APPENDIX 11a

Traffic Impact Study (Draft)

DRAFT -- TRAFFIC IMPACT STUDY -- DRAFT
FOR THE
AIRPORT GATEWAY SPECIFIC PLAN PROJECT
IN THE CITIES OF SAN BERNARDINO AND HIGHLAND

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July, 2019

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INTRODUCTION

Purpose and Study Objectives

This traffic impact study has been prepared to address the traffic-related impacts of the proposed Airport Gateway Specific Plan located in the Cities of San Bernardino and Highland. This traffic impact study has been conducted in accordance with the traffic study requirements of the Cities of San Bernardino and Highland, and in accordance with the San Bernardino Association of Governments (SANBAG) Congestion Management Program (CMP) requirements.

This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, future traffic growth, and an assessment of project-related impacts on the roadway system. Where necessary, circulation system improvements have been identified to mitigate significant project impacts at the study locations.

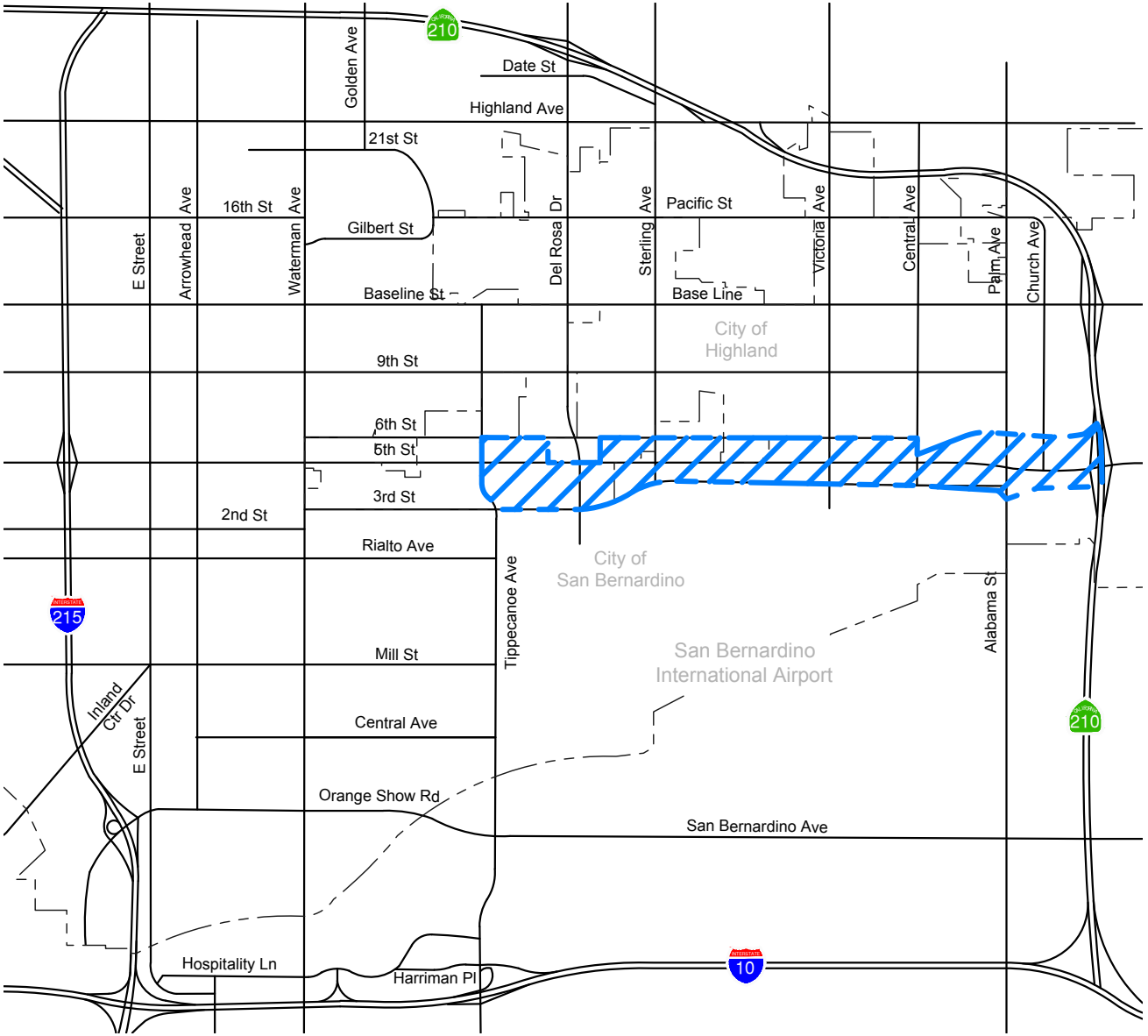
PROJECT DESCRIPTION

The Airport Gateway Specific Plan (AGSP) area covers approximately 670 acres, located immediately north of the San Bernardino International Airport (SBIA). The Specific Plan area is bounded generally by 6th Street and Highland Creek on the north, 3rd Street and the SBIA on the south, State Route 210 (SR-210) on the east, and Tippecanoe Avenue on the west. The North of the Specific Plan area (on the north side of 6th Street) is bordered by a mix of low- and medium-density residential uses and vacant parcels, as well as several public facilities including Indian Springs High School, Cypress Elementary School, Highland Community Park and the Highland Branch Library.

The Specific Plan area includes parcels in both the City of Highland (485 acres) and the City of San Bernardino (185 acres). The Project site is shown in its regional setting on Figure 1. The Specific Plan area is depicted on Figure 2.

The existing uses within the Specific Plan area include single-family and multi-family residential, small-lot commercial, educational facilities, and industrial uses. Vacant parcels make up approximately 209 acres of the Specific Plan area.

The AGSP would replace the existing uses within the Specific Plan area with approximately 9.2 million square feet of Industrial Mixed Uses, consisting of industrial warehouse, high-cube logistics warehouse, tech business park, and a small amount of commercial/retail/hotel uses. Development of the Specific Plan area will be accomplished over time, as market conditions allow, and as developers are successful in assembling individual parcels into parcels large enough for the allowed uses.



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LEGEND:

= Specific Plan Area

= City Boundaries

FIGURE 1
VICINITY MAP

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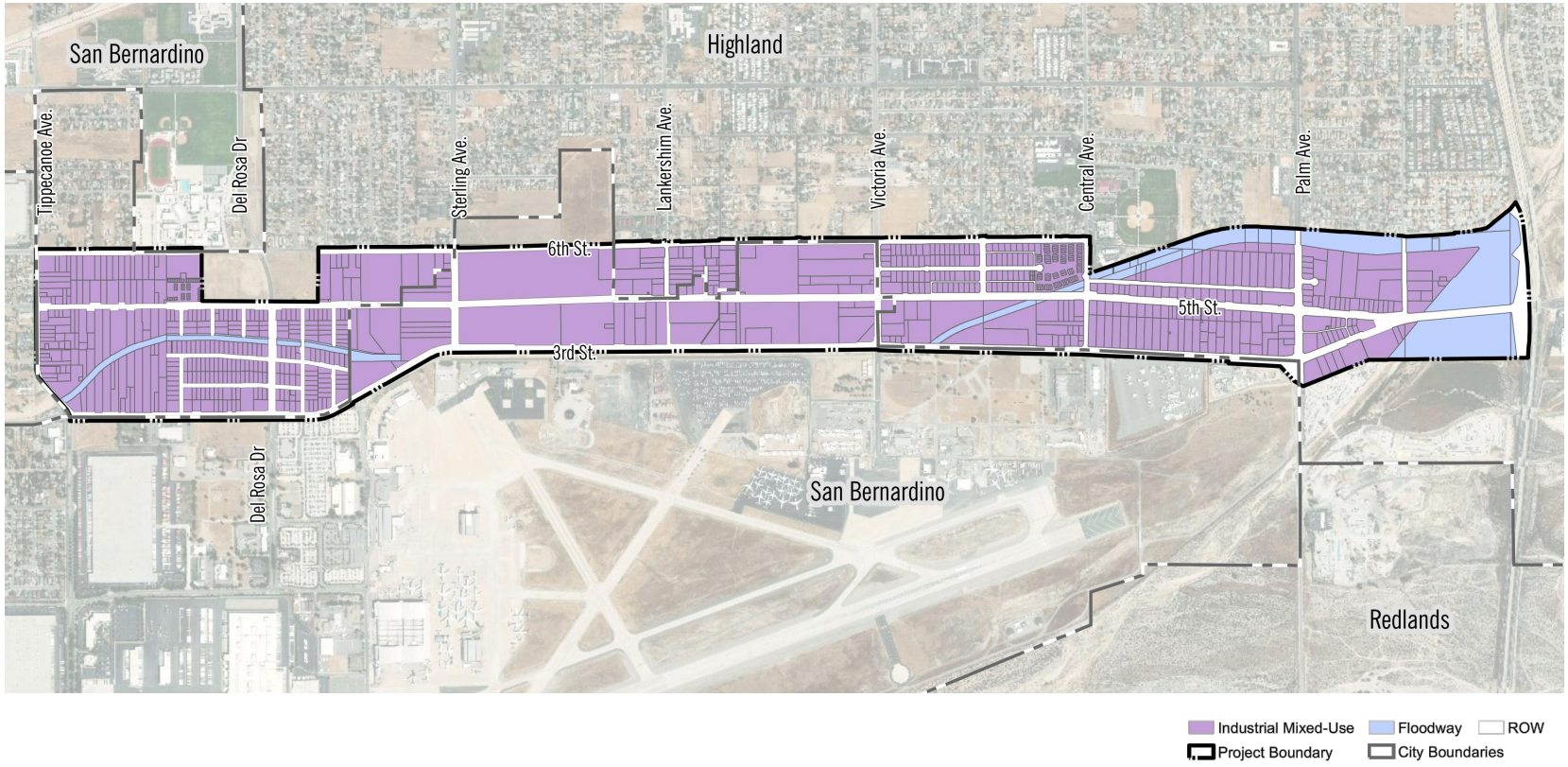

FIGURE 2
SPECIFIC PLAN AREA

ANALYSIS SCENARIOS AND METHODOLOGY

Analysis Scenarios

The project will be evaluated for the following study scenarios:

- Existing Conditions
- Existing Plus Project
- Future Build-Out 2040
- Future Build-Out 2040 Plus Project
    - With Mitigation, if necessary

Study Locations

The study locations were established in consultation with traffic engineering staff from the Cities of San Bernardino and Highland through the Scoping Agreement process. A copy of the approved Scope of Study Forms is provided in *Appendix A*.

The study locations are shown on Figure 3.

Study Intersections:

Int. #	Intersection	Jurisdiction	Traffic Control
1	Del Rosa Avenue at I-210 WB Ramps	Caltrans	S
2	Del Rosa Avenue at I-210 EB Ramps	Caltrans	S
3	Date Street at Del Rosa Avenue	San Bernardino	S
4	Highland Avenue at Del Rosa Avenue	San Bernardino	S
5	Highland Avenue at I-210 EB Off-Ramp	Caltrans	S
6	Highland Avenue at I-210 WB On-Ramp	Caltrans	S
7	Victoria Avenue at Highland Avenue	Highland	S
8	Del Rosa Drive at Pacific Street	Highland	S
9	Victoria Avenue at Pacific Street	Highland	S
10	Victoria Avenue at 14th Street	Highland	S
11	Tippecanoe Avenue at Baseline Street	San Bernardino	S
12	Del Rosa Drive at Baseline Street	San Bernardino	S
13	Sterling Avenue at Base Line	Highland	S
14	Victoria Avenue at Base Line	Highland	S
15	Tippecanoe Avenue at 9th Street	Highland	S
16	Del Rosa Drive at 9th Street	San Bernardino	S
17	Sterling Avenue at 9th Street	Highland	S
18	Victoria Avenue at 9th Street	Highland	S

Int. #	Intersection	Jurisdiction [1]	Traffic Control
19	Del Rosa Drive at 6th Street	San Bernardino	S
20	Sterling Avenue at 6th Street	San Bernardino	U
21	Victoria Avenue at 6th Street	Highland	U
22	Central Avenue at 6th Street	San Bernardino	U
23	5th Street at I-215 SB Ramps	Caltrans	S
24	5th Street at I-215 NB Ramps	Caltrans	S
25	E Street at 5th Street	San Bernardino	S
26	Arrowhead Avenue at 5th Street	San Bernardino	S
27	Waterman Avenue at 5th Street	San Bernardino	S
28	Tippecanoe Avenue at 5th Street	Highland	S
29	Del Rosa Drive at 5th Street	Highland	S
30	Sterling Avenue at 5th Street	San Bernardino	S
31	Victoria Avenue at 5th Street	Highland	S
32	Central Avenue at 5th Street	Highland	S
33	Palm Avenue at 5th Street	Highland	S
34	Church Avenue at 5th Street	Highland	S
35	5th Street at SR-210 EB Ramps	Caltrans	S
36	5th Street at SR-210 WB Ramps	Caltrans	S
37	Tippecanoe Avenue at 3rd Street	San Bernardino	S
38	Del Rosa Avenue at 3rd Street	San Bernardino	S
39	Sterling Avenue at 3rd Street	San Bernardino	S
40	Victoria Avenue at 3rd Street	Highland	S
41	Central Avenue at 3rd Street	Highland	U
42	Palm Avenue at 3rd Street	Highland	S
43	Tippecanoe Avenue at Rialto Street	San Bernardino	S
44	Tippecanoe Avenue at Mill Street	San Bernardino	S
45	Tippecanoe Avenue at Central Avenue	San Bernardino	S
46	Tippecanoe Avenue at San Bernardino Avenue/ Orange Show Road	San Bernardino	S
47	Tippecanoe Avenue at Hospitality Lane	San Bernardino	S
48	Tippecanoe Avenue at I-10 WB Off-Ramp / Harriman Place	Caltrans	S
49	Tippecanoe Avenue at I-10 EB Ramps	Caltrans	S

[1] Intersections located on the border between the two cities are shown on this table according to which city is responsible for the maintenance of the signal.

S = Signalized U = Unsignalized

Study Roadway Segments

1. Waterman Avenue – Baseline Street to 5th Street
2. Waterman Avenue – 5th Street to 3rd Street
3. Tippecanoe Avenue – Baseline Street to 6th Street
4. Tippecanoe Avenue – 6th Street to 3rd Street
5. Tippecanoe Avenue – 3rd Street to Mill Street
6. Tippecanoe Avenue – Mill Street to Orange Show Road / San Bernardino Avenue
7. Tippecanoe Avenue – Orange Show/San Bernardino Ave to Harriman Place/I-10 WB Ramps
8. Del Rosa Drive – SR-210 EB Ramps to Highland Avenue
9. Del Rosa Drive – Highland Avenue to Pacific Street
10. Del Rosa Drive – Pacific Street to Baseline Street
11. Del Rosa Drive – Baseline Street to 9th Street
12. Del Rosa Drive – 9th Street to 6th Street
13. Del Rosa Drive – 6th Street to 3rd Street
14. Sterling Avenue – Base Line to 9th Street
15. Sterling Avenue – 9th Street to 6th Street
16. Sterling Avenue – 6th Street to 3rd Street
17. Victoria Avenue – Highland Avenue to Pacific Street
18. Victoria Avenue – Pacific Street to Base Line
19. Victoria Avenue – Base Line to 9th Street
20. Victoria Avenue – 9th Street to 6th Street
21. Victoria Avenue – 6th Street to 3rd Street
22. 6th Street – Tippecanoe Avenue to Del Rosa Drive
23. 6th Street – Del Rosa Drive to Sterling Avenue
24. 6th Street – Sterling Avenue to Victoria Avenue
25. 6th Street – Victoria Avenue to Central Avenue
26. 5th Street – I-215 NB Ramps to E Street
27. 5th Street – E Street to Waterman Avenue
28. 5th Street – Waterman Avenue to Tippecanoe Avenue
29. 5th Street – Tippecanoe Avenue to Del Rosa Drive
30. 5th Street – Del Rosa Drive to Sterling Avenue
31. 5th Street – Sterling Avenue to Victoria Avenue
32. 5th Street – Victoria Avenue to Central Avenue
33. 5th Street – Central Avenue to Palm Avenue
34. 5th Street – Palm Avenue to SR-210 EB Ramps
35. 3rd Street – Waterman Avenue to Tippecanoe Avenue
36. 3rd Street – Tippecanoe Avenue to Del Rosa Drive
37. 3rd Street – Del Rosa Drive to Sterling Avenue
38. 3rd Street – Sterling Avenue to Victoria Avenue
39. 3rd Street – Victoria Avenue to Palm Avenue

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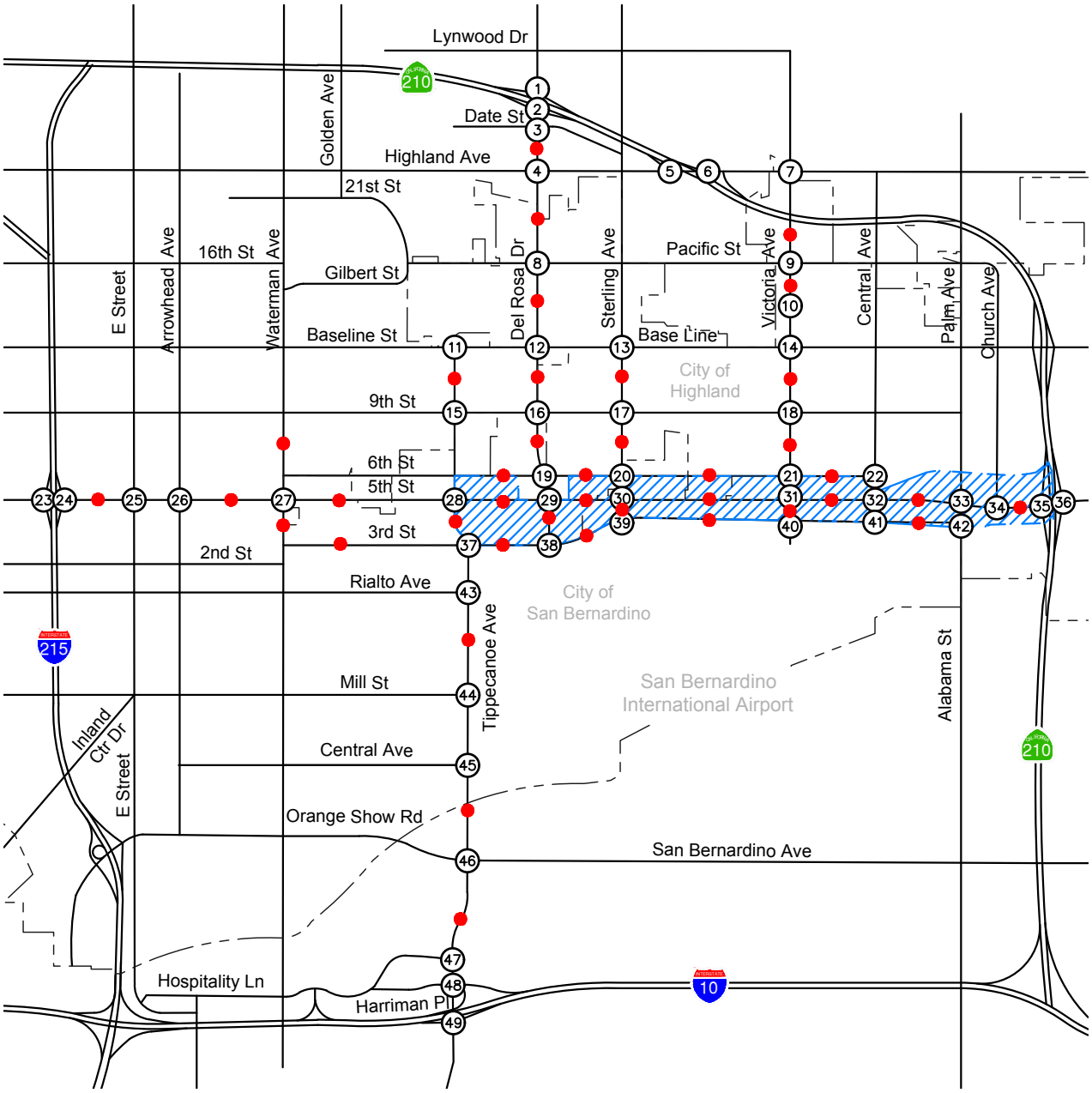

LEGEND:

= Specific Plan Area

= City Boundaries

= Study Intersection

= Study Roadway Segment

FIGURE 3
STUDY AREA

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ANALYSIS METHODOLOGY

Intersection Analysis – HCM Methodology

Peak hour intersection operations are evaluated using the methodology outlined in the Highway Capacity Manual (HCM), consistent with the requirements of the Cities of San Bernardino and Highland and the San Bernardino County CMP. The intersection analysis was conducted using the Vistro software program and using the input parameters specified in the San Bernardino County CMP.

Per the HCM Methodology, Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay for all intersection movements during the peak hour. Specifically, LOS criteria are stated in terms of the average control delay per vehicle, which includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay. Level of Service for unsignalized intersections is based on the average vehicle delay for the intersection approach or movement that has the worst (highest) delay.

The following charts provide a description of the operating characteristics of each Level of Service and average seconds of delay for signalized and unsignalized intersections.

LEVEL OF SERVICE DEFINITIONS	
Level of Service	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service [1]	Signalized Intersection (Average delay per vehicle, in seconds) [2]	Unsignalized Intersections (Average delay per vehicle, in seconds) [3]
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Per the San Bernardino County CMP, intersections will be considered operating at LOS F if the critical v/c ratio equals or exceeds 1.00.
[2] Source: Highway Capacity Manual (HCM 2010), Exhibit 18-4.
[3] Source: Highway Capacity Manual (HCM 2010), Exhibits 19-1 and 20-2.

Roadway Segment Analysis

The roadway segment analysis will address the project's impact on daily operating conditions on roadways within the project vicinity. Roadway segments are evaluated by comparing the daily traffic volume to the daily capacity of that segment, to determine the volume-to-capacity (v/c) ratio. Daily capacity is based on the roadway classification in the City of San Bernardino, as shown in the following chart:

DAILY ROADWAY CAPACITY		
Roadway Classification	Number of Lanes	Daily Capacity (Vehicles per day)
Major Arterial	6	60,000
Major Arterial	4	40,000
Major Arterial	2	15,000
Secondary Arterial	4	30,000
Secondary Arterial	2	12,000
Collector Street	4	25,000
Collector Street	2	10,000
Source: City of San Bernardino General Plan		

Many of the study roadway segments cross city boundaries between the Cities of San Bernardino and Highland. In several cases, the city boundary runs down the middle of the roadway and the Cities of San Bernardino and Highland have assigned different functional classifications to the roadway.

It should also be noted that the City of Highland evaluates roadway segments using a different methodology, based on the HCM Base Free-Flow Speed (BFFS) approach. For purposes of this joint study, all roadway segments are evaluated using the daily capacity methodology presented above. If a roadway segment located wholly within the City of Highland is found to be deficient based on the daily capacity methodology, that roadway segment will be re-evaluated using the BFFS approach.

Level of Service Standards and Measure of Significance

City of San Bernardino

The City of San Bernardino General Plan Circulation Element establishes minimum Level of Service standards, which require that City intersections operate at LOS D or better during the morning and evening peak hours, and that roadway segments operate at LOS C or better. Traffic impacts at an intersection are considered to be significant when any of the following changes in the volume-to-capacity (V/C) ratio occurs between the "without project" and the "with project" conditions:

LOS Without Project	V/C Difference
C	> 0.0400
D	> 0.0200
E, F	> 0.0100

New development is required to mitigate impacts where the project results in a significant impact as shown above.

City of Highland

The Level of Service standard for intersections in the City of Highland is LOS D or better for peak hour operations. A significant project impact would occur when the addition of project-related traffic causes an intersection to change from an acceptable Level of Service (LOS D or better) to LOS E or F.

State-Controlled Intersections (Caltrans)

For State-controlled intersections, Caltrans' Level of Service standards and impact criteria will apply. The Caltrans *Guide for the Preparation of Traffic Impact Studies* (2003) states that, "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE (measure of effectiveness) should be maintained.

General Plan Circulation Plans

The City of San Bernardino General Plan Circulation Plan and the City of Highland General Plan Circulation Element provide roadway designations for the roadway system serving the Specific Plan area and the surrounding vicinity. A copy of the City of San Bernardino Circulation Plan and Standard Cross Sections is provided on Figure 4. A copy of the City of Highland Circulation Element and Standard Cross Sections is provided on Figure 5.

EXISTING TRAFFIC CONDITIONS

Existing Street System

Regional access to the site is provided primarily by the Interstate 215 (I-215) Freeway, located approximately 2 miles to the west of the Specific Plan area. In addition, the I-10 Freeway is located approximately 3 miles to the south of the project. State Route 210 (SR-210) is oriented in an east-west direction approximately 2.5 miles to the north of the Specific Plan area, and then turns southward and is oriented in a north-south direction adjacent to the Specific Plan eastern boundary.

The following provides a description of the roadways surrounding the Specific Plan area.

Waterman Avenue is a north-south roadway that provides two to three lanes in each direction, with either a raised median or a center two-way left-turn lane in the project vicinity. The speed limit is 40 miles per hour (MPH) and on-street parking is prohibited on both sides. Waterman Avenue is designated on the City of San Bernardino's Circulation Plan as a Major Arterial.

Tippecanoe Avenue is a north-south roadway that provides two to three lanes in each direction, with either a raised median or a center two-way left-turn lane. Tippecanoe Avenue will form the westernmost boundary of the Specific Plan area. The speed limit ranges from 30 to 45 MPH and on-street parking is prohibited on both sides. Tippecanoe Avenue is designated on the City of San Bernardino's Circulation Plan as a Secondary Arterial north of 3rd Street and a Major Arterial south of 3rd Street; Tippecanoe Avenue is designated on the City of Highland's Circulation Element as a Secondary Highway.

Del Rosa Drive is a north-south roadway that provides one to two lanes in each direction, with either a raised median or a center two-way left-turn lane in the project vicinity. Del Rosa Drive extends through and beyond the Specific Plan boundary in both the north and south directions. The speed limit ranges from 35 to 45 MPH, with a 25-MPH school zone from Baseline Street to 6th Street. Del Rosa Drive is designated on the City of San Bernardino's Circulation Plan as a Major Arterial and is designated on the City of Highland's Circulation Element as a Secondary Highway.

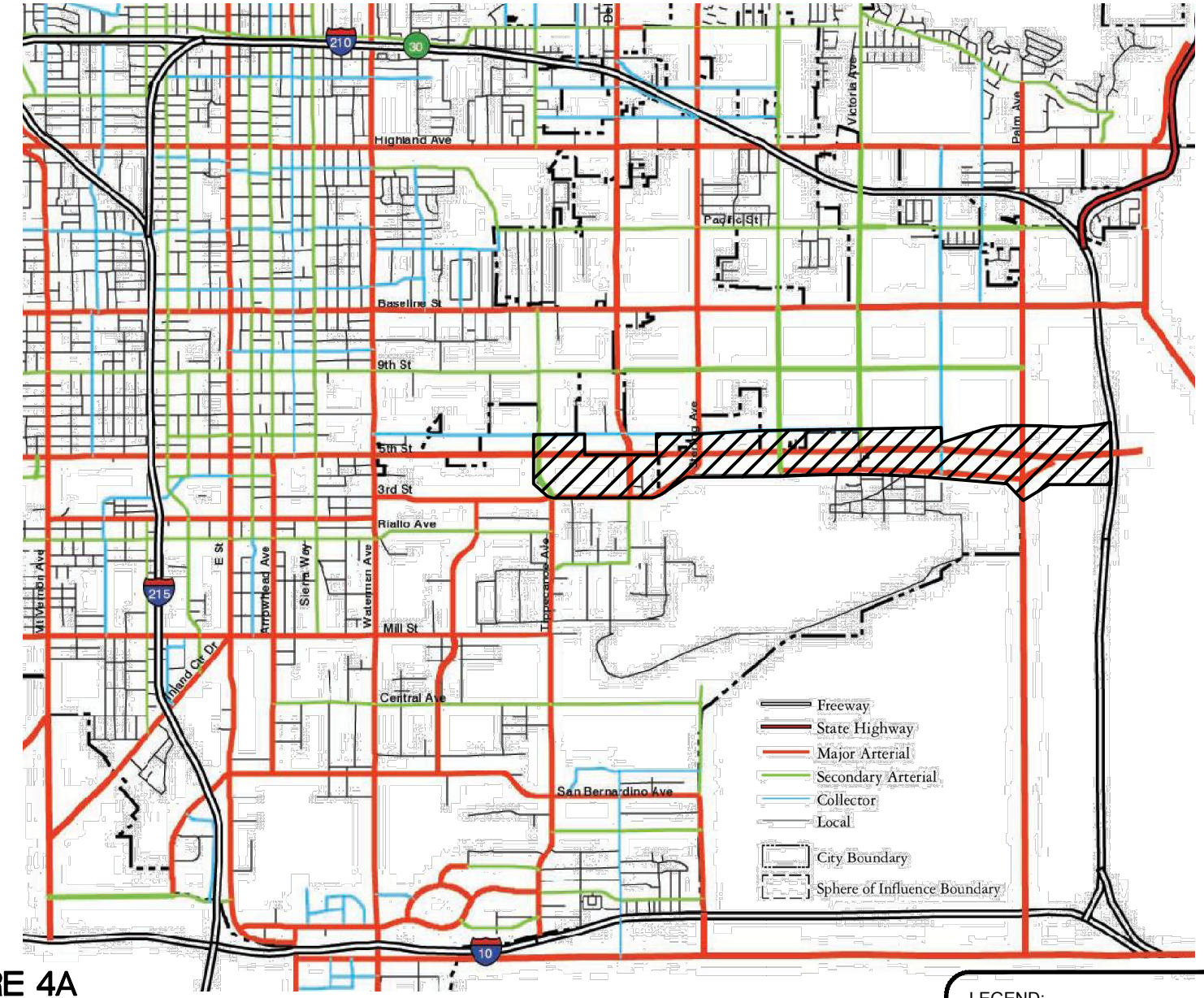

FIGURE 4A
CITY OF SAN BERNARDINO
CIRCULATION PLAN

LEGEND:
= Specific Plan Area

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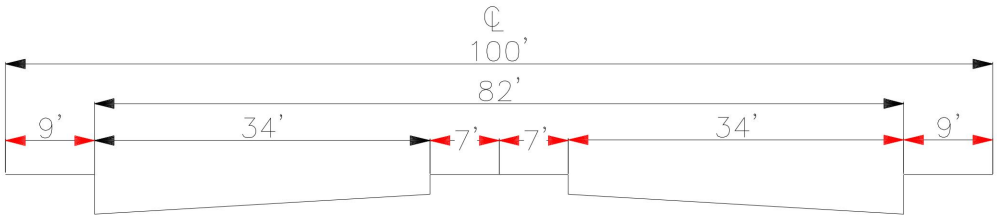
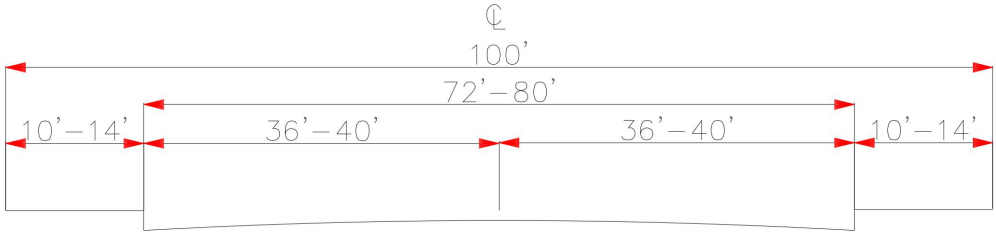
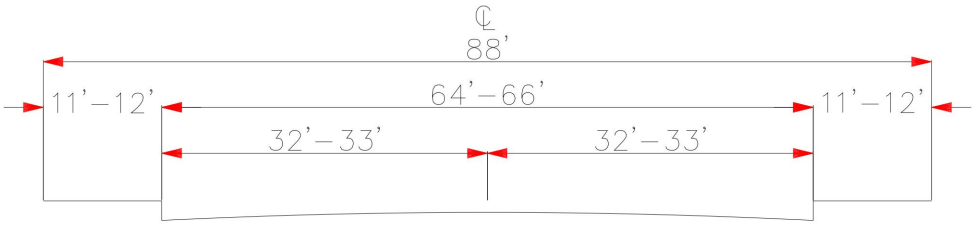


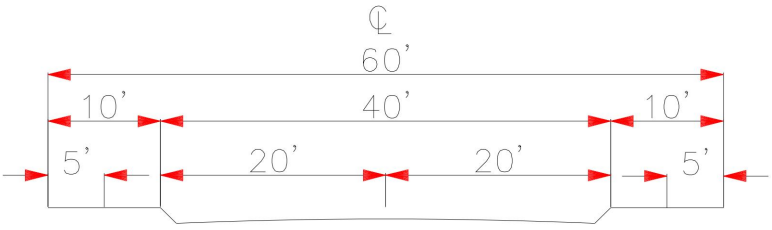
MAJOR DIVIDED HIGHWAYS



MAJOR HIGHWAY



SECONDARY HIGHWAY



COLLECTOR STREET

FOR USE IN QUARTER MILE STREETS,
SCHOOL AND INDUSTRIAL AREAS.

