp at Joshua St	CSS	4.2	A	3.2	A
54	Santa Fe East Ave at Ranchero Rd	CSS	10.4	B	11.9	B
55	E Ave at Sultana St	AWS	9.3	A	9.8	A
56	I Ave at Sultana St	S	30.4	C	18.6	B
57	Hwy 395 at Joshua St	S	18.7	B	14.1	B
58	I-15 NB Ramp at Main St	S	6.5	A	16.0	B
70	Hwy 395 at Poplar St	CSS	26.8	D	35.1	E
73	Maple Ave at Muscatel St	AWS	8.1	A	9.5	A
74	Main St at Cottonwood	S	13.6	B	20.4	C
75	Main St at 7 th Ave	S	14.2	B	18.8	B
76	Main St at Peach Ave	S	13.9	B	13.7	B
77	I Ave at Danbury Ave	AWS	10.4	B	45.2	E
78	Danbury Ave at Ranchero Rd	CSS	12.0	B	11.5	B

Hesperia General Plan Update

**Legend**

- City Of Hesperia Boundary
- - - Sphere of Influence Boundary
- ▲ Non-signalized, Level of Service A
- ▲ Non-signalized, Level of Service B
- ▲ Non-signalized, Level of Service C
- ▲ Non-signalized, Level of Service D
- ▲ Non-signalized, Level of Service E
- ▲ Non-signalized, Level of Service F
- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

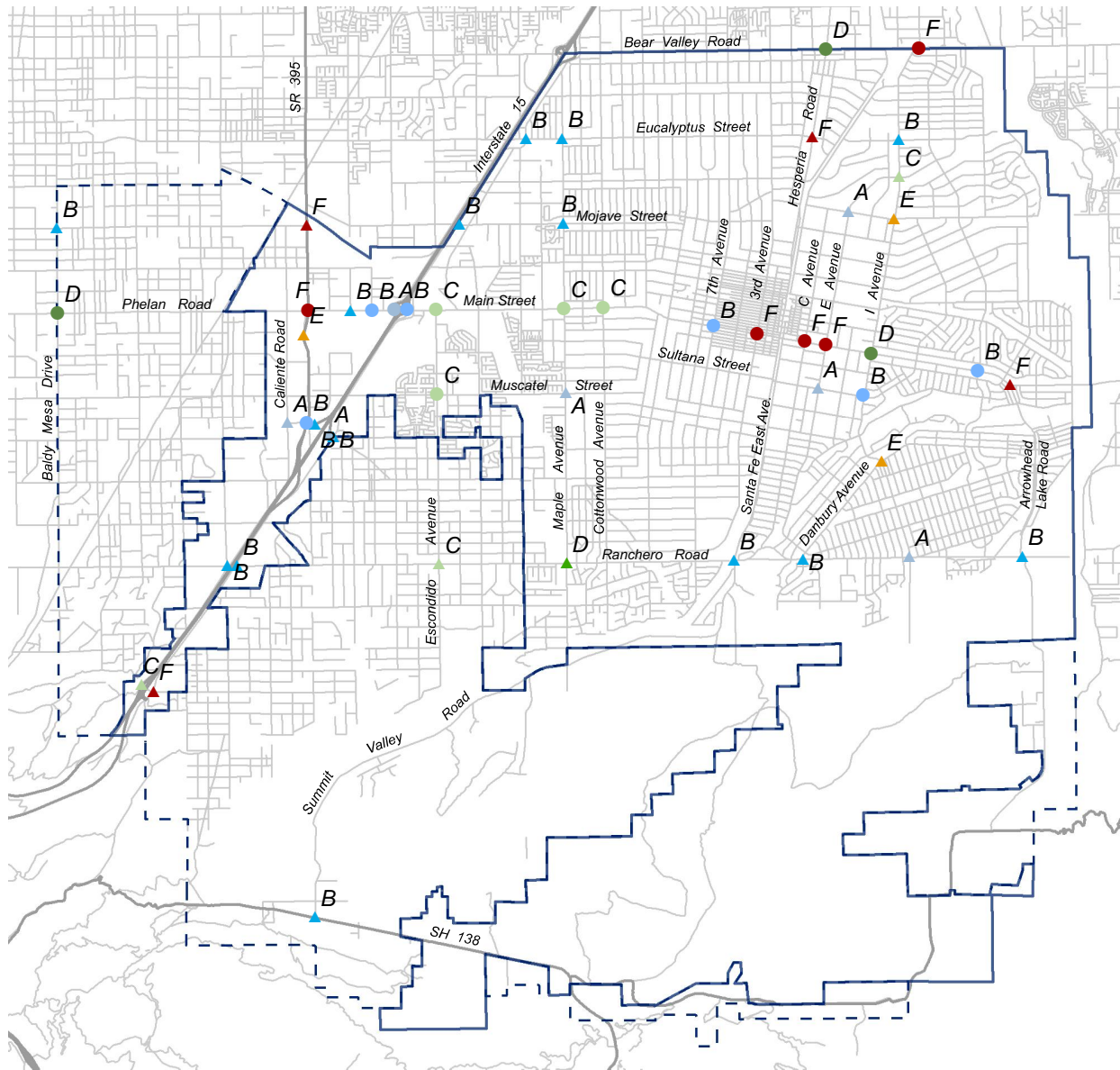
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Figure 2-4

AM Peak Hour Intersection Level of Service
Existing Conditions

Hesperia General Plan Update

**Legend**

- City Of Hesperia Boundary
- - - Sphere of Influence Boundary
- ▲ Non-signalized, Level of Service A
- ▲ Non-signalized, Level of Service B
- ▲ Non-signalized, Level of Service C
- ▲ Non-signalized, Level of Service D
- ▲ Non-signalized, Level of Service E
- ▲ Non-signalized, Level of Service F
- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

February 2007

Kimley-Horn
and Associates, Inc.

Figure 2-5

PM Peak Hour Intersection Level of Service
Existing Conditions

2.4 Truck Traffic

The significant amount of truck traffic in the City of Hesperia is directly related to the development of industrial land uses and truck transfer terminals. Streets with heavy volumes of truck traffic can experience the following effects:

- Greater levels of general traffic congestion and inefficient traffic flow;
- Increased potential for passenger vehicle/truck conflicts;
- Greater physical impacts to road surfaces (requiring increased road maintenance and cost); and
- Noise and air quality impacts associated with heavy diesel trucks.

2.5 Rail Lines and Crossings

Three major rail lines and a branch line run through the City of Hesperia. The UPRR line traverses the city in the northwest-southeast direction. The BNSF lines traverse the city in the north-south direction with a branch line to the Lucerne Valley running from the BNSF tracks eastbound. The Amtrak Southwest Chief runs on the north-south tracks.

UPRR has one at-grade crossing at Ranchero Road and one grade-separated crossing at Mariposa Road. BNSF has only two grade-separated crossings at Main Street and Bear Valley. The spur to Lucerne Valley has at-grade crossings at I Avenue and Peach Avenue with a bridge traveling over the Mojave River.

2.6 Existing Transit and Passenger Rail Service

Bus Transit

The Victor Valley Transit Agency (VVTa) provides local bus service for the communities of Adelanto, Apple Valley, Hesperia, Victorville, and San Bernardino County. In this study's base year (2006) VVTa operated five bus routes in Hesperia, providing bus connections between shopping centers and the Victor Valley Mall, hospitals, schools and colleges, and residential areas. The five routes include:

- Route 21 Victor Valley Mall-Serrano High School-Wrightwood Community Center
(Phelan-Baldy Mesa-Bear Valley)
- Route 43 Victor Valley Mall-Victor Valley College-Apple Valley High School
(Bear Valley-7th Avenue)
- Route 44 Victor Valley Mall-Hesperia City Hall-Mojave High School-
Hesperia Post Office-Sultana High School
(Bear Valley-Cottonwood-Main Street-7th-3rd-E-I-Sultana-
Danbury-Arrowhead Lake)
- Route 45 Dessert Valley Hospital-Victor Valley College-Hesperia Post Office
(Bear Valley-Main-Sultana- I-E-C-Muscatel-Santa Fe)
- Route 52 Victorville-Victor Valley Mall)
(Bear Valley)

VVTA also offers paratransit services for persons with special needs on any paved street within Hesperia as long as it is within their service boundaries. The VVTA paratransit services do not travel a fixed route. Certified passengers are required to schedule rides at least one day in advance.

Amtrak

Amtrak has one route that regularly passes through Hesperia, the Southwest Chief route, which typically travels between Los Angeles and Chicago, Illinois. There is no Amtrak stop in Hesperia. The closest Amtrak stop to Hesperia is in its neighboring city, Victorville.

3. ISSUES AND OPPORTUNITIES

This chapter discusses the key circulation issues to be addressed as part of the Hesperia General Plan Update. The discussion focuses on specific locational issues related to railroad crossings, river crossings, freeway crossings and interchanges, as well as other specific questions to be addressed. The Circulation Element update analysis also includes a citywide analysis of future roadway lanes and capacity needed to serve the future mobility needs of the City (see Chapters 4 and 5).

3.1 Railroad Crossings

The Burlington Northern Santa Fe (BNSF) mainline constitutes a major barrier to east-west circulation across the City. Two grade separated crossings currently cross the BNSF line at Bear Valley Road and Main Street. A new crossing at Ranchero Road is under construction. The City's current Master Plan of Arterial Highways (MPAH) also shows planned railroad crossings at Eucalyptus Street, Lemon Street/Mauna Loa Road, and Sultana Avenue. The following discussion addresses issues associated with the planned future crossings.

Eucalyptus Street: The crossing is viable. There is an offset in the alignment of Eucalyptus at the railroad, so acquisition of properties will be necessary to construct it. Eucalyptus is planned to have an interchange at I-15.

Lemon Street/Mauna Loa Road: There is an offset in the alignments of the two streets near the railroad, but the MPAH shows them as one continuous street. The City has conceptually evaluated alignment possibilities and believes the crossing is viable. Lemon/Mauna Loa is planned to be connected with Mojave Drive further west, which is planned to have an interchange at I-15. To the east, a bridge across the Mojave River is planned which would connect Lemon Street with Tussing Ranch Road.

Sultana Avenue: Sultana has a slight alignment offset at the railroad and there is development in the northeast quadrant, but City staff believes it is a viable crossing point. The MPAH includes this new crossing of the railroad just south of Main Street as a way to relieve traffic on Main Street, since it would be difficult for the segment of Main Street between I Street and 7th Avenue to ever be expanded to more than four lanes. An option to Sultana may be to develop Muscatel as an arterial all the way across the City including a grade separation of the railroad, if an alignment can be found that does not have too much impact. East of the railroad, Muscatel might be extended to the north of Lime Street Park to connect back to Sultana, or it might be extended only to a terminus at E Street.

Maple Street: With substantial future development planned for the southern part of the City, an extension of Maple Street southerly across the railroad (not currently shown on the MPAH) could provide these new areas with a railroad crossing west of the California Aqueduct.

Whitehaven Road: Another potential east-west crossing of the BNSF line has been discussed for Whitehaven Road (south of Ranchero Road in unincorporated San Bernardino County), though it is not shown on the current MPAH. This crossing would not be needed if Maple Street is extended across the BNSF rail line.

3.2 River Crossings

The Mojave River constitutes a major barrier to east-west circulation at the eastern boundary of the City. Two crossings currently exist: a bridge at Bear Valley Road and a two-lane at-grade crossing through the river channel at Rock Springs Road. The MPAH shows future bridge crossings at Lemon Street (4 lanes, connecting with Tussing Ranch Road), Rock Springs Road (4 lanes), and Ranchero Road (6 lanes). The following discussion addresses issues associated with future crossings.

Lemon Street: The crossing is viable, and it has also been identified in the Victor Valley Area Transportation Study (VVATS) conducted by SANBAG as an important future connection.

Rock Springs Road: The County would be responsible for construction. It is shown as a four-lane bridge on the County plan as well as on the City MPAH. This crossing was recommended in VVATS for future upgrade to a four-lane bridge.

Ranchero Road: The planned crossing has some alignment issues – the current terminus of Ranchero Road on the west side of the river is at a wide part of the river channel, so the bridge would be longer than if it could be put at other locations. Also, the street passes through a residential area just west of the river, with driveways directly onto the street – not a desirable situation for future a condition with through traffic using this part of Ranchero Road to cross the river. VVATS determined that in the long-term future only one river crossing will be needed south of Rock Springs Road, and identified an initial alignment for the Southeast Beltway (whether built as a highway corridor or an arterial) that would cross the river where the channel is much narrower and may have fewer problems for implementation.

3.3 I-15 Freeway Interchanges and Crossings

Interchanges on I-15 currently exist at Bear Valley Road, Main Street, Joshua Lane/US-395, and Oak Hills Road (though the latter two are not designed to accommodate large volumes of traffic). As local and regional traffic volumes increase, additional interchanges are expected to be needed to provide efficient access to the regional highway system. The MPAH shows future interchanges at Eucalyptus Street, Mojave Street, and Ranchero Road, as well as crossings at Willow Street and Muscatel Street. The following discussion addresses issues associated with these interchanges and crossings.

Eucalyptus Street: Both the Cities of Hesperia and Victorville (the jurisdiction west of I-15 at this location) are planning for an interchange at this location, and initial design plans have been initiated.

Mojave Street: Victorville currently feels that this proposed interchange may not be needed. An interchange at this location would provide a connection to the Lemon Street corridor that has planned crossings of the railroad and Mojave River.

Willow Street: Hesperia staff feels this overcrossing will no longer be needed, and the VVATS study found that the other interchanges on I-15 could function effectively without it in the system.

Muscatel Street: Hesperia currently favors a full interchange at Muscatel (rather than an overcrossing), with Joshua Lane converted from a partial interchange to an overcrossing.

Ranchero Road: Design studies are underway, and near-term construction of this interchange is a high City priority.

3.4 Highway Corridors

Future improvements are planned for I-15, and two new highway corridors are being planned or studied, which could pass through part of Hesperia. The following discussion presents the current status of planning for each.

I-15: The I-15 Major Corridor Study recommended that I-15 be widened to accommodate an additional general purpose lane and a high occupancy vehicle (HOV) lane in each direction between US-395 and the Mojave River.

US-395: VVATS and other studies project the need for a future major highway corridor to replace the existing US-395 through the Victor Valley. Recent development has precluded development of a major highway along the existing alignment, so Caltrans is studying alternatives that start with an interchange on I-15 (at either the current US-395 interchange or near Ranchero Road) and swing to the west. The existing alignment of US-395 is being planned as a six-lane arterial.

Southeast Beltway: VVATS evaluated the need for a major highway corridor around the southeast part of the Victor Valley. The VVATS recommendations include a future major highway corridor from I-15 (near SR-138) to approximately the intersection of SR-138 and Summit Valley Road. From there, the two arterials are projected to provide sufficient capacity with six lanes on SR-138 and four lanes on Summit Valley Road, which would be extended easterly through the Rancho Las Flores planning area to a new crossing of the Mojave River.

3.5 Other Issues

Other circulation issues identified through review of documents and discussions with City staff are highlighted below.

- Cataba Road is no longer viewed as needing to be an arterial street, and can be considered for removal from the MPAH.
- Mariposa (the frontage road on the east side of I-15) has varying classifications in different parts of the City. The classifications should be reviewed in light of the updated General Plan traffic forecasts.
- Peach Avenue is currently shown on the MPAH as a secondary arterial south of Bear Valley Road. It may be more appropriate to consider having the arterial on Jacaranda instead.
- Main Street: Between 11th Avenue and “I” Avenue Main Street has a downtown feel and it would be very difficult to widen it to more than four lanes because of the existence of commercial development near the street. The updated General Plan traffic forecasts should evaluate measures that will provide alternate routes to remove through traffic from this segment of Main Street (such as the Sultana or Muscatel railroad overcrossing, Muscatel/I-15 interchange, etc.).
- In the Summit Valley and Rancho Las Flores areas, arterials may need to be added to the MPAH (or modified) to serve planned future development. This could include extending Maple Avenue south to Summit Valley Road or to SR-138.
- Consideration should be given to extending Whitehaven Road west to connect in the future with the Oak Hill interchange with I-15.
- The City’s typical right-of-way cross-sections should be reviewed for adequacy, so that appropriate parkway and landscaping elements can be provided within them.

4. EVALUATION OF ALTERNATIVES

This chapter evaluates projected traffic conditions in the City under alternative future scenarios. The purpose of this analysis is to evaluate traffic conditions under different future scenarios to help define preferred land use and transportation components for the updated General Plan. Two alternative land use scenarios were tested, and one of the land use scenarios was tested with two different regional transportation networks to evaluate the impact of regional highway improvements on traffic conditions in the City.

The chapter includes a description of the two land use scenarios, forecasts of future traffic volumes in each scenario, and evaluation of projected future traffic conditions.

