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PARK PLACE EXTENSION IN CITY OF EL SEGUNDO TRAFFIC IMPACT ANALYSIS

City of El Segundo, California

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Prepared for
City of El Segundo
350 Main Street
El Segundo, CA 90245

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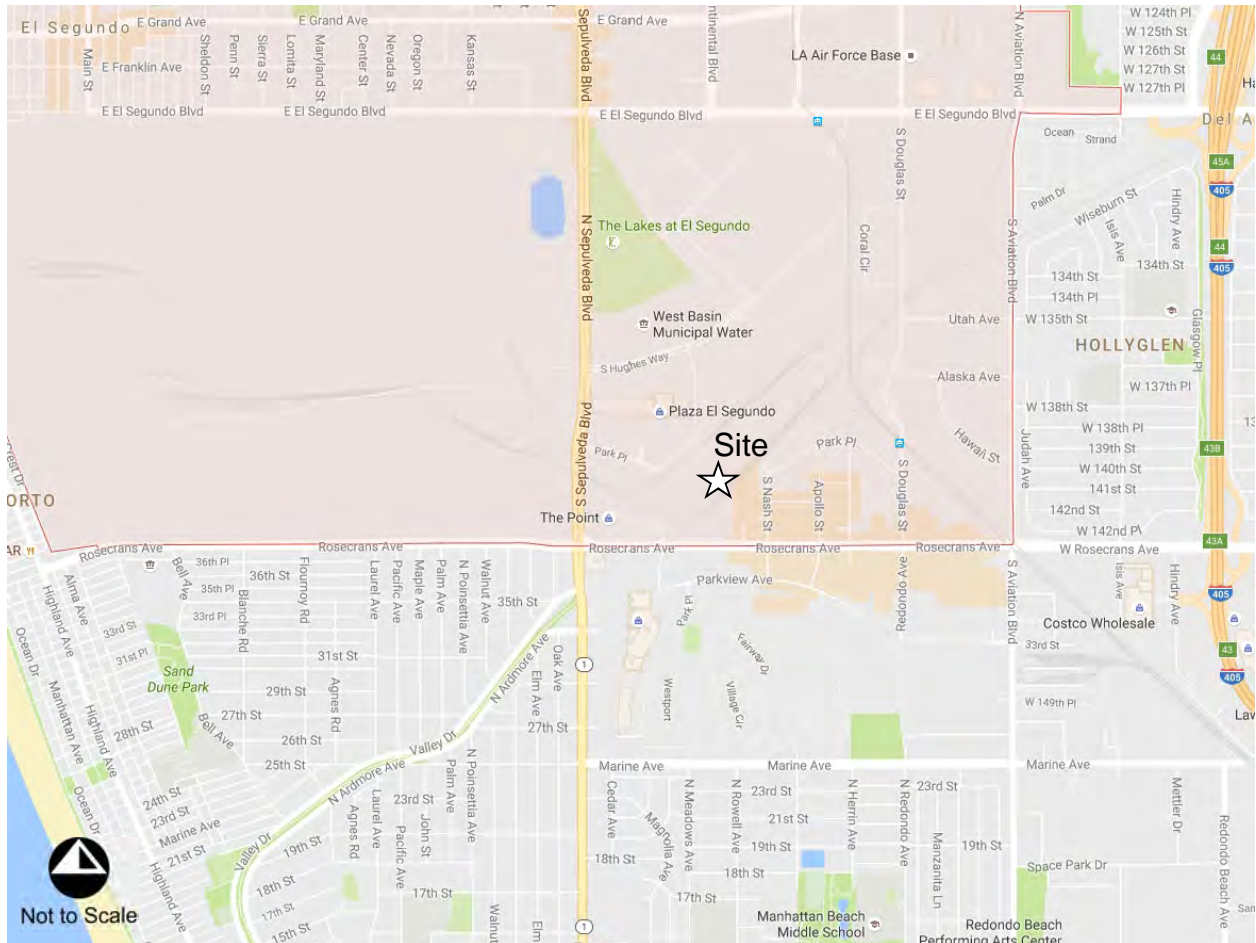
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1.0 INTRODUCTION

This traffic impact analysis report addresses the potential traffic impact and circulation needs associated with the proposed roadway extension of Park Place between Allied Way and Nash Street in the City of El Segundo. The project site is located north of Rosecrans Avenue, south of El Segundo Boulevard, east of Sepulveda Boulevard and west of Aviation Boulevard. Exhibit 1 shows the regional location of the project site.

Exhibit 1 – Regional Study Area



This traffic impact analysis report is prepared based on the traffic study requirements of the City of El Segundo and is consistent with the Congestion Management Program (CMP) for Los Angeles County. This traffic study analyzes weekday AM and PM peak hour conditions for existing 2016 and Opening Year 2021 conditions without and with the proposed project. The Opening Year 2021 conditions is forecasted based on an annual growth rate of 0.26% per the Los Angeles County Congestion Management Program (CMP) as well as added traffic generated by other cumulative developments in the study area.

1.1 Proposed Project

The City of El Segundo (City) proposes to extend Park Place from Allied Way to Nash Street with a railroad grade separation to implement a critical project improving traffic conditions and circulation in the project area. Park Place currently exists in two segments with a roughly quarter mile gap across an undeveloped area which consists of Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) railroad spurs. The project would implement a roadway gap closure to establish Park Place as an alternate east-west route between Sepulveda Boulevard and Douglas Street to relieve congestion along portions of Rosecrans Avenue and Sepulveda Boulevard, as well as to improve local traffic circulation and access to and from the I-105 freeway.