FIGURE 4B
CITY OF SAN BERNARDINO
STANDARD CROSS SECTIONS

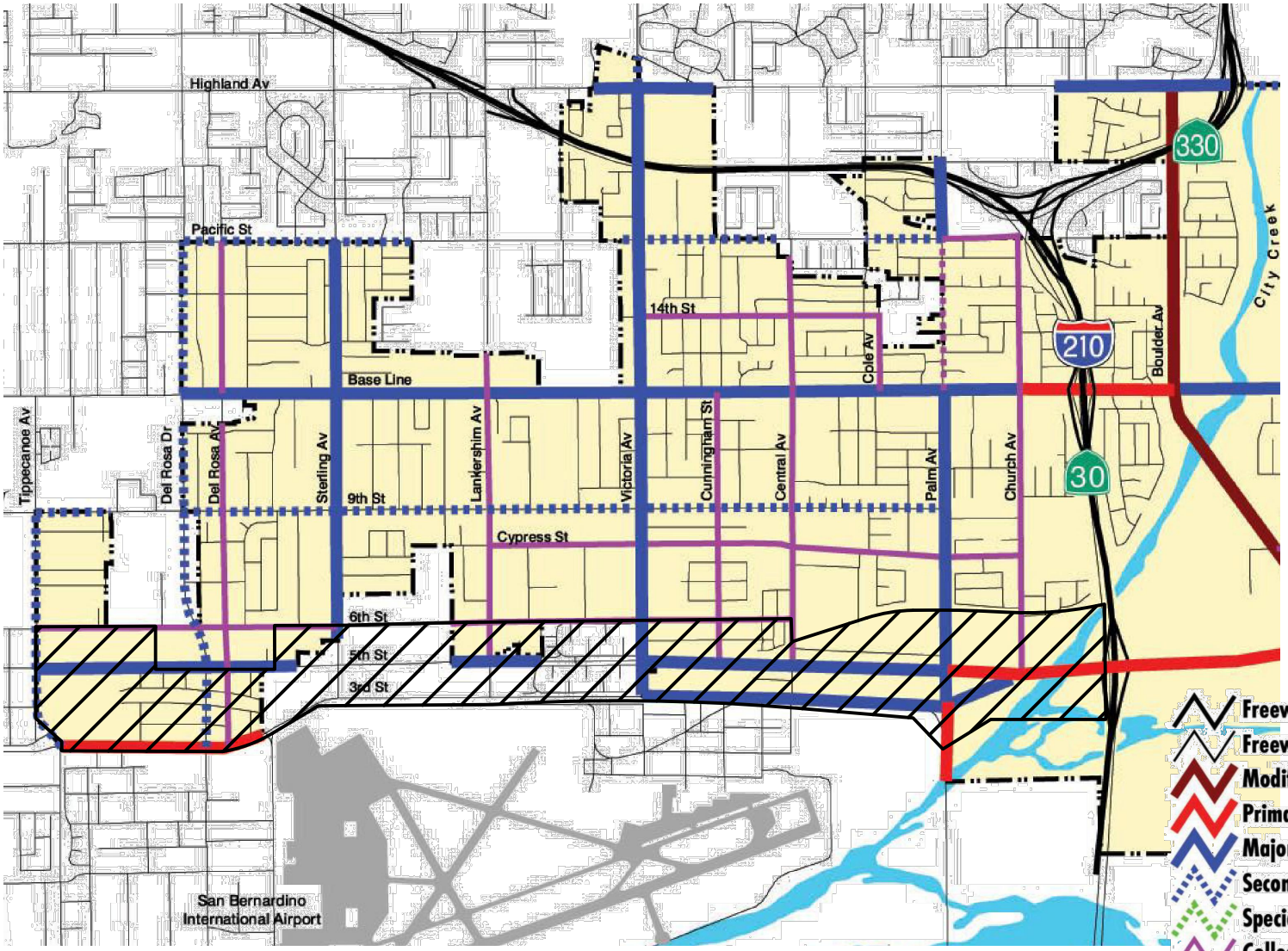


FIGURE 5A
CITY OF HIGHLAND
CIRCULATION ELEMENT

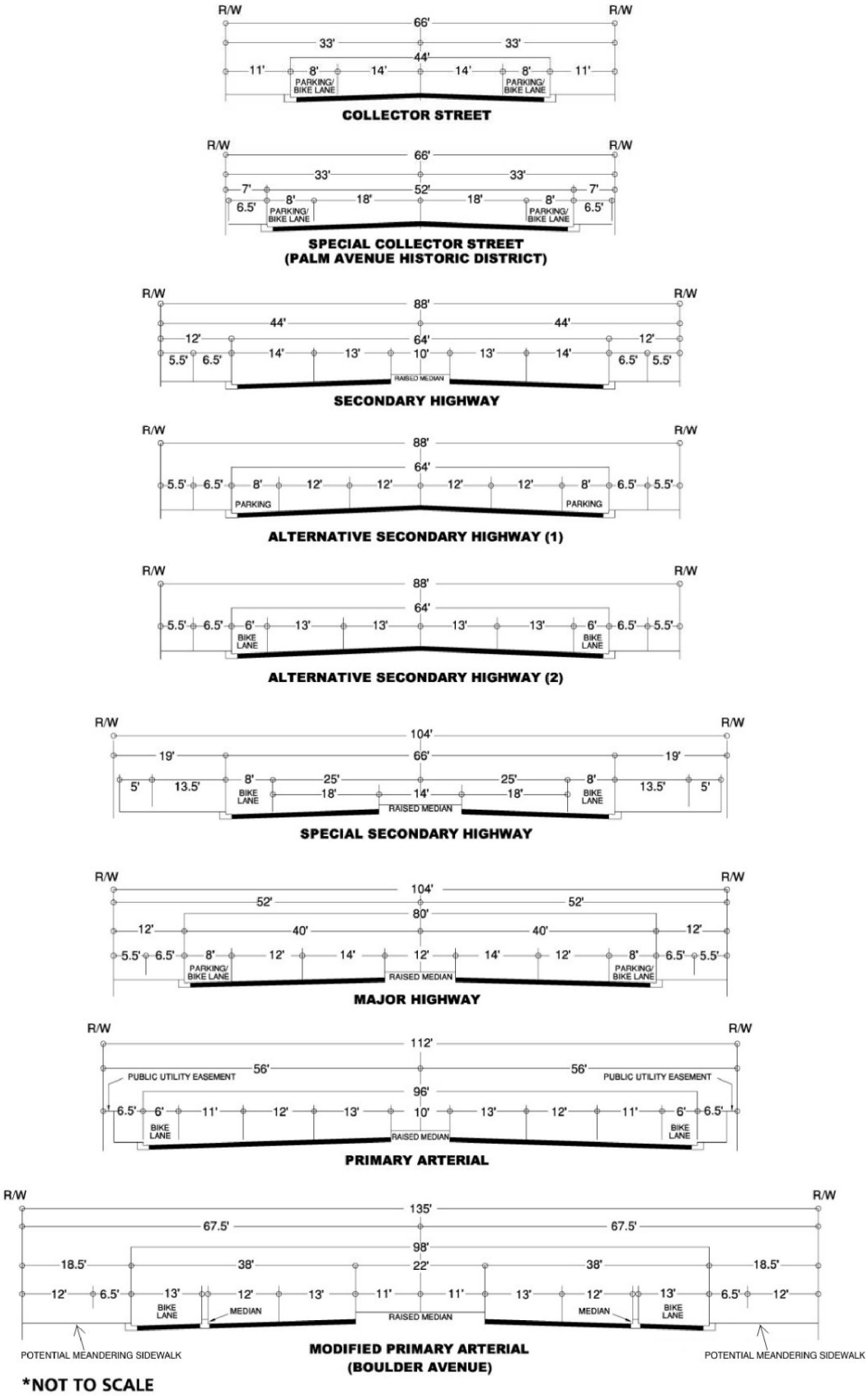


FIGURE 5B
CITY OF HIGHLAND
STANDARD CROSS SECTIONS

Sterling Avenue is a north-south roadway that provides two lanes in each direction, with a center two-way left-turn lane in the project vicinity. Sterling Avenue starts at 3rd Street, and extends northward through and beyond the Specific Plan boundary. The speed limit is 40 MPH. Sterling Avenue is designated on the City of San Bernardino's Circulation Plan as a Major Arterial and is designated on the City of Highland's Circulation Element as a Major Highway.

Victoria Avenue is a north-south roadway that provides two lanes in each direction, with a center two-way left-turn lane in the project vicinity. Victoria Avenue extends through and beyond the Specific Plan boundary in both the north and south directions. The speed limit ranges from 40 to 45 MPH and on-street parking is prohibited on both sides. Victoria Avenue is designated on the City of San Bernardino's Circulation Plan as a Secondary Arterial and is designated on the City of Highland's Circulation Element as a Major Highway.

6th Street is an east-west undivided roadway that provides one travel lane in each direction. 6th Avenue will form the northern boundary of the Specific Plan area from Tippecanoe Avenue to Central Avenue. The posted speed limit is 40 MPH, with a 25-MPH school zone from Tippecanoe Avenue to Del Rosa Drive. 6th Street is designated as a Collector Street on the City of San Bernardino's Circulation Plan and on the City of Highland's Circulation Element.

5th Street is an east-west roadway that provides one to two lanes in each direction in the project vicinity, with a center two-way left-turn lane in some sections. 5th Street provides a direct connection to both the I-215 Freeway to the West and the SR-210 Freeway to the East. 5th Street will traverse the entire length of the Specific Plan area, and will have development on both sides of the street. The speed limit ranges from 40 to 45 MPH, with a 25-MPH school zone to the east of Waterman Avenue. 5th Street is designated on the City of San Bernardino's Circulation Plan as a Major Arterial and is designated on the City of Highland's Circulation Element as a Major Highway.

3rd Street is an east-west roadway that provides two lanes in each direction, with a center two-way left-turn lane. The speed limit ranges from 45 to 50 MPH. 3rd Street is designated on the City of San Bernardino's Circulation Plan as a Major Arterial and is designated on the City of Highland's Circulation Element as a Primary Arterial. 3rd Street will form the southern boundary of the Specific Plan area from Tippecanoe Avenue to its eastern terminus.

3rd Street currently dead-ends southwest of the intersection of 5th Street at Church Avenue, in the City of Highland. The City has approved an improvement project that will connect 3rd Street to 5th Street to the east and west of Church Avenue. The future connection to the east of Church Avenue will allow eastbound traffic on 3rd Street to merge onto eastbound 5th Street. The connection to the west of Church Avenue will allow limited access from 5th Street to westbound 3rd Street. The timing for completion of this improvement is uncertain.

Existing Transit Service

Transit service to the project area is provided by OmniTrans, which serves the Cities of San Bernardino, Highland and other surrounding cities. Currently only Route 15 travels on any of the streets within the Specific Plan area.

OmniTrans Route 15 operates between the City of Redlands and the City of Fontana, traveling through the Specific Plan area along Tippecanoe Avenue, Del Rosa Avenue, Central Avenue, and Palm Avenue. Key stops along Route 15 include The San Bernardino County Court Building, Redlands Mall, San Bernardino Stadium, San Bernardino Valley College, Fontana Metrolink, and the San Bernardino Transit Center. At the San Bernardino Transit Center, passengers can transfer to other OmniTrans routes, as well as to Riverside Transit (RTA), Mountain Transit, Pass Transit and Victor Valley Transit Authority (VVTA) routes, or to Metrolink.

Route 15 operates on weekdays from 6:40 AM to 10:40 PM with approximately 30-minute headways (the time between bus arrivals), and on Saturdays and Sundays from approximately 6:40 AM to 7:25 PM with approximately 1-hour headways.

The OmniTrans bus stops located closest to the Specific Plan area are as follows:

- Tippecanoe Avenue at 3rd Street
- Del Rosa Drive at 3rd Street
- Del Rosa Drive at 6th Street
- Central Avenue at 5th Street
- Central Avenue at Palm Avenue

Existing Traffic Volumes

Intersection and roadway traffic volumes at the study locations were obtained from traffic studies for other projects in the vicinity, where available; and were collected at the study locations where counts were not available. Copies of the traffic count data worksheets are provided in *Appendix B*.

The traffic counts included vehicle classifications for passenger cars, 2-axle trucks, 3-axle trucks, and 4+-axle trucks. The vehicle classification data was used to develop Passenger Car Equivalent (PCE) volumes by applying a PCE factor of 2.0 PCE for 2-axle trucks, 2.5 PCE for 3-axle trucks, and 3.0 PCE for 4+-axle trucks. For locations without vehicle classification data, the percentage of trucks was determined from classification counts at surrounding locations.

Existing lane configurations and traffic control at the study intersections are shown on Figure 6. Existing morning and evening peak hour intersection volumes are presented on Figure 7. Daily roadway volumes are presented on Figure 8. The existing volumes on Figures 7 and 8 reflect the PCE factors described above.

Existing Operating Conditions

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results are shown on Table 1. Review of this table indicates that all study intersections currently operate at an acceptable Level of Service in both peak hours, with the exception of the following intersections:

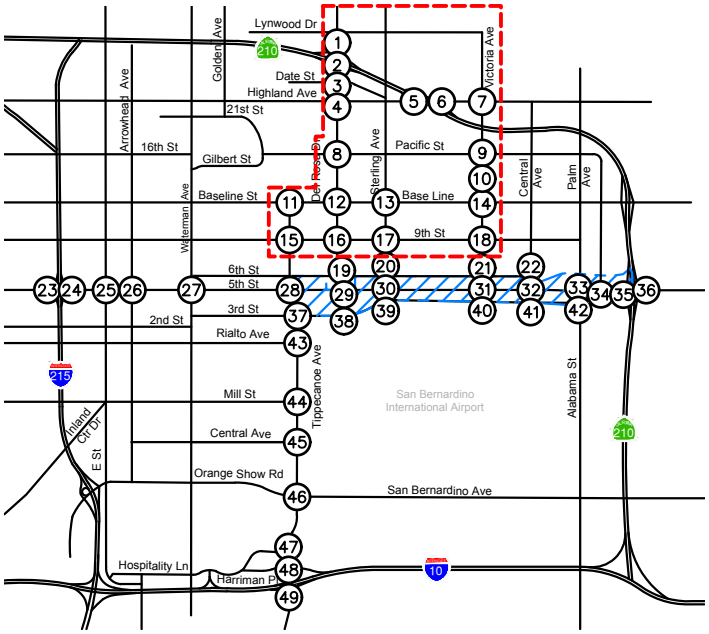
- #20 – Sterling Avenue at 6th Street (unsignalized): AM – LOS F; PM – LOS E
- #41 – Central Avenue at 3rd Street (unsignalized): PM – LOS E

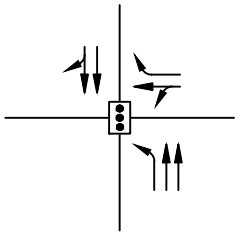
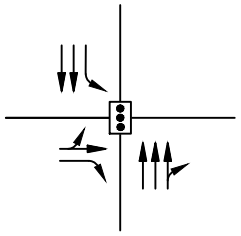
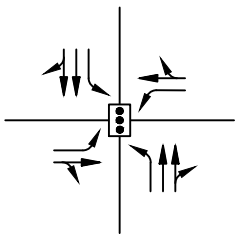
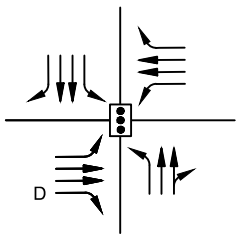
Copies of the intersection analysis worksheets are provided in *Appendix C*.

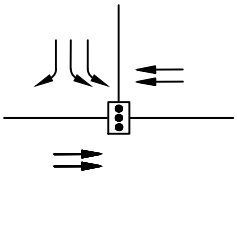
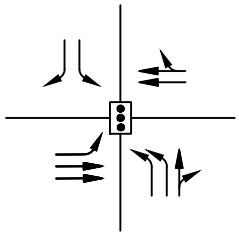
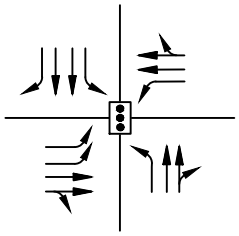
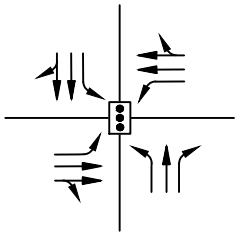
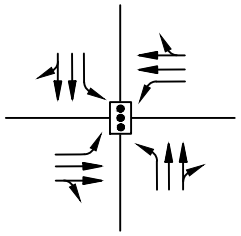
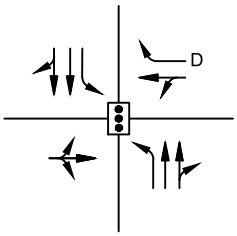
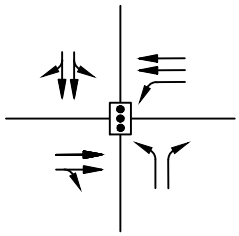
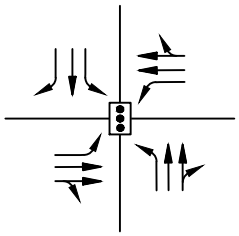
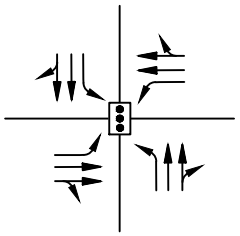
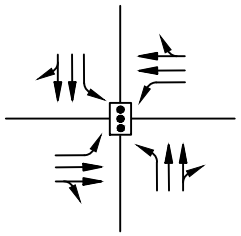
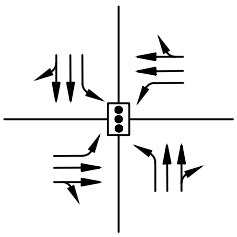
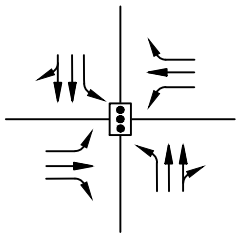
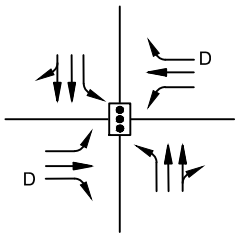
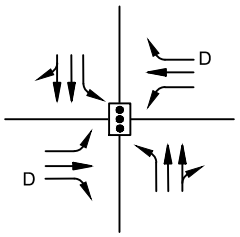
These two intersections are unsignalized. As described in the methodology section, the Level of Service for unsignalized intersections is based on the average vehicle delay for the intersection approach or movement that has the worst (highest) delay. In the case of these intersections vehicles on the side street stop-controlled movements (6th Street at intersection #20, and Central Avenue at intersection #41) experience delay as they wait for a gap in the through traffic on the main arterial. Under current conditions, neither intersection would warrant a signal based on the peak hour volumes.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted based on the roadway capacities presented previously in this report. The results are shown on Table 2. Review of this table indicates that all study roadway segments are currently operating at an acceptable Level of Service.



1. Del Rosa Ave at SR-210 WB Ramps	2. Del Rosa Ave at SR-210 EB Ramps
	
3. Del Rosa Ave at Date St	**4. Del Rosa Ave at Highland Ave**
	

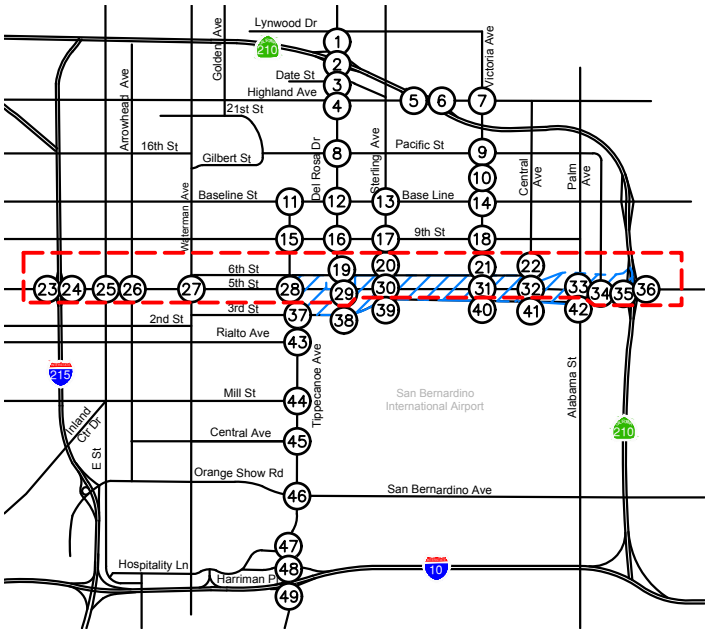
5. Highland Ave at SR-210 EB Off-Ramp	6. Highland Ave at SR-210 On-Ramp	7. Victoria Ave at Highland Ave	8. Del Rosa Dr at Pacific St	9. Victoria Ave at Pacific St
				
10. Victoria Ave at 14th St	**11. Tippecanoe Ave at Baseline St**	**12. Del Rosa Dr at Baseline St**	**13. Sterling Ave at Base Line**	**14. Victoria Ave at Base Line**
				
15. Tippecanoe Ave at 9th St	**16. Del Rosa Ave at 9th St**	**17. Sterling Ave at 9th St**	**18. Victoria Ave at 9th St**	
				

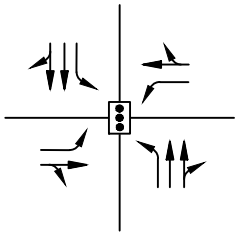
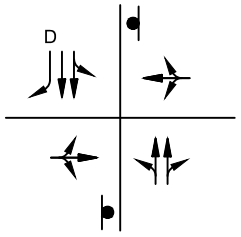
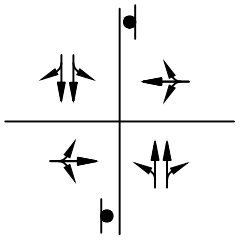
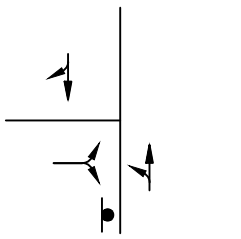
NOT TO SCALE

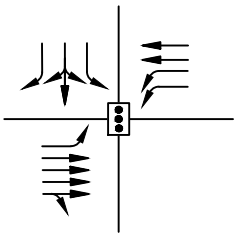
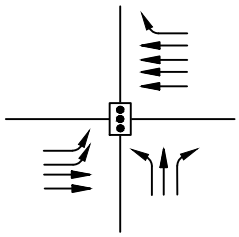
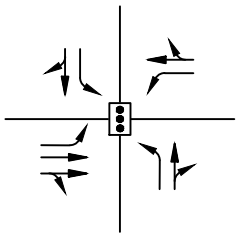
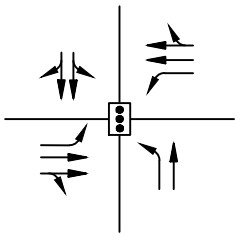
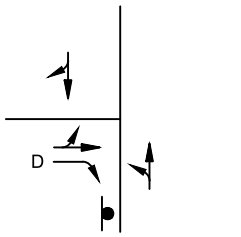
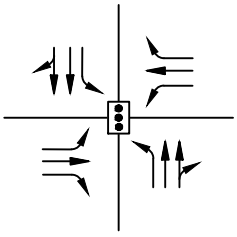
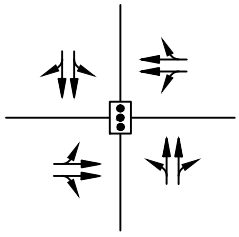
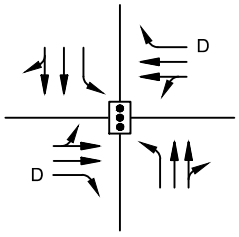
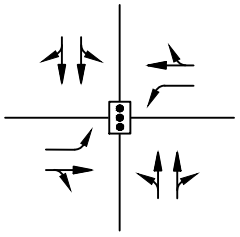
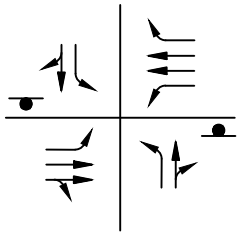
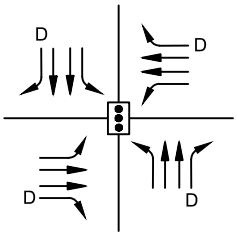
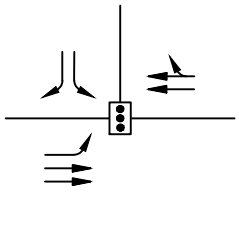
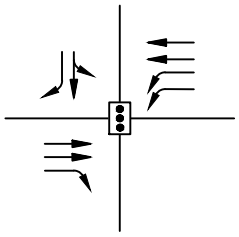
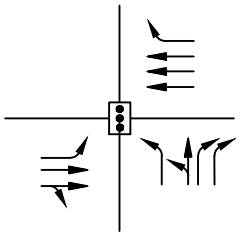
LEGEND:

- (X) = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- D = Defacto Right Turn
- F = Free Right Turn
- OV = Right-Turn Overlap

FIGURE 6A
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL



19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
	
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
	

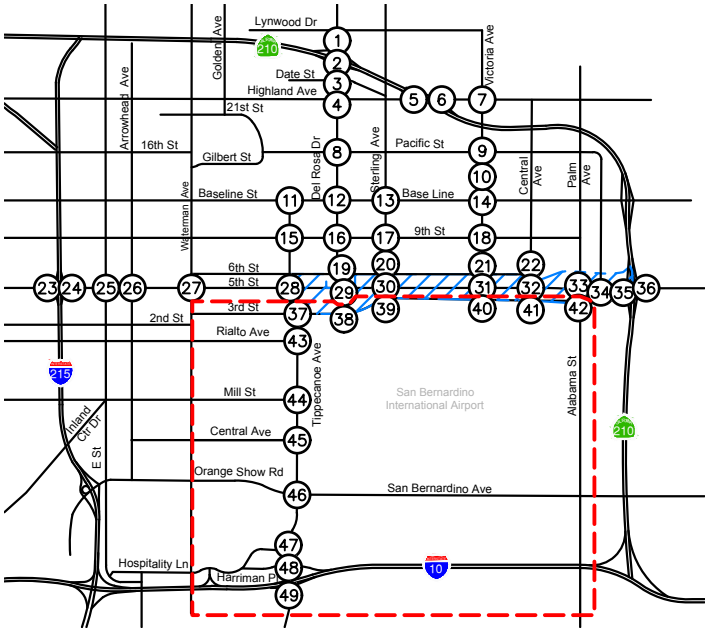
23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
				
28. Tippecanoe Ave at 5th St	**29. Del Rosa Dr at 5th St**	**30. Sterling Ave at 5th St**	**31. Victoria Ave at 5th St**	**32. Central Ave at 5th St**
				
33. Palm Ave at 5th St	**34. Church Ave at 5th St**	**35. SR-210 SB Ramps at 5th St**	**36. SR-210 NB Ramps at 5th St**	
				

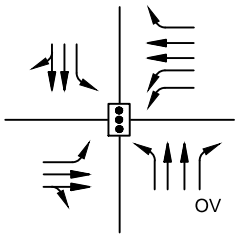
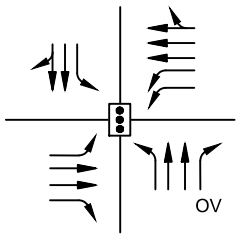
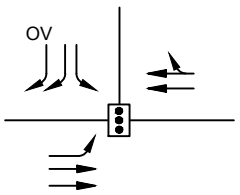
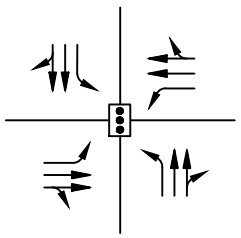
NOT TO SCALE

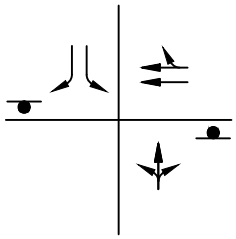
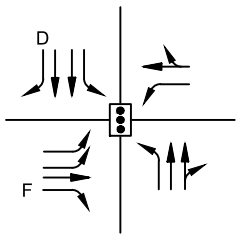
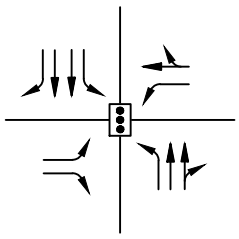
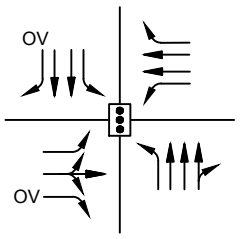
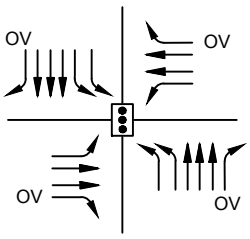
LEGEND:

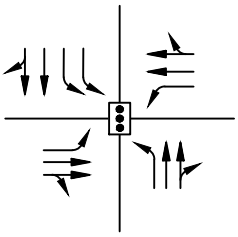
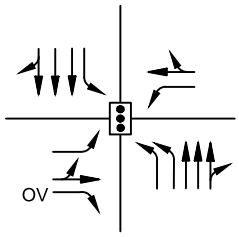
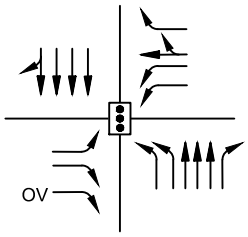
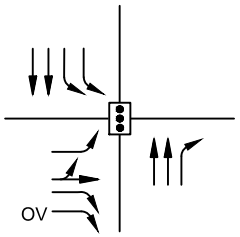
- X = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- D = Defacto Right Turn
- F = Free Right Turn
- OV = Right-Turn Overlap

FIGURE 6B
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL



37. Tippecanoe Ave at 3rd St	38. Del Rosa Dr at 3rd St
	
39. Sterling Ave at 3rd St	**40. Victoria Ave at 3rd St**
	

41. Central Ave at 3rd St	42. Palm Ave at 3rd St	43. Tippecanoe Ave at Rialto Ave	44. Tippecanoe Ave at Mill St	45. Tippecanoe Ave at Central Ave
				

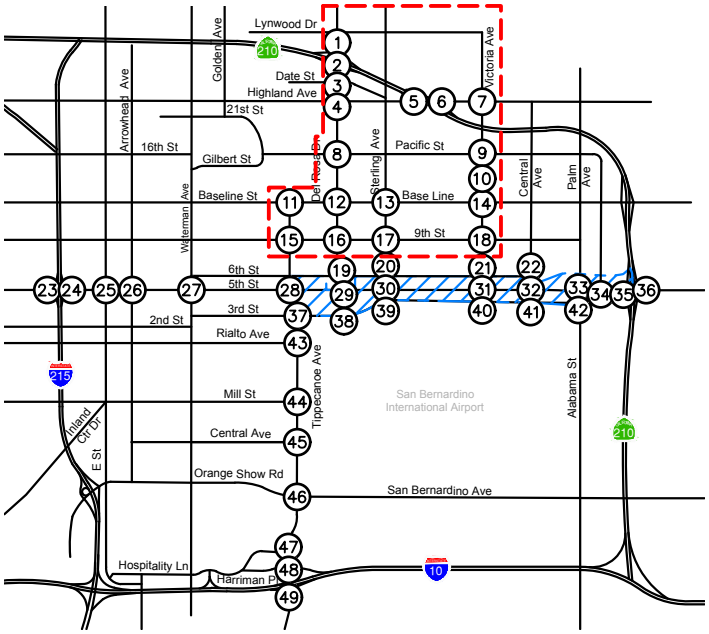
46. Tippecanoe Ave at Orange Show Rd	47. Tippecanoe Ave at Hospitality Ln	48. Tippecanoe Ave at I-10 WB Ramps	49. Tippecanoe Ave at I-10 EB Ramps
			

NOT TO SCALE

LEGEND:

- (X) = Study Intersection
- = Turn or Through Lane
- = Signal
- = Stop Sign
- D = Defacto Right Turn
- F = Free Right Turn
- OV = Right-Turn Overlap

FIGURE 6C
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL



1. Del Rosa Ave at SR-210 WB Ramps	2. Del Rosa Ave at SR-210 EB Ramps
664/373 ← 443/353 ↖ 121/226 ← 125/128	402/361 ← 170/121 ↙
587/627 ↑ 543/713 ↑	360/387 → 1/1 → 695/715 ↘ 817/949 ↑ 84/120 ↑

3. Del Rosa Ave at Date St	4. Del Rosa Ave at Highland Ave
69/113 ← 846/727 ← 179/240 ↙ 153/206 ← 28/71 ← 15/46	123/113 ← 568/406 ← 122/165 ↙ 135/160 ← 273/422 ← 47/72
112/126 → 31/57 → 39/51 ↘ 30/58 ↑ 628/736 ↑ 21/48 ↑	51/174 → 267/628 → 119/160 ↘ 104/174 ↑ 412/510 ↑ 36/65 ↑

5. Highland Ave at SR-210 EB Off-Ramp	6. Highland Ave at SR-210 On-Ramp	7. Victoria Ave at Highland Ave	8. Del Rosa Dr at Pacific St	9. Victoria Ave at Pacific St
160/155 ↙ 911/1025 ↙ ← 329/577	305/274 ← 338/205 ← 59/66 ↙ 139/176 ← 868/1517 ← 154/151	284/591 ← 215/146 ← 68/183 ↙ 88/127 ← 348/567 ← 45/62	200/146 ← 342/319 ← 38/65 ↙ 42/35 ← 280/191 ← 69/29	103/66 ← 282/279 ← 58/54 ↙ 89/60 ← 331/247 ← 50/42
293/702 →	79/127 → 996/1102 → 238/344 ↘ 279/217 ↑ 166/93 ↑ 76/42 ↑	448/672 → 372/507 → 119/164 ↘ 241/237 ↑ 243/191 ↑ 42/57 ↑	154/147 → 236/339 → 27/25 ↘ 44/20 ↑ 214/402 ↑ 28/69 ↑	113/71 → 252/358 → 206/190 ↘ 165/145 ↑ 321/379 ↑ 30/55 ↑

10. Victoria Ave at 14th St	11. Tippecanoe Ave at Baseline St	12. Del Rosa Dr at Baseline St	13. Sterling Ave at Base Line	14. Victoria Ave at Base Line
2/12 ← 523/471 ← 27/31 ↙ 52/52 ← 3/4 ← 19/27	← 446/499 ← 191/165 ↙	125/90 ← 279/204 ← 31/81 ↙ 35/50 ← 378/461 ← 92/26	66/83 ← 398/309 ← 163/202 ↙ 195/216 ← 338/354 ← 44/60	122/122 ← 329/276 ← 85/99 ↙ 74/98 ← 245/327 ← 33/38
2/13 → 0/10 → 0/3 ↘ 0/27 ↑ 442/17 ↑ 11/54 ↑	306/651 → 198/167 ↘ 167/283 ↑ 161/249 ↑	49/127 → 232/693 → 134/37 ↘ 50/44 ↑ 208/314 ↑ 77/64 ↑	60/127 → 225/551 → 40/49 ↘ 28/69 ↑ 252/447 ↑ 35/76 ↑	105/115 → 211/494 → 30/59 ↘ 48/62 ↑ 265/339 ↑ 20/74 ↑

15. Tippecanoe Ave at 9th St	16. Del Rosa Ave at 9th St	17. Sterling Ave at 9th St	18. Victoria Ave at 9th St
23/35 ← 349/265 ← 24/12 ↙ 21/22 ← 295/246 ← 72/48	70/43 ← 199/261 ← 130/52 ↙ 44/46 ← 233/287 ← 31/40	83/75 ← 362/234 ← 55/71 ↙ 85/73 ← 256/176 ← 52/50	65/60 ← 249/216 ← 44/59 ↙ 55/56 ← 99/120 ← 32/19
27/61 → 351/370 → 81/75 ↘ 111/116 ↑ 251/511 ↑ 76/57 ↑	48/38 → 421/219 → 123/65 ↘ 78/80 ↑ 119/390 ↑ 137/75 ↑	80/97 → 172/270 → 22/34 ↘ 22/33 ↑ 171/360 ↑ 36/106 ↑	54/83 → 91/178 → 40/45 ↘ 45/46 ↑ 161/303 ↑ 16/27 ↑

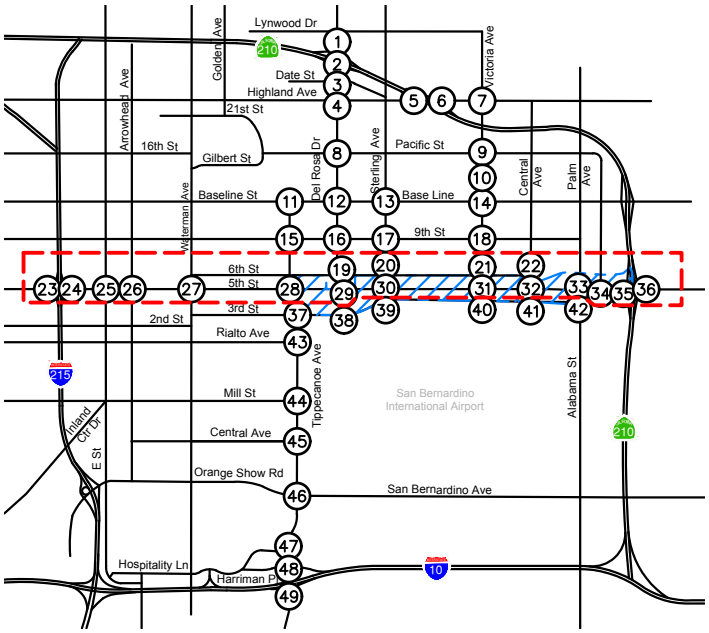
Note: Existing volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

NOT TO SCALE

LEGEND:
(X) = Study Intersection
XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 7A
EXISTING PEAK HOUR TRAFFIC VOLUMES

Kimley»Horn



19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
95/30 ↙ 274/230 ↓ 43/14 ↘ 43/19 ← 144/86 ← 86/39	43/23 ↙ 469/237 ↓ 24/26 ↘ 14/18 ← 116/76 ← 9/10
155/55 → 144/124 → 53/14 ↘ 71/10 ↑ 199/313 ↑ 37/122	37/55 → 102/104 → 12/11 ↘ 12/15 ↑ 138/458 ↑ 9/38
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
23/24 ↙ 299/203 ↓ 13/16 ↘ 18/10 ← 32/29 ← 9/3	33/30 ↙ 107/75
23/26 → 33/44 → 41/25 ↘ 31/46 ↑ 120/341 ↑ 1/5	44/50 → 27/27 ↘ 9/22 ↑ 80/173 ↑

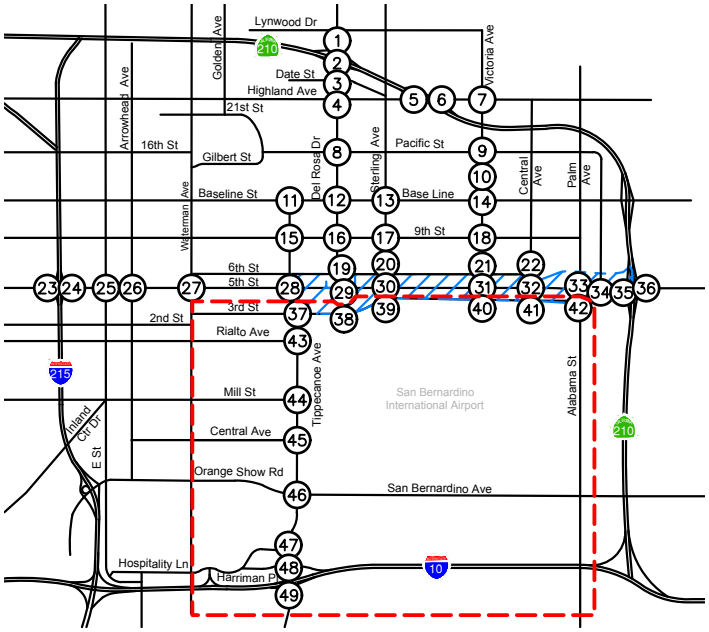
23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
193/186 ↙ 5/6 ↓ 532/198 ← 504/805 ← 315/498	148/644 ← 509/925	17/60 ↙ 132/163 ↓ 10/21 ↘ 7/20 ← 421/838 ← 7/33	24/51 ↙ 174/142 ↓ 26/27 ↘ 12/20 ← 394/588 ← 39/39	110/132 ↙ 519/574 ↓ 14/52 ↘ 16/33 ← 297/212 ← 76/62
442/589 → 350/393 ↘	150/225 → 840/561 → 290/380 ↑ 0/3 → 542/418	75/26 → 937/543 → 37/42 ↘ 27/94 ↑ 102/281 ↑ 20/27	43/46 → 628/490 → 131/30 ↘ 38/95 ↑ 98/305 ↑ 32/64	70/137 → 169/395 → 153/132 ↘ 117/143 ↑ 382/678 ↑ 48/97
28. Tippecanoe Ave at 5th St	**29. Del Rosa Dr at 5th St**	**30. Sterling Ave at 5th St**	**31. Victoria Ave at 5th St**	**32. Central Ave at 5th St**
41/24 ↙ 360/297 ↓ 17/35 ↘ 19/28 ← 193/122 ← 20/26	49/32 ↙ 316/215 ↓ 32/48 ↘ 47/36 ← 284/119 ← 27/16	55/42 ↙ 330/182 ↓ 9/35 ↘ 10/30 ← 269/124 ← 24/11	30/14 ↙ 230/137 ↓ 76/75 ↘ 78/109 ← 266/138 ← 257/30	33/14 ↙ 56/31 ↓ 42/50 ↘ 44/73 ← 683/299 ← 33/6
17/59 → 55/414 → 32/48 ↘ 36/57 ↑ 176/468 ↑ 11/34	64/71 → 69/398 → 16/18 ↘ 8/21 ↑ 192/343 ↑ 7/24	22/83 → 73/366 → 11/29 ↘ 8/6 ↑ 97/310 ↑ 2/14	9/48 → 60/362 → 3/11 ↘ 1/2 ↑ 74/248 ↑ 13/116	15/21 → 191/616 → 14/5 ↘ 5/2 ↑ 4/110
33. Palm Ave at 5th St	**34. Church Ave at 5th St**	**35. SR-210 SB Ramps at 5th St**	**36. SR-210 NB Ramps at 5th St**	
73/30 ↙ 584/246 ↓ 125/174 ↘ 92/132 ← 568/250 ← 358/190	84/30 ↙ 154/79 ↓ 70/77 ← 983/511	121/118 ↙ 7/6 ↓ 122/310 ← 951/482 ← 745/279	392/267 ← 1336/575	
11/70 → 203/700 → 63/60 ↘ 33/88 ↑ 150/569 ↑ 258/534	25/58 → 564/1317 →	326/933 → 396/489 ↘	82/182 → 371/1041 → 363/207 ↑ 319/435 ↑	

Note: Existing volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

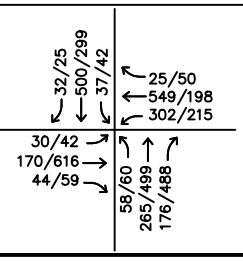
NOT TO SCALE

LEGEND:
(X) = Study Intersection
xx/yy = AM/PM Peak Hour Turning Movement Volumes

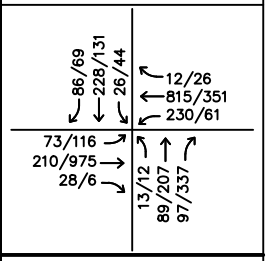
FIGURE 7B
EXISTING PEAK HOUR TRAFFIC VOLUMES



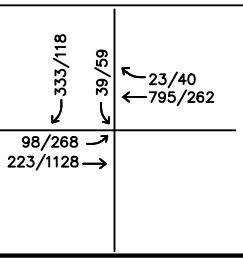
37. Tippecanoe Ave at 3rd St



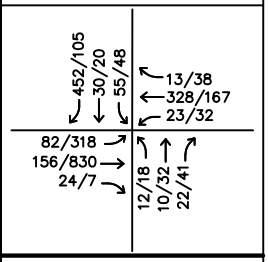
38. Del Rosa Dr at 3rd St



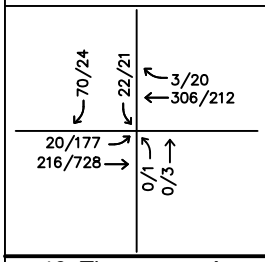
39. Sterling Ave at 3rd St



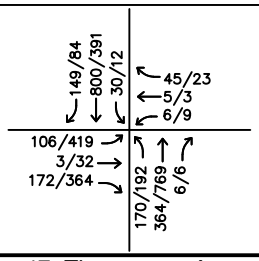
40. Victoria Ave at 3rd St



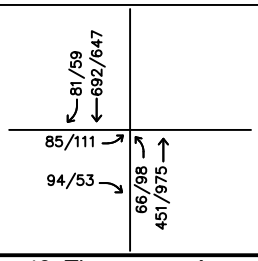
41. Central Ave at 3rd St



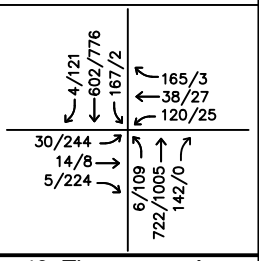
42. Palm Ave at 3rd St



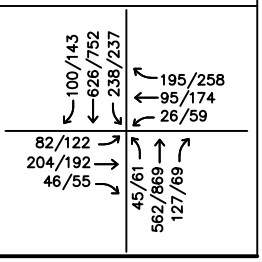
43. Tippecanoe Ave at Rialto Ave



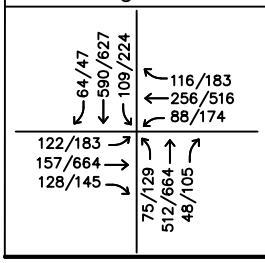
44. Tippecanoe Ave at Mill St



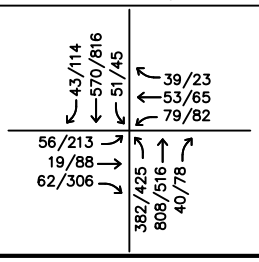
45. Tippecanoe Ave at Central Ave



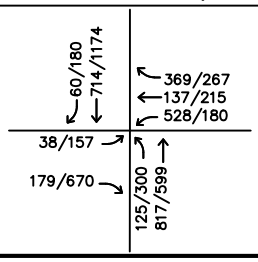
46. Tippecanoe Ave at Orange Show Rd



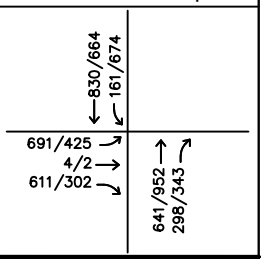
47. Tippecanoe Ave at Hospitality Ln



48. Tippecanoe Ave at I-10 WB Ramps



49. Tippecanoe Ave at I-10 EB Ramps

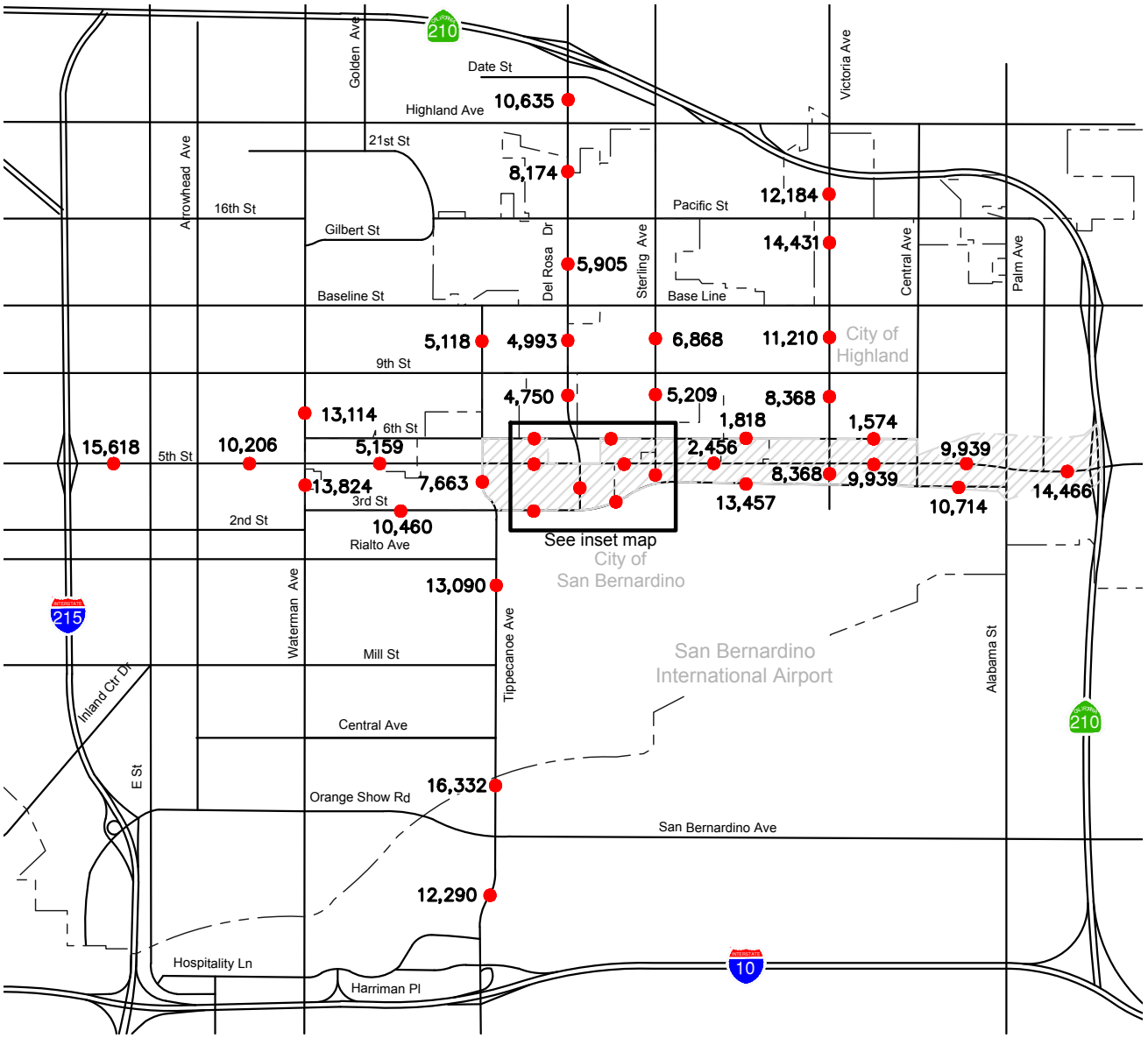


Note: Existing volumes reflect PCE adjustments.
See PCE Worksheets in Appendix C.

NOT TO SCALE

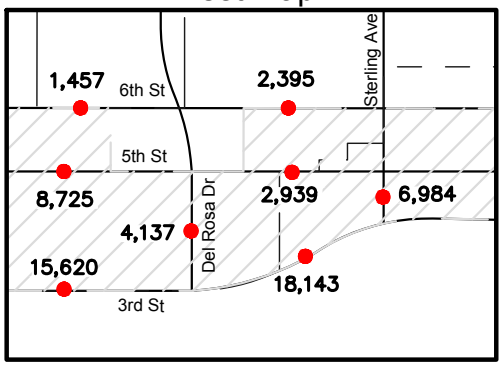
LEGEND:
(X) = Study Intersection
xx/yy = AM/PM Peak Hour Turning Movement Volumes

FIGURE 7C
EXISTING PEAK HOUR TRAFFIC VOLUMES



NOT TO SCALE

Inset Map



LEGEND:

= Specific Plan Boundary

X,XXX = Average Daily Traffic Volume

FIGURE 8
EXISTING AVERAGE DAILY ROADWAY VOLUMES

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Traffic Control	Jurisdiction	Peak Hour	Existing Conditions		
					Delay (sec/veh)	V/C	LOS
1	Del Rosa Drive at SR-210 WB Ramps	S	C	AM	54.3	0.947	D
				PM	32.7	0.814	C
2	Del Rosa Drive at SR-210 EB Ramps	S	C	AM	31.6	0.742	D
				PM	32.4	0.778	D
3	Del Rosa Drive at Date Street	S	SB	AM	14.6	0.387	B
				PM	19.6	0.484	B
4	Del Rosa Drive at Highland Avenue	S	SB	AM	29.5	0.355	C
				PM	35.9	0.517	D
5	Highland Avenue at SR-210 EB Off-Ramp	S	C	AM	23.0	0.449	C
				PM	20.9	0.531	C
6	Highland Avenue at SR-210 WB Off-Ramp	S	C	AM	45.9	0.826	D
				PM	40.5	0.767	D
7	Victoria Avenue at Highland Avenue	S	H	AM	28.3	0.567	C
				PM	29.1	0.824	C
8	Del Rosa Drive at Pacific Street	S	H	AM	30.1	0.420	C
				PM	27.4	0.440	C
9	Victoria Avenue at Pacific Street	S	H	AM	36.4	0.569	D
				PM	32.0	0.399	C
10	Victoria Avenue at 14th Street	S	H	AM	7.1	0.263	A
				PM	13.4	0.223	B
11	Tippecanoe Avenue at Baseline Street	S	SB	AM	22.8	0.437	C
				PM	24.4	0.520	C
12	Del Rosa Drive at Baseline Street	S	SB	AM	31.7	0.403	C
				PM	35.2	0.415	D
13	Sterling Avenue at Base Line	S	H	AM	30.7	0.419	C
				PM	33.9	0.562	C
14	Victoria Avenue at Base Line	S	H	AM	29.8	0.366	C
				PM	33.3	0.386	C
15	Tippecanoe Avenue at 9th Street	S	H	AM	31.2	0.438	C
				PM	28.7	0.339	C
16	Del Rosa Drive at 9th Street	S	SB	AM	33.0	0.518	C
				PM	28.6	0.392	C
17	Sterling Avenue at 9th Street	S	H	AM	29.1	0.390	C
				PM	29.3	0.412	C
18	Victoria Avenue at 9th Street	S	H	AM	27.1	0.254	C
				PM	28.3	0.262	C
19	Del Rosa Drive at 6th Street	S	SB	AM	33.9	0.540	C
				PM	21.0	0.267	C
20	Sterling Avenue at 6th Street	U	SB	AM	53.8	0.269	F
				PM	39.3	0.226	E
21	Victoria Avenue at 6th Street	U	H	AM	15.6	0.062	C
				PM	18.7	0.144	C
22	Central Avenue at 6th Street	U	SB	AM	10.7	0.085	B
				PM	11.0	0.083	B
23	I-215 SB Ramps at 5th Street	S	C	AM	24.6	0.513	C
				PM	20.2	0.521	C
24	I-215 NB Ramps at 5th Street	S	C	AM	28.9	0.425	C
				PM	24.1	0.669	C
25	E Street at 5th Street	S	SB	AM	10.3	0.365	B
				PM	16.5	0.442	B
26	Arrowhead Avenue at 5th Street	S	SB	AM	34.0	0.338	C
				PM	33.8	0.361	C

TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Traffic Control	Jurisdiction	Peak Hour	Existing Conditions		
					Delay (sec/veh)	V/C	LOS
27	Waterman Avenue at 5th Street	S	SB	AM	25.3	0.361	C
				PM	25.5	0.425	C
28	Tippecanoe Avenue at 5th Street	S	H	AM	22.5	0.281	C
				PM	27.6	0.470	C
29	Del Rosa Drive at 5th Street	S	H	AM	19.0	0.330	B
				PM	21.6	0.311	C
30	Sterling Avenue at 5th Street	S	SB	AM	19.0	0.146	B
				PM	24.9	0.305	C
31	Victoria Avenue at 5th Street	S	H	AM	31.2	0.336	C
				PM	27.0	0.389	C
32	Central Avenue at 5th Street	S	H	AM	10.8	0.305	B
				PM	13.2	0.353	B
33	Palm Avenue at 5th Street	S	H	AM	54.0	0.591	D
				PM	46.3	0.876	D
34	Church Avenue at 5th Street	S	H	AM	9.9	0.448	A
				PM	6.1	0.479	A
35	SR-210 EB Ramps at 5th Street	S	C	AM	25.5	0.661	C
				PM	26.7	0.657	C
36	SR-210 WB Ramps at 5th Street/Greenspot Road	S	C	AM	24.4	0.488	C
				PM	28.9	0.487	C
37	Tippecanoe Avenue at 3rd Street	S	SB	AM	29.2	0.384	C
				PM	29.7	0.636	C
38	Del Rosa Drive at 3rd Street	S	SB	AM	33.3	0.417	C
				PM	28.9	0.612	C
39	Sterling Avenue at 3rd Street	S	SB	AM	19.6	0.476	B
				PM	13.7	0.421	B
40	Victoria Avenue at 3rd Street	S	H	AM	40.6	0.499	D
				PM	22.5	0.372	C
41	Central Avenue at 3rd Street	U	H	AM	15.3	0.000	C
				PM	40.5	0.010	E
42	Palm Avenue at 3rd Street	S	H	AM	18.7	0.485	B
				PM	23.6	0.426	C
43	Tippecanoe Avenue at Rialto Avenue	S	SB	AM	11.8	0.360	B
				PM	10.2	0.371	B
44	Tippecanoe Avenue at Mill Street	S	SB	AM	19.9	0.442	B
				PM	17.9	0.471	B
45	Tippecanoe Avenue at Central Avenue	S	SB	AM	24.5	0.406	C
				PM	26.6	0.528	C
46	Tippecanoe Ave at Orange Show/San Bernardino Ave	S	SB	AM	26.2	0.460	C
				PM	33.8	0.634	C
47	Tippecanoe Avenue at Hospitality Lane	S	SB	AM	20.7	0.376	C
				PM	28.7	0.594	C
48	Tippecanoe Ave at I-10 WB Ramps / Harriman Place	S	C	AM	24.8	0.467	C
				PM	28.3	0.611	C
49	Tippecanoe Avenue at I-10 EB Ramps	S	C	AM	22.6	0.524	C
				PM	26.9	0.650	C

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the 2010 Highway Capacity Manual.
- S = Signalized; U = Unsignalized
- C = Caltrans; SB = San Bernardino; H = Highland

TABLE 2
SUMMARY OF ROADWAY SEGMENT ANALYSIS
EXISTING CONDITIONS

Roadway	Segment	Jurisdiction	Existing Configuration	LOS E Capacity	Existing ADT [1]	V/C	LOS
Waterman Avenue	Baseline Street to 5th Street	SB	4 Lanes Divided	40,000	13,114	0.328	A
	5th Street to 3rd Street	SB	6 Lanes Divided	60,000	13,824	0.230	A
Tippecanoe Avenue	Baseline Street to 6th Street	SB / H	4 Lanes Undivided	30,000	5,118	0.171	A
	6th Street to 3rd Street	SB / H	4 Lanes Undivided	30,000	7,663	0.255	A
	3rd Street to Mill Street	SB	6 Lanes Divided	60,000	13,090	0.218	A
	Mill Street to Orange Show Road / San Bernardino Avenue	SB	4 Lanes Divided	40,000	16,332	0.408	A
	Orange Show Road/ San Bernardino Avenue to Harriman Place / I-10 WB Ramps	SB	6 Lanes Divided	60,000	12,290	0.205	A
Del Rosa Drive	SR-210 EB Ramps to Highland Avenue	SB	4 Lanes Divided	40,000	10,635	0.266	A
	Highland Avenue to Pacific Street	SB	2 Lanes Undivided	12,000	8,174	0.681	B
	Pacific Street to Baseline Street	SB / H	4 Lanes Undivided	30,000	5,905	0.197	A
	Baseline Street to 9th Street	SB / H	4 Lanes Divided	40,000	4,993	0.125	A
	9th Street to 6th Street	SB	4 Lanes Divided	40,000	4,750	0.119	A
	6th Street to 3rd Street	SB / H	4 Lanes Undivided	30,000	4,137	0.138	A
Sterling Avenue	Base Line to 9th Street	H	4 Lanes Divided	40,000	6,868	0.172	A
	9th Street to 6th Street	H	4 Lanes Divided	40,000	5,209	0.130	A
	6th Street to 3rd Street	SB / H	4 Lanes Divided	40,000	6,984	0.175	A
Victoria Avenue	Highland Avenue to Pacific Street	H	4 Lanes Divided	40,000	12,184	0.305	A
	Pacific Street to Base Line	H	4 Lanes Divided	40,000	14,431	0.361	A
	Base Line to 9th Street	H	4 Lanes Undivided	30,000	11,210	0.374	A
	9th Street to 6th Street	H	4 Lanes Undivided	30,000	8,368	0.279	A
	6th Street to 3rd Street	SB / H	4 Lanes Undivided	30,000	8,368	0.279	A
6th Street	Tippecanoe Avenue to Del Rosa Drive	SB / H	2 Lanes Undivided	10,000	1,457	0.146	A
	Del Rosa Drive to Sterling Avenue	H	2 Lanes Undivided	10,000	2,395	0.240	A
	Sterling Avenue to Victoria Avenue	SB / H	2 Lanes Undivided	10,000	1,818	0.182	A
	Victoria Avenue to Central Avenue	H	2 Lanes Undivided	10,000	1,574	0.157	A
5th Street	I-215 NB Ramps to E Street	SB	4 Lanes Divided	40,000	15,618	0.390	A
	E Street to Waterman Avenue	SB	4 Lanes Divided	40,000	10,206	0.255	A
	Waterman Avenue to Tippecanoe Avenue	SB	2 Lanes Undivided	15,000	5,159	0.344	A
	Tippecanoe Avenue to Del Rosa Drive	H	2 Lanes Undivided	15,000	8,725	0.582	A
	Del Rosa Drive to Sterling Avenue	SB / H	4 Lanes Undivided	40,000	2,939	0.073	A
	Sterling Avenue to Victoria Avenue	SB / H	2 Lanes Undivided	15,000	2,456	0.164	A
	Victoria Avenue to Central Avenue	H	2 Lanes Undivided	15,000	9,939	0.663	B
	Central Avenue to Palm Avenue	H	2 Lanes Undivided	15,000	9,939	0.663	B
	Palm Avenue to SR-210 SB Ramps	H	4 Lanes Divided	40,000	14,466	0.362	A
3rd Street	Waterman Avenue to Tippecanoe Avenue	SB	4 Lanes Divided	40,000	10,460	0.262	A
	Tippecanoe Avenue to Del Rosa Drive	SB / H	4 Lanes Divided	40,000	15,620	0.391	A
	Del Rosa Drive to Sterling Avenue	SB / H	4 Lanes Divided	40,000	18,143	0.454	A
	Sterling Avenue to Victoria Avenue	SB	4 Lanes Divided	40,000	13,457	0.336	A
	Victoria Avenue to Palm Avenue	SB / H	4 Lanes Undivided	40,000	10,714	0.268	A

Notes: [1] Existing daily traffic volumes include passenger car equivalent (PCE) factors for trucks: 2-axle - 2.0; 3-axle - 2.5; 4+-axle - 3.0
LOS = Level of Service ADT = Average Daily Traffic V/C = Volume-to-Capacity
Jurisdiction: SB = San Bernardino, H = Highland, SB / H = Portions of the roadway segment are in both cities

PROJECT TRAFFIC

Project Trip Generation

The AGSP would replace the land uses currently existing within the Specific Plan area with approximately 9.2 million square feet of Industrial Mixed Uses, consisting of industrial warehouse, high-cube logistics warehouse, tech business park, and a small amount of commercial / retail uses.