4.1 Description of Alternatives

Three alternative future scenarios are analyzed in this chapter:

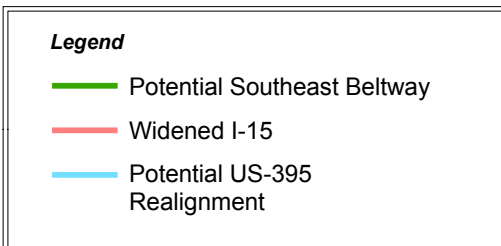
- Current General Plan (assumes full buildout of land uses envisioned in the City's current General Plan; assumes that potential regional highway corridor improvements in the Victor Valley will be constructed)
- High Intensity Buildout with new Corridors (assumes full buildout of land use in the City with a higher intensity of development, especially commercial uses in the Main Street and I-15 corridors; assumes that potential regional highway corridor improvements in the Victor Valley will be constructed)
- High Intensity Buildout no new Corridors (assumes full buildout of land use in the City with a higher intensity of development, especially commercial uses in the Main Street and I-15 corridors; assumes that potential regional highway corridor improvements in the Victor Valley will not be constructed)

Future traffic conditions for the Current General Plan and High Intensity ("with new Corridors") scenarios were analyzed with the potential highway corridor improvements for I-15, US-395 and the Southeast Beltway included in the traffic model network. **Figure 4-1** depicts the location of those planned improvements. An additional alternative was analyzed for the High Intensity scenario without the planned improvements ("no new Corridors").

4.2 Future Land Use

The City's General Plan consultant (Hogle-Ireland, Inc.) provided socioeconomic data (dwelling units, population, and employment) by traffic analysis zone (TAZ) for the Current General Plan and the High Intensity Buildout scenarios. Future traffic conditions for each land use scenario were analyzed by converting the data to units of socioeconomic data (SED) that represent residential population, number of households, employment and school enrollment. Assumed future Citywide development totals are summarized and compared with existing development in **Table 4-1**. The future development assumptions by TAZ are provided in **Appendix C**.

Hesperia General Plan Update



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Figure 4-1

Potential Highway Corridor Improvements

Table 4-1 Summary of Development Scenarios

	Population	Households			Employment				School
	TotPop	SDU	MDU	TotalDU	Retail	Service	Other	Total	Enrollment
2003									
CITY & SPHERE	82,550	22,869	2,329	25,198	3,040	6,012	5,277	14,330	17,776
CITY	79,296	21,634	2,329	23,963	2,994	5,786	5,003	13,783	17,029
SPHERE	3,254	1,235	-	1,235	46	227	274	547	746
GENERAL PLAN BUILDOUT									
CITY & SPHERE	318,592	79,004	10,139	89,143	30,481	26,905	24,644	82,030	62,011
CITY	242,005	56,915	10,139	67,054	27,761	20,957	18,606	67,324	46,193
SPHERE	76,587	22,089	-	22,089	2,720	5,948	6,038	14,706	15,818
HIGH INTENSITY BUILDOUT LAND USE									
CITY & SPHERE	257,008	58,747	26,759	85,505	47,873	9,101	91,206	148,181	70,951
CITY	202,687	43,755	24,909	68,663	44,269	8,090	88,147	140,506	57,544
SPHERE	54,321	14,992	1,850	16,842	3,604	1,011	3,059	7,675	13,407

The current General Plan represents nearly four times the current population, more than triple the current number of dwelling units, five and a half times the total employment, and three and a half times the school enrollment for the city and sphere of influence areas. The High Intensity scenario has 19% less total population than the Current General Plan scenario and 4% fewer total dwelling units, but 81% more employment and 14% higher school enrollment.

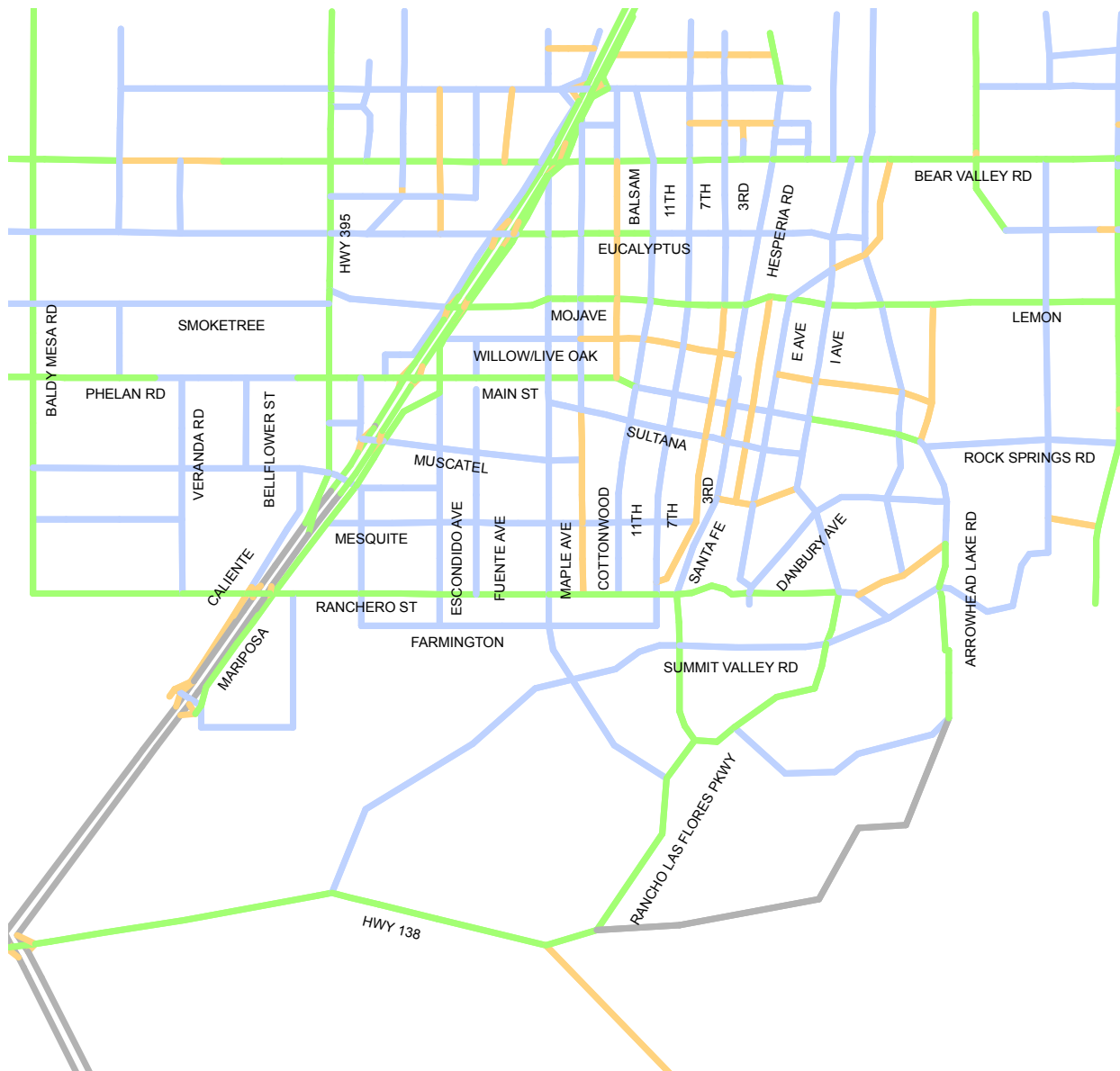
4.3 Future Traffic Conditions

Future traffic volumes were estimated using the validated City traffic model and post-processing methodology. To compare the how the three alternatives would affect future traffic congestion, midblock level of service analysis was conducted assuming full development of the street system as shown on the current Master Plan of Arterial Highways (MPAH), with capacity or alignment changes in some areas to reflect the City's current expectations regarding future circulation needs. (**Figure 4-2** shows the arterial lane assumptions used in the alternatives analysis.) In addition, peak hour LOS was analyzed for the study intersections with consistent assumptions about lane geometry in each alternative.

The future conditions analysis for key intersections assumes the following changes from the existing conditions analysis:

- All intersections are signalized in the future; and
- Study intersections associated with the I-15 at Joshua St. interchange are replaced by the study intersections at I-15 and Muscatel Ave.
- Study intersection lane geometry is based on the number of lanes that can be accommodated within the typical future cross-section, with additional turn lanes as needed to achieve peak hour LOS D or better in the High Intensity Buildout (no new Corridors) alternative. For this analysis and comparison of alternatives, the maximum lanes assumed for an intersection approach was two left turn lanes, one right turn lane, and the number of through lanes shown on the MPAH.

Hesperia General Plan Update



Legend

Number of lanes
each direction

- 1
- 2
- 3
- 4



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JULY 2009



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Figure 4-2

Future Lane Assumptions

4.3.1 Current General Plan

The forecast average daily traffic volumes are summarized in **Table 4-2**. The table shows the number of lanes, the daily traffic volume, the capacity of the roadway segment at LOS D, and whether the forecast LOS would exceed LOS D for the segment. (Note: the segment LOS results may not match the intersection LOS results at the same locations, since the intersection analysis assumes additional capacity at many of the intersection due to the inclusion of additional turn lanes in the intersection LOS calculations.)

Under the Current General Plan, 76 out of the 118 roadway segments are projected to operate at LOS D or better. **Figure 4-3** depicts the roadway segment LOS throughout the City for the Current General Plan scenario.

The intersection LOS for the Current General Plan alternative was analyzed using the intersection lane geometry from the High Intensity Buildout (with no new Corridors) alternative. The forecasted peak hour LOS for the study intersections is summarized in **Table 4-3**. The forecast indicates that 5 of the study intersections are projected to operate at LOS E or F during the AM peak hour and 21 study intersections are projected to operate at LOS E or F during the PM peak hour.

Figure 4-4 and Figure 4-5 depict the intersection LOS for the Current General Plan scenario. SYNCHRO analysis worksheets are provided in **Appendix B**.

Table 4-2 Future Daily Traffic Volumes, Current General Plan

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Caliente Road				
South of Ranchero Rd	2/undivided	32,300	14,500	No
South of Joshua Street	4/divided	31,000	30,600	No
North of Oak Hill Road	2/undivided	8,400	14,500	Yes
Escondido Avenue				
South of Ranchero Rd	4/divided	10,600	30,600	Yes
South of Main Street	4/divided	52,900	30,600	No
Summit Valley Road				
North of SR 138	4/divided	36,600	30,600	No
Arrowhead Lake Road				
South of Ranchero Road	6/divided	17,500	46,100	Yes
Ranchero Road between				
Santa Fe Avenue and "I" Avenue	6/divided	42,400	46,100	Yes
"I" Avenue and Peach Avenue	2/undivided	9,100	14,500	Yes
Mariposa Road and Escondido Avenue	6/divided	40,400	46,100	Yes
Maple Avenue and Escondido Avenue	6/divided	46,200	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	41,300	46,100	Yes
Cottonwood Avenue and 7th Avenue	6/divided	41,400	46,100	Yes
Joshua Street between				
NB 15 ramp and Mariposa Road	4/divided	42,700	30,600	No
Caliente and US 395	4/divided	38,700	30,600	No
US 395 and I-15 SB Ramp	4/divided	43,400	30,600	No
Muscatal Street between				
Escondido Avenue and Fuente Avenue	4/undivided	25,100	24,480	No
Mesquite Street				
East of Maple Avenue	4/undivided	14,400	24,480	Yes
East of 7th Avenue	4/undivided	9,600	24,480	Yes
Baldy Mesa Road				
South of Phelan Road	6/divided	26,000	46,100	Yes
North of Phelan Road	6/divided	21,500	46,100	Yes
Phelan Road between				
Baldy Mesa Road and US 395	6/divided	35,300	46,100	Yes
Main Street between				
Cataba Rd and SB 15 ramp	6/divided	80,900	46,100	No

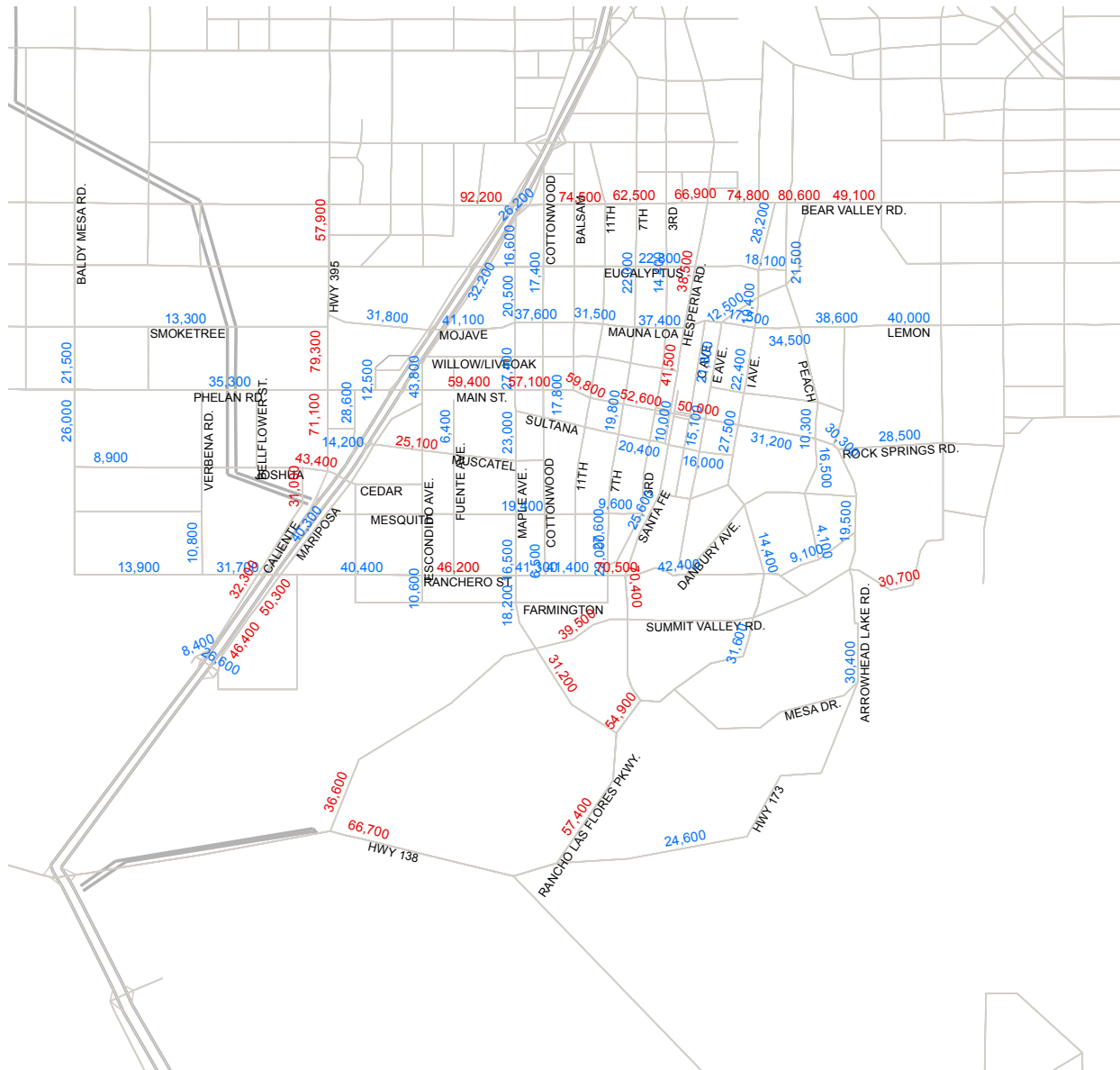
Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
NB 15 ramp and Mariposa Road	6/divided	79,900	46,100	No
Mariposa Road and Maple Avenue	6/divided	59,400	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	57,100	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	59,800	46,100	No
7th Avenue and Hesperia Road	4/divided	52,600	30,600	No
"C" Avenue and "E" Avenue	4/divided	50,000	30,600	No
"E" Avenue and "I" Avenue	4/divided	40,400	30,600	No
"I" Avenue and Peach Avenue	6/divided	31,200	46,100	Yes
Peach Avenue and Rock Springs Road	6/divided	30,300	46,100	Yes
Sultana Street between				
7th Avenue and Hesperia Road	4/divided	22,000	30,600	Yes
"E" Avenue and "I" Avenue	4/divided	16,000	30,600	Yes
Mauna Loa Street between				
Maple Avenue and Cottonwood Avenue	6/divided	37,600	46,100	Yes
Cottonwood Avenue and 7th Avenue	6/divided	31,500	46,100	Yes
7th Avenue and 3rd Avenue	6/divided	37,400	46,100	Yes
Lemon Street between				
"E" Avenue and "I" Avenue	6/divided	33,400	46,100	Yes
"I" Avenue and Peach Avenue	6/divided	34,500	46,100	Yes
East of Peach Avenue	6/divided	38,600	46,100	Yes
Eucalyptus Avenue between				
Mariposa Road and Maple Avenue	6/divided	32,500	46,100	Yes
3rd Avenue and 7th Avenue	4/divided	22,800	30,600	Yes
"I" Avenue and Peach Avenue	4/divided	18,100	30,600	Yes
Bear Valley Road between				
Amargosa Road and SB 15 ramp	6/divided	92,200	46,100	No
NB 15 ramp and Mariposa Road	6/divided	129,200	46,100	No
Mariposa Road and 11th Avenue	6/divided	74,500	46,100	No
3rd Avenue and 7th Avenue	6/divided	62,500	46,100	No
West of Ridgecrest Road	6/divided	74,800	46,100	No
I Avenue and Peach Avenue	6/divided	80,600	46,100	No
West of 2nd Avenue	6/divided	66,900	46,100	No
At Mojave River	6/divided	49,100	46,100	No

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Hwy 395 between				
South of Phelan Road	6/divided	71,100	46,100	No
North of Phelan Road	6/divided	79,300	46,100	No
South of Bear Valley Road	6/divided	57,900	46,100	No
Cataba Road between				
North of Main Street	4/divided	12,500	30,600	Yes
Mariposa Road between				
North of Main Street	6/divided	43,800	46,100	Yes
South of Eucalyptus Street	6/divided	32,200	46,100	Yes
South of Bear Valley Road	6/divided	26,200	46,100	Yes
Joshua Street and Ranchero Road	6/divided	40,300	46,100	Yes
Ranchero Road and Oak Hill Rd	6/divided	50,300	46,100	No
Oak Hill Road and I-15 NB Ramp	6/divided	46,400	46,100	No
South of Main Street	6/divided	46,400	46,100	No
Maple Avenue between				
North of Ranchero Road	4/divided	16,500	30,600	Yes
Muscatel Street and Sultana Street	4/divided	23,000	30,600	Yes
Main Street and Willow Street	4/divided	27,400	30,600	Yes
Eucalyptus Street and Mariposa Road	4/undivided	16,600	24,480	Yes
South of Eucalyptus Street	4/divided	20,500	30,600	Yes
South of Ranchero Road	4/divided	18,200	30,600	Yes
Hesperia Road between				
Eucalyptus and Lemon Street	4/divided	38,500	30,600	No
Lemon Street and Main Street	4/divided	41,500	30,600	No
Santa Fe Avenue East				
South of Main Street	4/divided	10,000	30,600	Yes
E Avenue between				
"I" Avenue and Lemon Street	4/divided	12,500	30,600	Yes
Lemon Street and Main Street	4/divided	21,800	30,600	Yes
South of Main Street	4/divided	15,100	30,600	Yes
I Avenue between				
Bear Valley Road and Eucalyptus Street	4/divided	28,200	30,600	Yes
Eucalyptus Street and Lemon Street	4/divided	19,400	30,600	Yes
Lemon Street and Main Street	4/divided	22,400	30,600	Yes
South of Main Street	4/divided	27,500	30,600	Yes
North of Ranchero Road	4/divided	19,400	30,600	Yes
Arrowhead Lake Road				
North of Ranchero Road	4/undivided	19,500	24,480	Yes

SR 138				
East of Summit Valley Road	6/divided	66,700	46,100	No
Poplar Avenue				
East of Hwy 395	4/divided	17,800	30,600	Yes
Mesa Linda Avenue				
South of Main Street	4/divided	28,600	30,600	Yes
Cottonwood Avenue				
South of Eucalyptus Street	4/undivided	17,400	24,480	Yes
South of Main Street	2/undivided	14,200	14,500	Yes
7th Avenue between				
South of Eucalyptus Street	4/divided	20,400	30,600	Yes
South of Main Street	4/divided	19,800	30,600	Yes
Mesquite Street and Ranchero Road	4/divided	27,600	30,600	Yes
3rd Avenue				
South of Eucalyptus Street	4/divided	14,400	30,600	Yes
Peach Avenue				
South of Eucalyptus Street	4/undivided	21,500	24,480	Yes
North of Main Street	4/undivided	10,300	24,480	Yes
South of Main Street	4/undivided	16,500	24,480	Yes
North of Ranchero Road	4/undivided	4,100	24,480	Yes
Fuente Avenue				
South of Main Street	4/undivided	6,400	24,480	Yes
Oak Hill Road between				
I-15 SB Ramp and I-15 NB Ramp	4/divided	26,600	30,600	Yes
Rock Springs Road				
At Mojave River	4/divided	28,500	30,600	Yes
Smoketree Road				
West of Hwy 395	4/divided	13,300	30,600	Yes
Hwy 395 and Amargosa Road	6/divided	31,800	46,100	Yes
Mojave Street				
Mariposa Road and Maple Avenue	6/divided	41,100	46,100	Yes
Lemon Street				
At Mojave River	6/divided	40,000	46,100	Yes
Snowline Road				
Baldy Mesa Road and Verbena Road	4/divided	8,900	30,600	Yes
Verbena Road				
North of Ranchero Road	4/divided	10,800	30,600	Yes
Ranchero Road				
Baldy Mesa Road and Verbena Road	6/divided	13,900	46,100	Yes
Verbena Road and Caliente Road	6/divided	31,700	46,100	Yes
7th Avenue and Santa Fe Avenue East	6/divided	70,500	46,100	No

7th Avenue				
Mesquite Street and Ranchero Road	4/divided	22,000	30,600	Yes
Santa Fe Avenue East				
South of Lime Street	4/divided	25,600	30,600	Yes
Ranchero Road and Summit Valley Road	6/divided	70,400	46,100	No
Rancho Las Flores Parkway				
North of Hwy 138	6/divided	57,400	46,100	No
Maple Avenue and Santa Fe Avenue East	6/divided	54,900	46,100	No
South of Summit Valley Road	6/divided	31,600	46,100	Yes
Summit Valley Road				
Maple Avenue and Santa Fe Avenue east	4/divided	39,500	30,600	No
East of Arrowhead Lake Road	4/divided	30,700	30,600	No
Maple Avenue				
Summit Valley Road and Rancho Las Flores Parkway	4/divided	31,200	30,600	No
Hwy 173				
East of Rancho Las Flores Parkway	4/divided	24,600	30,600	Yes
Arrowhead Lake Road				
Mesa Drive and Summit Valley Road	6/divided	30,400	46,100	Yes

Hesperia General Plan Update



Legend

- 1,234 Future ADT, (LOS D or better)
- 1,234 Future ADT, (LOS E or worse)



Not to Scale

September 2009



Kimley-Horn
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Figure 4-3

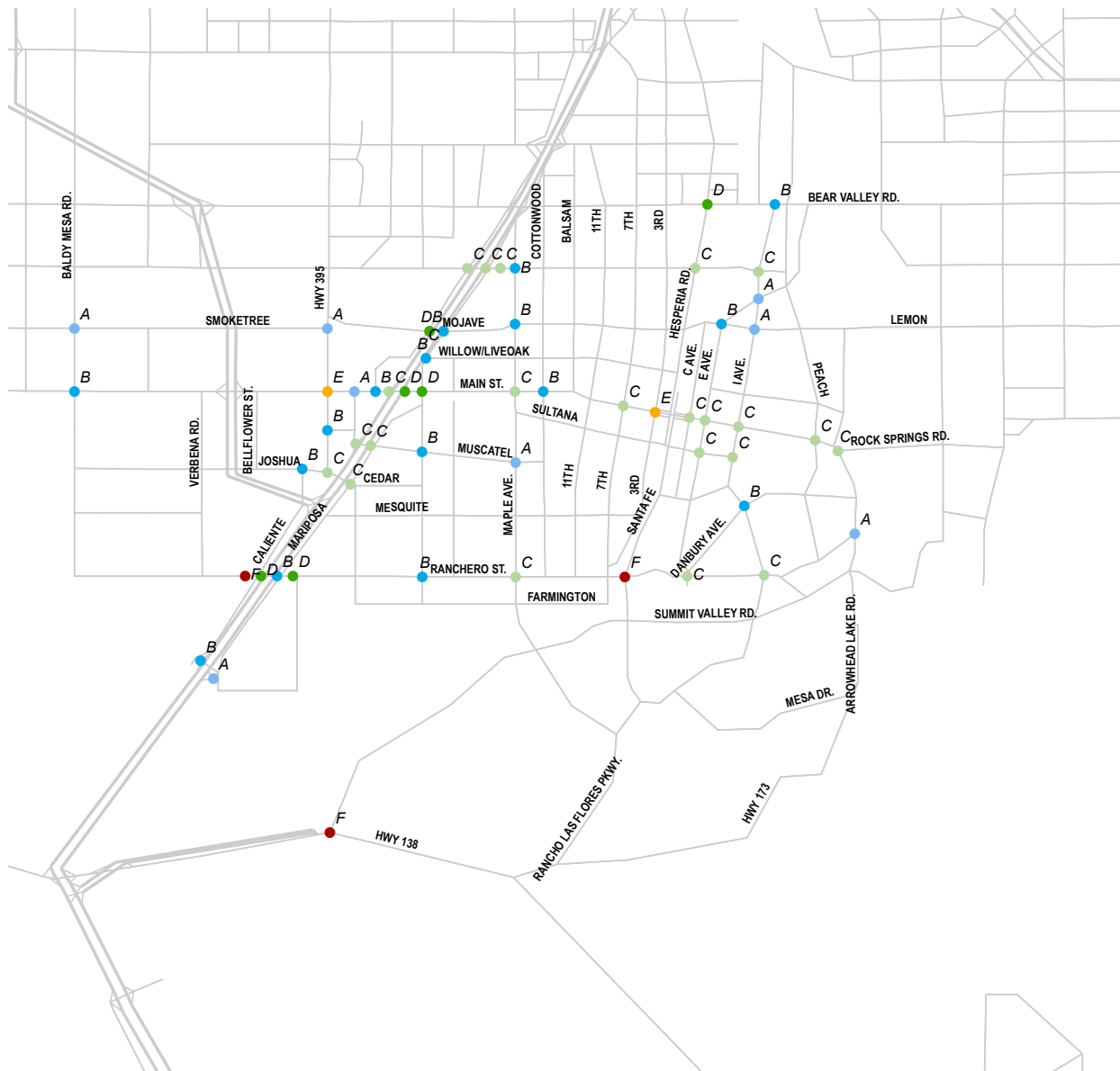
Future Daily Traffic Volumes
Current General Plan

Table 4-3 Summary of Intersection Operations, Current General Plan

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	Summit Valley Rd at Hwy 138	S	344.5	F	53.9	D
5	I-15 SB Ramp at Oak Hill Rd	S	17.8	B	16.8	B
6	I-15 NB Ramp at Mariposa Ave	S	5.7	A	79.0	E
9	Caliente at Ranchero Rd	S	96.9	F	187.9	F
10	I-15 SB Ramp at Ranchero Rd	S	38.9	D	74.6	E
11	I-15 NB Ramp at Ranchero Rd	S	18.2	B	148.4	F
12	Mariposa at Ranchero Rd	S	41.3	D	55.4	E
13	Escondido Ave at Ranchero Rd	S	14.4	B	23.2	C
14	Maple Ave at Ranchero Rd	S	24.5	C	24.5	C
15	I Ave at Ranchero Rd	S	33.9	C	30.1	C
16	Arrowhead Lake Rd at Ranchero Rd	S	4.3	A	4.7	A
17	Caliente at Joshua St	S	19.9	B	39.7	D
18	Mariposa at Joshua St	S	25.3	C	56.1	E
19	Escondido Ave at Muscatel	S	17.2	B	31.7	C
20	Arrowhead Lake Rd at Main St/Rock Springs Rd	S	27.5	C	39.0	D
21	Baldy Mesa Dr at Phelan Rd	S	16.1	B	18.5	B
22	Hwy 395 at Phelan Rd	S	72.2	E	215.4	F
23	Maple Ave at Eucalyptus Rd	S	17.3	B	20.7	C
24	Mesa Linda at Main St.	S	9.9	A	11.1	B
25	Cataba Rd at Main St.	S	16.5	B	13.6	B
26	I-15 SB Ramp at Main St.	S	22.0	C	87.0	F
27	Escondido Ave at Main St	S	41.0	D	68.5	E
28	Maple Ave at Main St	S	30.3	C	66.1	E
29	I Ave at Bear Valley Rd	S	10.9	B	34.2	C
30	3rd Ave at Main St	S	69.5	E	230.8	F
31	C Ave at Main St	S	28.3	C	104.7	F
32	E Ave at Main St	S	21.8	C	48.2	D
33	I Ave at Main St	S	22.9	C	70.3	E
34	Baldy Mesa Dr at Smoke Tree	S	8.9	A	12.9	B
35	Hwy 395 at Smoke Tree	S	9.5	A	31.5	C
36	Mariposa at Mojave	S	29.5	C	86.9	F
37	Escondido Ave at Live Oak	S	10.2	B	16.7	B
38	I-15 SB Ramp at Mojave	S	41.6	D	129.5	F
39	I-15 NB Ramp at Mojave	S	17.8	B	99.7	F
40	Maple Ave at Mojave	S	17.8	B	27.2	C
41	Hesperia Rd at Bear Valley Rd	S	42.3	D	86.7	F

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
42	E Ave at Mauna Loa/Lemon	S	18.7	B	26.6	C
43	I Ave at Lemon	S	8.6	A	10.2	B
44	I-15 SB Ramp at Eucalyptus St	S	29.1	C	38.2	D
45	I-15 NB Ramp at Eucalyptus St	S	23.6	C	25.2	C
46	Mariposa at Eucalyptus St	S	28.1	C	43.3	D
47	Hesperia Rd at Eucalyptus St	S	22.5	C	39.2	D
48	E Ave at I Ave	S	7.8	A	7.8	A
49	I Ave at Eucalyptus St	S	31.4	C	27.5	C
54	Santa Fe East at Ranchero Rd	S	82.5	F	109.7	F
55	E Ave at Sultana St	S	25.6	C	40.1	D
56	I Ave at Sultana St	S	22.6	C	51.1	D
57	Hwy 395 at Joshua St	S	30.6	C	95.4	F
58	I-15 NB Ramp at Main St	S	48.4	D	147.5	F
59	I-15 SB Ramp at Muscatel (Future)	S	21.7	C	52.4	D
60	I-15 NB Ramp at Muscatel (Future)	S	23.9	C	88.5	F
70	Hwy 395 at Poplar	S	12.5	B	37.2	D
73	Maple Ave at Muscatel	S	8.2	A	12.0	B
74	Main St at Cottonwood	S	18.6	B	48.9	D
75	Main St at 7th Ave	S	27.5	C	32.6	C
76	Main St at Peach Ave	S	22.0	C	40.1	D
77	I Ave at Danbury Ave	S	10.7	B	12.4	B
78	Danbury Ave at Ranchero Rd	S	28.1	C	40.4	D

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

April 2008



Kimley-Horn
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Figure 4-4
AM Peak Hour Intersection Level of Service
Current General Plan

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

April 2008



Kimley-Horn
and Associates, Inc.

Figure 4-5
PM Peak Hour Intersection Level of Service
Current General Plan

4.3.2 High Intensity Buildout Scenario with new Corridors

As shown in **Table 4-4**, under the High Intensity (with new Corridors) alternative, 69 out of the 118 roadway segments are projected to operate at LOS D or better. **Figure 4-5** depicts the roadway segment LOS throughout the City for the High Intensity Scenario.

The intersection LOS for the High Intensity Buildout (with new Corridors) alternative was analyzed using the intersection lane geometry from the High Intensity Buildout (no new Corridors) alternative. As shown in **Table 4-5**, 19 of the study intersections are projected to operate at LOS E or F during the AM peak hour period and 35 study intersections are projected to operate at LOS E or F during the PM peak hour period.

Figure 4-6 and Figure 4-7 depict the intersection LOS for the High Intensity Build scenario (with no new Corridors). SYNCHRO analysis worksheets are provided in **Appendix B**.