Trip generation estimates for the Airport Gateway Specific Plan project are based on daily and peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition).

Based on the uses and intensities (expressed as floor area ratio, or FAR) allowed in the Specific Plan, the AGSP mix of uses assumed for this analysis and the associated ITE Land Use Category for each land use are as follows:

Land Use	ITE Land Use Code	Quantity	Unit
Industrial Warehouse	150	6,310,472	Sq. Ft.
High-Cube Warehouse	154	1,352,244	Sq. Ft.
Research and Development	760	1,302,161	Sq. Ft.
Retail / Commercial	820	65,233	Sq. Ft.
Hotel	310	150	Room

Passenger vehicle and truck mix assumptions were applied to the warehouse and high cube components of the project, based on the City of Fontana Truck Trip Generation Study. Passenger car equivalent (PCE) factors were then applied to the truck types, based on number of axles (2.0 PCE for 2-axle trucks, 2.5 PCE for 3-axle trucks, and 3.0 PCE for 4+-axle trucks) to determine the total PCE trips to be generated by the project.

Trip credits were taken to account for the existing uses in the Specific Plan area that would be removed. For a conservative analysis, the trip generation estimates for the existing uses were reduced by 50%. A summary of existing land uses and the associates trip generation is provided on Table A in *Appendix A*.

The trip generation rates, truck mix, PCE factors, and the resulting trip generation estimates for the project are summarized on Table 3. The AGSP project is estimated to generate 27,002 net PCE trips on a daily basis, with 1,674 trips in the morning peak hour, and 1,819 PCE trips in the evening peak hour.

TABLE 3
SUMMARY OF PROJECT TRIP GENERATION
AIRPORT GATEWAY SPECIFIC PLAN

TRIP GENERATION RATES [1]

ITE Land Use	ITE Code	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	150	KSF	1.740	0.131	0.039	0.170	0.051	0.139	0.190
High-Cube Transload and Short-Term Storage	154	KSF	1.40	0.06	0.02	0.08	0.03	0.07	0.10
Research and Development Center	760	KSF	11.26	0.32	0.11	0.42	0.07	0.42	0.49
Shopping Center	820	KSF	37.75	0.58	0.36	0.94	1.83	1.98	3.81
Hotel	310	Room	8.36	0.28	0.19	0.47	0.31	0.29	0.60

PROJECT TRIP GENERATION

Project Land Use	Quantity	Unit	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Warehousing	6,310.472	KSF	10,980	827	246	1,073	322	877	1,199
High-Cube Transload and Short-Term Storage	1,352.244	KSF	1,893	84	24	108	38	97	135
Research and Development Center	1,302.161	KSF	14,662	410	137	547	96	543	639
Shopping Center	65.233	KSF	2,463	38	23	61	119	129	248
Pass-by Trips	25%		-616	-10	-6	-16	-30	-32	-62
Total Shopping Center Trips			1,847	28	17	45	89	97	186
Hotel	150	Room	1,254	42	29	71	46	44	90
Total Project Trips			29,382	1,349	424	1,773	545	1,614	2,159

PASSENGER CAR EQUIVALENT (PCE) ADJUSTMENTS FOR WAREHOUSE USES

Vehicle Type	Vehicle Mix [2]	Daily Vehicles	PCE Factor [3]	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Warehousing										
Passenger Vehicles	79.57%	8,737	1.0	8,737	658	196	854	256	698	954
2-Axle Trucks	3.46%	380	2.0	760	57	17	74	22	61	83
3-Axle Trucks	4.64%	509	2.5	1,273	96	29	125	37	102	139
4+ Axle Trucks	12.33%	1,354	3.0	4,062	306	91	397	119	324	443
Total Truck PCE Trips				6,095	459	137	596	178	487	665
Total Warehousing PCE Trips				14,832	1,117	333	1,450	434	1,185	1,619
High-Cube Transload and Short-Term Storage										
Passenger Vehicles	51.0%	965	1.0	965	43	12	55	19	49	68
2-Axle Trucks	0.0%	0	2.0	0	0	0	0	0	0	0
3-Axle Trucks	0.0%	0	2.5	0	0	0	0	0	0	0
4+ Axle Trucks	49.0%	928	3.0	2,784	123	36	159	57	144	201
Total Truck PCE Trips				2,784	123	36	159	57	144	201
Total High-Cube Transload and Short-Term Storage PCE Trips				3,749	166	48	214	76	193	269

TOTAL SPECIFIC PLAN TRIPS

Total Specific Plan Passenger Car Trips			27,465	1,181	391	1,572	506	1,431	1,937
Total Specific Plan Truck (PCE) Trips			8,879	582	173	755	235	631	866
Total Specific Plan Trips			36,344	1,763	564	2,327	741	2,062	2,803

TRIP GENERATION FOR EXISTING USES IN SPECIFIC PLAN AREA

Existing Uses Trip Generation [4]			9,342	358	295	653	450	534	984
Specific Plan Net New Trips			27,002	1,405	269	1,674	291	1,528	1,819

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

[2] Source: Truck Trip Generation Study - City of Fontana, August 2003.

[3] Source: City of San Bernardino Traffic Impact Study Guidelines, June 2015.

[4] Source: PlaceWorks - See Table A, Appendix A

PCE = Passenger Car Equivalent KSF = Thousand Square Feet

Trip Distribution and Assignment

Trip distribution assumptions for the project were developed taking into account the proposed Specific Plan uses, the roadway system serving the project area, and the routes to and from the freeway system for the warehouse trucks. Separate distribution patterns were assumed for passenger car trips and truck trips. Project trucks are assumed to use 3rd Street or 5th Street to enter the warehouse developments. No truck entrances will be located on 6th Street. Passenger car entrances will be located on the north-south streets, where feasible, to minimize project traffic on 6th Street. Trip distribution assumptions are shown on Figure 9.

Trip distribution percentages were applied to the project trip generation to determine the project trips through each study intersection and on the study roadway segments. The resulting project-related peak hour volumes are shown on Figure 10. Daily roadway volumes are shown on Figure 11.

EXISTING PLUS PROJECT CONDITIONS

The Existing Plus Project analysis scenario is a hypothetical scenario that assumes completion of the project and full absorption of the project traffic on the surrounding street network at the current time. The Existing Plus Project scenario is required by the California Environmental Quality Act (CEQA).

Project-related traffic was added to the Existing traffic volumes. The Existing Plus Project traffic volumes at the study intersections are shown on Figure 12. Existing Plus Project daily roadway volumes are shown on Figure 13.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Existing Plus Project condition. The results are shown on Table 4. Copies of the intersection analysis worksheets are provided in *Appendix C*.

Review of this table indicates that, with the addition of Project traffic, the following intersections would operate at an unacceptable Level of Service:

- #1 - Del Rosa Drive at SR-210 WB Ramps: AM – LOS E
- #20 - Sterling Avenue at 6th Street: AM – LOS F; PM – LOS F
- #21 - Victoria Avenue at 6th Street: PM – LOS F
- #33 - Palm Avenue at 5th Street: AM – LOS E; PM – LOS F
- #41 - Central Avenue at 3rd Street: PM – LOS E

Based on the impact criteria presented earlier in the report for the Cities of San Bernardino and Highland and for Caltrans, the Project impact at each of these intersections would be considered to be a significant project impact.

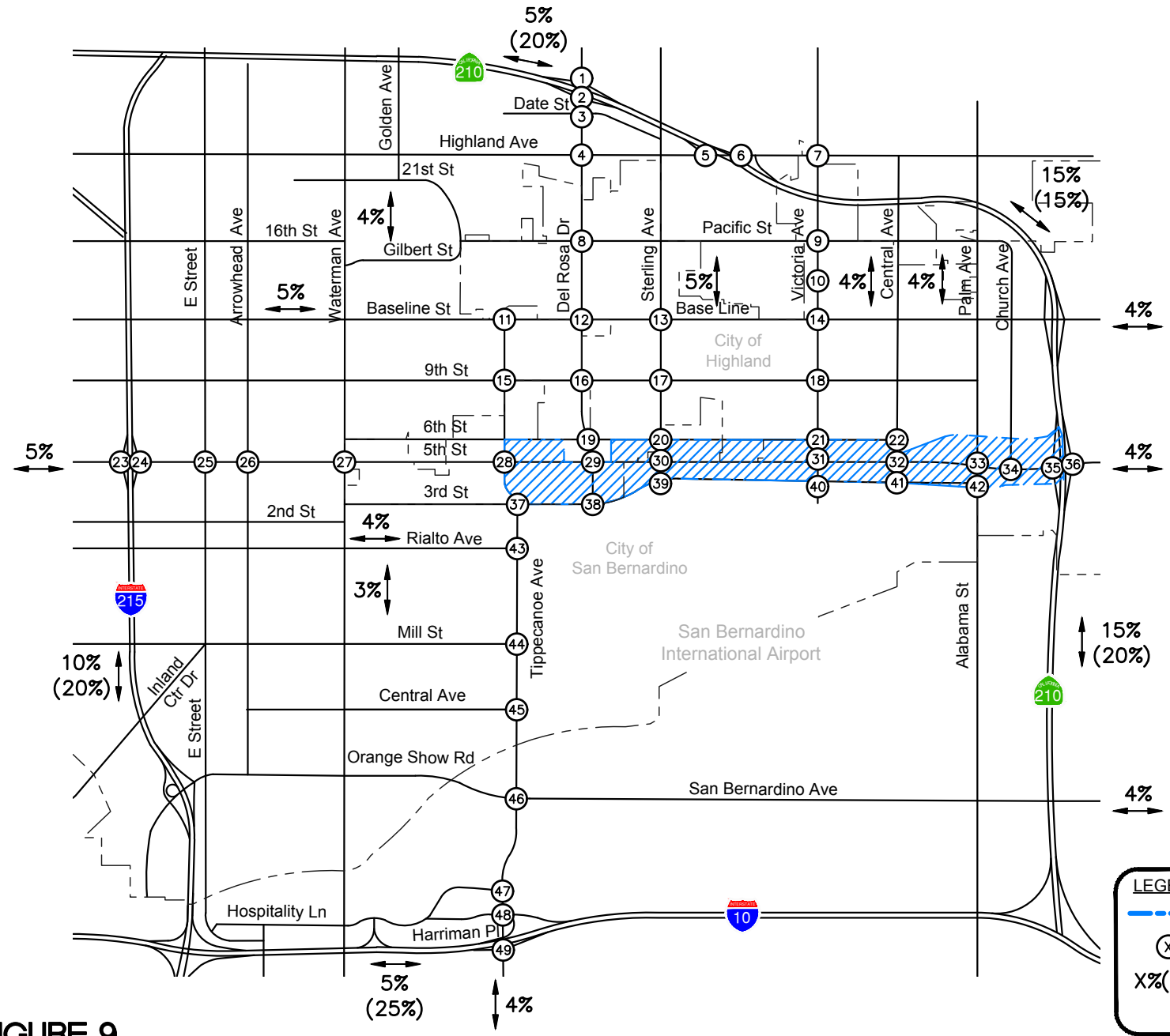
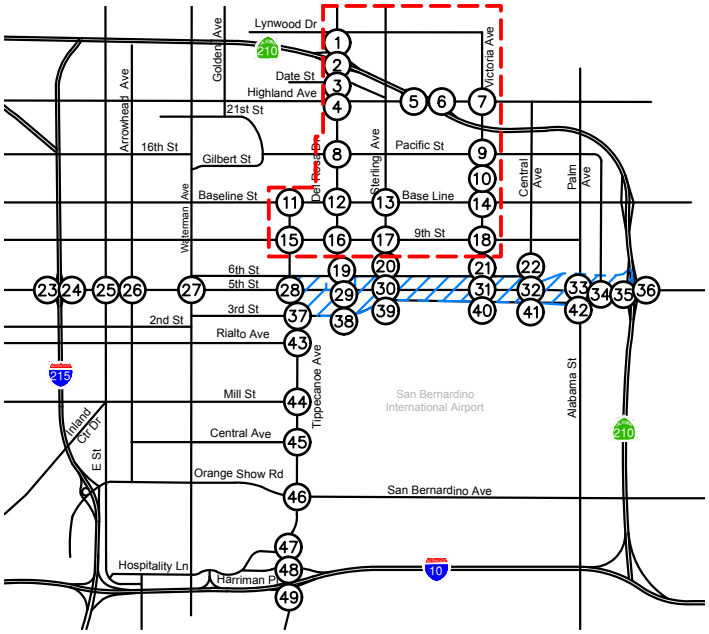


FIGURE 9
PROJECT TRIP DISTRIBUTION



1. Del Rosa Ave at SR-210 WB Ramps	2. Del Rosa Ave at SR-210 EB Ramps
15/68 ↑	76/18 ↘ 15/68 ↑

3. Del Rosa Ave at Date St	4. Del Rosa Ave at Highland Ave
←50/12, 26/6 ↙ 4/14 ↖; 11/54 ↑	←50/12; 11/54 ↑

5. Highland Ave at SR-210 EB Off-Ramp	6. Highland Ave at SR-210 On-Ramp	7. Victoria Ave at Highland Ave	8. Del Rosa Dr at Pacific St	9. Victoria Ave at Pacific St
←43/9 ↙ ←5/20	←16/79; 26/4 → 17/5 ↘	←37/8; 26/4 ↙ 16/79 ↖ 5/43 ↑	←50/12; 11/54 ↑	←63/12; 17/5 ↘ 21/122 ↑

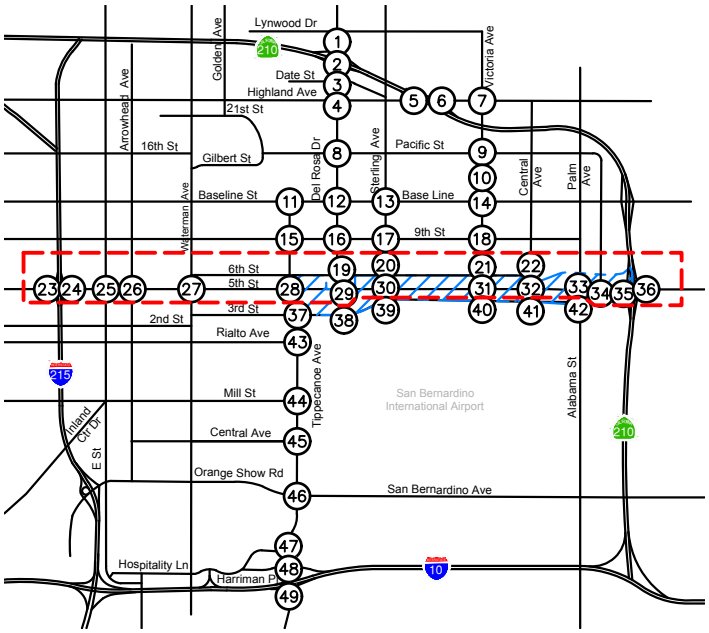
10. Victoria Ave at 14th St	11. Tippecanoe Ave at Baseline St	12. Del Rosa Dr at Baseline St	13. Sterling Ave at Base Line	14. Victoria Ave at Base Line
←80/17; 21/122 ↑	←14/76; 65/18 → 19/4 ↘	←50/12; 65/18 ↙ 14/76 ↖ 11/54 ↑	←73/20; 12/48 ↑	←80/17; 21/122 ↑

15. Tippecanoe Ave at 9th St	16. Del Rosa Ave at 9th St	17. Sterling Ave at 9th St	18. Victoria Ave at 9th St
←19/4	←115/30; 25/130 ↑	←42/11, 31/9 ↙ 4/14 ↖; 8/34 ↑	←80/17; 21/122 ↑

NOT TO SCALE

LEGEND:
- (X) = Study Intersection
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 10A
PROJECT-RELATED PEAK HOUR TRAFFIC VOLUMES



19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
3/1, 87/21, 25/8 → 6/29, 10/13, 0/5 1/3, 11/11, 4/26 → 20/4, 18/98, 4/1	5/2, 31/7, 6/2 → 2/8, 18/21, 45/78 1/6, 27/35 → 18/4, 5/20, 21/5
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
22/4, 33/6, 25/7 → 3/11, 51/39, 4/2 2/10, 44/104, 3/1 → 28/6, 16/101, 21/5	54/12, 4/0 6/26, 56/114 → 26/6, 4/40

23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
← 13/54, 34/200 47/14 →	← 47/254 47/14 → 188/35	← 47/254 235/49 →	← 47/254 235/49 →	3/17, 0/8 ← 44/237, 4/19 235/49 → 25/4

28. Tippecanoe Ave at 5th St	29. Del Rosa Dr at 5th St	30. Sterling Ave at 5th St	31. Victoria Ave at 5th St	32. Central Ave at 5th St
1/5, 14/3 → 3/16, 38/204, 13/70 22/4, 187/39, 51/10 → 10/52, 5/1, 67/14	13/3, 24/10, 54/39 → 30/64, 132/226, 2/9 3/14, 211/145 → 9/25, 8/2	48/45, 15/37, 13/3 → 18/10, 149/206, 13/74 13/16, 220/220 → 12/2, 13/3, 84/18	13/4, 12/2, 15/3 → 34/57, 251/217 25/36, 196/285 → 2/1, 6/19	4/0, 56/114 → 26/6, 309/223 4/40, 161/279 →

33. Palm Ave at 5th St	34. Church Ave at 5th St	35. SR-210 SB Ramps at 5th St	36. SR-210 NB Ramps at 5th St
10/2, 6/2 → 0/10, 371/155, 92/23 0/10, 148/402, 5/38 → 10/2, 3/1	← 501/105 99/436 →	231/49 ← 270/56 71/285, 47/253 →	← 37/8 66/242, 5/43 → 233/48

NOT TO SCALE

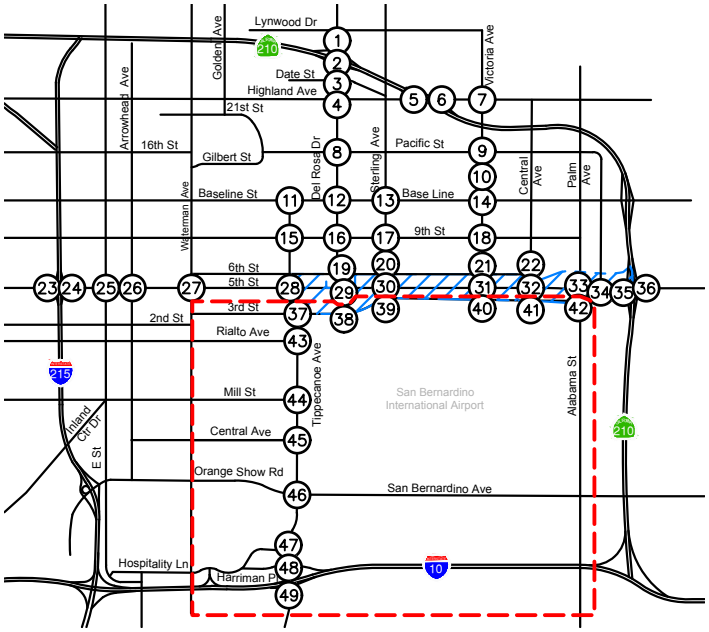
LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 10B
PROJECT-RELATED
PEAK HOUR TRAFFIC VOLUMES

Kimley»Horn



37. Tippecanoe Ave at 3rd St

	←14/75 ←51/10 ↖10/52 ←3/47 ↙23/138
42/6→	72/15→ ↗129/33

38. Del Rosa Dr at 3rd St

	↖17/17 ↙9/2 ↖2/9 ←55/193
15/18↗ 181/66→	

39. Sterling Ave at 3rd St

	↙22/110 ↙6/1 ↖14/2 ←46/67
95/21↗ 69/57→	

40. Victoria Ave at 3rd St

	↙6/1 ↙6/1 ↖6/8 ←81/48
2/12↗ 46/72→	

41. Central Ave at 3rd St

	←94/40
35/79→	

42. Palm Ave at 3rd St

	↖83/16 ←5/43 ↙9/2 ←1/7
24/93→	24/5↗ 13/3→

43. Tippecanoe Ave at Rialto Ave

	←37/213
	201/48→

44. Tippecanoe Ave at Mill St

	←37/213
	201/48→

45. Tippecanoe Ave at Central Ave

	←37/213
	201/48→

46. Tippecanoe Ave at Orange Show Rd

	←37/213
	201/48→

47. Tippecanoe Ave at Hospitality Ln

	←37/213
	201/48→

48. Tippecanoe Ave at I-10 WB Ramps

	←37/213
	201/48→

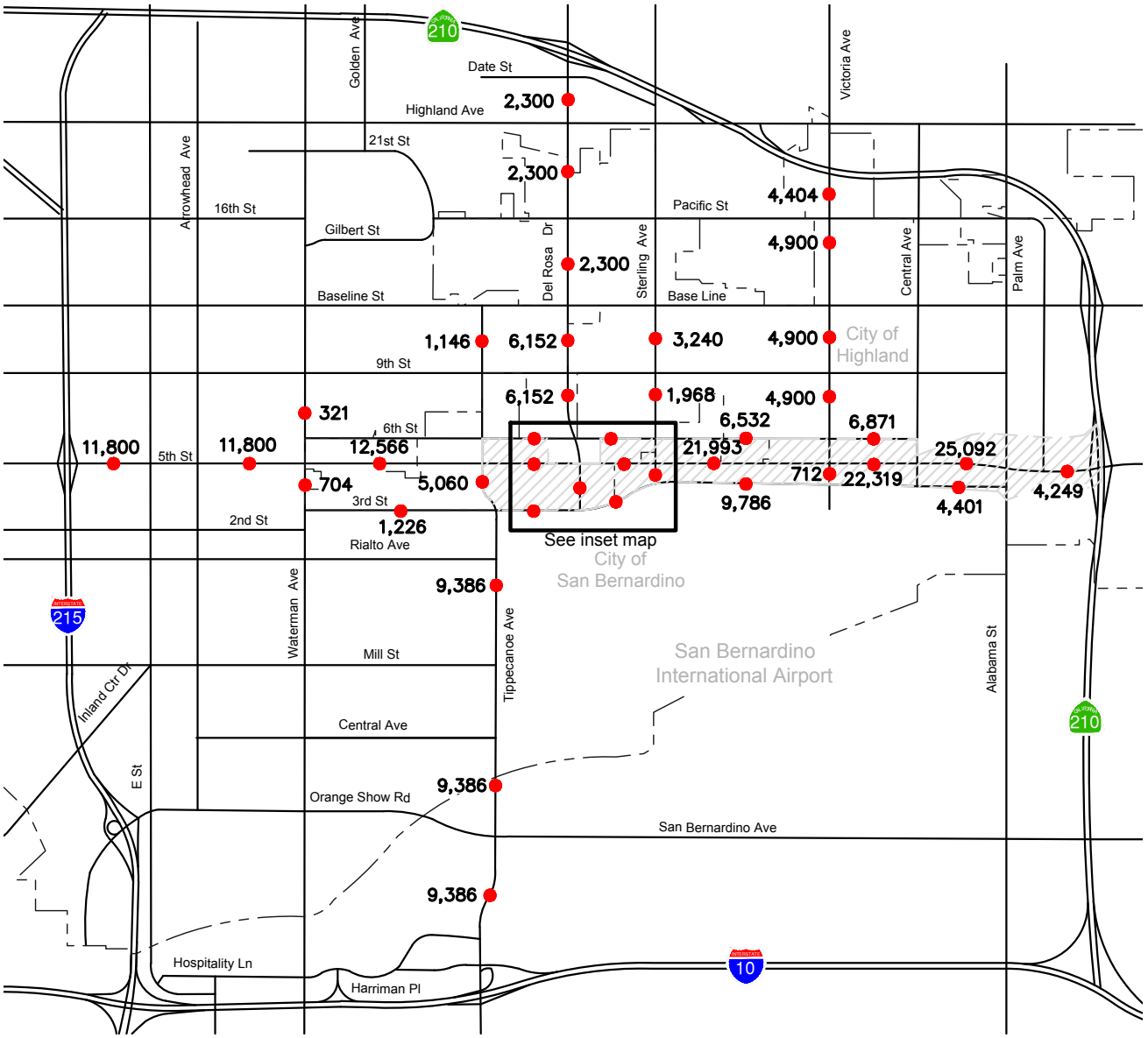
49. Tippecanoe Ave at I-10 EB Ramps

	←5/43
164/40↗	37/8→

NOT TO SCALE

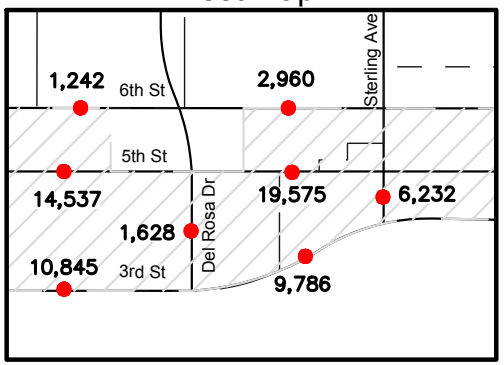
LEGEND:
- (X) = Study Intersection
- xx/yy = AM/PM Peak Hour Turning Movement Volumes

FIGURE 10C
PROJECT-RELATED
PEAK HOUR TRAFFIC VOLUMES



NOT TO SCALE

Inset Map



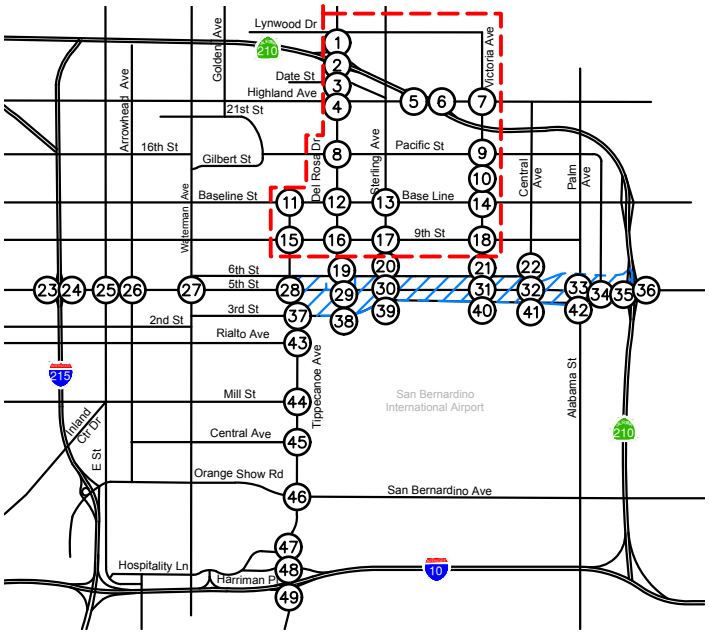
LEGEND:

= Specific Plan Boundary

X,XXX = Average Daily Traffic Volume

FIGURE 11
PROJECT-RELATED ROADWAY TRAFFIC VOLUMES

Kimley»Horn



1. Del Rosa Ave at SR-210 WB Ramps

664/373 ← 443/353 ↖ 121/226 ← 125/128

602/695 ↑ 543/713 ↑

2. Del Rosa Ave at SR-210 EB Ramps

402/361 ← 170/121 ↙

360/387 → 1/1 → 771/733 ↘

832/1017 ↑ 84/120 ↑

3. Del Rosa Ave at Date St

69/113 ↙ 896/739 ← 205/246 ↖ 157/220 ← 28/71 ← 15/46

112/126 → 31/57 → 39/51 ↘

30/58 ↑ 639/790 ↑ 21/48 ↑

4. Del Rosa Ave at Highland Ave

123/113 ↙ 618/418 ← 122/165 ↖ 135/160 ← 273/422 ← 47/72

51/174 → 267/628 → 119/160 ↘

104/174 ↑ 423/564 ↑ 36/65 ↑

5. Highland Ave at SR-210 EB Off-Ramp

160/155 ↙ 954/1034 ↙ ← 334/597

293/702 →

6. Highland Ave at SR-210 On-Ramp

305/274 ↙ 338/205 ← 59/66 ↖ 139/176 ← 884/1596 ← 154/151

79/127 → 1022/1106 → 255/349 ↘

279/217 ↑ 166/93 ↑ 76/42 ↑

7. Victoria Ave at Highland Ave

284/591 ↙ 252/154 ← 68/183 ↖ 88/127 ← 348/567 ← 45/62

448/672 → 372/507 → 145/168 ↘

257/316 ↑ 248/234 ↑ 42/57 ↑

8. Del Rosa Dr at Pacific St

200/146 ↙ 392/331 ← 38/65 ↖ 42/35 ← 280/191 ← 69/29

154/147 → 236/339 → 27/25 ↘

44/20 ↑ 225/456 ↑ 28/69 ↑

9. Victoria Ave at Pacific St

103/66 ↙ 345/291 ← 58/54 ↖ 89/60 ← 331/247 ← 50/42

113/71 → 252/358 → 223/195 ↘

165/145 ↑ 342/501 ↑ 30/55 ↑

10. Victoria Ave at 14th St

2/12 ↙ 603/488 ← 27/31 ↖ 52/52 ← 3/4 ← 19/27

2/13 → 0/10 → 0/3 ↘

0/27 ↑ 463/139 ↑ 11/54 ↑

11. Tippecanoe Ave at Baseline St

← 460/575 ← 191/165

371/669 → 217/171 ↘

167/283 ↑ 161/249 ↑

12. Del Rosa Dr at Baseline St

125/90 ↙ 329/216 ← 31/81 ↖ 35/50 ← 378/461 ← 92/26

49/127 → 232/693 → 199/55 ↘

64/120 ↑ 219/368 ↑ 77/64 ↑

13. Sterling Ave at Base Line

66/83 ↙ 471/329 ← 163/202 ↖ 195/216 ← 338/354 ← 44/60

60/127 → 225/551 → 40/49 ↘

28/69 ↑ 264/495 ↑ 35/76 ↑

14. Victoria Ave at Base Line

122/122 ↙ 409/293 ← 85/99 ↖ 74/98 ← 245/327 ← 33/38

105/115 → 211/494 → 30/59 ↘

48/62 ↑ 286/461 ↑ 20/74 ↑

15. Tippecanoe Ave at 9th St

23/35 ↙ 368/269 ← 24/12 ↖ 21/22 ← 295/246 ← 72/48

27/61 → 351/370 → 81/75 ↘

111/116 ↑ 251/511 ↑ 76/57 ↑

16. Del Rosa Ave at 9th St

70/43 ↙ 314/291 ← 130/52 ↖ 44/46 ← 233/287 ← 31/40

48/38 → 421/219 → 123/65 ↘

78/80 ↑ 144/520 ↑ 137/75 ↑

17. Sterling Ave at 9th St

83/75 ↙ 404/245 ← 86/80 ↖ 89/87 ← 256/176 ← 52/50

80/97 → 172/270 → 22/34 ↘

22/33 ↑ 179/394 ↑ 36/106 ↑

18. Victoria Ave at 9th St

65/60 ↙ 329/233 ← 44/59 ↖ 55/56 ← 99/120 ← 32/19

54/83 → 91/178 → 40/45 ↘

45/46 ↑ 182/425 ↑ 16/27 ↑

NOT TO SCALE

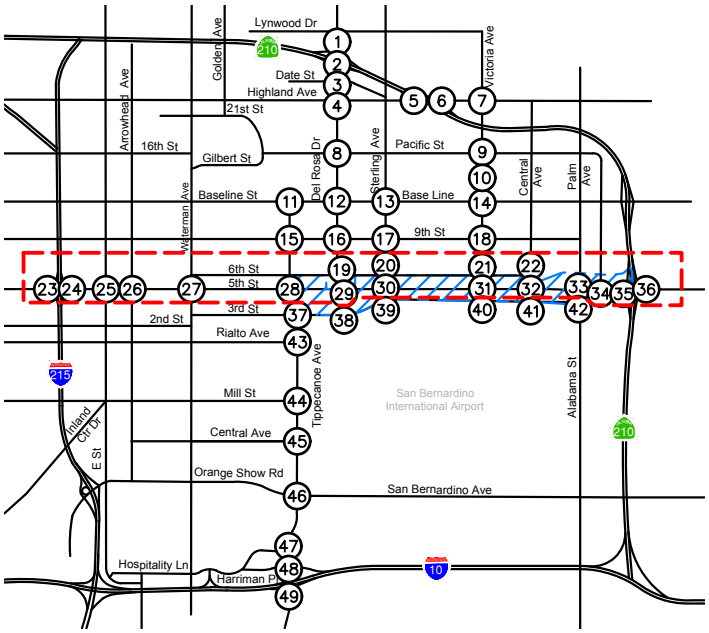
LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 12A
EXISTING PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

Kimley»Horn



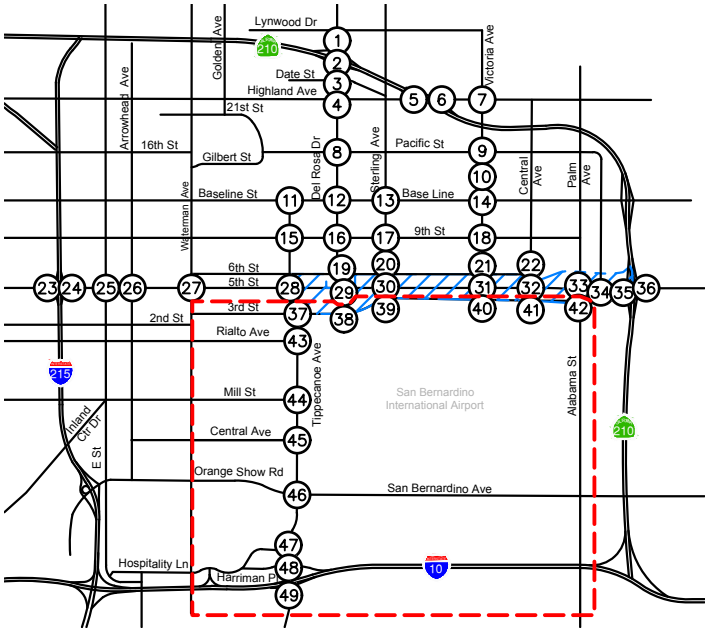
19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
98/31 ← 361/251 ← 68/22 ← 49/48 ← 154/99 ← 86/44	48/25 ← 500/244 ← 30/28 ← 16/26 ← 134/97 ← 54/88
156/58 → 155/135 → 57/40 → 91/14 → 217/411 → 41/123	38/61 → 129/139 → 12/11 → 30/19 → 143/478 → 30/43
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
45/28 ← 332/209 ← 38/23 ← 21/21 ← 83/68 ← 13/5	87/42 ← 111/75
25/36 → 77/148 → 44/26 → 59/52 → 136/442 → 22/10	50/76 → 83/141 → 35/28 → 84/213

23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
193/186 ← 5/6 ← 532/198 ← 517/859 ← 349/698	148/644 ← 556/1179	17/60 ← 132/163 ← 10/21 ← 7/20 ← 468/1092 ← 7/33	24/51 ← 174/142 ← 26/27 ← 12/20 ← 441/842 ← 39/39	113/149 ← 519/582 ← 14/52 ← 16/33 ← 341/449 ← 80/81
489/603 → 350/393 →	150/225 → 887/575 → 290/380 → 0/3 → 730/453	75/26 → 1172/592 → 37/42 → 27/94 → 102/281 → 20/27	43/46 → 863/539 → 131/30 → 38/95 → 98/305 → 32/64	70/137 → 404/444 → 153/132 → 117/143 → 382/678 → 73/101
28. Tippecanoe Ave at 5th St	**29. Del Rosa Dr at 5th St**	**30. Sterling Ave at 5th St**	**31. Victoria Ave at 5th St**	**32. Central Ave at 5th St**
41/24 ← 361/302 ← 31/38 ← 22/44 ← 231/326 ← 33/96	62/35 ← 340/225 ← 86/87 ← 77/100 ← 416/345 ← 29/25	103/87 ← 345/219 ← 22/38 ← 28/40 ← 418/330 ← 37/85	43/18 ← 242/139 ← 91/78 ← 112/166 ← 517/355 ← 257/30	37/14 ← 56/31 ← 98/164 ← 70/79 ← 992/522 ← 33/6
39/63 → 242/453 → 83/58 → 46/109 → 181/469 → 78/48	67/85 → 280/543 → 16/18 → 8/21 → 201/368 → 15/26	35/99 → 293/586 → 11/29 → 20/8 → 110/313 → 86/32	34/84 → 256/647 → 3/11 → 3/3 → 80/267 → 13/116	19/61 → 352/895 → 14/5 → 5/2 → 4/110
33. Palm Ave at 5th St	**34. Church Ave at 5th St**	**35. SR-210 SB Ramps at 5th St**	**36. SR-210 NB Ramps at 5th St**	
83/32 ← 584/246 ← 131/176 ← 92/142 ← 939/405 ← 450/213	84/30 ← 154/79 ← 70/77 ← 1484/616	352/167 ← 7/6 ← 122/310 ← 1221/538 ← 745/279	392/267 ← 1373/583	
11/80 → 351/1102 → 68/98 → 43/90 → 150/569 → 261/535	25/58 → 663/1753 →	397/1218 → 443/742 →	148/424 → 376/1084 → 596/255 → 319/435	

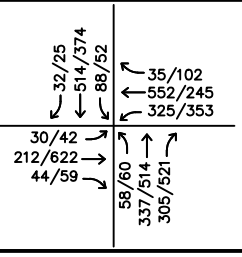
NOT TO SCALE

LEGEND:
- (X) = Study Intersection
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

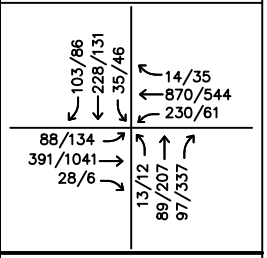
FIGURE 12B
EXISTING PLUS PROJECT
PEAK HOUR TRAFFIC VOLUMES



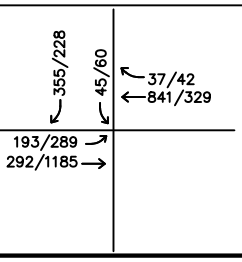
37. Tippecanoe Ave at 3rd St



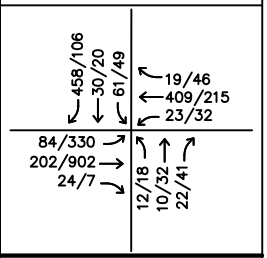
38. Del Rosa Dr at 3rd St



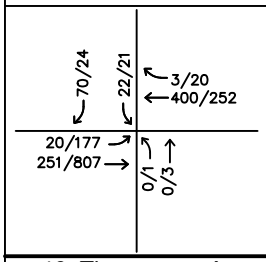
39. Sterling Ave at 3rd St



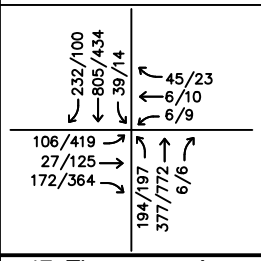
40. Victoria Ave at 3rd St



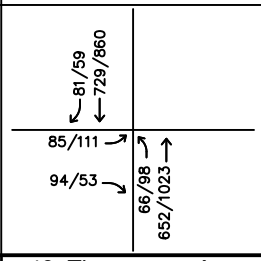
41. Central Ave at 3rd St



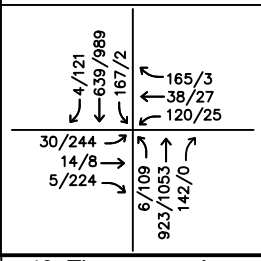
42. Palm Ave at 3rd St



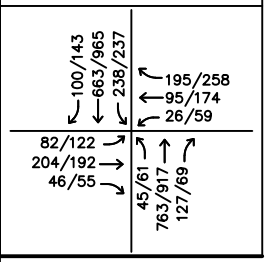
43. Tippecanoe Ave at Rialto Ave



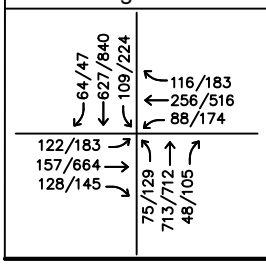
44. Tippecanoe Ave at Mill St



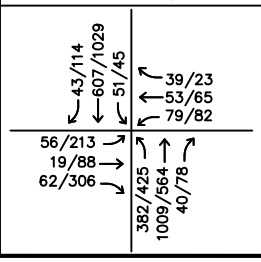
45. Tippecanoe Ave at Central Ave



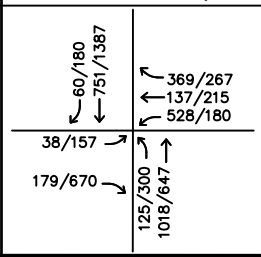
46. Tippecanoe Ave at Orange Show Rd



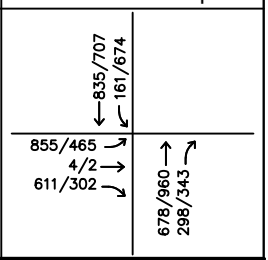
47. Tippecanoe Ave at Hospitality Ln



48. Tippecanoe Ave at I-10 WB Ramps



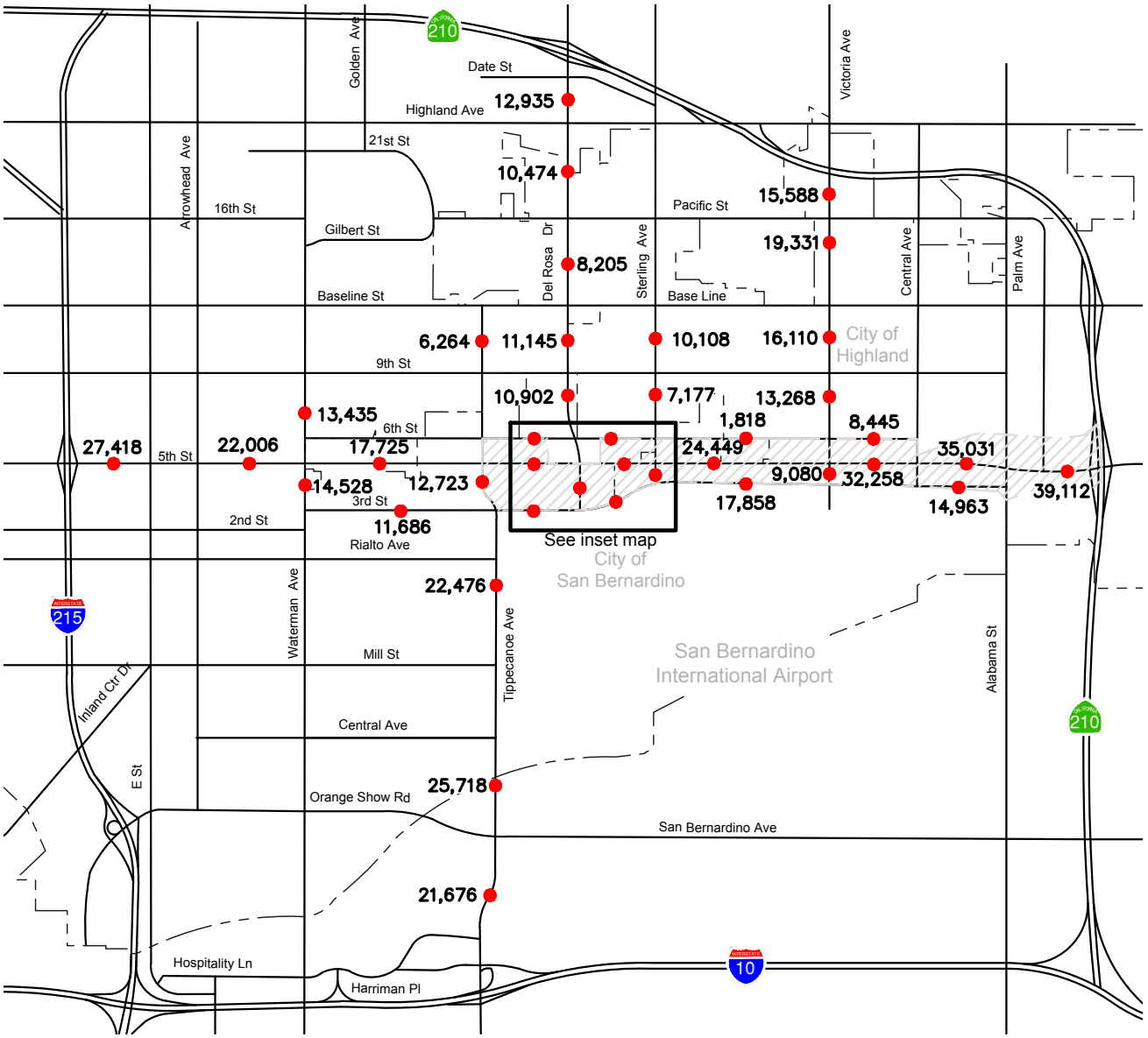
49. Tippecanoe Ave at I-10 EB Ramps



NOT TO SCALE

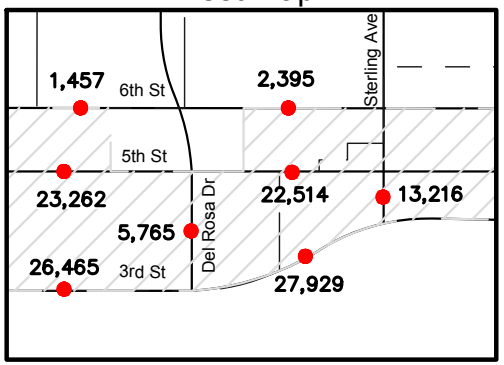
LEGEND:
- (X) = Study Intersection
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 12C
EXISTING PLUS PROJECT
PEAK HOUR TRAFFIC VOLUMES



NOT TO SCALE

Inset Map



LEGEND:

= Specific Plan Boundary

X,XXX = Average Daily Traffic Volume

FIGURE 13
EXISTING PLUS PROJECT ROADWAY TRAFFIC VOLUMES

Kimley»Horn

TABLE 4
SUMMARY OF INTERSECTION OPERATION
EXISTING PLUS PROJECT CONDITIONS

Int. #	Intersection	Traffic Control	Juris-diction	Peak Hour	Existing Conditions			Existing Plus Project Conditions			Project Impact / Significance		
					Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	Impact Sig?
1	Del Rosa Drive at SR-210 WB Ramps	S	C	AM	54.3	0.947	D	57.2	0.957	E	2.9	0.010	Yes
				PM	32.7	0.814	C	37.4	0.858	D	4.7	0.044	No
2	Del Rosa Drive at SR-210 EB Ramps	S	C	AM	31.6	0.742	D	34.4	0.795	D	2.8	0.053	No
				PM	32.4	0.778	D	34.0	0.803	D	1.6	0.025	No
3	Del Rosa Drive at Date Street	S	SB	AM	14.6	0.387	B	14.7	0.404	B	0.1	0.017	No
				PM	19.6	0.484	B	20.3	0.513	C	0.7	0.029	No
4	Del Rosa Drive at Highland Avenue	S	SB	AM	29.5	0.355	C	29.5	0.369	C	0.0	0.014	No
				PM	35.9	0.517	D	36.3	0.533	D	0.4	0.016	No
5	Highland Avenue at SR-210 EB Off-Ramp	S	C	AM	23.0	0.449	C	22.8	0.466	C	-0.2	0.017	No
				PM	20.9	0.531	C	20.8	0.534	C	-0.1	0.003	No
6	Highland Avenue at SR-210 WB Off-Ramp	S	C	AM	45.9	0.826	D	46.2	0.835	D	0.3	0.009	No
				PM	40.5	0.767	D	40.1	0.768	D	-0.4	0.001	No
7	Victoria Avenue at Highland Avenue	S	H	AM	28.3	0.567	C	28.2	0.574	C	-0.1	0.007	No
				PM	29.1	0.824	C	29.3	0.824	C	0.2	0.000	No
8	Del Rosa Drive at Pacific Street	S	H	AM	30.1	0.420	C	29.6	0.435	C	-0.5	0.015	No
				PM	27.4	0.440	C	26.9	0.471	C	-0.5	0.031	No
9	Victoria Avenue at Pacific Street	S	H	AM	36.4	0.569	D	36.5	0.593	D	0.1	0.024	No
				PM	32.0	0.399	C	30.8	0.405	C	-1.2	0.006	No
10	Victoria Avenue at 14th Street	S	H	AM	7.1	0.263	A	6.8	0.293	A	-0.3	0.030	No
				PM	13.4	0.223	B	11.7	0.228	B	-1.7	0.005	No
11	Tippecanoe Avenue at Baseline Street	S	SB	AM	22.8	0.437	C	23.4	0.465	C	0.6	0.028	No
				PM	24.4	0.520	C	24.0	0.526	C	-0.4	0.006	No
12	Del Rosa Drive at Baseline Street	S	SB	AM	31.7	0.403	C	31.3	0.469	C	-0.4	0.066	No
				PM	35.2	0.415	D	39.2	0.456	D	4.0	0.041	No
13	Sterling Avenue at Base Line	S	H	AM	30.7	0.419	C	30.0	0.423	C	-0.7	0.004	No
				PM	33.9	0.562	C	33.7	0.576	C	-0.2	0.014	No
14	Victoria Avenue at Base Line	S	H	AM	29.8	0.366	C	28.7	0.391	C	-1.1	0.025	No
				PM	33.3	0.386	C	32.1	0.421	C	-1.2	0.035	No
15	Tippecanoe Avenue at 9th Street	S	H	AM	31.2	0.438	C	31.1	0.445	C	-0.1	0.007	No
				PM	28.7	0.339	C	28.7	0.339	C	0.0	0.000	No
16	Del Rosa Drive at 9th Street	S	SB	AM	33.0	0.518	C	32.1	0.518	C	-0.9	0.000	No
				PM	28.6	0.392	C	27.3	0.433	C	-1.3	0.041	No
17	Sterling Avenue at 9th Street	S	H	AM	29.1	0.390	C	29.8	0.403	C	0.7	0.013	No
				PM	29.3	0.412	C	29.2	0.429	C	-0.1	0.017	No
18	Victoria Avenue at 9th Street	S	H	AM	27.1	0.254	C	25.2	0.281	C	-1.9	0.027	No
				PM	28.3	0.262	C	26.2	0.297	C	-2.1	0.035	No
19	Del Rosa Drive at 6th Street	S	SB	AM	33.9	0.540	C	35.6	0.611	D	1.7	0.071	No
				PM	21.0	0.267	C	22.6	0.331	C	1.6	0.064	No
20	Sterling Avenue at 6th Street	U	SB	AM	53.8	0.269	F	170.5	0.468	F	116.7	0.199	No
				PM	39.3	0.226	E	183.1	0.734	F	143.8	0.508	No
21	Victoria Avenue at 6th Street	U	H	AM	15.6	0.062	C	27.9	0.115	D	12.3	0.053	No
				PM	18.7	0.144	C	53.6	0.156	F	34.9	0.012	No
22	Central Avenue at 6th Street	U	SB	AM	10.7	0.085	B	12.1	0.116	B	1.4	0.031	No
				PM	11.0	0.083	B	12.0	0.137	B	1.0	0.054	No
23	I-215 SB Ramps at 5th Street	S	C	AM	24.6	0.513	C	24.6	0.525	C	0.0	0.012	No
				PM	20.2	0.521	C	28.9	0.591	C	8.7	0.070	No
24	I-215 NB Ramps at 5th Street	S	C	AM	28.9	0.425	C	27.8	0.500	C	-1.1	0.075	No
				PM	24.1	0.669	C	23.5	0.678	C	-0.6	0.009	No
25	E Street at 5th Street	S	SB	AM	10.3	0.365	B	10.3	0.433	B	0.0	0.068	No
				PM	16.5	0.442	B	17.5	0.518	B	1.0	0.076	No
26	Arrowhead Avenue at 5th Street	S	SB	AM	34.0	0.338	C	32.1	0.406	C	-1.9	0.068	No
				PM	33.8	0.361	C	32.9	0.440	C	-0.9	0.079	No

TABLE 4
SUMMARY OF INTERSECTION OPERATION
EXISTING PLUS PROJECT CONDITIONS

Int. #	Intersection	Traffic Control	Juris-diction	Peak Hour	Existing Conditions			Existing Plus Project Conditions			Project Impact / Significance		
					Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	Impact Sig?
27	Waterman Avenue at 5th Street	S	SB	AM	25.3	0.361	C	27.1	0.427	C	1.8	0.066	No
				PM	25.5	0.425	C	27.4	0.453	C	1.9	0.028	No
28	Tippecanoe Avenue at 5th Street	S	H	AM	22.5	0.281	C	28.4	0.329	C	5.9	0.048	No
				PM	27.6	0.470	C	32.2	0.552	C	4.6	0.082	No
29	Del Rosa Drive at 5th Street	S	H	AM	19.0	0.330	B	20.9	0.479	C	1.9	0.149	No
				PM	21.6	0.311	C	22.7	0.433	C	1.1	0.122	No
30	Sterling Avenue at 5th Street	S	SB	AM	19.0	0.146	B	25.4	0.352	C	6.4	0.206	No
				PM	24.9	0.305	C	25.8	0.508	C	0.9	0.203	No
31	Victoria Avenue at 5th Street	S	H	AM	31.2	0.336	C	34.5	0.541	C	3.3	0.205	No
				PM	27.0	0.389	C	32.9	0.578	C	5.9	0.189	No
32	Central Avenue at 5th Street	S	H	AM	10.8	0.305	B	10.3	0.414	B	-0.5	0.109	No
				PM	13.2	0.353	B	14.5	0.456	B	1.3	0.103	No
33	Palm Avenue at 5th Street	S	H	AM	54.0	0.591	D	78.5	0.709	E	24.5	0.118	Yes
				PM	46.3	0.876	D	82.2	1.027	F	35.9	0.151	Yes
34	Church Avenue at 5th Street	S	H	AM	9.9	0.448	A	10.6	0.603	B	0.7	0.155	No
				PM	6.1	0.479	A	6.2	0.621	A	0.1	0.142	No
35	SR-210 EB Ramps at 5th Street	S	C	AM	25.5	0.661	C	31.9	0.865	C	6.4	0.204	No
				PM	26.7	0.657	C	28.5	0.838	C	1.8	0.181	No
36	SR-210 WB Ramps at 5th Street/Greenspot Road	S	C	AM	24.4	0.488	C	25.5	0.603	C	1.1	0.115	No
				PM	28.9	0.487	C	28.6	0.626	C	-0.3	0.139	No
37	Tippecanoe Avenue at 3rd Street	S	SB	AM	29.2	0.384	C	29.6	0.457	C	0.4	0.073	No
				PM	29.7	0.636	C	47.8	0.713	D	18.1	0.077	No
38	Del Rosa Drive at 3rd Street	S	SB	AM	33.3	0.417	C	33.5	0.452	C	0.2	0.035	No
				PM	28.9	0.612	C	29.1	0.636	C	0.2	0.024	No
39	Sterling Avenue at 3rd Street	S	SB	AM	19.6	0.476	B	22.9	0.574	C	3.3	0.098	No
				PM	13.7	0.421	B	16.2	0.486	B	2.5	0.065	No
40	Victoria Avenue at 3rd Street	S	H	AM	40.6	0.499	D	40.1	0.533	D	-0.5	0.034	No
				PM	22.5	0.372	C	22.0	0.398	C	-0.5	0.026	No
41	Central Avenue at 3rd Street	U	H	AM	15.3	0.000	C	17.6	0.000	C	2.3	0.000	No
				PM	40.5	0.010	E	48.2	0.012	E	7.7	0.002	Yes
42	Palm Avenue at 3rd Street	S	H	AM	18.7	0.485	B	20.2	0.533	C	1.5	0.048	No
				PM	23.6	0.426	C	24.7	0.451	C	1.1	0.025	No
43	Tippecanoe Avenue at Rialto Avenue	S	SB	AM	11.8	0.360	B	10.6	0.371	B	-1.2	0.011	No
				PM	10.2	0.371	B	9.8	0.408	A	-0.4	0.037	No
44	Tippecanoe Avenue at Mill Street	S	SB	AM	19.9	0.442	B	19.6	0.484	B	-0.3	0.042	No
				PM	17.9	0.471	B	18.0	0.541	B	0.1	0.070	No
45	Tippecanoe Avenue at Central Avenue	S	SB	AM	24.5	0.406	C	23.5	0.450	C	-1.0	0.044	No
				PM	26.6	0.528	C	26.0	0.538	C	-0.6	0.010	No
46	Tippecanoe Ave at Orange Show/San Bernardino Ave	S	SB	AM	26.2	0.460	C	25.4	0.482	C	-0.8	0.022	No
				PM	33.8	0.634	C	34.2	0.669	C	0.4	0.035	No
47	Tippecanoe Avenue at Hospitality Lane	S	SB	AM	20.7	0.376	C	19.7	0.383	B	-1.0	0.007	No
				PM	28.7	0.594	C	29.0	0.637	C	0.3	0.043	No
48	Tippecanoe Ave at I-10 WB Ramps / Harriman	S	C	AM	24.8	0.467	C	24.0	0.517	C	-0.8	0.050	No
				PM	28.3	0.611	C	28.0	0.644	C	-0.3	0.033	No
49	Tippecanoe Avenue at I-10 EB Ramps	S	C	AM	22.6	0.524	C	23.5	0.555	C	0.9	0.031	No
				PM	26.9	0.650	C	27.6	0.665	C	0.7	0.015	No

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the 2010 Highway Capacity Manual.
- S = Signalized; U = Unsignalized
- C = Caltrans; SB = San Bernardino; H = Highland

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Existing Plus Project condition, and the results are summarized on Table 5. Review of this table indicates that with the addition of Project traffic, the following roadway segments would operate at an unacceptable Level of Service (LOS D or worse):

- Del Rosa Drive: Highland Avenue to Pacific Street (LOS D)
- 6th Street:
    - Sterling Avenue to Victoria Avenue (LOS D)
    - Victoria Avenue to Central Avenue (LOS D)
- 5th Street:
    - Waterman Avenue to Tippecanoe Avenue (LOS F)
    - Tippecanoe Avenue to Del Rosa Drive (LOS F)
    - Sterling Avenue to Victoria Avenue (LOS F)
    - Victoria Avenue to Central Avenue (LOS F)
    - Central Avenue to Palm Avenue (LOS F)
    - Palm Avenue to SR-210 SB Ramps (LOS E)

The Project impact on each of these roadway segments would be considered to be a significant project impact. With the exception of the Del Rosa Drive roadway segment, the deficient roadways are located within the Specific Plan boundaries, and would require improvement as part of the future development of the Specific Plan, as discussed later in this report.