Table 4-4 Future Daily Traffic Volumes, High Intensity Buildout (with new Corridors)

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Caliente Road				
South of Ranchero Rd	2/undivided	56,200	14,500	No
South of Joshua Street	4/divided	22,400	30,600	Yes
North of Oak Hill Road	2/undivided	33,800	14,500	No
Escondido Avenue				
South of Ranchero Rd	4/divided	10,300	30,600	Yes
South of Main Street	4/divided	66,600	30,600	No
Summit Valley Road				
North of SR 138	4/divided	26,100	30,600	Yes
Arrowhead Lake Road				
South of Ranchero Road	6/divided	17,400	46,100	Yes
Ranchero Road between				
Santa Fe Avenue and "I" Avenue	6/divided	47,200	46,100	No
"I" Avenue and Peach Avenue	2/undivided	10,000	14,500	Yes
Mariposa Road and Escondido Avenue	6/divided	44,800	46,100	Yes
Maple Avenue and Escondido Avenue	6/divided	52,300	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	45,000	46,100	Yes
Cottonwood Avenue and 7th Avenue	6/divided	45,300	46,100	Yes
Joshua Street between				
NB 15 ramp and Mariposa Road	4/divided	50,100	30,600	No
Caliente and US 395	4/divided	41,400	30,600	No
US 395 and I-15 SB Ramp	4/divided	50,800	30,600	No
Muscateel Street between				
Escondido Avenue and Fuente Avenue	4/undivided	30,200	24,480	No
Mesquite Street				
East of Maple Avenue	4/undivided	19,300	24,480	Yes
East of 7th Avenue	4/undivided	11,100	24,480	Yes
Baldy Mesa Road				
South of Phelan Road	6/divided	39,500	46,100	Yes
North of Phelan Road	6/divided	26,900	46,100	Yes
Phelan Road between				
Baldy Mesa Road and US 395	6/divided	44,700	46,100	Yes

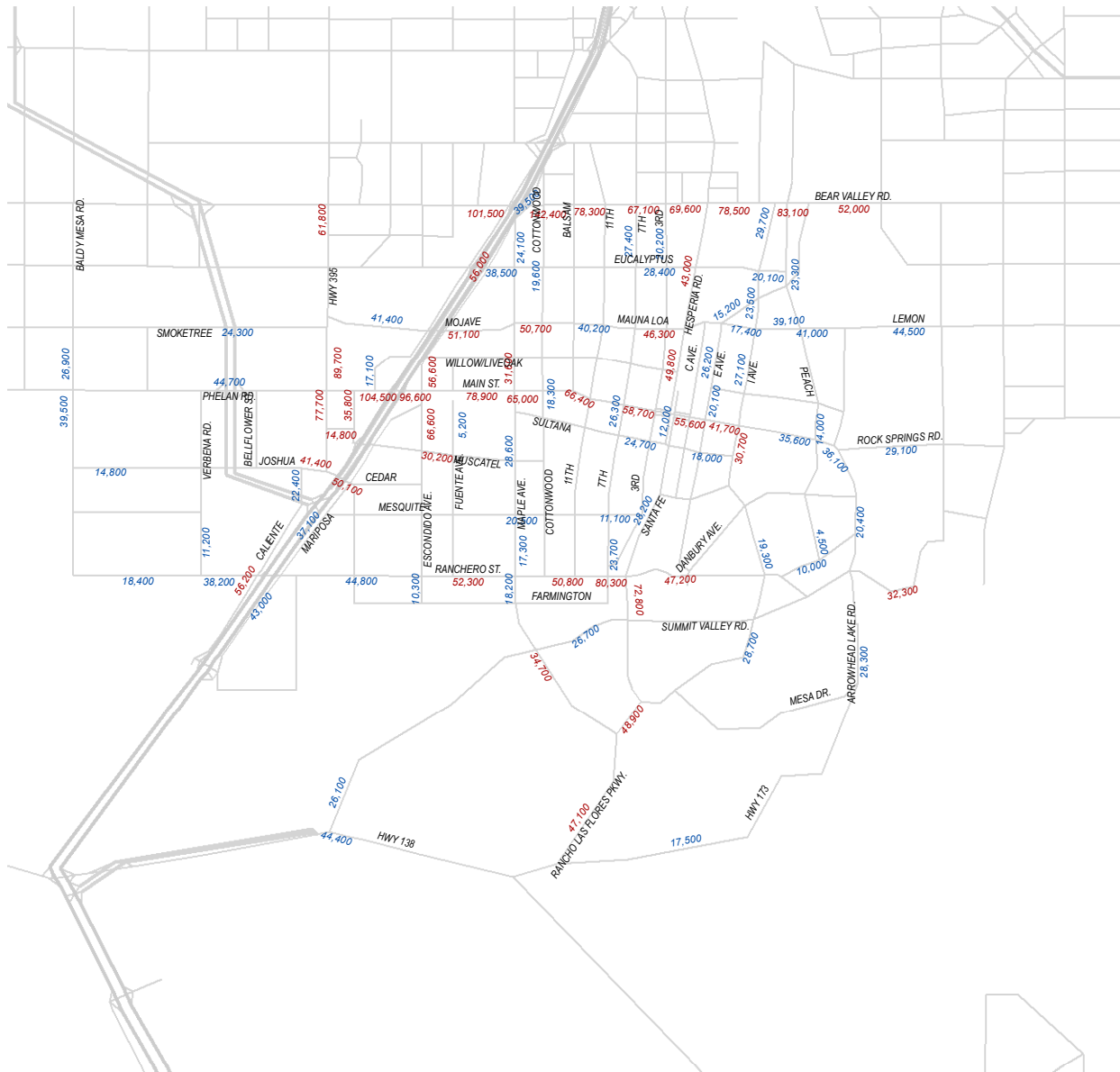
Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Main Street between				
Cataba Rd and SB 15 ramp	6/divided	104,500	46,100	No
NB 15 ramp and Mariposa Road	6/divided	96,600	46,100	No
Mariposa Road and Maple Avenue	6/divided	78,900	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	65,000	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	66,400	46,100	No
7th Avenue and Hesperia Road	4/divided	58,700	30,600	No
"C" Avenue and "E" Avenue	4/divided	55,600	30,600	No
"E" Avenue and "I" Avenue	4/divided	41,700	30,600	No
"I" Avenue and Peach Avenue	6/divided	35,600	46,100	Yes
Peach Avenue and Rock Springs Road	6/divided	36,100	46,100	Yes
Sultana Street between				
7th Avenue and Hesperia Road	4/divided	27,400	30,600	Yes
"E" Avenue and "I" Avenue	4/divided	18,000	30,600	Yes
Mauna Loa Street between				
Maple Avenue and Cottonwood Avenue	6/divided	50,700	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	40,200	46,100	Yes
7th Avenue and 3rd Avenue	6/divided	46,300	46,100	No
Lemon Street between				
"E" Avenue and "I" Avenue	6/divided	37,100	46,100	Yes
"I" Avenue and Peach Avenue	6/divided	39,100	46,100	Yes
East of Peach Avenue	6/divided	41,000	46,100	Yes
Eucalyptus Avenue between				
Mariposa Road and Maple Avenue	6/divided	38,500	46,100	Yes
3rd Avenue and 7th Avenue	4/divided	28,400	30,600	Yes
"I" Avenue and Peach Avenue	4/divided	20,100	30,600	Yes
Bear Valley Road between				
Amargosa Road and SB 15 ramp	6/divided	101,500	46,100	No
NB 15 ramp and Mariposa Road	6/divided	142,400	46,100	No
Mariposa Road and 11th Avenue	6/divided	78,300	46,100	No
3rd Avenue and 7th Avenue	6/divided	67,100	46,100	No

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
West of Ridgecrest Road	6/divided	78,500	46,100	No
I Avenue and Peach Avenue	6/divided	83,100	46,100	No
West of 2nd Avenue	6/divided	69,600	46,100	No
At Mojave River	6/divided	52,000	46,100	No
Hwy 395 between				
South of Phelan Road	6/divided	77,700	46,100	No
North of Phelan Road	6/divided	89,700	46,100	No
South of Bear Valley Road	6/divided	61,800	46,100	No
Cataba Road between				
North of Main Street	4/divided	17,100	30,600	Yes
Mariposa Road between				
North of Main Street	6/divided	56,600	46,100	No
South of Eucalyptus Street	6/divided	56,000	46,100	No
South of Bear Valley Road	6/divided	39,500	46,100	Yes
Joshua Street and Ranchero Road	6/divided	37,100	46,100	Yes
Ranchero Road and Oak Hill Rd	6/divided	43,000	46,100	Yes
Oak Hill Road and I-15 NB Ramp	6/divided	33,700	46,100	Yes
South of Main Street	6/divided	60,200	46,100	No
Maple Avenue between				
North of Ranchero Road	4/divided	17,300	30,600	Yes
Muscatel Street and Sultana Street	4/divided	28,600	30,600	Yes
Main Street and Willow Street	4/divided	31,600	30,600	No
Eucalyptus Street and Mariposa Road	4/undivided	24,100	24,480	Yes
South of Eucalyptus Street	4/divided	31,400	30,600	No
South of Ranchero Road	4/divided	18,200	30,600	Yes
Hesperia Road between				
Eucalyptus and Lemon Street	4/divided	43,000	30,600	No
Lemon Street and Main Street	4/divided	49,800	30,600	No
Santa Fe Avenue East				
South of Main Street	4/divided	12,000	30,600	Yes
E Avenue between				
"I" Avenue and Lemon Street	4/divided	15,200	30,600	Yes
Lemon Street and Main Street	4/divided	26,200	30,600	Yes
South of Main Street	4/divided	20,100	30,600	Yes
I Avenue between				
Bear Valley Road and Eucalyptus Street	4/divided	29,700	30,600	Yes
Eucalyptus Street and Lemon Street	4/divided	23,500	30,600	Yes
Lemon Street and Main Street	4/divided	27,100	30,600	Yes
South of Main Street	4/divided	30,700	30,600	No

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
North of Ranchero Road	4/divided	20,500	30,600	Yes
Arrowhead Lake Road				
North of Ranchero Road	4/undivided	20,400	24,480	Yes
SR 138 between				
East of Summit Valley Road	6/divided	44,400	46,100	Yes
Poplar Avenue				
East of Hwy 395	4/divided	18,300	30,600	Yes
Mesa Linda Avenue				
South of Main Street	4/divided	35,800	30,600	No
Cottonwood Avenue				
South of Eucalyptus Street	4/undivided	19,600	24,480	Yes
South of Main Street	2/undivided	14,800	14,500	No
7th Avenue between				
South of Eucalyptus Street	4/divided	24,700	30,600	Yes
South of Main Street	4/divided	26,300	30,600	Yes
Mesquite Street and Ranchero Road	4/divided	29,700	30,600	Yes
3rd Avenue				
South of Eucalyptus Street	4/divided	20,200	30,600	Yes
Peach Avenue				
South of Eucalyptus Street	4/undivided	23,300	24,480	Yes
North of Main Street	4/undivided	14,000	24,480	Yes
South of Main Street	4/undivided	18,600	24,480	Yes
North of Ranchero Road	4/undivided	4,500	24,480	Yes
Fuente Avenue				
South of Main Street	4/undivided	5,200	24,480	Yes
Oak Hill Road between				
I-15 SB Ramp and I-15 NB Ramp	4/divided	36,300	30,600	No
Rock Springs Road				
At Mojave River	4/divided	29,100	30,600	Yes
Smoketree Road				
West of Hwy 395	4/divided	24,300	30,600	Yes
Hwy 395 and Amargosa Road	6/divided	41,400	46,100	Yes
Mojave Street				
Mariposa Road and Maple Avenue	6/divided	51,100	46,100	No
Lemon Street				
At Mojave River	6/divided	44,500	46,100	Yes
Snowline Road				
Baldy Mesa Road and Verbena Road	4/divided	14,800	30,600	Yes
Verbena Road				
North of Ranchero Road	4/divided	11,200	30,600	Yes

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Ranchero Road				
Baldy Mesa Road and Verbena Road	6/divided	18,400	46,100	Yes
Verbena Road and Caliente Road	6/divided	38,200	46,100	Yes
7th Avenue and Santa Fe Avenue East	6/divided	80,300	46,100	No
7th Avenue				
Mesquite Street and Ranchero Road	4/divided	23,700	30,600	Yes
Santa Fe Avenue East				
South of Lime Street	4/divided	28,200	30,600	Yes
Ranchero Road and Summit Valley Road	6/divided	72,800	46,100	No
Rancho Las Flores Parkway				
North of Hwy 138	6/divided	47,100	46,100	No
Maple Avenue and Santa Fe Avenue East	6/divided	48,900	46,100	No
South of Summit Valley Road	6/divided	28,700	46,100	Yes
Summit Valley Road				
Maple Avenue and Santa Fe Avenue east	4/divided	26,700	30,600	Yes
East of Arrowhead Lake Road	4/divided	32,300	30,600	No
Maple Avenue				
Summit Valley Road and Rancho Las Flores Parkway	4/divided	34,700	30,600	No
Hwy 173				
East of Rancho Las Flores Parkway	4/divided	17,500	30,600	Yes
Arrowhead Lake Road				
Mesa Drive and Summit Valley Road	6/divided	28,300	46,100	Yes

Hesperia General Plan Update



Legend

- 1,234 Future ADT, (LOS D or better)
- 1,234 Future ADT, (LOS E or worse)



Not to Scale

April 2008



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Figure 4-6

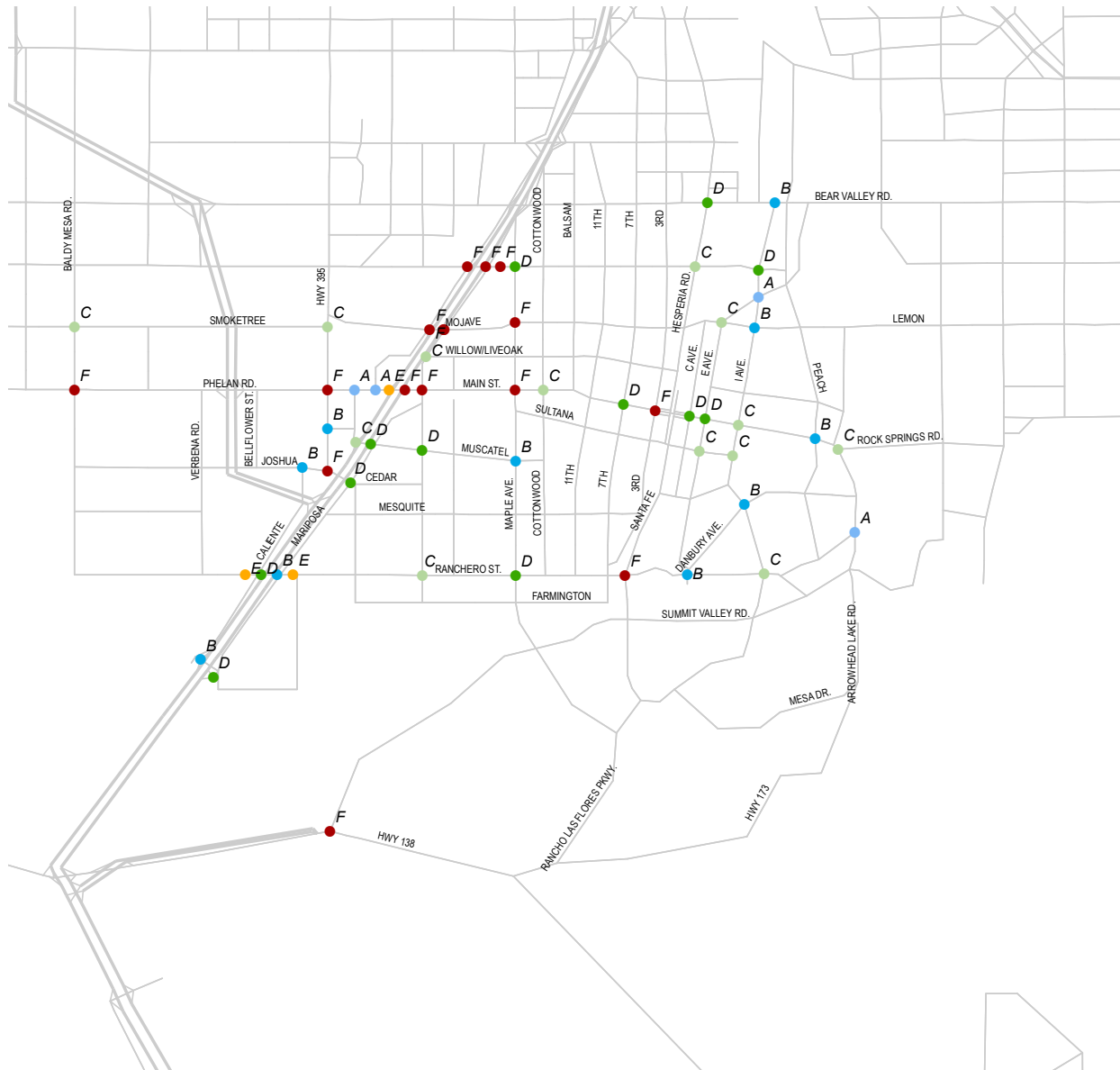
**Future Daily Traffic Volumes
High Intensity Buildout (with new corridors)**

Table 4-5 Summary of Intersection Operations, High Intensity Buildout (with new Corridors)

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	Summit Valley Rd at Hwy 138	S	191.7	F	99.5	F
5	I-15 SB Ramp at Oak Hill Rd	S	17.2	B	24.0	C
6	I-15 NB Ramp at Mariposa Ave	S	39.2	D	16.7	B
9	Caliente at Ranchero Rd	S	58.9	E	150.3	F
10	I-15 SB Ramp at Ranchero Rd	S	37.5	D	84.4	F
11	I-15 NB Ramp at Ranchero Rd	S	16.7	B	270.5	F
12	Mariposa at Ranchero Rd	S	76.5	E	124.2	F
13	Escondido Ave at Ranchero Rd	S	22.5	C	28.4	C
14	Maple Ave at Ranchero Rd	S	40.4	D	28.1	C
15	I Ave at Ranchero Rd	S	34.9	C	41.3	D
16	Arrowhead Lake Rd at Ranchero Rd	S	4.6	A	5.9	A
17	Caliente at Joshua St	S	14.8	B	119.3	F
18	Mariposa at Joshua St	S	39.5	D	96.7	F
19	Escondido Ave at Muscatel	S	40.8	D	39.5	D
20	Arrowhead Lake Rd at Main St/Rock Springs Rd	S	27.7	C	30.5	C
21	Baldy Mesa Dr at Phelan Rd	S	168.2	F	103.3	F
22	Hwy 395 at Phelan Rd	S	157.7	F	344.0	F
23	Maple Ave at Eucalyptus Rd	S	43.6	D	77.4	E
24	Mesa Linda at Main St.	S	4.4	A	5.3	A
25	Cataba Rd at Main St.	S	10.0	A	40.8	D
26	I-15 SB Ramp at Main St.	S	55.9	E	111.3	F
27	Escondido Ave at Main St	S	155.3	F	175.5	F
28	Maple Ave at Main St	S	80.4	F	166.5	F
29	I Ave at Bear Valley Rd	S	11.1	B	59.2	E
30	3rd Ave at Main St	S	173.8	F	431.4	F
31	C Ave at Main St	S	35.7	D	221.6	F
32	E Ave at Main St	S	37.3	D	97.2	F
33	I Ave at Main St	S	25.0	C	106.4	F
34	Baldy Mesa Dr at Smoke Tree	S	21.5	C	16.4	B
35	Hwy 395 at Smoke Tree	S	20.8	C	130.0	F
36	Mariposa at Mojave	S	218.9	F	256.1	F
37	Escondido Ave at Live Oak	S	33.1	C	50.9	D
38	I-15 SB Ramp at Mojave	S	143.0	F	232.7	F
39	I-15 NB Ramp at Mojave	S	140.8	F	209.7	F
40	Maple Ave at Mojave	S	92.5	F	81.2	F