FUTURE CONDITIONS

The Airport Gateway Specific Plan is a programmatic policy-level plan that will be developed incrementally over time, as market conditions allow. There are no identified developers, end users, or even site-specific plans at this time. As developers purchase and assemble individual parcels into parcels large enough for the allowed uses and submit applications for development, a site-specific traffic study, among other technical studies, will be required as part of the entitlement process. Since the timing of development of any portion of the Specific Plan area is uncertain, the analysis of the project for future conditions will focus on build-out conditions for the area.

Future Build-Out 2040 Conditions

To develop Future Build-Out 2040 intersection and roadway traffic forecasts, the San Bernardino Transportation Analysis Model (SBTAM) Base Year 2012 and Build-out Year 2040 model outputs were used. The raw volumes obtained from the model output were post-processed by determining the annual growth between the base model year and the future model year, and applying the growth increment to existing count volumes. This was accomplished using the B-Turns methodology, developed by the Federal Highway Administration (FHWA). As a conservative approach, if a future forecast volume produced by this process was less than the Existing volume, manual adjustments were made to assure that all forecast volumes would not be less than the Existing volumes.

TABLE 5
SUMMARY OF ROADWAY SEGMENT ANALYSIS
EXISTING PLUS PROJECT

Roadway	Segment	LOS E Capacity	Existing ADT[1]	Project ADT	Existing Plus Project ADT	V/C	LOS
Waterman Avenue	Baseline Street to 5th Street	40,000	13,114	321	13,435	0.336	A
	5th Street to 3rd Street	60,000	13,824	704	14,528	0.242	A
Tippecanoe Avenue	Baseline Street to 6th Street	30,000	5,118	1,146	6,264	0.209	A
	6th Street to 3rd Street	30,000	7,663	5,060	12,723	0.424	A
	3rd Street to Mill Street	60,000	13,090	9,386	22,476	0.375	A
	Mill Street to Orange Show Road / San Bernardino Avenue	40,000	16,332	9,386	25,718	0.643	B
	Orange Show Road/ San Bernardino Avenue to Harriman Place / I-10 WB Ramps	60,000	12,290	9,386	21,676	0.361	A
Del Rosa Drive	SR-210 EB Ramps to Highland Avenue	40,000	10,635	2,300	12,935	0.323	A
	Highland Avenue to Pacific Street	12,000	8,174	2,300	10,474	0.873	D
	Pacific Street to Baseline Street	30,000	5,905	2,300	8,205	0.274	A
	Baseline Street to 9th Street	40,000	4,993	6,152	11,145	0.279	A
	9th Street to 6th Street	40,000	4,750	6,152	10,902	0.273	A
	6th Street to 3rd Street	30,000	4,137	1,628	5,765	0.192	A
Sterling Avenue	Base Line to 9th Street	40,000	6,868	3,240	10,108	0.253	A
	9th Street to 6th Street	40,000	5,209	1,968	7,177	0.179	A
	6th Street to 3rd Street	40,000	6,984	6,232	13,216	0.330	A
Victoria Avenue	Highland Avenue to Pacific Street	40,000	12,184	4,404	16,588	0.415	A
	Pacific Street to Base Line	40,000	14,431	4,900	19,331	0.483	A
	Base Line to 9th Street	30,000	11,210	4,900	16,110	0.537	A
	9th Street to 6th Street	30,000	8,368	4,900	13,268	0.442	A
	6th Street to 3rd Street	30,000	8,368	712	9,080	0.303	A
6th Street	Tippecanoe Avenue to Del Rosa Drive	10,000	1,457	1,242	2,699	0.270	A
	Del Rosa Drive to Sterling Avenue	10,000	2,395	2,960	5,355	0.536	A
	Sterling Avenue to Victoria Avenue	10,000	1,818	6,532	8,350	0.835	D
	Victoria Avenue to Central Avenue	10,000	1,574	6,871	8,445	0.845	D
5th Street	I-215 NB Ramps to E Street	40,000	15,618	11,800	27,418	0.685	B
	E Street to Waterman Avenue	40,000	10,206	11,800	22,006	0.550	A
	Waterman Avenue to Tippecanoe Avenue	15,000	5,159	12,566	17,725	1.182	F
	Tippecanoe Avenue to Del Rosa Drive	15,000	8,725	14,537	23,262	1.551	F
	Del Rosa Drive to Sterling Avenue	40,000	2,939	19,575	22,514	0.563	A
	Sterling Avenue to Victoria Avenue	15,000	2,456	21,993	24,449	1.630	F
	Victoria Avenue to Central Avenue	15,000	9,939	22,319	32,258	2.151	F
	Central Avenue to Palm Avenue	15,000	9,939	25,092	35,031	2.335	F
	Palm Avenue to SR-210 SB Ramps	40,000	14,466	24,646	39,112	0.978	E
3rd Street	Waterman Avenue to Tippecanoe Avenue	40,000	10,460	1,226	11,686	0.292	A
	Tippecanoe Avenue to Del Rosa Drive	40,000	15,620	10,845	26,465	0.662	B
	Del Rosa Drive to Sterling Avenue	40,000	18,143	9,786	27,929	0.698	B
	Sterling Avenue to Victoria Avenue	40,000	13,457	4,401	17,858	0.446	A
	Victoria Avenue to Palm Avenue	40,000	10,714	4,249	14,963	0.374	A

Notes: [1] Existing daily traffic volumes include passenger car equivalent (PCE) factors for trucks: 2-axle - 2.0; 3-axle - 2.5; 4+-axle - 3.0
LOS = Level of Service ADT = Average Daily Traffic V/C = Volume-to-Capacity

The Future Build-out 2040 SBTAM forecasts include land use assumptions within the Specific Plan area, based on the current General Plan land use designation for the area – a combination of low- and medium-density residential, industrial, commercial, and institutional uses. For a conservative approach, the trips associated with these land uses were not deducted from the 2040 forecasts before adding the Specific Plan project-related trips.

The SBTAM Model plots and B-Turns worksheets are provided in *Appendix D.* The resulting Future Build-out 2040 peak hour intersection traffic volumes are shown on Figure 14. Daily roadway volumes are shown on Figure 15.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Future Build-Out 2040 condition, and the results are shown on Table 6. The intersection analysis worksheets are provided in *Appendix C.*

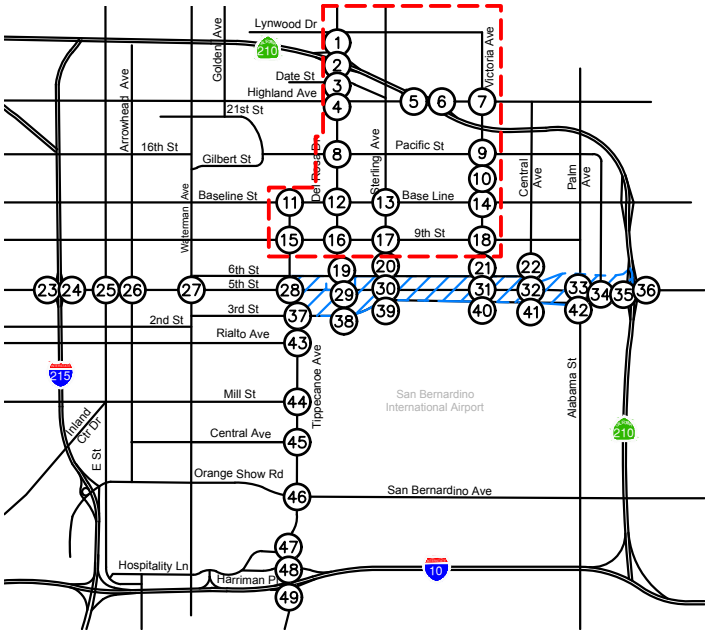
Review of this table indicates that, under Future Build-Out 2040 conditions, the following intersections would operate at an unacceptable Level of Service:

- #1 – Del Rosa Drive at SR-210 WB Ramps: AM – LOS E
- #7 – Victoria Avenue at Highland Avenue: PM – LOS E
- #20 – Sterling Avenue at 6th Street: AM LOS F; PM LOS F
- #21 – Victoria Avenue at 6th Street: PM – LOS E
- #38 – Del Rosa Drive at 3rd Street: PM – LOS E
- #41 – Central Avenue at 3rd Street: PM – LOS F
- #42 – Palm Avenue at 3rd Street: PM – LOS E
- #46 – Tippecanoe Avenue at Orange Show Road/San Bernardino Avenue: PM – LOS E

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Future Build-Out 2040 condition, and the results are summarized on Table 7. Review of this table indicates that for the Future Build-Out 2040 condition, all study roadway segments would operate at Level of Service C or better, except for the following roadway segment:

- Del Rosa Drive: Highland Avenue to Pacific Street (LOS D)
- 5th Street: Tippecanoe Avenue to Del Rosa Drive (LOS E)
- 3rd Street: Del Rosa Drive to Sterling Avenue (LOS D)



1. Del Rosa Ave at SR-210 WB Ramps	2. Del Rosa Ave at SR-210 EB Ramps
774/373 ↙ 530/390 ↓ 144/305 ↖ 157/186	461/416 ↙ 232/161 ↓
587/640 ↑ 543/785 ↑	360/406 → 1/1 → 714/751 ↘ 817/1008 ↑ 112/147 ↑

3. Del Rosa Ave at Date St	4. Del Rosa Ave at Highland Ave
80/130 ↙ 894/786 ↓ 181/244 ↖ 153/209 ← 28/71 ← 15/46	128/123 ↙ 610/428 ↓ 122/174 ↖ 135/183 ← 273/503 ← 51/88
128/142 → 29/57 → 43/54 ↘ 31/63 ↑ 628/807 ↑ 21/48 ↑	52/174 → 274/628 → 157/169 ↘ 139/206 ↑ 432/550 ↑ 44/75 ↑

5. Highland Ave at SR-210 EB Off-Ramp	6. Highland Ave at SR-210 On-Ramp	7. Victoria Ave at Highland Ave	8. Del Rosa Dr at Pacific St	9. Victoria Ave at Pacific St
175/190 ↙ 926/1025 ↓ ← 390/728	305/274 ↙ 338/205 ↓ 59/66 ↖ 139/176 ← 868/1674 ← 154/170	286/746 ↙ 479/489 ↓ 162/395 ↖ 224/298 ← 348/567 ← 86/153	200/146 ↙ 432/366 ↓ 44/66 ↖ 44/40 ← 291/228 ← 94/41	190/191 ↙ 439/473 ↓ 123/152 ↖ 159/134 ← 344/284 ← 50/42
354/765 →	79/127 → 1061/1147 → 281/350 ↘ 378/326 ↑ 166/104 ↑ 100/66 ↑	566/806 → 376/507 → 119/207 ↘ 241/293 ↑ 646/594 ↑ 89/120 ↑	154/147 → 262/369 → 33/31 ↘ 48/27 ↑ 236/521 ↑ 37/99 ↑	194/170 → 288/429 → 206/190 ↘ 165/145 ↑ 454/554 ↑ 30/55 ↑

10. Victoria Ave at 14th St	11. Tippecanoe Ave at Baseline St	12. Del Rosa Dr at Baseline St	13. Sterling Ave at Base Line	14. Victoria Ave at Base Line
4/12 ↙ 663/611 ↓ 27/31 ↖ 54/55 ← 6/4 ← 25/27	← 488/499 ← 191/165	146/128 ↙ 406/253 ↓ 39/85 ↖ 39/56 ← 378/472 ← 106/26	84/100 ↙ 479/317 ↓ 163/202 ↖ 195/216 ← 338/354 ← 44/60	125/123 ↙ 422/349 ↓ 134/150 ↖ 121/145 ← 245/327 ← 41/45
8/29 → 0/10 → 0/3 ↘ 0/39 ↑ 535/121 ↑ 11/82 ↑	351/651 → 227/167 ↘ 193/283 ↑ 161/249 ↑	55/187 → 232/693 → 155/43 ↘ 50/57 ↑ 233/445 ↑ 77/64 ↑	71/147 → 225/551 → 48/51 ↘ 30/85 ↑ 256/529 ↑ 35/76 ↑	105/116 → 211/494 → 30/59 ↘ 48/62 ↑ 320/434 ↑ 22/92 ↑

15. Tippecanoe Ave at 9th St	16. Del Rosa Ave at 9th St	17. Sterling Ave at 9th St	18. Victoria Ave at 9th St
23/48 ↙ 378/265 ↓ 24/12 ↖ 22/24 ← 327/350 ← 110/49	108/64 ↙ 290/287 ↓ 163/57 ↖ 45/49 ← 264/359 ← 33/40	83/75 ↙ 452/248 ↓ 55/71 ↖ 85/73 ← 287/207 ← 122/92	84/66 ↙ 333/227 ↓ 44/59 ↖ 55/57 ← 141/161 ← 47/24
42/89 → 429/428 → 184/103 ↘ 122/183 ↑ 257/613 ↑ 76/57 ↑	57/53 → 452/258 → 153/77 ↘ 95/123 ↑ 131/513 ↑ 137/84 ↑	80/97 → 192/302 → 63/77 ↘ 44/78 ↑ 207/461 ↑ 59/195 ↑	59/100 → 115/236 → 67/68 ↘ 60/79 ↑ 161/400 ↑ 17/39 ↑

NOT TO SCALE

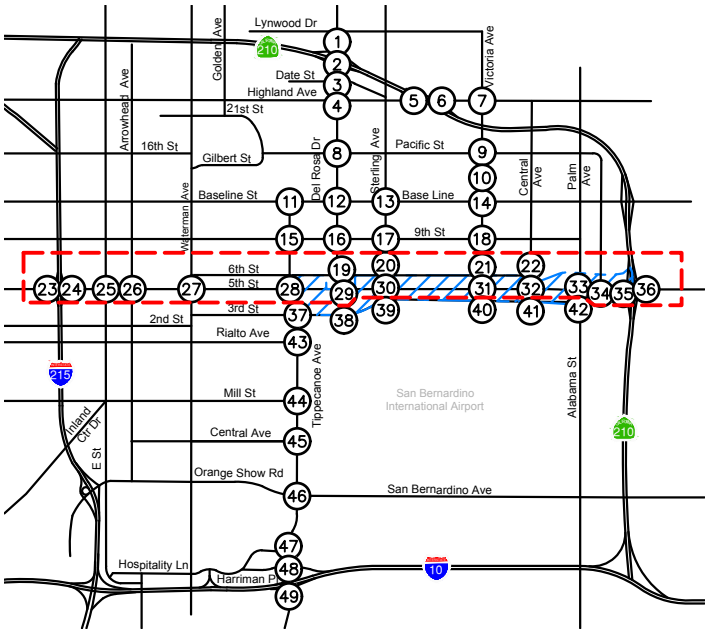
LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 14A
FUTURE BUILD-OUT 2040
PEAK HOUR TRAFFIC VOLUMES

Kimley»Horn



19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
95/30 ↙ 404/261 ↓ 54/19 ↘ 44/36 ← 144/86 ← 97/40 155/55 → 144/124 → 56/14 ↘ 71/10 ↑ 232/523 ↑ 40/132	43/29 ↙ 677/372 ↓ 28/28 ↘ 15/18 ← 116/76 ← 9/10 44/55 → 102/104 → 14/11 ↘ 15/19 ↑ 259/725 ↑ 13/41
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
23/24 ↙ 423/227 ↓ 39/62 ↘ 38/32 ← 46/52 ← 62/30 23/26 → 57/65 → 41/25 ↘ 31/46 ↑ 120/484 ↑ 7/74	38/31 ↙ 111/81 45/56 → 27/28 ↘ 10/22 ↑ 82/185 ↑

23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
241/186 ↙ 7/6 ↓ 532/311 ← 700/805 ← 458/498 442/858 → 350/393 ↘	148/644 ← 825/925 150/225 → 840/951 → 312/380 ↑ 0/3 ↑ 542/480 ↑	17/60 ↙ 143/163 ↓ 11/28 ↘ 12/24 ← 421/893 ← 14/44 75/26 → 994/611 → 40/42 ↘ 27/94 ↑ 109/309 ↑ 26/45 ↑	38/51 ↙ 227/146 ↓ 40/28 ↘ 12/30 ← 433/741 ← 39/52 46/60 → 806/575 → 144/35 ↘ 46/107 ↑ 98/411 ↑ 38/77 ↑	110/132 ↙ 656/597 ↓ 18/59 ↘ 16/34 ← 310/291 ← 152/94 70/137 → 283/514 → 248/159 ↘ 128/254 ↑ 413/898 ↑ 104/207 ↑
28. Tippecanoe Ave at 5th St	**29. Del Rosa Dr at 5th St**	**30. Sterling Ave at 5th St**	**31. Victoria Ave at 5th St**	**32. Central Ave at 5th St**
41/24 ↙ 494/320 ↓ 41/60 ↘ 40/58 ← 344/257 ← 50/62 32/59 → 218/734 → 72/54 ↘ 36/72 ↑ 176/582 ↑ 23/77 ↑	380/268 ↙ 316/215 ↓ 32/48 ↘ 47/36 ← 284/119 ← 27/16 224/526 → 74/398 → 16/21 ↘ 14/39 ↑ 192/343 ↑ 7/24 ↑	55/42 ↙ 519/223 ↓ 80/170 ↘ 102/166 ← 269/124 ← 237/106 22/83 → 90/367 → 11/29 ↘ 8/6 ↑ 149/518 ↑ 17/162 ↑	77/39 ↙ 421/217 ↓ 76/75 ↘ 78/109 ← 413/238 ← 284/30 21/101 → 109/482 → 55/137 ↘ 19/42 ↑ 130/501 ↑ 17/149 ↑	33/16 ↙ 56/33 ↓ 44/51 ↘ 45/75 ← 798/345 ← 40/7 15/24 → 235/723 → 17/7 ↘ 6/2 ↑ 5/124 ↑
33. Palm Ave at 5th St	**34. Church Ave at 5th St**	**35. SR-210 SB Ramps at 5th St**	**36. SR-210 NB Ramps at 5th St**	
98/40 ↙ 664/280 ↓ 145/201 ↘ 107/146 ← 671/267 ← 360/190 14/95 → 224/794 → 68/67 ↘ 35/95 ↑ 157/638 ↑ 258/534 ↑	84/30 ↙ 308/198 ↓ 129/253 ← 1142/544 25/58 → 564/1704 →	121/118 ↙ 11/9 ↓ 211/559 ← 951/482 ← 958/389 326/933 → 396/489 ↘	393/398 ← 1812/802 94/251 → 538/1628 → 487/240 ↑ 401/610 ↑	

NOT TO SCALE

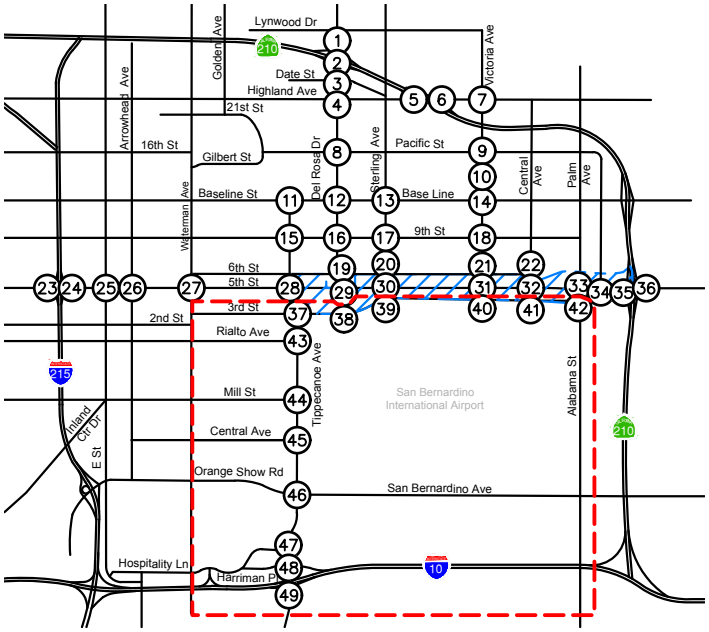
LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 14B
FUTURE BUILD-OUT 2040
PEAK HOUR TRAFFIC VOLUMES

Kimley»Horn



37. Tippecanoe Ave at 3rd St

58/39 ↙ 664/338 ↓ 52/42 ↘ 25/54 ← 716/330 ← 302/257

33/70 → 220/846 → 54/108 ↘ 91/119 ↑ 272/643 ↑ 215/520

38. Del Rosa Dr at 3rd St

86/69 ↙ 228/131 ↓ 26/44 ↘ 13/26 ← 1075/569 ← 716/351

73/116 → 351/1394 → 34/7 ↘ 13/12 ↑ 89/207 ↑ 318/811

39. Sterling Ave at 3rd St

781/335 ↙ 39/59 ↘ 23/40 ← 1190/585

175/653 → 385/1542 →

40. Victoria Ave at 3rd St

603/187 ↙ 30/21 ↓ 156/166 ↘ 52/156 ← 628/300 ← 33/35

134/509 → 262/1125 → 24/7 ↘ 12/18 ↑ 12/39 ↑ 26/42

41. Central Ave at 3rd St

80/30 ↙ 24/22 ↘ 4/26 ← 623/464

23/191 → 411/1130 → 0/1 ↑ 0/3 ↑

42. Palm Ave at 3rd St

159/84 ↙ 831/391 ↓ 78/80 ↘ 235/100 ← 104/27 ← 122/77

106/419 → 18/362 → 406/554 ↘ 385/434 ↑ 364/829 ↑ 33/95

43. Tippecanoe Ave at Rialto Ave

101/64 ↙ 841/773

87/140 → 110/78 ↘ 90/126 ↑ 528/1184 ↑

44. Tippecanoe Ave at Mill St

95/291 ↙ 1162/1213 ↓ 167/2 ↘ 165/3 ← 211/33 ← 120/25

244/504 → 64/8 → 53/453 ↘ 143/245 ↑ 1077/1498 ↑ 142/0

45. Tippecanoe Ave at Central Ave

131/154 ↙ 1169/1441 ↓ 238/237 ↘ 195/258 ← 95/174 ← 37/96

101/139 → 204/192 → 86/112 ↘ 87/106 ↑ 1029/1504 ↑ 170/100

46. Tippecanoe Ave at Orange Show Rd

76/63 ↙ 945/1110 ↓ 330/507 ↘ 276/362 ← 263/535 ← 121/237

122/219 → 161/699 → 128/145 ↘ 75/129 ↑ 918/1176 ↑ 94/164 ↑

47. Tippecanoe Ave at Hospitality Ln

43/114 ↙ 587/946 ↓ 101/130 ↘ 82/49 ← 107/105 ← 180/154

64/262 → 46/238 → 77/332 ↘ 458/487 ↑ 1008/782 ↑ 104/260 ↑

48. Tippecanoe Ave at I-10 WB Ramps

92/180 ↙ 742/1185 ↘ 512/464 ← 177/215 ← 528/180

77/379 → 231/794 ↘ 125/300 ↑ 817/599 ↑

49. Tippecanoe Ave at I-10 EB Ramps

850/754 ← 161/692 ↘

989/781 → 6/3 → 976/551 ↘ 641/1031 ↑ 308/343 ↑

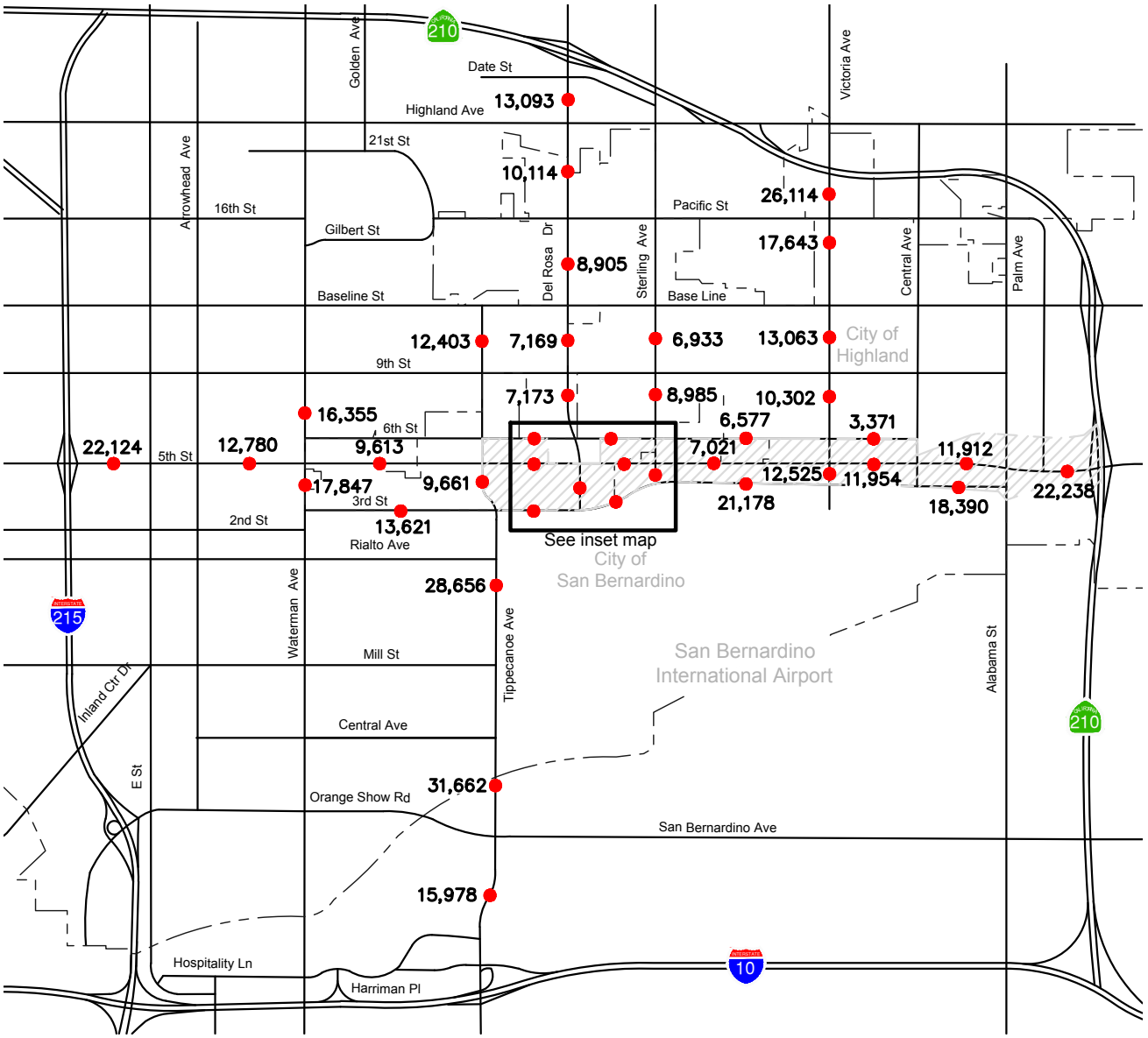
NOT TO SCALE

LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 14C
FUTURE BUILD-OUT 2040
PEAK HOUR TRAFFIC VOLUMES



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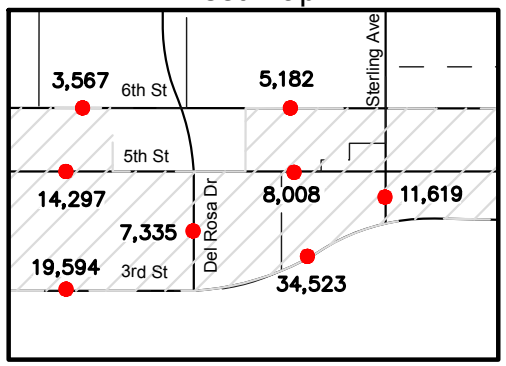
Inset Map



LEGEND:

= Specific Plan Boundary

X,XXX = Average Daily Traffic Volume

FIGURE 15
FUTURE BUILD-OUT 2040 ROADWAY TRAFFIC VOLUMES

Kimley»Horn

TABLE 6
SUMMARY OF INTERSECTION OPERATION
FUTURE BUILD-OUT 2040

Int. #	Intersection	Traffic Control	Jurisdiction	Peak Hour	Future Build-out 2040		
					Delay (sec/veh)	V/C	LOS
1	Del Rosa Drive at SR-210 WB Ramps	S	C	AM	56.4	0.959	E
				PM	35.8	0.834	D
2	Del Rosa Drive at SR-210 EB Ramps	S	C	AM	32.4	0.758	C
				PM	34.4	0.802	C
3	Del Rosa Drive at Date Street	S	SB	AM	14.9	0.384	B
				PM	20.0	0.482	B
4	Del Rosa Drive at Highland Avenue	S	SB	AM	29.8	0.382	C
				PM	36.6	0.533	D
5	Highland Avenue at SR-210 EB Off-Ramp	S	C	AM	22.9	0.391	C
				PM	20.1	0.521	C
6	Highland Avenue at SR-210 WB Off-Ramp	S	C	AM	53.3	0.834	D
				PM	46.1	0.816	D
7	Victoria Avenue at Highland Avenue	S	H	AM	29.8	0.651	C
				PM	59.8	0.929	E
8	Del Rosa Drive at Pacific Street	S	H	AM	29.5	0.405	C
				PM	27.1	0.494	C
9	Victoria Avenue at Pacific Street	S	H	AM	33.3	0.553	C
				PM	32.8	0.511	C
10	Victoria Avenue at 14th Street	S	H	AM	6.4	0.239	A
				PM	11.7	0.249	B
11	Tippecanoe Avenue at Baseline Street	S	SB	AM	21.8	0.412	C
				PM	23.6	0.492	C
12	Del Rosa Drive at Baseline Street	S	SB	AM	30.2	0.438	C
				PM	32.6	0.461	C
13	Sterling Avenue at Base Line	S	H	AM	29.6	0.386	C
				PM	32.6	0.556	C
14	Victoria Avenue at Base Line	S	H	AM	29.1	0.362	C
				PM	33.5	0.443	C
15	Tippecanoe Avenue at 9th Street	S	H	AM	32.3	0.435	C
				PM	39.1	0.380	D
16	Del Rosa Drive at 9th Street	S	SB	AM	32.3	0.460	C
				PM	31.7	0.436	C
17	Sterling Avenue at 9th Street	S	H	AM	29.8	0.388	C
				PM	29.5	0.459	C
18	Victoria Avenue at 9th Street	S	H	AM	27.4	0.271	C
				PM	29.3	0.310	C
19	Del Rosa Drive at 6th Street	S	SB	AM	30.0	0.391	C
				PM	19.0	0.305	B
20	Sterling Avenue at 6th Street	U	SB	AM	148.2	0.481	F
				PM	195.9	0.462	F
21	Victoria Avenue at 6th Street	U	H	AM	22.3	0.087	C
				PM	41.3	0.200	E
22	Central Avenue at 6th Street	U	SB	AM	10.2	0.063	B
				PM	11.1	0.091	B
23	I-215 SB Ramps at 5th Street	S	C	AM	25.4	0.534	C
				PM	20.1	0.514	C
24	I-215 NB Ramps at 5th Street	S	C	AM	30.1	0.408	C
				PM	23.0	0.648	C
25	E Street at 5th Street	S	SB	AM	10.4	0.369	B
				PM	16.9	0.455	B
26	Arrowhead Avenue at 5th Street	S	SB	AM	32.4	0.397	C
				PM	32.9	0.408	C