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
41	Hesperia Rd at Bear Valley Rd	S	46.8	D	114.7	F
42	E Ave at Mauna Loa/Lemon	S	24.1	C	39.6	D
43	I Ave at Lemon	S	13.6	B	25.2	C
44	I-15 SB Ramp at Eucalyptus St	S	125.5	F	134.9	F
45	I-15 NB Ramp at Eucalyptus St	S	85.5	F	129.0	F
46	Mariposa at Eucalyptus St	S	275.7	F	222.0	F
47	Hesperia Rd at Eucalyptus St	S	29.0	C	60.0	E
48	E Ave at I Ave	S	7.6	A	10.0	A
49	I Ave at Eucalyptus St	S	47.4	D	42.0	D
54	Santa Fe East at Ranchero Rd	S	119.2	F	134.0	F
55	E Ave at Sultana St	S	28.1	C	52.7	D
56	I Ave at Sultana St	S	28.2	C	42.7	D
57	Hwy 395 at Joshua St	S	150.8	F	80.4	F
58	I-15 NB Ramp at Main St	S	135.9	F	175.7	F
59	I-15 SB Ramp at Muscatel (Future)	S	26.0	C	133.2	F
60	I-15 NB Ramp at Muscatel (Future)	S	48.1	D	257.4	F
70	Hwy 395 at Poplar	S	14.7	B	31.6	C
73	Maple Ave at Muscatel	S	19.8	B	46.2	D
74	Main St at Cottonwood	S	27.9	C	138.5	F
75	Main St at 7th Ave	S	40.6	D	92.9	F
76	Main St at Peach Ave	S	19.0	B	45.0	D
77	I Ave at Danbury Ave	S	15.2	B	18.7	B
78	Danbury Ave at Ranchero Rd	S	11.0	B	49.3	D

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

September 2009

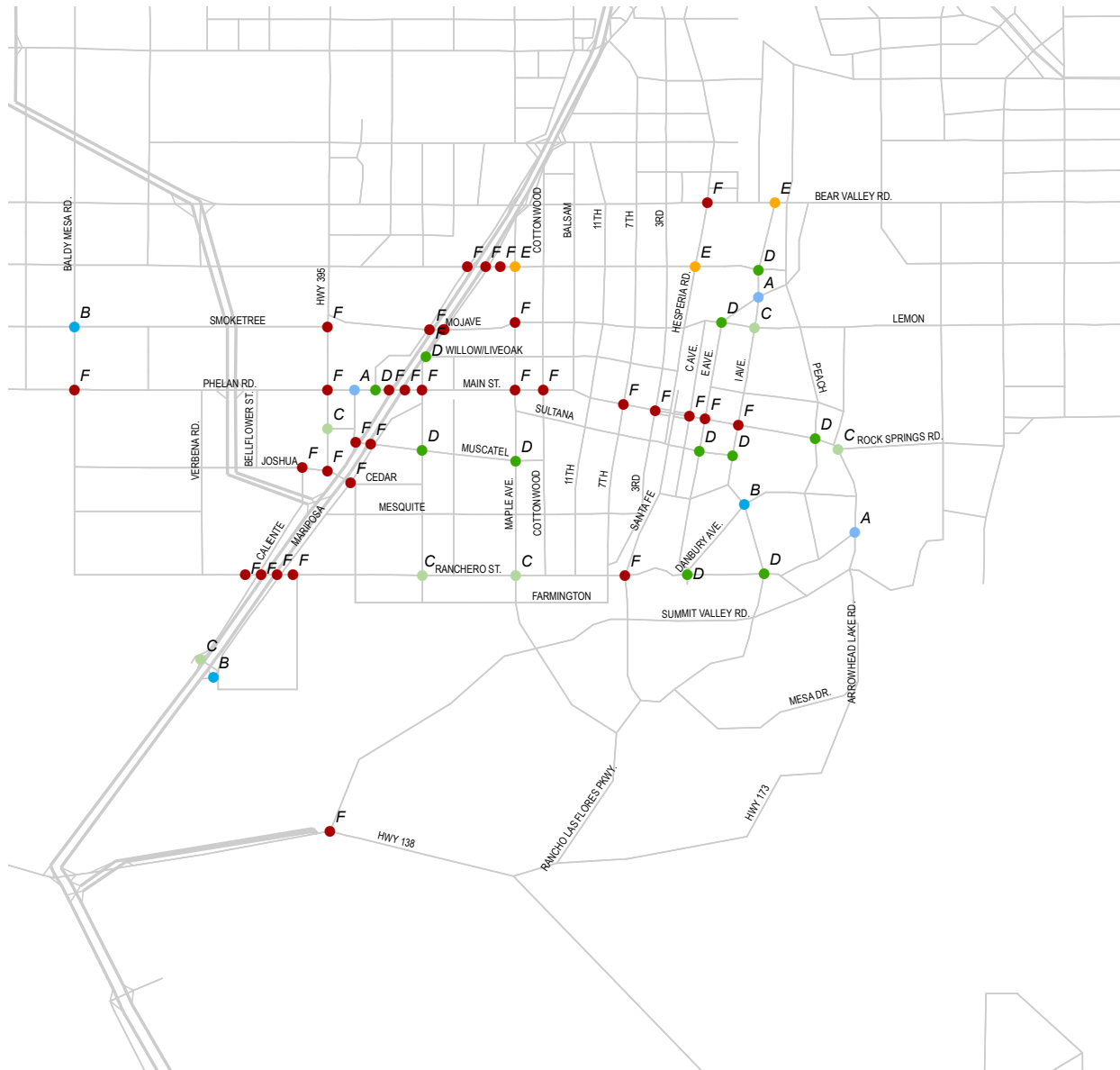


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Figure 4-7

AM Peak Hour Intersection Level of Service
High Intensity Buildout (with new corridors)

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

September 2009



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Figure 4-8

PM Peak Hour Intersection Level of Service
High Intensity Buildout (with new corridors)

4.3.3 High Intensity Buildout Scenario without New Corridors

As shown in **Table 4-6**, under the High Intensity (no new Corridors) alternative, 54 out of the 118 roadway segments are projected to operate at LOS D or better. **Figure 4-9** depicts the roadway segment LOS throughout the City for the High Intensity Scenario.

The intersection LOS for the High Intensity Buildout (with new Corridors) alternative was analyzed using the intersection lane geometry from the High Intensity Buildout (with no new Corridors) alternative. As shown in **Table 4-7**, 19 of the study intersections are projected to operate at LOS E or F during the AM peak hour period and 31 study intersections are projected to operate at LOS E or F during the PM peak hour period.

Figure 4-10 and Figure 4-11 depict the intersection LOS for the High Intensity Build scenario (with no new Corridors). SYNCHRO analysis worksheets are provided in **Appendix B**.

Table 4-6 Future Daily Traffic Volumes, High Intensity Buildout (no new Corridors)

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Caliente Road				
South of Ranchero Rd	2/undivided	56,800	14,500	No
South of Joshua Street	4/divided	16,800	30,600	Yes
North of Oak Hill Road	2/undivided	33,300	14,500	No
Escondido Avenue				
South of Ranchero Rd	4/divided	11,000	30,600	Yes
South of Main Street	4/divided	80,700	30,600	No
Summit Valley Road				
North of SR 138	4/divided	20,400	30,600	Yes
Arrowhead Lake Road				
South of Ranchero Road	6/divided	17,100	46,100	Yes
Ranchero Road between				
Santa Fe Avenue and "I" Avenue	6/divided	47,900	46,100	No
"I" Avenue and Peach Avenue	2/undivided	10,000	14,500	Yes
Mariposa Road and Escondido Avenue	6/divided	49,200	46,100	No
Maple Avenue and Escondido Avenue	6/divided	59,600	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	49,700	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	51,200	46,100	No
Joshua Street between				
NB 15 ramp and Mariposa Road	4/divided	51,700	30,600	No
Caliente and US 395	4/divided	47,500	30,600	No
US 395 and I-15 SB Ramp	4/divided	52,400	30,600	No
Muscatel Street between				
Escondido Avenue and Fuente Avenue	4/undivided	31,500	24,480	No
Mesquite Street				
East of Maple Avenue	4/undivided	21,000	24,480	Yes
East of 7th Avenue	4/undivided	12,600	24,480	Yes
Baldy Mesa Road				
South of Phelan Road	6/divided	73,100	46,100	No
North of Phelan Road	6/divided	55,000	46,100	No
Phelan Road between				
Baldy Mesa Road and US 395	6/divided	56,300	46,100	No
Main Street between				

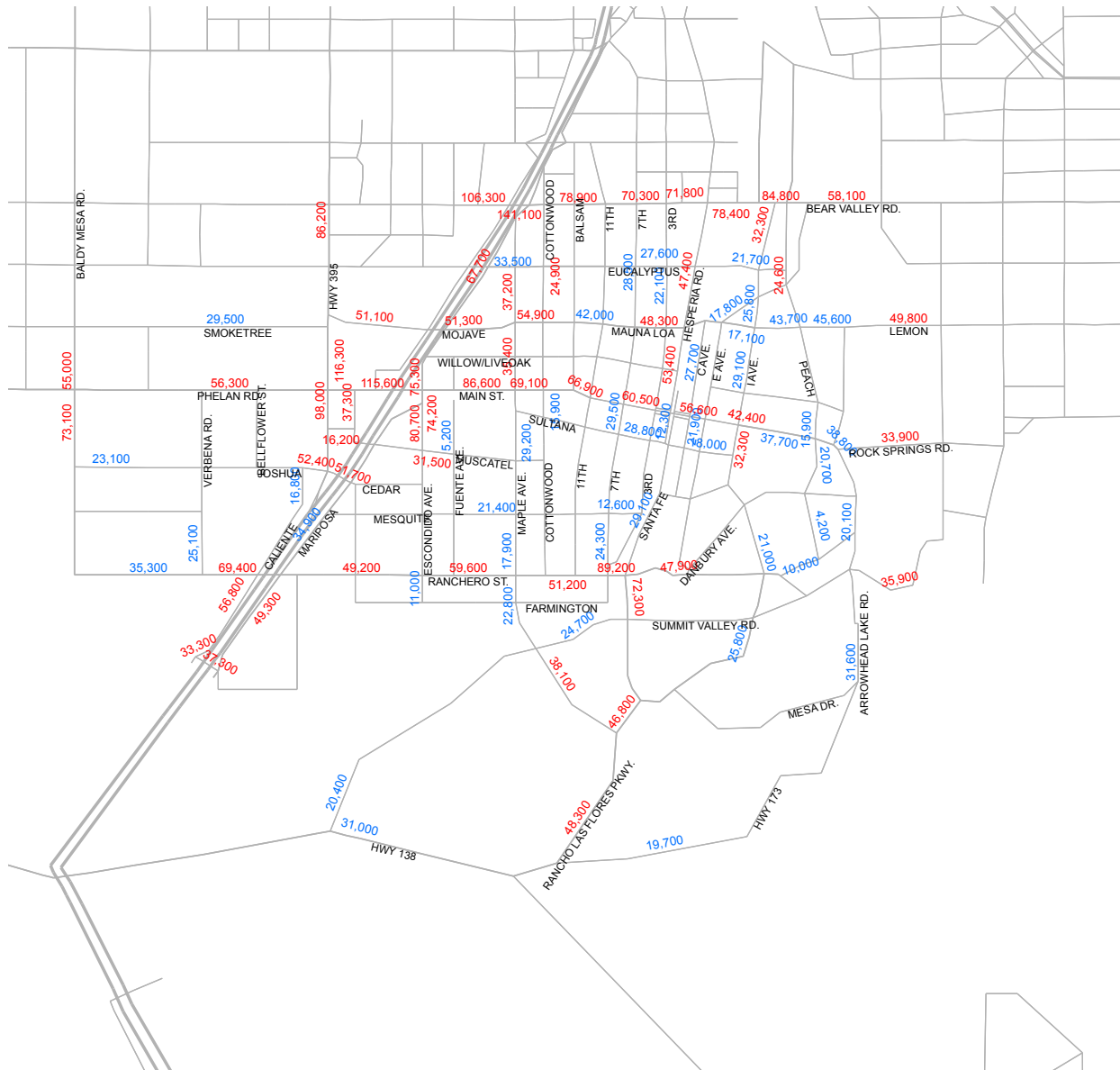
Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
Cataba Rd and SB 15 ramp	6/divided	115,600	46,100	No
NB 15 ramp and Mariposa Road	6/divided	87,800	46,100	No
Mariposa Road and Maple Avenue	6/divided	86,600	46,100	No
Maple Avenue and Cottonwood Avenue	6/divided	69,100	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	66,900	46,100	No
7th Avenue and Hesperia Road	4/divided	60,500	30,600	No
"C" Avenue and "E" Avenue	4/divided	56,600	30,600	No
"E" Avenue and "I" Avenue	4/divided	42,400	30,600	No
"I" Avenue and Peach Avenue	6/divided	37,700	46,100	Yes
Peach Avenue and Rock Springs Road	6/divided	38,800	46,100	Yes
Sultana Street between				
7th Avenue and Hesperia Road	4/divided	28,500	30,600	Yes
"E" Avenue and "I" Avenue	4/divided	18,000	30,600	Yes
Mauna Loa Street between				
Maple Avenue and Cottonwood Avenue	6/divided	54,900	46,100	No
Cottonwood Avenue and 7th Avenue	6/divided	42,000	46,100	Yes
7th Avenue and 3rd Avenue	6/divided	48,300	46,100	No
Lemon Street between				
"E" Avenue and "I" Avenue	6/divided	40,700	46,100	Yes
"I" Avenue and Peach Avenue	6/divided	43,700	46,100	Yes
East of Peach Avenue	6/divided	45,600	46,100	Yes
Eucalyptus Avenue between				
Mariposa Road and Maple Avenue	6/divided	33,500	46,100	Yes
3rd Avenue and 7 th Avenue	4/divided	27,600	30,600	Yes
"I" Avenue and Peach Avenue	4/divided	21,700	30,600	Yes
Bear Valley Road between				
Amargosa Road and SB 15 ramp	6/divided	106,300	46,100	No
NB 15 ramp and Mariposa Road	6/divided	141,100	46,100	No
Mariposa Road and 11th Avenue	6/divided	78,900	46,100	No
3rd Avenue and 7th Avenue	6/divided	70,300	46,100	No
West of Ridgecrest Road	6/divided	78,400	46,100	No
I Avenue and Peach Avenue	6/divided	84,800	46,100	No
West of 2nd Avenue	6/divided	71,800	46,100	No

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
At Mojave River	6/divided	58,100	46,100	No
Hwy 395 between				
South of Phelan Road	6/divided	98,000	46,100	No
North of Phelan Road	6/divided	116,300	46,100	No
South of Bear Valley Road	6/divided	86,200	46,100	No
Cataba Road between				
North of Main Street	4/divided	23,200	30,600	Yes
Mariposa Road between				
North of Main Street	6/divided	75,300	46,100	No
South of Eucalyptus Street	6/divided	67,700	46,100	No
South of Bear Valley Road	6/divided	59,300	46,100	No
Joshua Street and Ranchero Road	6/divided	34,900	46,100	Yes
Ranchero Road and Oak Hill Rd	6/divided	49,300	46,100	No
Oak Hill Road and I-15 NB Ramp	6/divided	29,200	46,100	Yes
South of Main Street	6/divided	74,200	46,100	No
Maple Avenue between				
North of Ranchero Road	4/divided	17,900	30,600	Yes
Muscatel Street and Sultana Street	4/divided	29,200	30,600	Yes
Main Street and Willow Street	4/divided	35,400	30,600	No
Eucalyptus Street and Mariposa Road	4/undivided	30,500	24,480	No
South of Eucalyptus Street	4/divided	37,200	30,600	No
South of Ranchero Road	4/divided	22,800	30,600	Yes
Hesperia Road between				
Eucalyptus and Lemon Street	4/divided	47,400	30,600	No
Lemon Street and Main Street	4/divided	53,400	30,600	No
Santa Fe Avenue East				
South of Main Street	4/divided	12,300	30,600	Yes
E Avenue between				
"I" Avenue and Lemon Street	4/divided	17,800	30,600	Yes
Lemon Street and Main Street	4/divided	27,700	30,600	Yes
South of Main Street	4/divided	21,900	30,600	Yes
I Avenue between				
Bear Valley Road and Eucalyptus Street	4/divided	32,300	30,600	No
Eucalyptus Street and Lemon Street	4/divided	25,800	30,600	Yes
Lemon Street and Main Street	4/divided	29,100	30,600	Yes
South of Main Street	4/divided	32,300	30,600	No
North of Ranchero Road	4/divided	21,400	30,600	Yes
Arrowhead Lake Road				
North of Ranchero Road	4/undivided	20,100	24,480	Yes

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
SR 138 between				
East of Summit Valley Road	6/divided	31,000	46,100	Yes
Poplar Avenue				
East of Hwy 395	4/divided	15,900	30,600	Yes
Mesa Linda Avenue				
South of Main Street	4/divided	37,300	30,600	No
Cottonwood Avenue				
South of Eucalyptus Street	4/undivided	24,900	24,480	No
South of Main Street	2/undivided	16,200	14,500	No
7th Avenue between				
South of Eucalyptus Street	4/divided	28,800	30,600	Yes
South of Main Street	4/divided	29,500	30,600	Yes
Mesquite Street and Ranchero Road	4/divided	30,300	30,600	Yes
3rd Avenue				
South of Eucalyptus Street	4/divided	22,100	30,600	Yes
Peach Avenue				
South of Eucalyptus Street	4/undivided	24,600	24,480	No
North of Main Street	4/undivided	15,900	24,480	Yes
South of Main Street	4/undivided	20,700	24,480	Yes
North of Ranchero Road	4/undivided	4,200	24,480	Yes
Fuente Avenue				
South of Main Street	4/undivided	5,200	24,480	Yes
Oak Hill Road between				
I-15 SB Ramp and I-15 NB Ramp	4/divided	37,300	30,600	No
Rock Springs Road				
At Mojave River	4/divided	33,900	30,600	No
Smoketree Road				
West of Hwy 395	4/divided	29,500	30,600	Yes
Mojave Street				
Hwy 395 and Amargosa Road	6/divided	51,100	46,100	No
Mariposa Road and Maple Avenue	6/divided	51,300	46,100	No
Lemon Street				
At Mojave River	6/divided	49,800	46,100	No
Snowline Road				
Baldy Mesa Road and Verbena Road	4/divided	23,100	30,600	Yes
Verbena Road				
North of Ranchero Road	4/divided	25,100	30,600	Yes
Ranchero Road				
Baldy Mesa Road and Verbena Road	6/divided	35,300	46,100	Yes
Verbena Road and Caliente Road	6/divided	69,400	46,100	No
7th Avenue and Santa Fe Avenue	6/divided	89,200	46,100	No

Roadway Segment	No. of Lanes/ Median Type	Future ADT	LOS D Roadway Capacity	LOS D or better
East				
7th Avenue				
Mesquite Street and Ranchero Road	4/divided	24,300	30,600	Yes
Santa Fe Avenue East				
South of Lime Street	4/divided	29,100	30,600	Yes
Ranchero Road and Summit Valley Road	6/divided	72,300	46,100	No
Rancho Las Flores Parkway				
North of Hwy 138	6/divided	48,300	46,100	No
Maple Avenue and Santa Fe Avenue East	6/divided	46,800	46,100	No
South of Summit Valley Road	6/divided	25,800	46,100	Yes
Summit Valley Road				
Maple Avenue and Santa Fe Avenue east	4/divided	24,700	30,600	Yes
East of Arrowhead Lake Road	4/divided	35,900	30,600	No
Maple Avenue				
Summit Valley Road and Rancho Las Flores Parkway	4/divided	38,100	30,600	No
Hwy 173				
East of Rancho Las Flores Parkway	4/divided	19,700	30,600	Yes
Arrowhead Lake Road				
Mesa Drive and Summit Valley Road	6/divided	31,600	46,100	Yes

Hesperia General Plan Update



Legend

- 1,234 Future ADT, (LOS D or better)
- 1,234 Future ADT, (LOS E or worse)



Not to Scale

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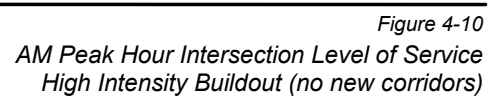
Figure 4-9

**Future Daily Traffic Volumes
High Intensity Buildout (no new corridors)**

Table 4-7 Summary of Intersection Operations, High Intensity Buildout (no new Corridors)

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	Summit Valley Rd at Hwy 138	S	29.2	C	261.2	F
5	I-15 SB Ramp at Oak Hill Rd	S	17.0	B	23.4	C
6	I-15 NB Ramp at Mariposa Ave	S	29.9	C	14.0	B
9	Caliente at Ranchero Rd	S	67.2	E	164.7	F
10	I-15 SB Ramp at Ranchero Rd	S	70.8	E	102.0	F
11	I-15 NB Ramp at Ranchero Rd	S	22.0	C	90.3	F
12	Mariposa at Ranchero Rd	S	85.2	F	140.9	F
13	Escondido Ave at Ranchero Rd	S	23.0	C	40.7	D
14	Maple Ave at Ranchero Rd	S	53.0	D	31.5	C
15	I Ave at Ranchero Rd	S	32.8	C	46.3	D
16	Arrowhead Lake Rd at Ranchero Rd	S	4.9	A	5.5	A
17	Caliente at Joshua St	S	12.3	B	36.8	D
18	Mariposa at Joshua St	S	42.7	D	77.3	E
19	Escondido Ave at Muscatel	S	32.5	C	43.6	D
20	Arrowhead Lake Rd at Main St/Rock Springs Rd	S	42.6	D	39.0	D
21	Baldy Mesa Dr at Phelan Rd	S	197.1	F	132.6	F
22	Hwy 395 at Phelan Rd	S	259.7	F	454.1	F
23	Maple Ave at Eucalyptus Rd	S	58.4	E	53.0	D
24	Mesa Linda at Main St.	S	3.8	A	6.4	A
25	Cataba Rd at Main St.	S	117.0	F	104.7	F
26	I-15 SB Ramp at Main St.	S	54.9	D	123.2	F
27	Escondido Ave at Main St	S	115.4	F	183.1	F
28	Maple Ave at Main St	S	119.7	F	197.9	F
29	I Ave at Bear Valley Rd	S	11.9	B	56.8	E
30	3rd Ave at Main St	S	188.3	F	444.2	F
31	C Ave at Main St	S	41.6	D	227.3	F
32	E Ave at Main St	S	38.7	D	101.8	F
33	I Ave at Main St	S	25.5	C	120.7	F
34	Baldy Mesa Dr at Smoke Tree	S	32.9	C	45.5	D
35	Hwy 395 at Smoke Tree	S	80.6	F	296.7	F
36	Mariposa at Mojave	S	193.8	F	262.1	F
37	Escondido Ave at Live Oak	S	76.9	E	48.5	D
38	I-15 SB Ramp at Mojave	S	62.0	E	160.2	F
39	I-15 NB Ramp at Mojave	S	108.2	F	183.9	F
40	Maple Ave at Mojave	S	62.6	E	77.2	E

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
41	Hesperia Rd at Bear Valley Rd	S	53.6	D	121.6	F
42	E Ave at Mauna Loa/Lemon	S	27.4	C	49.1	D
43	I Ave at Lemon	S	13.9	B	27.5	C
44	I-15 SB Ramp at Eucalyptus St	S	42.2	D	23.2	C
45	I-15 NB Ramp at Eucalyptus St	S	22.9	C	46.8	D
46	Mariposa at Eucalyptus St	S	212.5	F	134.4	F
47	Hesperia Rd at Eucalyptus St	S	36.9	D	66.8	E
48	E Ave at I Ave	S	8.3	A	11.4	B
49	I Ave at Eucalyptus St	S	50.8	D	53.8	D
54	Santa Fe East at Ranchero Rd	S	143.8	F	168.0	F
55	E Ave at Sultana St	S	29.3	C	54.7	D
56	I Ave at Sultana St	S	29.3	C	46.4	D
57	Hwy 395 at Joshua St	S	55.8	E	188.3	F
58	I-15 NB Ramp at Main St	S	41.6	D	47.7	D
59	I-15 SB Ramp at Muscatel (Future)	S	25.3	C	42.3	D
60	I-15 NB Ramp at Muscatel (Future)	S	19.1	B	51.2	D
70	Hwy 395 at Poplar	S	11.2	B	78.5	E
73	Maple Ave at Muscatel	S	19.7	B	42.7	D
74	Main St at Cottonwood	S	34.5	C	170.3	F
75	Main St at 7th Ave	S	43.0	D	93.0	F
76	Main St at Peach Ave	S	22.6	C	54.1	D
77	I Ave at Danbury Ave	S	17.5	B	18.3	B
78	Danbury Ave at Ranchero Rd	S	36.2	D	56.3	E



Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



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Figure 4-11
PM Peak Hour Intersection Level of Service
High Intensity Buildout (no new corridors)

4.4 Findings

Key findings from the analysis of alternatives can be summarized as follows:

- In the Current General Plan alternative, forecast peak hour levels of service are generally acceptable throughout the City except for interchange areas along I-15 and a few other locations.
- In the High Intensity Buildout scenario, severe congestion is forecast throughout the I-15 and Main Street corridors that have fairly intense commercial development in this scenario. Physical improvements could not provide sufficient capacity to achieve acceptable LOS in these areas. The intensity of land use should be scaled back to be more compatible with the carrying capacity of the roadway system.
- The potential new alignment of US-395 would substantially reduce future traffic on the two continuous north-south arterials west of I-15 – the resulting ADT would be 20,000 – 25,000 lower on the six-lane arterial in the current 395 alignment, and over 30,000 lower on Baldy Mesa Road. If a realigned 395 is not built, those roadways can be expected to experience severe congestion in the future.
- The Southeast Beltway would carry approximately 70,000 ADT between I-15 and Summit Valley Road. For adequate accessibility into southern Hesperia, the future corridor through this area should be planned to accommodate that volume of traffic.

5. EVALUATION OF PREFERRED SCENARIO

The results of the transportation alternatives analysis were used by the City's General Plan consultant and City staff (together with information from other components of the General Plan analysis) to develop a Preferred Land Use scenario. The City traffic model was then used to forecast future traffic with full development of the Preferred Land Use Strategy. The results of that analysis are presented in this chapter, and form the technical basis for the recommended transportation plan and policies presented in Chapter 6 of this report

5.1 Preferred Land Use Plan

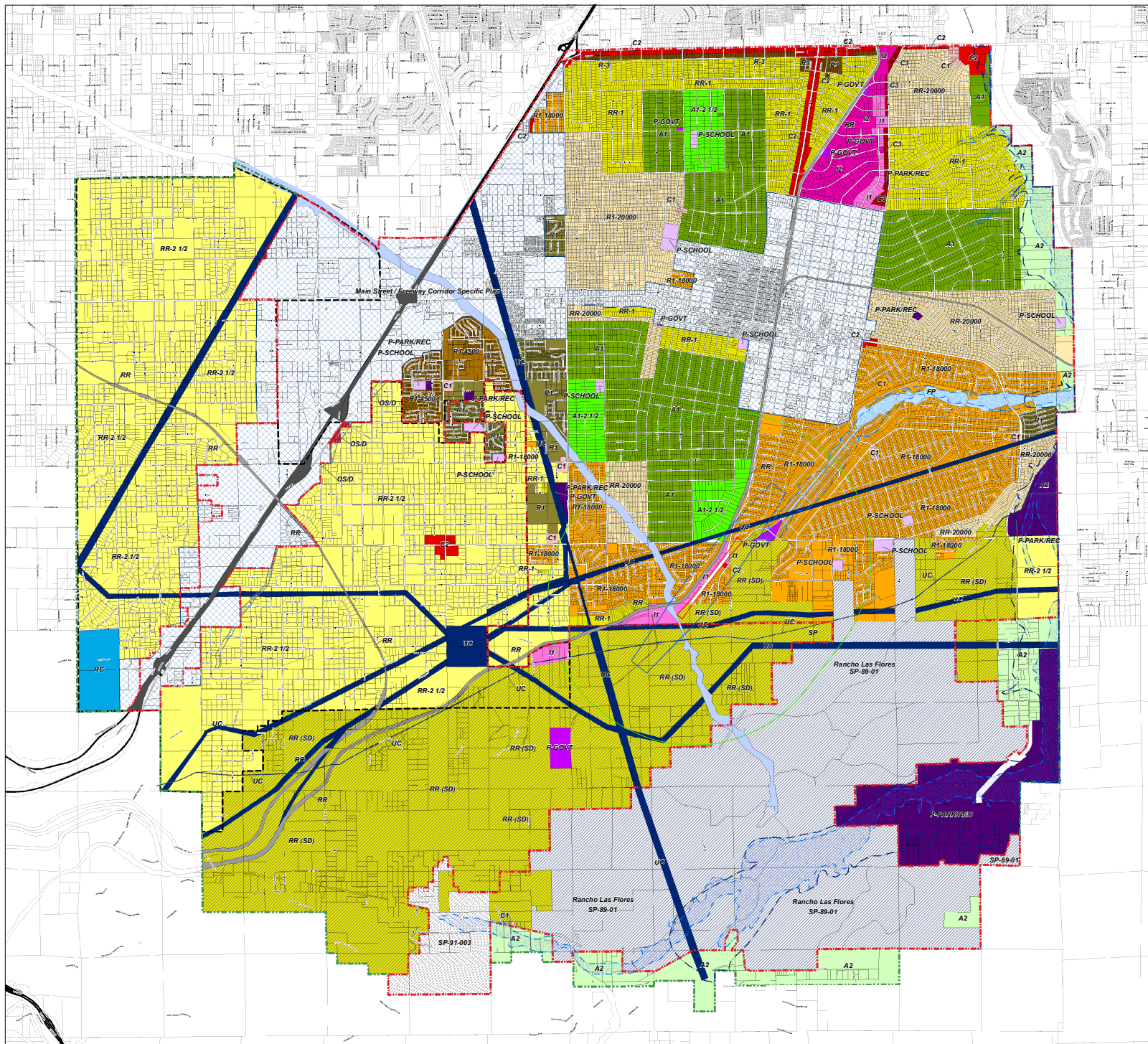
Land use patterns associated with the Preferred Alternative are shown in **Figure 5-1**. Citywide development assumptions for the Preferred Alternative are summarized in **Table 5-1** and compared with existing development and the other two alternatives. The future development assumptions by TAZ are provided in **Appendix C**.

Table 5-1 Summary of Land Use Alternatives

	Population	Households			Employment				School
	TotPop	SDU	MDU	TotalDU	Retail	Service	Other	Total	Enrollment
2003									
CITY & SPHERE	82,550	22,869	2,329	25,198	3,040	6,012	5,277	14,330	17,776
CITY	79,296	21,634	2,329	23,963	2,994	5,786	5,003	13,783	17,029
SPHERE	3,254	1,235	-	1,235	46	227	274	547	746
GENERAL PLAN BUILDOUT									
CITY & SPHERE	318,592	79,004	10,139	89,143	30,481	26,905	24,644	82,030	62,011
CITY	242,005	56,915	10,139	67,054	27,761	20,957	18,606	67,324	46,193
SPHERE	76,587	22,089	-	22,089	2,720	5,948	6,038	14,706	15,818
HIGH INTENSITY BUILDOUT LAND USE									
CITY & SPHERE	257,008	58,747	26,759	85,505	47,873	9,101	91,206	148,181	70,951
CITY	202,687	43,755	24,909	68,663	44,269	8,090	88,147	140,506	57,544
SPHERE	54,321	14,992	1,850	16,842	3,604	1,011	3,059	7,675	13,407
PREFERRED SCENARIO LAND USE									
CITY & SPHERE	253,158	57,165	25,280	82,444	31,063	16,177	28,552	75,792	67,780
CITY	199,815	42,657	23,093	65,750	27,949	15,190	24,332	67,470	54,422
SPHERE	53,343	14,508	2,187	16,695	3,114	987	4,221	8,322	13,358

Compared to the High Intensity Buildout scenario, the Preferred Scenario has 1% less total population, 4% fewer total dwelling units, 50% less in total employment, and a 4% decrease in school enrollment.