TABLE 6
SUMMARY OF INTERSECTION OPERATION
FUTURE BUILD-OUT 2040

Int. #	Intersection	Traffic Control	Jurisdiction	Peak Hour	Future Build-out 2040		
					Delay (sec/veh)	V/C	LOS
27	Waterman Avenue at 5th Street	S	SB	AM	25.9	0.465	C
				PM	28.9	0.526	C
28	Tippecanoe Avenue at 5th Street	S	H	AM	27.7	0.399	C
				PM	33.2	0.696	C
29	Del Rosa Drive at 5th Street	S	H	AM	19.2	0.583	B
				PM	22.6	0.680	C
30	Sterling Avenue at 5th Street	S	SB	AM	16.3	0.464	B
				PM	25.8	0.540	C
31	Victoria Avenue at 5th Street	S	H	AM	30.1	0.476	C
				PM	27.5	0.589	C
32	Central Avenue at 5th Street	S	H	AM	10.2	0.326	B
				PM	12.7	0.347	B
33	Palm Avenue at 5th Street	S	H	AM	45.5	0.544	D
				PM	39.1	0.819	D
34	Church Avenue at 5th Street	S	H	AM	14.3	0.567	B
				PM	9.3	0.621	A
35	SR-210 EB Ramps at 5th Street	S	C	AM	26.5	0.725	C
				PM	33.1	0.792	C
36	SR-210 WB Ramps at 5th Street/Greenspot Road	S	C	AM	19.9	0.574	B
				PM	29.6	0.696	C
37	Tippecanoe Avenue at 3rd Street	S	SB	AM	29.6	0.488	C
				PM	32.8	0.716	C
38	Del Rosa Drive at 3rd Street	S	SB	AM	31.4	0.508	C
				PM	57.3	0.741	E
39	Sterling Avenue at 3rd Street	S	SB	AM	28.5	0.733	C
				PM	21.6	0.701	C
40	Victoria Avenue at 3rd Street	S	H	AM	43.3	0.674	D
				PM	41.2	0.581	D
41	Central Avenue at 3rd Street	U	H	AM	25.9	0.000	D
				PM	105.4	0.025	F
42	Palm Avenue at 3rd Street	S	H	AM	44.8	0.751	D
				PM	70.4	0.651	E
43	Tippecanoe Avenue at Rialto Avenue	S	SB	AM	11.9	0.393	B
				PM	11.2	0.426	B
44	Tippecanoe Avenue at Mill Street	S	SB	AM	28.1	0.700	C
				PM	28.7	0.748	C
45	Tippecanoe Avenue at Central Avenue	S	SB	AM	21.8	0.478	C
				PM	25.7	0.639	C
46	Tippecanoe Ave at Orange Show/San Bernardino Ave	S	SB	AM	28.4	0.633	C
				PM	65.5	0.917	E
47	Tippecanoe Avenue at Hospitality Lane	S	SB	AM	24.1	0.473	C
				PM	31.4	0.650	C
48	Tippecanoe Ave at I-10 WB Ramps / Harriman Place	S	C	AM	29.1	0.469	C
				PM	35.5	0.740	D
49	Tippecanoe Avenue at I-10 EB Ramps	S	C	AM	23.6	0.614	C
				PM	31.9	0.745	C

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the 2010 Highway Capacity Manual.
- F* = Per County of San Bernardino CMP guidelines, the Level of Service for an intersection with a v/c of 1.00 or greater is LOS F, regardless of the LOS based on delay.

TABLE 7
SUMMARY OF ROADWAY SEGMENT ANALYSIS
FUTURE BUILD-OUT 2040

Roadway	Segment	LOS E Capacity [1]	Future Build-Out 2040 ADT	V/C	LOS
Waterman Avenue	Baseline Street to 5th Street	40,000	16,355	0.409	A
	5th Street to 3rd Street	60,000	17,847	0.297	A
Tippecanoe Avenue	Baseline Street to 6th Street	30,000	12,403	0.413	A
	6th Street to 3rd Street	30,000	9,661	0.322	A
	3rd Street to Mill Street	60,000	28,656	0.478	A
	Mill Street to Orange Show Road / San Bernardino Avenue	40,000	31,662	0.792	C
	Orange Show Road/ San Bernardino Avenue to Harriman Place / I-10 WB Ramps	60,000	15,978	0.266	A
Del Rosa Drive	SR-210 EB Ramps to Highland Avenue	40,000	13,093	0.327	A
	Highland Avenue to Pacific Street	12,000	10,114	0.843	D
	Pacific Street to Baseline Street	30,000	8,905	0.297	A
	Baseline Street to 9th Street	40,000	7,169	0.179	A
	9th Street to 6th Street	40,000	7,173	0.179	A
	6th Street to 3rd Street	30,000	7,335	0.245	A
Sterling Avenue	Base Line to 9th Street	40,000	6,933	0.173	A
	9th Street to 6th Street	40,000	8,985	0.225	A
	6th Street to 3rd Street	40,000	11,619	0.290	A
Victoria Avenue	Highland Avenue to Pacific Street	40,000	26,114	0.653	B
	Pacific Street to Base Line	40,000	17,643	0.441	A
	Base Line to 9th Street	30,000	13,063	0.435	A
	9th Street to 6th Street	30,000	10,302	0.343	A
	6th Street to 3rd Street	30,000	12,525	0.417	A
6th Street	Tippecanoe Avenue to Del Rosa Drive	10,000	3,567	0.357	A
	Del Rosa Drive to Sterling Avenue	10,000	5,182	0.518	A
	Sterling Avenue to Victoria Avenue	10,000	6,577	0.658	B
	Victoria Avenue to Central Avenue	10,000	3,371	0.337	A
5th Street	I-215 NB Ramps to E Street	40,000	22,124	0.553	A
	E Street to Waterman Avenue	40,000	12,780	0.320	A
	Waterman Avenue to Tippecanoe Avenue	15,000	9,613	0.641	B
	Tippecanoe Avenue to Del Rosa Drive	15,000	14,297	0.953	E
	Del Rosa Drive to Sterling Avenue	40,000	8,008	0.200	A
	Sterling Avenue to Victoria Avenue	15,000	7,021	0.468	A
	Victoria Avenue to Central Avenue	15,000	11,954	0.797	C
	Central Avenue to Palm Avenue	15,000	11,912	0.794	C
	Palm Avenue to SR-210 SB Ramps	40,000	22,238	0.556	A
3rd Street	Waterman Avenue to Tippecanoe Avenue	40,000	13,621	0.341	A
	Tippecanoe Avenue to Del Rosa Drive	40,000	19,594	0.490	A
	Del Rosa Drive to Sterling Avenue	40,000	34,523	0.863	D
	Sterling Avenue to Victoria Avenue	40,000	21,178	0.529	A
	Victoria Avenue to Palm Avenue	40,000	18,390	0.460	A

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*

LOS = Level of Service ADT = Average Daily Traffic V/C = Volume-to-Capacity

Future Build-Out 2040 Plus Project Conditions

Project-related traffic was added to the Future Build-Out 2040 traffic volumes. The resulting Future Build-Out 2040 Plus Project peak hour intersection volumes are shown on Figure 16. Daily roadway volumes are shown on Figure 17.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Future Build-Out 2040 Plus Project condition. The results are shown on Table 8. Copies of intersection analysis worksheets are provided in *Appendix C*.

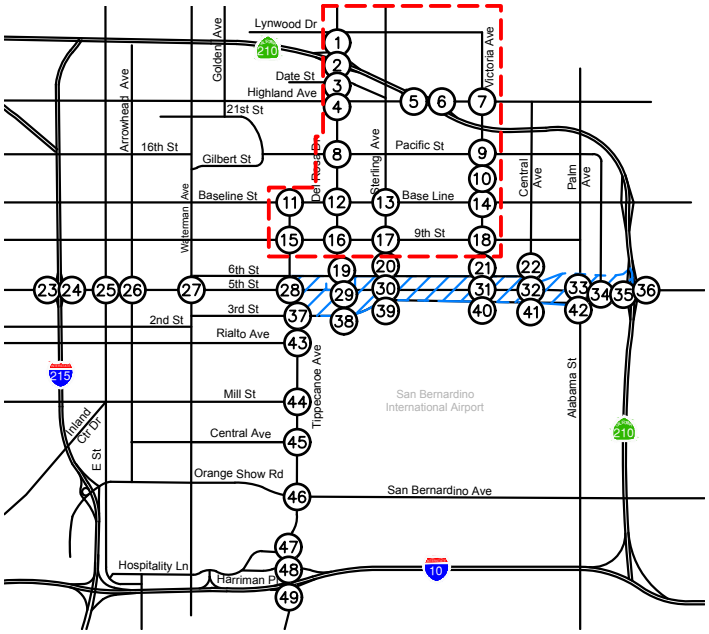
Review of this table indicates that, with the addition of Project traffic, the following intersections would operate at an unacceptable Level of Service:

- #1 – Del Rosa Drive at SR-210 WB Ramps: AM – LOS E
- #7 – Victoria Avenue at Highland Avenue: PM – LOS E
- #20 – Sterling Avenue at 6th Street: AM LOS F; PM LOS F
- #21 – Victoria Avenue at 6th Street: AM – LOS F; PM – LOS F
- #33 – Palm Avenue at 5th Street: AM – LOS E; PM – LOS E
- #38 – Del Rosa Drive at 3rd Street: PM – LOS E
- #41 – Central Avenue at 3rd Street: PM – LOS F
- #42 – Palm Avenue at 3rd Street: PM – LOS E
- #46 – Tippecanoe Avenue at Orange Show Road /San Bernardino Avenue: PM – LOS E

The Project impact at each of these intersections would be considered to be a significant project impact at the following intersections:

- #33 – Palm Avenue at 5th Street
- #38 – Del Rosa Drive at 3rd Street
- #46 – Tippecanoe Avenue at Orange Show Road /San Bernardino Avenue

Mitigation measures and improvements for all deficient intersections are identified in the Mitigation Section of this report.



1. Del Rosa Ave at SR-210 WB Ramps	2. Del Rosa Ave at SR-210 EB Ramps
774/373 ← 530/390 → 144/305 ← 157/186	461/416 ← 232/161
602/708 → 543/785 ←	360/406 → 1/1 → 790/769 ↘ 832/1076 ← 112/147 ↑

3. Del Rosa Ave at Date St	4. Del Rosa Ave at Highland Ave
80/130 ← 944/798 ← 207/250 → 157/223 ← 28/71 ← 15/46	128/123 ← 660/440 ← 122/174 → 135/183 ← 273/503 ← 51/88
128/142 → 29/57 → 43/54 ↘ 31/63 ↑ 639/861 ↑ 21/48 ↑	52/174 → 274/628 → 157/169 ↘ 139/206 ↑ 443/604 ↑ 44/75 ↑

5. Highland Ave at SR-210 EB Off-Ramp	6. Highland Ave at SR-210 On-Ramp	7. Victoria Ave at Highland Ave	8. Del Rosa Dr at Pacific St	9. Victoria Ave at Pacific St
175/190 ← 969/1034 ← 395/748	305/274 ← 338/205 ← 59/66 → 139/176 ← 884/1753 ← 154/170	286/746 ← 516/497 ← 162/395 → 224/298 ← 348/567 ← 86/153	200/146 ← 482/378 ← 44/66 → 44/40 ← 291/228 ← 94/41	190/191 ← 502/485 ← 123/152 → 159/134 ← 344/284 ← 50/42
354/765 →	79/127 → 1087/1151 → 298/355 ↘ 378/326 ↑ 166/104 ↑ 100/66 ↑	566/806 → 376/507 → 145/211 ↘ 257/372 ↑ 651/637 ↑ 89/120 ↑	154/147 → 262/369 → 33/31 ↘ 48/27 ↑ 247/575 ↑ 37/99 ↑	194/170 → 288/429 → 223/195 ↘ 165/145 ↑ 475/676 ↑ 30/55 ↑

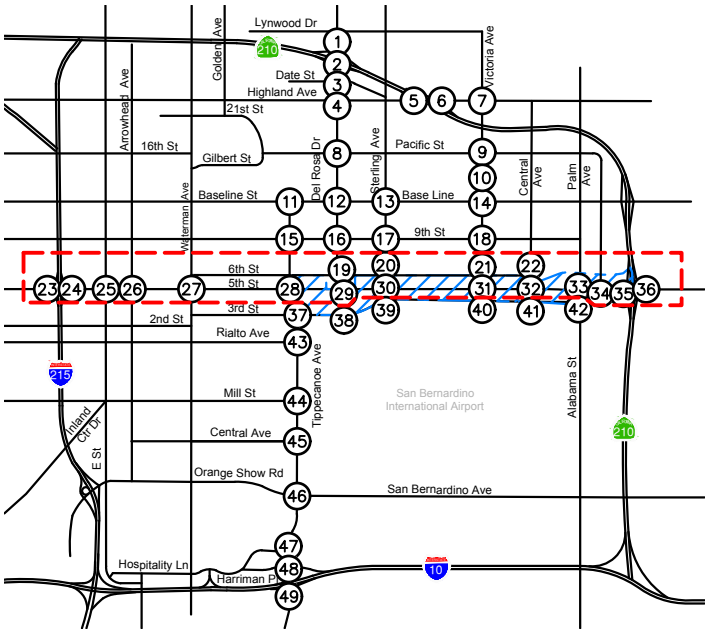
10. Victoria Ave at 14th St	11. Tippecanoe Ave at Baseline St	12. Del Rosa Dr at Baseline St	13. Sterling Ave at Base Line	14. Victoria Ave at Base Line
4/12 ← 743/628 ← 27/31 → 54/55 ← 6/4 ← 25/27	← 502/575 ← 191/165	146/128 ← 456/265 ← 39/85 → 39/56 ← 378/472 ← 106/26	84/100 ← 552/337 ← 163/202 → 195/216 ← 338/354 ← 44/60	125/123 ← 502/366 ← 134/150 → 121/145 ← 245/327 ← 41/45
8/29 → 0/10 → 0/3 ↘ 0/39 ↑ 556/243 ↑ 11/82 ↑	416/669 → 246/171 ↘ 193/283 ↑ 161/249 ↑	55/187 → 232/693 → 220/61 ↘ 64/133 ↑ 244/499 ↑ 77/64 ↑	71/147 → 225/551 → 48/51 ↘ 30/85 ↑ 268/577 ↑ 35/76 ↑	105/116 → 211/494 → 30/59 ↘ 48/62 ↑ 341/556 ↑ 22/92 ↑

15. Tippecanoe Ave at 9th St	16. Del Rosa Ave at 9th St	17. Sterling Ave at 9th St	18. Victoria Ave at 9th St
23/48 ← 397/269 ← 24/12 → 22/24 ← 327/350 ← 110/49	108/64 ← 405/317 ← 163/57 → 45/49 ← 264/359 ← 33/40	83/75 ← 494/259 ← 86/80 → 89/87 ← 287/207 ← 122/92	84/66 ← 413/244 ← 44/59 → 55/57 ← 141/161 ← 47/24
42/89 → 429/428 → 184/103 ↘ 122/183 ↑ 257/613 ↑ 76/57 ↑	57/53 → 452/258 → 153/77 ↘ 95/123 ↑ 156/643 ↑ 137/84 ↑	80/97 → 192/302 → 63/77 ↘ 44/78 ↑ 215/495 ↑ 59/195 ↑	59/100 → 115/236 → 67/68 ↘ 60/79 ↑ 182/522 ↑ 17/39 ↑

NOT TO SCALE

LEGEND:
- (X) = Study Intersection
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 16A
FUTURE BUILD-OUT 2040 PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES



19. Del Rosa Dr at 6th St	20. Sterling Ave at 6th St
98/31 ↙ 491/282 ↓ 79/27 ↘ 50/65 ← 154/99 ← 97/45 156/58 → 155/135 → 60/40 ↘ 91/14 ↑ 250/621 ↑ 44/133	48/31 ↙ 708/379 ↓ 34/30 ↘ 17/26 ← 134/97 ← 54/88 45/61 → 129/139 → 14/11 ↘ 33/23 ↑ 264/745 ↑ 34/46
21. Victoria Ave at 6th St	**22. Central Ave at 6th St**
45/28 ↙ 456/233 ↓ 64/69 ↘ 41/43 ← 97/91 ← 66/32 25/36 → 101/169 → 44/26 ↘ 59/52 ↑ 136/585 ↑ 28/79	92/43 ↙ 115/81 ↘ 51/82 → 83/142 ↘ 36/28 ↑ 86/225 ↑

23. I-215 SB Ramps at 5th St	24. I-215 NB Ramps at 5th St	25. E Street at 5th St	26. Arrowhead Ave at 5th St	27. Waterman Ave at 5th St
241/186 ↙ 7/6 ↓ 532/311 ← 713/859 ← 492/698 489/872 → 350/393 ↘	148/644 ← 872/1179 150/225 → 887/965 → 312/380 ↑ 0/3 ↑ 730/515 ↑	17/60 ↙ 143/163 ↓ 11/28 ↘ 12/24 ← 468/1147 ← 14/44 75/26 → 1229/660 → 40/42 ↘ 27/94 ↑ 109/309 ↑ 26/45 ↑	38/51 ↙ 227/146 ↓ 40/28 ↘ 12/30 ← 480/995 ← 39/52 46/60 → 1041/624 → 144/35 ↘ 46/107 ↑ 98/411 ↑ 38/77 ↑	113/149 ↙ 656/605 ↓ 18/59 ↘ 16/34 ← 354/528 ← 156/113 70/137 → 518/563 → 248/159 ↘ 128/254 ↑ 413/898 ↑ 129/211 ↑
28. Tippecanoe Ave at 5th St	**29. Del Rosa Dr at 5th St**	**30. Sterling Ave at 5th St**	**31. Victoria Ave at 5th St**	**32. Central Ave at 5th St**
41/24 ↙ 495/325 ↓ 55/63 ↘ 43/74 ← 382/461 ← 63/132 54/63 → 405/773 → 123/64 ↘ 46/124 ↑ 181/583 ↑ 90/91 ↑	393/271 ↙ 340/225 ↓ 86/87 ↘ 77/100 ← 416/345 ← 29/25 227/540 → 285/543 → 16/21 ↘ 14/39 ↑ 201/368 ↑ 15/26 ↑	103/87 ↙ 534/260 ↓ 93/173 ↘ 120/176 ← 418/330 ← 250/180 35/99 → 310/587 → 11/29 ↘ 20/8 ↑ 162/521 ↑ 101/180 ↑	90/43 ↙ 433/219 ↓ 91/78 ↘ 112/166 ← 664/455 ← 284/30 46/137 → 305/767 → 55/137 ↘ 21/43 ↑ 136/520 ↑ 17/149 ↑	37/16 ↙ 56/33 ↓ 100/165 ↘ 71/81 ← 1107/568 ← 40/7 19/64 → 396/1002 → 17/7 ↘ 6/2 ↑ 5/124 ↑
33. Palm Ave at 5th St	**34. Church Ave at 5th St**	**35. SR-210 SB Ramps at 5th St**	**36. SR-210 NB Ramps at 5th St**	
108/42 ↙ 664/280 ↓ 151/203 ↘ 107/156 ← 1042/422 ← 452/213 14/105 → 372/1196 → 73/105 ↘ 45/97 ↑ 157/638 ↑ 261/535 ↑	84/30 ↙ 308/198 ↘ 129/253 ← 1643/649 25/58 → 663/2140 →	352/167 ↙ 11/9 ↓ 211/559 ← 1221/538 ← 958/389 397/1218 → 443/742 ↘	393/398 ← 1849/810 160/493 → 543/1671 → 720/288 ↑ 401/610 ↑	

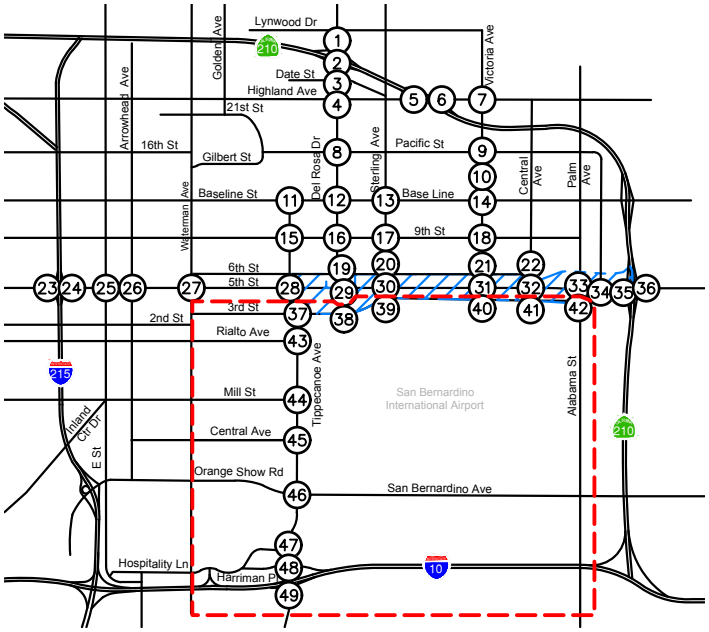
NOT TO SCALE

LEGEND:

(X) = Study Intersection

XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 16B
FUTURE BUILD-OUT 2040 PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES



37. Tippecanoe Ave at 3rd St

58/39 ↙ 678/413 ↓ 103/52 ↘ ← 35/106 ← 719/377 ← 325/395

33/70 → 262/852 → 54/108 ↘ | 91/119 ↑ 344/658 ↑ 344/553 ↑

38. Del Rosa Dr at 3rd St

103/86 ↙ 228/131 ↓ 35/46 ↘ ← 15/35 ← 1130/762 ← 716/351

88/134 → 532/1460 → 34/7 ↘ | 13/12 ↑ 89/207 ↑ 318/811 ↑

39. Sterling Ave at 3rd St

803/445 ↙ 45/60 ↘ ← 37/42 ← 1236/652

270/674 → 454/1599 →

40. Victoria Ave at 3rd St

609/188 ↙ 30/21 ↓ 162/167 ↘ ← 58/164 ← 709/348 ← 33/35

136/521 → 308/1197 → 24/7 ↘ | 12/18 ↑ 12/39 ↑ 26/42 ↑

41. Central Ave at 3rd St

80/30 ↙ 24/22 ↓ ↘ ← 4/26 ← 717/504

23/191 → 446/1209 → | 0/1 ↑ 0/3 ↑

42. Palm Ave at 3rd St

242/100 ↙ 836/434 ↓ 87/82 ↘ ← 235/100 ← 105/34 ← 122/77

106/419 → 42/455 → 406/554 ↘ | 409/439 ↑ 377/832 ↑ 33/95 ↑

43. Tippecanoe Ave at Rialto Ave

101/64 ↙ 878/986 ↓

87/140 → 110/78 ↘ | 90/126 ↑ 729/1232 ↑

44. Tippecanoe Ave at Mill St

95/291 ↙ 1199/1426 ↓ 167/2 ↘ ← 165/3 ← 211/33 ← 120/25

244/504 → 64/8 → 53/453 ↘ | 143/245 ↑ 1278/1546 ↑ 142/0 ↑

45. Tippecanoe Ave at Central Ave

131/154 ↙ 1206/1654 ↓ 238/237 ↘ ← 195/258 ← 95/174 ← 37/96

101/139 → 204/192 → 86/112 ↘ | 87/106 ↑ 1230/1552 ↑ 170/100 ↑

46. Tippecanoe Ave at Orange Show Rd

76/63 ↙ 982/1323 ↓ 330/507 ↘ ← 276/362 ← 263/535 ← 121/237

122/219 → 161/699 → 128/145 ↘ | 75/129 ↑ 1119/1224 ↑ 94/164 ↑

47. Tippecanoe Ave at Hospitality Ln

43/114 ↙ 624/1159 ↓ 101/130 ↘ ← 82/49 ← 107/105 ← 180/154

64/262 → 46/238 → 77/332 ↘ | 458/487 ↑ 1209/830 ↑ 104/260 ↑

48. Tippecanoe Ave at I-10 WB Ramps

92/180 ↙ 779/1398 ↓ ↘ ← 512/464 ← 177/215 ← 528/180

77/379 → 231/794 ↘ | 125/300 ↑ 1018/647 ↑

49. Tippecanoe Ave at I-10 EB Ramps

← 855/797 ↓ 161/692 ↘

1153/821 → 6/3 → 976/551 ↘ | 678/1039 ↑ 308/343 ↑

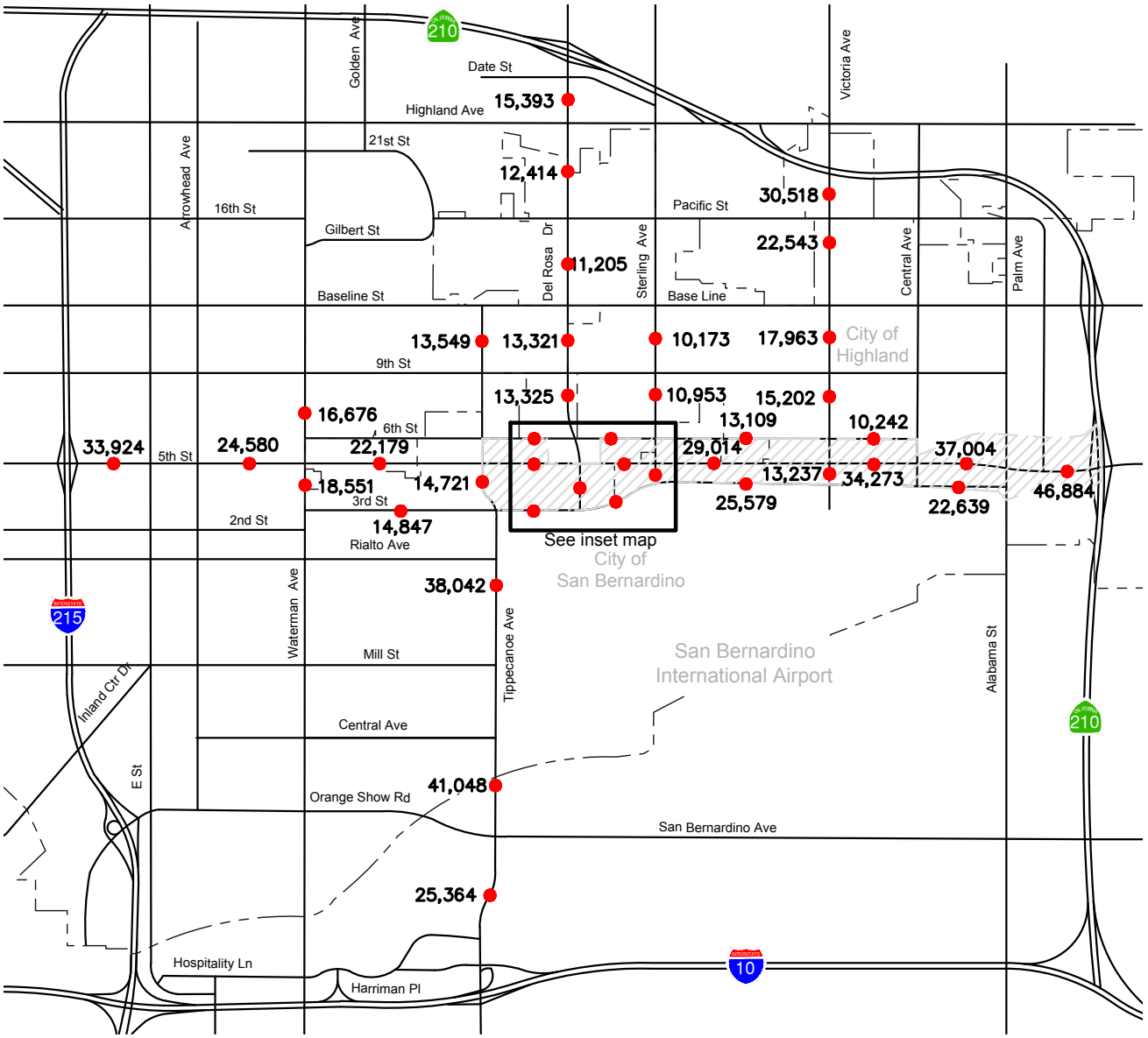
NOT TO SCALE

LEGEND:

(X) = Study Intersection

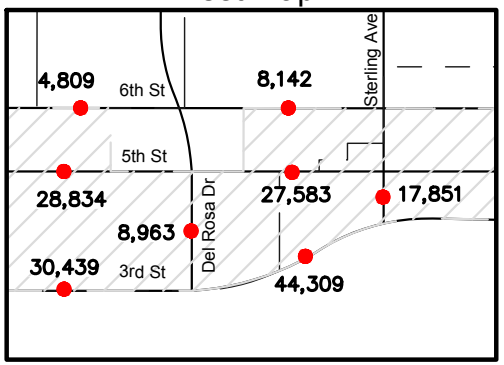
XX/YY = AM/PM Peak Hour Turning Movement Volumes

FIGURE 16C
FUTURE BUILD-OUT 2040 PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES



NOT TO SCALE

Inset Map



LEGEND:

= Specific Plan Boundary

X,XXX = Average Daily Traffic Volume

FIGURE 17
FUTURE BUILD-OUT 2040 PLUS PROJECT ROADWAY TRAFFIC VOLUMES

Kimley»Horn

TABLE 8
SUMMARY OF INTERSECTION OPERATIONS
FUTURE BUILD-OUT 2040 PLUS PROJECT

Int. #	Intersection	Traffic Control	Juris-diction	Peak Hour	Future Build-out 2040			Future Build-Out 2040 Plus Project			Project Impact / Significance		
					Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay	V/C	Sig.
1	Del Rosa Drive at SR-210 WB Ramps	S	C	AM	56.4	0.959	E	59.1	0.969	E	2.7	0.010	No
				PM	35.8	0.834	D	42.3	0.876	D	6.5	0.042	No
2	Del Rosa Drive at SR-210 EB Ramps	S	C	AM	32.4	0.758	C	35.5	0.808	D	3.1	0.050	No
				PM	34.4	0.802	C	36.6	0.827	D	2.2	0.025	No
3	Del Rosa Drive at Date Street	S	SB	AM	14.9	0.384	B	15.0	0.400	B	0.1	0.016	No
				PM	20.0	0.482	B	20.9	0.510	C	0.9	0.028	No
4	Del Rosa Drive at Highland Avenue	S	SB	AM	29.8	0.382	C	29.7	0.396	C	-0.1	0.014	No
				PM	36.6	0.533	D	36.9	0.547	D	0.3	0.014	No
5	Highland Avenue at SR-210 EB Off-Ramp	S	C	AM	22.9	0.391	C	22.9	0.405	C	0.0	0.014	No
				PM	20.1	0.521	C	20.1	0.524	C	0.0	0.003	No
6	Highland Avenue at SR-210 WB Off-Ramp	S	C	AM	53.3	0.834	D	52.9	0.842	D	-0.4	0.008	No
				PM	46.1	0.816	D	45.9	0.818	D	-0.2	0.002	No
7	Victoria Avenue at Highland Avenue	S	H	AM	29.8	0.651	C	29.9	0.653	C	0.1	0.002	No
				PM	59.8	0.929	E	63.4	0.951	E	3.6	0.022	No
8	Del Rosa Drive at Pacific Street	S	H	AM	29.5	0.405	C	29.1	0.419	C	-0.4	0.014	No
				PM	27.1	0.494	C	26.8	0.524	C	-0.3	0.030	No
9	Victoria Avenue at Pacific Street	S	H	AM	33.3	0.553	C	33.1	0.570	C	-0.2	0.017	No
				PM	32.8	0.511	C	32.4	0.527	C	-0.4	0.016	No
10	Victoria Avenue at 14th Street	S	H	AM	6.4	0.239	A	6.1	0.261	A	-0.3	0.022	No
				PM	11.7	0.249	B	10.6	0.254	B	-1.1	0.005	No
11	Tippecanoe Avenue at Baseline Street	S	SB	AM	21.8	0.412	C	22.1	0.437	C	0.3	0.025	No
				PM	23.6	0.492	C	23.2	0.498	C	-0.4	0.006	No
12	Del Rosa Drive at Baseline Street	S	SB	AM	30.2	0.438	C	29.9	0.501	C	-0.3	0.063	No
				PM	32.6	0.461	C	37.4	0.493	D	4.8	0.032	No
13	Sterling Avenue at Base Line	S	H	AM	29.6	0.386	C	29.0	0.390	C	-0.6	0.004	No
				PM	32.6	0.556	C	32.4	0.569	C	-0.2	0.013	No
14	Victoria Avenue at Base Line	S	H	AM	29.1	0.362	C	28.2	0.384	C	-0.9	0.022	No
				PM	33.5	0.443	C	32.6	0.475	C	-0.9	0.032	No
15	Tippecanoe Avenue at 9th Street	S	H	AM	32.3	0.435	C	32.1	0.440	C	-0.2	0.005	No
				PM	39.1	0.380	D	39.1	0.382	D	0.0	0.002	No
16	Del Rosa Drive at 9th Street	S	SB	AM	32.3	0.460	C	31.5	0.477	C	-0.8	0.017	No
				PM	31.7	0.436	C	30.6	0.472	C	-1.1	0.036	No
17	Sterling Avenue at 9th Street	S	H	AM	29.8	0.388	C	30.1	0.399	C	0.3	0.011	No
				PM	29.5	0.459	C	29.5	0.474	C	0.0	0.015	No
18	Victoria Avenue at 9th Street	S	H	AM	27.4	0.271	C	25.8	0.293	C	-1.6	0.022	No
				PM	29.3	0.310	C	27.6	0.344	C	-1.7	0.034	No
19	Del Rosa Drive at 6th Street	S	SB	AM	30.0	0.391	C	30.5	0.438	C	0.5	0.047	No
				PM	19.0	0.305	B	20.7	0.364	C	1.7	0.059	No
20	Sterling Avenue at 6th Street	U	SB	AM	148.2	0.481	F	Ovflw	n/a	F	Ovflw	n/a	No
				PM	195.9	0.462	F	Ovflw	n/a	F	Ovflw	n/a	No
21	Victoria Avenue at 6th Street	U	H	AM	22.3	0.087	C	67.5	0.361	F	45.2	0.274	No
				PM	41.3	0.200	E	Ovflw	n/a	F	Ovflw	n/a	No
22	Central Avenue at 6th Street	U	SB	AM	10.2	0.063	B	11.1	0.084	B	0.9	0.021	No
				PM	11.1	0.091	B	12.1	0.145	B	1.0	0.054	No
23	I-215 SB Ramps at 5th Street	S	C	AM	25.4	0.534	C	25.5	0.546	C	0.1	0.012	No
				PM	20.1	0.514	C	22.0	0.580	C	1.9	0.066	No
24	I-215 NB Ramps at 5th Street	S	C	AM	30.1	0.408	C	29.1	0.485	C	-1.0	0.077	No
				PM	23.0	0.648	C	22.5	0.656	C	-0.5	0.008	No
25	E Street at 5th Street	S	SB	AM	10.4	0.369	B	10.4	0.433	B	0.0	0.064	No
				PM	16.9	0.455	B	18.0	0.526	B	1.1	0.071	No
26	Arrowhead Avenue at 5th Street	S	SB	AM	32.4	0.397	C	31.1	0.463	C	-1.3	0.066	No
				PM	32.9	0.408	C	32.0	0.479	C	-0.9	0.071	No

TABLE 8
SUMMARY OF INTERSECTION OPERATIONS
FUTURE BUILD-OUT 2040 PLUS PROJECT

Int. #	Intersection	Traffic Control	Juris-diction	Peak Hour	Future Build-out 2040			Future Build-Out 2040 Plus Project			Project Impact / Significance		
					Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay	V/C	Sig.
27	Waterman Avenue at 5th Street	S	SB	AM	25.9	0.465	C	28.5	0.524	C	2.6	0.059	No
				PM	28.9	0.526	C	30.0	0.552	C	1.1	0.026	No
28	Tippecanoe Avenue at 5th Street	S	H	AM	27.7	0.399	C	30.2	0.460	C	2.5	0.061	No
				PM	33.2	0.696	C	41.4	0.770	D	8.2	0.074	No
29	Del Rosa Drive at 5th Street	S	H	AM	19.2	0.583	B	21.3	0.673	C	2.1	0.090	No
				PM	22.6	0.680	C	30.2	0.942	C	7.6	0.262	No
30	Sterling Avenue at 5th Street	S	SB	AM	16.3	0.464	B	15.0	0.669	B	-1.3	0.205	No
				PM	25.8	0.540	C	28.1	0.762	C	2.3	0.222	No
31	Victoria Avenue at 5th Street	S	H	AM	30.1	0.476	C	34.7	0.675	C	4.6	0.199	No
				PM	27.5	0.589	C	35.1	0.887	D	7.6	0.298	No
32	Central Avenue at 5th Street	S	H	AM	10.2	0.326	B	10.1	0.430	B	-0.1	0.104	No
				PM	12.7	0.347	B	13.9	0.432	B	1.2	0.085	No
33	Palm Avenue at 5th Street	S	H	AM	45.5	0.544	D	66.0	0.649	E	20.5	0.105	Yes
				PM	39.1	0.819	D	63.6	0.952	E	24.5	0.133	Yes
34	Church Avenue at 5th Street	S	H	AM	14.3	0.567	B	16.6	0.708	B	2.3	0.141	No
				PM	9.3	0.621	A	10.4	0.750	B	1.1	0.129	No
35	SR-210 EB Ramps at 5th Street	S	C	AM	26.5	0.725	C	32.9	0.873	C	6.4	0.148	No
				PM	33.1	0.792	C	47.5	0.964	D	14.4	0.172	No
36	SR-210 WB Ramps at 5th Street/Greenspot Road	S	C	AM	19.9	0.574	B	24.5	0.683	C	4.6	0.109	No
				PM	29.6	0.696	C	29.3	0.784	C	-0.3	0.088	No
37	Tippecanoe Avenue at 3rd Street	S	SB	AM	29.6	0.488	C	30.2	0.517	C	0.6	0.029	No
				PM	32.8	0.716	C	52.1	0.789	D	19.3	0.073	No
38	Del Rosa Drive at 3rd Street	S	SB	AM	31.4	0.508	C	30.9	0.561	C	-0.5	0.053	No
				PM	57.3	0.741	E	58.5	0.751	E	1.2	0.010	Yes
39	Sterling Avenue at 3rd Street	S	SB	AM	28.5	0.733	C	36.2	0.818	D	7.7	0.085	No
				PM	21.6	0.701	C	29.2	0.773	C	7.6	0.072	No
40	Victoria Avenue at 3rd Street	S	H	AM	43.3	0.674	D	43.7	0.703	D	0.4	0.029	No
				PM	41.2	0.581	D	40.9	0.605	D	-0.3	0.024	No
41	Central Avenue at 3rd Street	U	H	AM	25.9	0.000	D	30.6	0.000	D	4.7	0.000	No
				PM	105.4	0.025	F	129.4	0.000	F	24.0	-0.025	No
42	Palm Avenue at 3rd Street	S	H	AM	44.8	0.751	D	50.8	0.795	D	6.0	0.044	No
				PM	70.4	0.651	E	72.2	0.722	E	1.8	0.071	No
43	Tippecanoe Avenue at Rialto Avenue	S	SB	AM	11.9	0.393	B	10.9	0.403	B	-1.0	0.010	No
				PM	11.2	0.426	B	10.9	0.453	B	-0.3	0.027	No
44	Tippecanoe Avenue at Mill Street	S	SB	AM	28.1	0.700	C	28.3	0.711	C	0.2	0.011	No
				PM	28.7	0.748	C	34.5	0.810	C	5.8	0.062	No
45	Tippecanoe Avenue at Central Avenue	S	SB	AM	21.8	0.478	C	21.5	0.519	C	-0.3	0.041	No
				PM	25.7	0.639	C	25.8	0.648	C	0.1	0.009	No
46	Tippecanoe Ave at Orange Show/San Bernardino Ave	S	SB	AM	28.4	0.633	C	29.4	0.689	C	1.0	0.056	No
				PM	65.5	0.917	E	70.8	0.931	E	5.3	0.014	Yes
47	Tippecanoe Avenue at Hospitality Lane	S	SB	AM	24.1	0.473	C	23.6	0.511	C	-0.5	0.038	No
				PM	31.4	0.650	C	32.7	0.691	C	1.3	0.041	No
48	Tippecanoe Ave at I-10 WB Ramps / Harriman Place	S	C	AM	29.1	0.469	C	28.1	0.518	C	-1.0	0.049	No
				PM	35.5	0.740	D	36.7	0.772	D	1.2	0.032	No
49	Tippecanoe Avenue at I-10 EB Ramps	S	C	AM	23.6	0.614	C	24.1	0.614	C	0.5	0.000	No
				PM	31.9	0.745	C	32.0	0.758	C	0.1	0.013	No

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the 2010 Highway Capacity Manual.
- F* = Per County of San Bernardino CMP guidelines, the Level of Service for an intersection with a v/c of 1.00 or greater is LOS F, regardless of the LOS based on delay.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Future Build-Out 2040 Plus Project condition, and the results are summarized on Table 9. Review of this table indicates that with the addition of Project traffic, the following study roadway segments would operate at an unacceptable Level of Service:

- Tippecanoe Avenue: Mill Street to Orange Show/San Bernardino Avenue (LOS F)
- Del Rosa Drive: Highland Avenue to Pacific Street (LOS F)
- 6th Street:
    - Del Rosa Drive to Sterling Avenue (LOS D)
    - Sterling Avenue to Victoria Avenue (LOS F)
    - Victoria Avenue to Central Avenue (LOS F)
- 5th Street:
    - I-215 NB Ramps to E Street (LOS D)
    - Waterman Avenue to Tippecanoe Avenue (LOS F)
    - Tippecanoe Avenue to Del Rosa Drive (LOS F)
    - Sterling Avenue to Victoria Avenue (LOS F)
    - Victoria Avenue to Central Avenue (LOS F)
    - Central Avenue to Palm Avenue (LOS F)
    - Palm Avenue to SR-210 SB Ramps (LOS F)
- 3rd Street: Del Rosa Drive to Sterling Avenue (LOS F)

The Project impact on each of these roadway segments would be considered to be a significant project impact. Mitigation measures for these segments are identified in the Mitigation Section of this report.

Base Free-Flow Speed Arterial Analysis

The following deficient roadway segments are located wholly within the City of Highland:

- 6th Street:
    - Del Rosa Drive to Sterling Avenue
    - Victoria Avenue to Central Avenue
- 5th Street:
    - Tippecanoe Avenue to Del Rosa Drive
    - Victoria Avenue to Central Avenue
    - Central Avenue to Palm Avenue
    - Palm Avenue to SR-210 SB Ramps

TABLE 9
SUMMARY OF ROADWAY SEGMENT ANALYSIS
FUTURE BUILD-OUT 2040 PLUS PROJECT

Roadway	Segment	LOS **E** Capacity	Future Build-Out 2040 ADT[1]	Project ADT	Future Build-Out 2040 Plus Project ADT	V/C	LOS
Waterman Avenue	Baseline Street to 5th Street	40,000	16,355	321	16,676	0.417	A
	5th Street to 3rd Street	60,000	17,847	704	18,551	0.309	A
Tippecanoe Avenue	Baseline Street to 6th Street	30,000	12,403	1146	13,549	0.452	A
	6th Street to 3rd Street	30,000	9,661	5060	14,721	0.491	A
	3rd Street to Mill Street	60,000	28,656	9386	38,042	0.634	B
	Mill Street to Orange Show Road / San Bernardino Avenue	40,000	31,662	9386	41,048	1.026	F
	Orange Show Road/ San Bernardino Avenue to Harriman Place / I-10 WB Ramps	60,000	15,978	9386	25,364	0.423	A
Del Rosa Drive	SR-210 EB Ramps to Highland Avenue	40,000	13,093	2300	15,393	0.385	A
	Highland Avenue to Pacific Street	12,000	10,114	2300	12,414	1.034	F
	Pacific Street to Baseline Street	30,000	8,905	2300	11,205	0.374	A
	Baseline Street to 9th Street	40,000	7,169	6152	13,321	0.333	A
	9th Street to 6th Street	40,000	7,173	6152	13,325	0.333	A
	6th Street to 3rd Street	30,000	7,335	1628	8,963	0.299	A
Sterling Avenue	Base Line to 9th Street	40,000	6,933	3240	10,173	0.254	A
	9th Street to 6th Street	40,000	8,985	1968	10,953	0.274	A
	6th Street to 3rd Street	40,000	11,619	6232	17,851	0.446	A
Victoria Avenue	Highland Avenue to Pacific Street	40,000	26,114	4404	30,518	0.763	C
	Pacific Street to Base Line	40,000	17,643	4900	22,543	0.564	A
	Base Line to 9th Street	30,000	13,063	4900	17,963	0.599	A
	9th Street to 6th Street	30,000	10,302	4900	15,202	0.507	A
	6th Street to 3rd Street	30,000	12,525	712	13,237	0.441	A
6th Street	Tippecanoe Avenue to Del Rosa Drive	10,000	3,567	1242	4,809	0.481	A
	Del Rosa Drive to Sterling Avenue	10,000	5,182	2960	8,142	0.814	D
	Sterling Avenue to Victoria Avenue	10,000	6,577	6532	13,109	1.311	F
	Victoria Avenue to Central Avenue	10,000	3,371	6871	10,242	1.024	F
5th Street	I-215 NB Ramps to E Street	40,000	22,124	11800	33,924	0.848	D
	E Street to Waterman Avenue	40,000	12,780	11800	24,580	0.615	B
	Waterman Avenue to Tippecanoe Avenue	15,000	9,613	12566	22,179	1.479	F
	Tippecanoe Avenue to Del Rosa Drive	15,000	14,297	14537	28,834	1.922	F
	Del Rosa Drive to Sterling Avenue	40,000	8,008	19575	27,583	0.690	B
	Sterling Avenue to Victoria Avenue	15,000	7,021	21993	29,014	1.934	F
	Victoria Avenue to Central Avenue	15,000	11,954	22319	34,273	2.285	F
	Central Avenue to Palm Avenue	15,000	11,912	25092	37,004	2.467	F
	Palm Avenue to SR-210 SB Ramps	40,000	22,238	24646	46,884	1.172	F
3rd Street	Waterman Avenue to Tippecanoe Avenue	40,000	13,621	1226	14,847	0.371	A
	Tippecanoe Avenue to Del Rosa Drive	40,000	19,594	10845	30,439	0.761	C
	Del Rosa Drive to Sterling Avenue	40,000	34,523	9786	44,309	1.108	F
	Sterling Avenue to Victoria Avenue	40,000	21,178	4401	25,579	0.639	B
	Victoria Avenue to Palm Avenue	40,000	18,390	4249	22,639	0.566	A

Notes: [1] SBTAM Forecasts

LOS = Level of Service ADT = Average Daily Traffic V/C = Volume-to-Capacity

A base free-flow speed (BFFS) arterial analysis was conducted for these segments based on the Highway Capacity Manual 6th Edition. A BFFS arterial analysis evaluates the travel speed of a particular roadway segment compared to its base free-flow speed in each direction of travel. The analysis was conducted using the Highway Capacity Software (HCS7). The results of the analysis are presented on Table 10.

SITE ACCESS AND CIRCULATION

The Specific Plan area presented on Figure 2 (previously referenced) provides a conceptual layout of the Specific Plan area, with potential layout and orientation of buildings within the plan area. The existing grid street system of north-south and east-west streets would remain, with improvements needed to accommodate the project traffic.

Site access provisions to individual developments will be determined through the site plan review process, as site-specific development proposals are brought to the City of San Bernardino or City of Highland for processing. The Specific Plan will specify that any project trucks for the warehouse developments must be assigned to use 3rd Street or 5th Street to enter and exit the warehouse properties. This will be accomplished by requiring that the warehouse building and site layout be designed to have all truck entrances on 3rd Street or 5th Street. No truck entrances will be located on 6th Street. In addition, to the extent possible, depending on the location and layout of a project parcel, site driveways for employee or customer traffic should be located on the north-south streets, to reduce the dependence on 6th Street for access to the area development. Those parcels with frontage on the north-south streets should be required to locate their passenger car driveways on the north-south streets.

TABLE 10
SUMMARY OF BASE FREE-FLOW SPEED ARTERIAL ANALYSIS
FUTURE BUILD-OUT 2040 PLUS PROJECT

Roadway	Segment	Jurisdiction	Speed Limit (mi/hr)	Direction	Future Build-Out 2040 Plus Project					
					AM Peak			PM Peak		
					Travel Speed (mi/h)	% of BFFS	LOS	Travel Speed (mi/h)	% of BFFS	LOS
6th Street	Del Rosa Drive to Sterling Avenue	H	40	Eastbound	32.3	73.3%	B	31.9	72.4%	B
				Westbound	32.7	74.3%	B	34.5	78.2%	B
	Victoria Avenue to Central Avenue	H	40	Eastbound	42.0	95.3%	A	41.7	94.7%	A
				Westbound	42.0	95.4%	A	42.2	95.7%	A
5th Street	Tippecanoe Avenue to Del Rosa Drive	H	40	Eastbound	39.5	89.7%	A	29.5	66.9%	C
				Westbound	23.8	53.9%	C	36.0	81.7%	A
	Victoria Avenue to Central Avenue	H	40	Eastbound	38.3	86.9%	A	33.2	75.4%	B
				Westbound	27.1	61.6%	C	28.3	64.3%	C
	Central Avenue to Palm Avenue	H	40	Eastbound	22.1	50.2%	C	10.2	23.2%	F
				Westbound	31.0	70.3%	B	28.5	64.7%	C
	Palm Avenue to SR-210 SB Ramps	H	40	Eastbound	34.4	78.1%	B	28.8	65.3%	C
				Westbound	29.8	67.6%	B	27.0	61.2%	C

Notes:

LOS = Level of Service BBFS = Base Free-Flow Speed

MITIGATION MEASURES

As noted above, the development of the Airport Gateway Specific would cause a significant impact to 3 study intersections. There would be a total of 9 study intersections that would an unacceptable Level of Service under Future Build-Out 2040 Plus Project conditions. Intersection improvements for these 9 deficient intersections, as shown on Table 11, have been identified to improve the intersections to operate at an acceptable Level of Service. The roadway improvements shown on Table 12 have been identified to mitigate the project impact on the deficient roadway segments.

Most of the roadways within the Specific Plan area are not yet built to their master plan build-out configuration. It is recommended that each development within the Specific Plan be required to construct the roadway improvements along the project frontage to achieve the full roadway width, including curb, sidewalk, and gutter, as indicated on the applicable Circulation Element (either the City of San Bernardino or City of Highland).

In addition, it is recommended that extra width be provided on 5th Street to accommodate the significant number of large trucks that will be associated with the warehouse uses. 5th Street is classified as a Major Arterial with 82 feet of curb-to curb width within 100 feet of right-of-way on the City of San Bernardino Circulation Plan, and as a Major Highway with 80 feet of curb-to-curb width within 104 feet of right-of-way on the City of Highland Circulation Element.

It is recommended that, within the Specific Plan area, 5th Street be designated as a "truck boulevard" with a raised median and three travel lanes in each direction and a 10-foot shoulder on each side of the street, to accommodate the turning radius for large trucks, and to allow trucks to wait outside the travel lanes if an on-site queue blocks the truck from entering the truck yard. The cross-section for this roadway type would be 102 feet of curb-to curb width within 120 feet of right-of-way as follows:

"Truck Boulevard" Cross Section

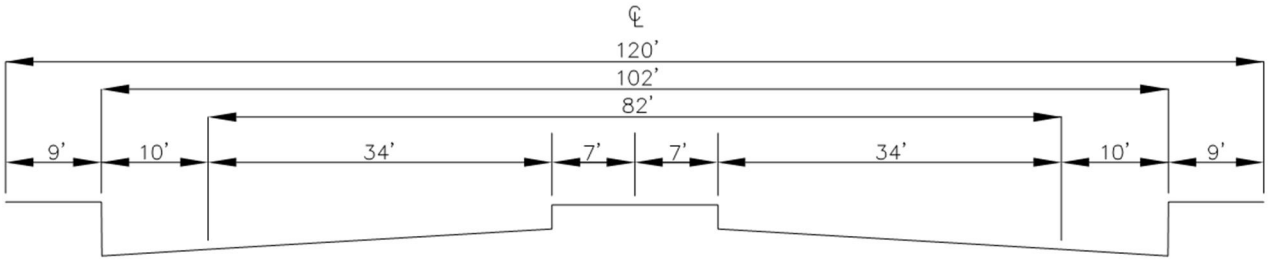


TABLE 11
SUMMARY OF INTERSECTION OPERATION WITH MITIGATION
FUTURE BUILD-OUT 2040 PLUS PROJECT

Int. #	Intersection and Mitigation	AM Peak Hour						PM Peak Hour					
		With Project		With Mitigation			Project	With Project		With Mitigation			Project
		Delay	LOS	Delay	V/C	LOS	Impact	Delay	LOS	Delay	V/C	LOS	Impact
1	Del Rosa Drive at SR-210 WB Ramps												
	Add 2nd NB Left-turn Lane	59.1	E	26.0	0.789	C	-30.4	42.3	D	26.7	0.666	C	-9.1
7	Victoria Avenue at Highland Avenue												
	Add 2nd SB Left-turn Lane	29.9	C	30.2	0.624	C	0.4	63.4	E	46.4	0.918	D	-13.5
20	Sterling Avenue at 6th Street												
	Signalization	Ovflw	F	13.0	0.346	B	-135.2	Ovflw	F	13.8	0.407	B	-182.1
21	Del Rosa Drive at SR-210 WB Ramps												
	Signalization	67.5	F	1.4	0.291	A	-20.9	Ovflw	F	14.2	0.347	B	-27.1
33	Palm Avenue at 5th Street												
	Add NB Right-turn Lane with Overlap	66.0	E	30.2	0.620	C	-15.3	63.6	E	42.3	0.883	D	3.2
38	Del Rosa Drive at 3rd Street												
	Add 3rd EB Through Lane	30.9	C	32.4	0.539	C	1.0	58.5	E	42.9	0.707	D	-14.4
41	Central Avenue at 3rd Street												
	Signalization	30.6	D	7.0	0.269	A	-18.9	129.4	F	5.4	0.390	A	-100.0
42	Del Rosa Drive at SR-210 WB Ramps												
	Add 2nd NB Left-turn Lane	50.8	D	36.2	0.673	D	-8.6	72.2	E	52.1	0.630	D	-18.3
46	Tippecanoe Ave at Orange Show/San Bernardino Ave												
	Add NB RT Lane; Add WB RT Lane with Overlap	29.4	C	26.5	0.605	C	-1.9	70.8	E	41.3	0.801	D	-24.3

Notes:
- Bold and shaded values indicate intersections operating at an unacceptable Level of Service per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- Delay values are based on the methodology outlined in the 6th Edition Highway Capacity Manual.
- S = Signalized; U = Unsignalized

TABLE 12
SUMMARY OF ROADWAY SEGMENT ANALYSIS WITH MITIGATION
FUTURE BUILD-OUT 2040 PLUS PROJECT

Roadway	Segment	Jurisdiction	Mitigated Roadway Configuration	Mitigated LOS E Capacity	Future Build-Out 2040 ADT[1]	Project ADT	Future Build-Out 2040 Plus Project ADT	V/C	LOS
Tippecanoe Avenue	Mill Street to Orange Show Road / San Bernardino Avenue	SB	6-Lane Divided Major	60,000	31,662	9,386	41,048	0.684	B
Del Rosa Drive	Highland Avenue to Pacific Street	SB	4-Lane Divided Major	40,000	10,114	2,300	12,414	0.310	A
6th Street	Del Rosa Drive to Sterling Avenue	H	4 Lane Undivided Collector	30,000	5,182	2,960	8,142	0.271	A
	Sterling Avenue to Victoria Avenue	SB / H	4-Lane Undivided Collector	30,000	6,577	6,532	13,109	0.437	A
	Victoria Avenue to Central Avenue	H	4-Lane Undivided Collector	30,000	3,371	6,871	10,242	0.341	A
5th Street	I-215 NB Ramps to E Street	SB	6-Lane Divided Major	60,000	22,124	11,800	33,924	0.565	A
	Waterman Avenue to Tippecanoe Avenue	SB	6-Lane Divided Major	60,000	9,613	12,566	22,179	0.370	A
	Tippecanoe Avenue to Del Rosa Drive	H	6-Lane Divided Major	60,000	14,297	14,537	28,834	0.481	A
	Sterling Avenue to Victoria Avenue	SB / H	6-Lane Divided Major	60,000	7,021	21,993	29,014	0.484	A
	Victoria Avenue to Central Avenue	H	6-Lane Divided Major	60,000	11,954	22,319	34,273	0.571	A
	Central Avenue to Palm Avenue	H	6-Lane Divided Major	60,000	11,912	25,092	37,004	0.617	B
	Palm Avenue to SR-210 SB Ramps	H	6-Lane Divided Major	60,000	22,238	24,646	46,884	0.781	C
3rd Street	Del Rosa Drive to Sterling Avenue	SB / H	6-Lane Divided Major	60,000	34,523	9,786	44,309	0.738	C

Notes: [1] SBTAM Forecasts

LOS = Level of Service ADT = Average Daily Traffic V/C = Volume-to-Capacity

Traffic Signal Warrants

The following unsignalized intersections would operate at an unacceptable Level of Services:

- #20 – Sterling Avenue at 6th Street
- #21 – Victoria Avenue at 6th Street

Traffic signal warrant analyses were completed for these intersections. The California Manual on Uniform Traffic Control Devices (MUTCD, 2017), Warrant 3 for peak hour was used. Using the forecasted volumes from the Future Build-out 2040 Plus Project condition, Warrant 3 is met in both peak hours for intersections #20 and #21. Warrant 3 is met in the AM peak hour only for intersection #41. The traffic signal warrant worksheets are provided in *Appendix G*.

The California Manual on Uniform Traffic Control Devices (MUTCD) specifically states that, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." The reference document goes on to state a number of other factors to take into account when considering a signal for a specific location, including whether or not a signal would improve the overall safety of the intersection, whether it would benefit or disrupt progressive traffic flow, and consideration of characteristics such as queuing, signal spacing, and overall delay to the main street through movements.

The decision to install a traffic signal should be based on engineering judgment, and not solely upon satisfying a single peak hour warrant. It is recommended that the intersection be monitored once individual projects are completed within the Specific Plan to observe actual peak hour operation, and a decision about signalization should be made based on those observations as well as engineering judgment, based on the factors listed above.

SAN BERNARDINO COUNTY CONGESTION MANAGEMENT PROGRAM

The San Bernardino County Congestion Management Program (CMP) was established in 1991 to reduce traffic congestion and to provide a mechanism for coordinating land use and development decisions. Compliance with CMP requirements ensures a city's eligibility to compete for State gas tax funds for local transportation projects.

The San Bernardino County CMP determines the geographic area for a traffic study with the following criteria:

> "At a minimum, the study area must include all freeway links with 100 or more peak-hour project trips (two-way) and other CMP roadways with 50 or more peak-hour project trips (two-way). Within the defined study area, all "key intersections," as listed in the most current CMP, must be analyzed. Key intersections represent intersections of CMP roadways plus those additional intersections recognized by local jurisdictions and/or SANBAG to be important to mobility on CMP roadways".

The following intersections in the vicinity of the Specific Plan area are listed as a key CMP intersection:

- #4 – Del Rosa Drive at Highland Avenue
- #7 – Victoria Avenue at Highland Avenue
- #12 – Del Rosa Drive at Baseline Street
- #14 – Victoria Avenue at Baseline Street
- #25 – E Street at 5th Street
- #27 – Waterman Avenue at 5th Street
- #29 – Del Rosa Drive at 5th Street
- #31 – Victoria Avenue at 5th Street
- #33 – Palm Avenue at 5th Street
- #38 – Del Rosa Drive at 3rd Street
- #40 – Victoria Avenue at 3rd Street
- #42 – Palm Avenue at 3rd Street
- #46 – Tippecanoe Avenue at Orange Show Road/San Bernardino Avenue

These CMP key intersections were included as study intersections. The project's traffic contribution to these intersections was analyzed. The traffic analysis for the project is in compliance with the San Bernardino County CMP requirements.

FINDINGS AND CONCLUSIONS

TO BE COMPLETED FOLLOWING RECEIPT OF REVIEW COMMENTS