Figure 5-1 Preferred Scenario Land Use Map



Legend

Agricultural

- A2 (0.0 - 0.2 du/ac)
- A1-2 1/2 (0.21 - 0.4 du/ac)
- A1 (0.41 - 1.0 du/ac)

Rural Residential

- RR-2 1/2 (0.0 - 0.4 du/ac)
- RR (SD) (0.0 - 0.4 du/ac)
- RR-1 (0.41 - 1.0 du/ac)
- RR-20000 (1.1 - 2.0 du/ac)

Residential

- R1-18000 (2.1 - 2.4 du/ac)
- R1 (2.5 - 4.5 du/ac)
- R1-4500 (4.6 - 8.0 du/ac)
- R3 (8.1 - 15.0 du/ac)

Commercial

- C1 - Neighborhood Commercial (0.0 - 0.5 FAR)
- C2 - General Commercial (0.0 - 1.0 FAR)
- C3 - Service Commercial (0.0 - 0.5 FAR)

Industrial

- I1 - Limited Manufacturing (0.0 - 1.0 FAR)
- I2 - General Manufacturing (0.0 - 1.0 FAR)

Public

- P-SCHOOL - Public School (0.0 - 1.0 FAR)
- P-GOVT - Government Facility (0.0 - 1.0 FAR)
- P-PARK/REC - Park & Recreation (0.0 - 1.0 FAR)

Specific Plan

- Summit Valley Ranch Specific Plan SP-91-003
- Rancho Las Flores Specific Plan SP-89-01
- Main Street / Freeway Corridor Specific Plan

Other

- Rec-Com - Recreational Commercial
- RC - Resource Conservation
- RRC - Railroad Corridor
- UC - Utility Corridor
- TC - Transportation Corridor
- AQ - Aqueduct

Overlay

- AS - Airport Safety Zone
- AAT - Airport Approach and Transitional Zone
- AN - Airport Notice Area
- Dam Inundation
- FP - 100-Year Flood Plain Overlay
- OS / D - Open Space Drainage
- City Boundary
- Sphere of Influence
- Oak Hills Community Plan

DISCLAIMER: This map is a public resource of general information. The historic data provided on this map represents the most accurate mapping and parcel information available at the time of the map's creation. In the event of a conflict between information on this map and adopted City Ordinances or Ordinances, the City's Ordinances or Ordinances shall govern.

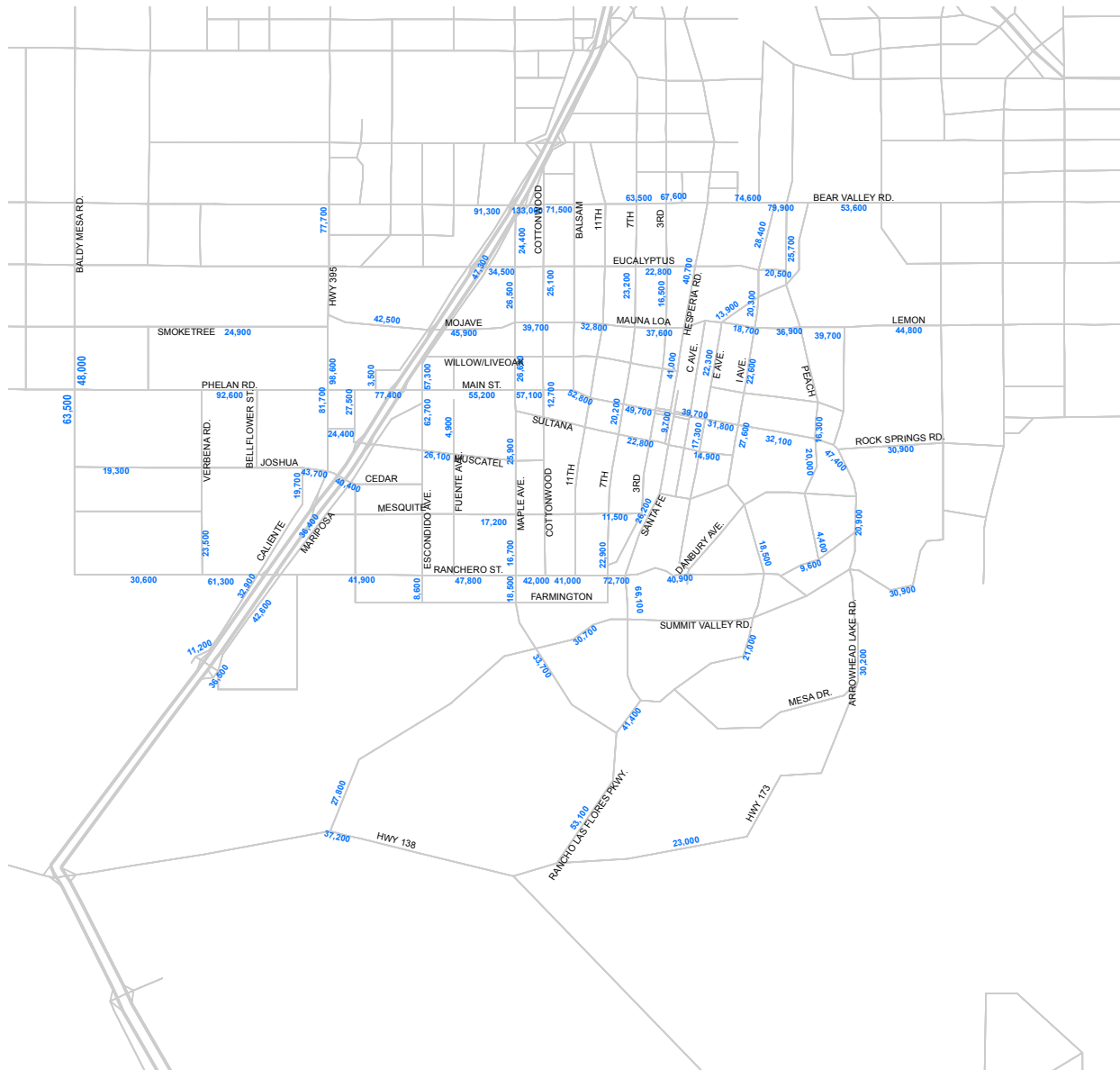
5.2 Future Traffic Conditions with Preferred Scenario

The forecast average daily traffic volumes for the Preferred Scenario are shown in **Figure 5-2**. For the Preferred Scenario, the daily segment capacity values are based on typical street cross-sections (whereas many of the future intersections will have additional turn lanes) and a 10% peak hour (whereas the peak hour can be expected to drop to about 8% in the future); therefore a daily segment LOS analysis was not performed for this scenario since it would produce results inconsistent with the intersection analysis.

Morning and afternoon peak hour LOS were calculated for the study intersections throughout the City. Where the lane geometry used for the Current General Plan alternative resulted in peak hour LOS F, the LOS was analyzed with additional turn lanes to endeavor to achieve peak hour LOS D or better (at 395/Phelan Road, it has been assumed that a grade separation would be constructed in the absence of a realigned 395). The forecasted peak hour LOS for the study intersections is summarized in **Table 5-2**. The traffic forecast indicates that 13 of the study intersections are projected to operate at LOS E or F during the AM peak hour period and 21 study intersections are projected to operate at LOS E or F during the PM peak hour period. The intersections with LOS E or F occur around freeway interchanges, along the Main Street corridor, or in the area west of I-15.

Figure 5-3 and **Figure 5-4** depict the intersection LOS for the Preferred scenario. The recommended future lane configurations are presented in **Appendix D**. SYNCHRO analysis worksheets are provided in **Appendix B**.

Hesperia General Plan Update



Legend

1,234 Future ADT



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September 2009



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Figure 5-2

Future Roadway Average Daily Traffic (ADT)
Preferred Scenario

Table 5-2 Summary of Intersection Operations, Preferred Scenario

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	Summit Valley Rd at Hwy 138	S	23.8	C	0.1	A
5	I-15 SB Ramp at Oak Hill Rd	S	28.1	C	16.7	B
6	I-15 NB Ramp at Mariposa Ave	S	12.8	B	52.8	D
9	Caliente at Ranchero Rd	S	87.1	F	156.8	F
10	I-15 SB Ramp at Ranchero Rd	S	37.5	D	37.2	D
11	I-15 NB Ramp at Ranchero Rd	S	23.6	C	79.4	E
12	Mariposa at Ranchero Rd	S	66.3	E	80.0	E
13	Escondido Ave at Ranchero Rd	S	13.7	B	17.8	B
14	Maple Ave at Ranchero Rd	S	31.8	C	30.4	C
15	I Ave at Ranchero Rd	S	37.6	D	35.2	D
16	Arrowhead Lake Rd at Ranchero Rd	S	4.8	A	4.8	A
17	Caliente at Joshua St	S	12.0	B	38.5	D
18	Mariposa at Joshua St	S	53.7	D	39.7	D
19	Escondido Ave at Muscatel	S	28.4	C	33.2	C
20	Arrowhead Lake Rd at Main St/Rock Springs Rd	S	34.7	C	41.5	D
21	Baldy Mesa Dr at Phelan Rd	S	109.8	F	66.8	E
23	Maple Ave at Eucalyptus Rd	S	32.9	C	27.4	C
24	Mesa Linda at Main St.	S	5.0	A	10.8	B
25	Cataba Rd at Main St.	S	79.7	E	49.8	D
26	I-15 SB Ramp at Main St.	S	35.6	D	42.4	D
27	Escondido Ave at Main St	S	77.7	E	79.6	E
28	Maple Ave at Main St	S	66.2	E	67.9	E
29	I Ave at Bear Valley Rd	S	11.9	B	66.0	E
30	3rd Ave at Main St	S	199.5	F	349.2	F
31	C Ave at Main St	S	31.8	C	167.4	F
32	E Ave at Main St	S	26.2	C	73.2	E
33	I Ave at Main St	S	24.2	C	74.8	E
34	Baldy Mesa Dr at Smoke Tree	S	58.1	E	36.2	D
35	Hwy 395 at Smoke Tree	S	66.1	E	151.5	F
36	Mariposa at Mojave	S	109.0	F	87.5	F
37	Escondido Ave at Live Oak	S	15.7	B	15.7	B
38	I-15 SB Ramp at Mojave	S	28.8	C	63.9	E
39	I-15 NB Ramp at Mojave	S	46.6	D	56.3	E
40	Maple Ave at Mojave	S	43.8	D	36.6	D
41	Hesperia Rd at Bear Valley Rd	S	50.1	D	83.6	F
42	E Ave at Mauna Loa/Lemon	S	30.3	C	53.8	D

Int. #	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
43	I Ave at Lemon	S	16.1	B	18.5	B
44	I-15 SB Ramp at Eucalyptus St	S	30.2	C	34.5	C
45	I-15 NB Ramp at Eucalyptus St	S	34.4	C	50.7	D
46	Mariposa at Eucalyptus St	S	36.0	D	51.7	D
47	Hesperia Rd at Eucalyptus St	S	36.8	D	43.9	D
48	E Ave at I Ave	S	7.2	A	8.3	A
49	I Ave at Eucalyptus St	S	45.0	D	34.8	C
54	Santa Fe East at Ranchero Rd	S	63.7	E	77.4	E
55	E Ave at Sultana St	S	25.2	C	40.2	D
56	I Ave at Sultana St	S	30.6	C	42.8	D
57	Hwy 395 at Joshua St	S	107.7	F	138.2	F
58	I-15 NB Ramp at Main St	S	17.0	B	29.2	C
59	I-15 SB Ramp at Muscatel (Future)	S	25.5	C	31.5	C
60	I-15 NB Ramp at Muscatel (Future)	S	16.1	B	48.1	D
70	Hwy 395 at Poplar	S	13.1	B	49.1	D
73	Maple Ave at Muscatel	S	25.0	C	20.3	C
74	Main St at Cottonwood	S	24.7	C	57.8	E
75	Main St at 7th Ave	S	32.5	C	63.2	E
76	Main St at Peach Ave	S	21.4	C	59.8	E
77	I Ave at Danbury Ave	S	16.7	B	15.9	B
78	Danbury Ave at Ranchero Rd	S	56.1	E	36.0	D
79	Hwy 395 SB Ramp and Phelan Rd	S	24.1	C	49.9	D
80	Hwy 395 NB Ramp and Phelan Rd	S	25.7	C	31.8	C

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

September 2009

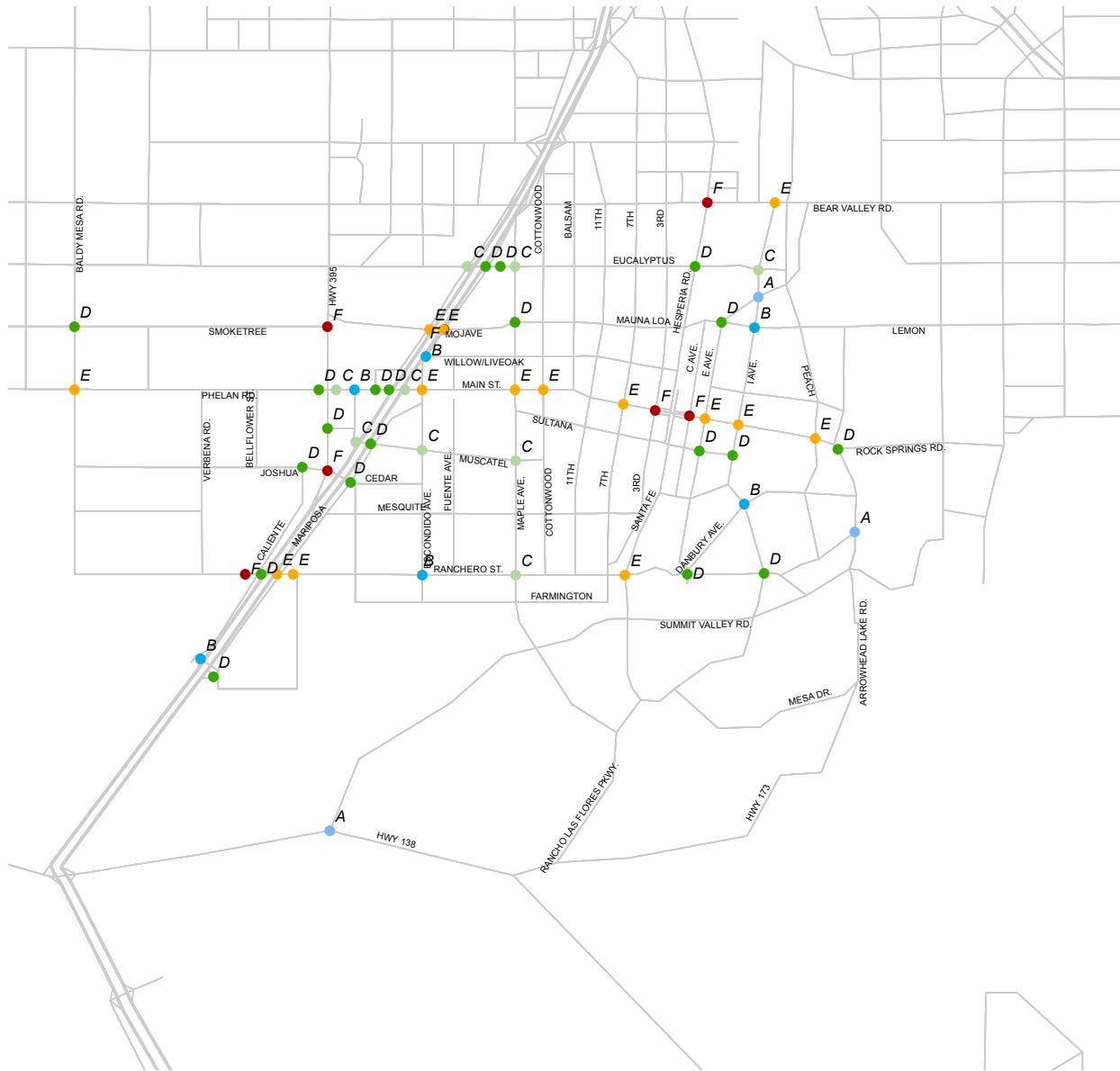


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Figure 5-3

AM Peak Hour Intersection Level of Service
Preferred Scenario

Hesperia General Plan Update



Legend

- Signalized, Level of Service A
- Signalized, Level of Service B
- Signalized, Level of Service C
- Signalized, Level of Service D
- Signalized, Level of Service E
- Signalized, Level of Service F



Not to Scale

September 2009



Kimley-Horn
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Figure 5-4

PM Peak Hour Intersection Level of Service
Preferred Scenario

6. RECOMMENDED CIRCULATION PLAN

The Recommended Circulation Plan provides strategies and approaches for addressing future transportation issues and opportunities. It envisions a system that serves future circulation needs for people and goods using multiple modes of travel. Potential approaches and strategies for implementing the Recommended Plan are discussed in the following sections.

6.1 Roadway Plan

The plan for Hesperia's future street system envisions that it will serve multiple roles and functions:

- Provide convenient property access to residences and businesses;
- Move traffic efficiently – facilitating convenient intra-city travel and providing access to regional transportation facilities in a manner that minimizes traffic congestion and delay;
- Accommodate multiple travel modes on the surface (autos, trucks, transit, bicycles, and pedestrians) as well as underground utilities;
- Provide a safe environment for circulation; and
- Contribute to the aesthetics of the city with attractive landscaping, signing, and gateways.

Recommended Approaches/Strategies:

- Plan arterial street lane capacity in relation to projected buildout traffic volumes. **Figure 6-1** shows the street network plan and recommended number of lanes.
- Develop a plan for widening key intersections to enhance capacity with additional turn lanes at locations where the capacity provided by the typical cross-section is projected to result in congestion. **Figure 6-2** shows the locations of enhanced intersections, where additional turn lanes (with right-of-way in excess of the typical street cross-section) will be required. **Appendix D** includes a table of estimated future buildout lane geometry.
- Develop an implementation plan that will monitor traffic conditions and program construction of roadway improvements in a timely manner to maintain efficient traffic flows and minimize congestion and delay.
- Develop conceptual designs for future freeway interchanges, railroad grade separations, and river crossings to demonstrate feasibility and protect these infrastructure improvement opportunities against development encroachment.
- Incorporate these key roadway facilities (interchanges, grade separations, and river crossings) into the City's Development Impact Fee (DIF) program or another funding plan to provide a mechanism for their funding.
- Implement a program of traffic signal synchronization so traffic using the principal arterial streets can experience continuous traffic flow.
- Plan local streets and collector streets in alignments that do not encourage cut-through traffic.

- Develop a strategy for implementing intelligent transportation technologies to facilitate traffic flow and disseminate traveler information.

6.2 Goods Movement

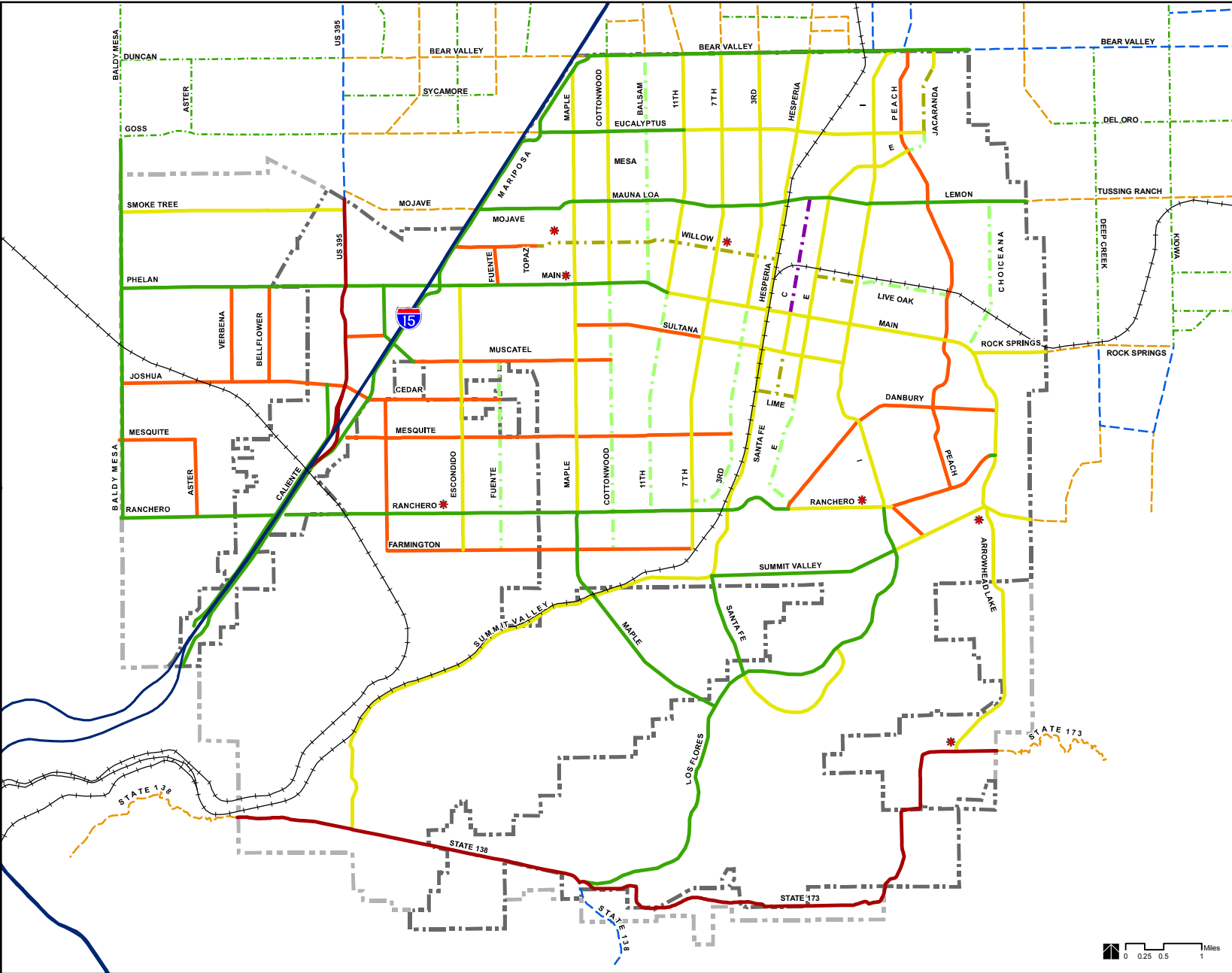
The movement of goods through Hesperia poses a challenging dichotomy for promoting economic development and maintaining the quality of life. On the positive side, the growth of industrial and transportation-related businesses helps the City's economy, and the level of commerce is enhanced by the availability of consumer goods. On the negative side, the BNSF rail line is a major circulation barrier through the heart of Hesperia, and truck traffic is often associated with its undesirable attributes – noise and air pollutants.

Overall, the benefits of economic activity far outweigh the negative aspects. Industrial and warehousing land uses (those that generate greater volumes of trucking activity) should be congregated in industrial areas of the City. Also, the barrier to circulation caused by the BNSF freight rail line can be mitigated by constructing additional grade-separated rail crossings at the locations identified in the roadway plan.

Recommended Approaches/Strategies:

- Develop land use strategies to focus heavier truck-generating uses in industrial areas.
- Identify streets where higher volumes and percentages of truck traffic are expected, and design arterial streets in those areas with design standards to facilitate the efficient movement of trucks.
- Support regional efforts to secure funding for the grade separation program.
- Develop a priority and funding plan for building the additional grade separations identified in the roadway plan.

Figure 6-1 Recommended Street Network Plan





General Plan Circulation Map

Legend

Roadway Clasifications

- State Highway
- Major Arterial
- Arterial
- Secondary Arterial
- Suburban Collector
- Rural Collector
- Industrial Collector

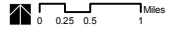
Streets Outside City's Sphere

- Major Arterial
- Arterial
- Collector

Misc.

- Bike Lanes
- Interstate (I-15)
- Railroad
- City Boundary
- Sphere of Influence

* Indicates streets with Special Sections than standard Major Arterial and arterial designations.

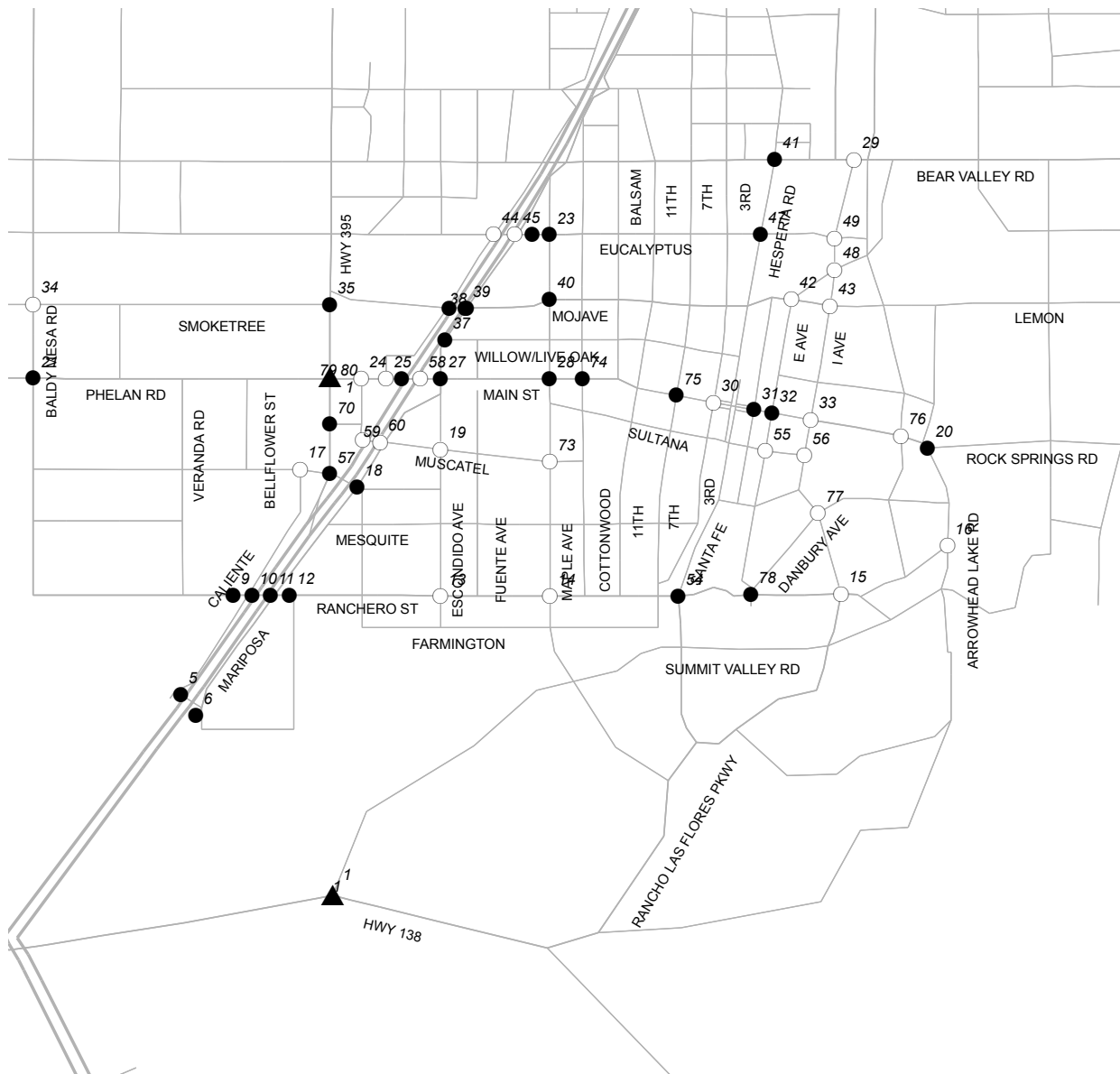


0 0.25 0.5 1 Miles

Hogle-Ireland, Inc.
Printing Date: Thursday, September 15, 2009
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Hesperia General Plan Update



Legend

- Enhanced Study Intersections
- Study Intersections
- ▲ Grade Separated Intersections



Not to Scale

JULY 2009



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Figure 6-2

Location of Enhanced Intersections

6.3 Transit

Public transportation can be a component of a balanced transportation system for the City, though public transit services are outside the City's purview. Public transportation provides an essential primary mode of transportation for those without access to automobiles, and an alternative mode of travel for motorists, which can help reduce traffic and congestion on the City's street network.

The City plays a role in the use of transit through land planning efforts to have developments designed in a manner that provides convenient access to bus stops, and comfortable waiting areas at the bus stops. Also the City can provide Victor Valley Transit with input and information that can help them to provide service in the areas that best meet the needs of Hesperia's citizens.

Recommended Approaches/Strategies:

- Encourage the expansion of local bus service to provide essential mobility for residents and employees in Hesperia.
- Support the expansion of express bus services from the Victor Valley to the San Bernardino Valley.

6.4 Non-motorized Transportation

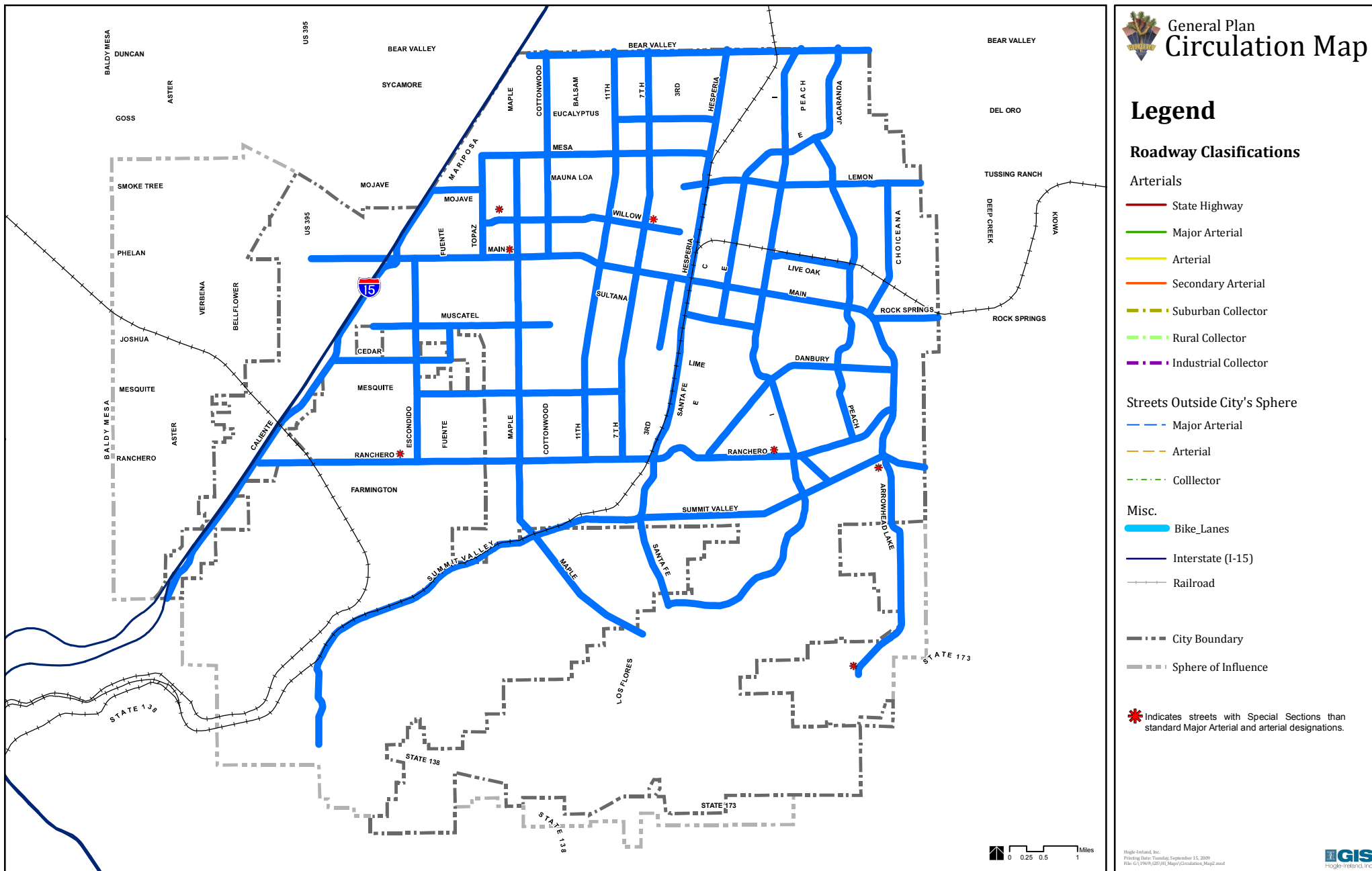
Hesperia wants walking and bicycle trips to be convenient, enjoyable, and safe for those who can travel that way, since this provides travelers with more options and promotes a healthy lifestyle. Areas developed with a mix of land use types can be planned to include walkways and bicycle facilities that facilitate non-motorized travel for short trips.

Recommended Approaches/Strategies:

- Incorporate sidewalks within street rights-of-way unless rendered inappropriate by other walkways or the character of the surrounding area.
- Plan pedestrian connections between adjacent development areas to help eliminate very short automobile trips.
- Plan convenient pedestrian connections in parts of the City planned for mixed use development.
- Plan off-street multi-use paths for bicycles and pedestrians where right-of-way is available.
- Plan bike lanes (Class II) on streets with sufficient pavement width that do not carry high volumes of traffic if possible.

A map of the City's planned bike system is shown in **Figure 6-3**.

Figure 6-3 Bikeway System Plan



6.5 Regional Transportation

The highways that currently provide regional access for Hesperia – I-15, US-395, and SR-138 – will be woefully inadequate to serve the future regional transportation needs of the Victor Valley, which is projected to exceed 1.2 million population when the local land use plans are built out. These roadways will need additional future capacity – I-15 will need to be widened, a new highway alignment will be needed for US-395 in addition to a six-lane arterial on the present alignment, and SR-138 will need to be developed as a major six-lane highway between I-15 and Summit Valley Road. Without these improvements, regional traffic will spill over onto the City's system of arterial streets, creating substantial congestion and inhibiting efficient circulation for Hesperia residents, employees, and customers. To maximize the City's potential and achieve the vision for efficient circulation in Hesperia, the City should become a proactive player in the process to identify and develop specific solutions to these corridor improvement needs through cooperative regional and subregional planning efforts.

Recommended Approaches/Strategies:

- Encourage Caltrans to complete the studies necessary to identify preferred new alignments and implement right-of-way preservation for US-395 and SR-138.
- Support, and participate in, the conduct of these studies.
- Support the conduct of engineering and environmental studies for a preferred program of improvements to I-15 through Cajon Pass and the Victor Valley.

APPENDICES

Appendix A

- **Traffic Count Worksheets**

Appendix B

- **Synchro Analysis
Worksheets**

Appendix B-1

- **Existing Conditions**

Appendix B-2

- **General Plan Buildout**

Appendix B-3

- **High Intensity Buildout
(with new corridors)**

Appendix B-4

- **High Intensity Buildout
(no new corridors)**

Appendix B-5

- **Preferred Scenario**

Appendix C

- **Future Development Assumptions by TAZ**

Appendix D

- **Recommended
Intersection Lane
Geometries Summary**