Four build alternatives have been identified as potential options for project implementation. These four alternatives are identified as Alternative 1A, Alternative 1C, Alternative 3A, and Alternative 3B. Alternatives 1A and 1C would involve relocation of the existing BNSF railroad tracks to the north to be adjacent to the existing UPRR tracks. This consolidation of railroad alignments would allow for a single grade separation as part of the project. Alternatives 1A and 1C would include various roadway and underpass configurations for Park Place, which would cross beneath the UPRR and BNSF railroads. The railroad bridge width would accommodate two tracks to provide access for the BNSF and UPRR lead tracks between the Chevron refinery and railroad storage yards. Each alternative would also maintain connectivity to Allied Way.

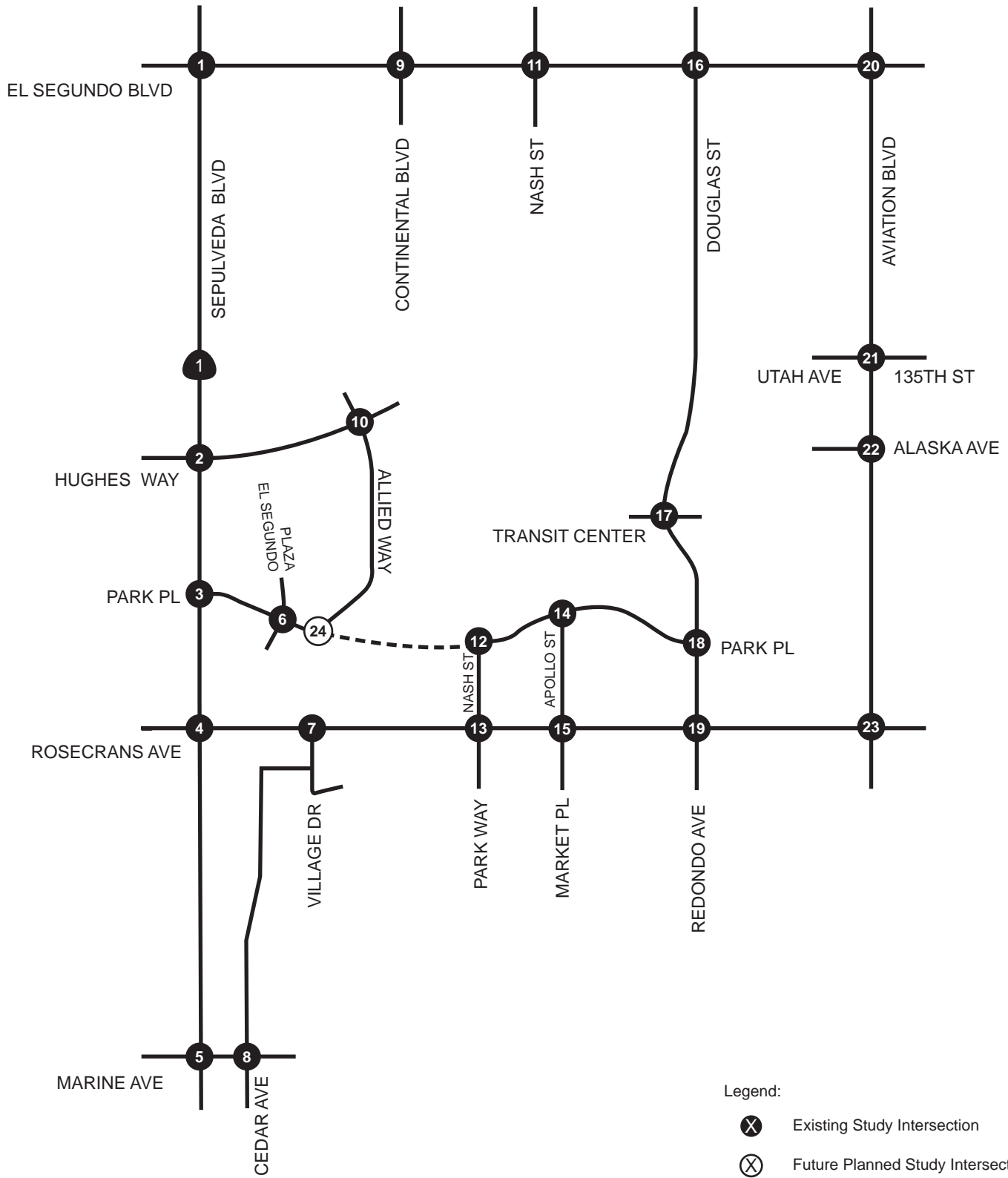
Alternatives 3A and 3B would generally be similar to Alternatives 1A and 1C, but would leave the UPRR and BNSF railroad alignments in their existing locations. Alternative 3A would include two grade separations to allow for the extension of Park Place (one at each railroad alignment). Alternative 3B would include one grade separation at the UPRR railroad, and an at-grade crossing at the BNSF railroad. Build alternative plans are included in Appendix A. The proposed project is anticipated to be completed and operational in year 2021.

From a traffic analysis standpoint, all the different project alternatives for the Park Place Extension project have the same intersection connectivity between the quarter-mile gap as well as the same traffic flow patterns.





1.2 Study Area

Exhibit 2 shows the study area that includes twenty-four (24) intersections located within Cities of El Segundo, Manhattan Beach and Hawthorne. As shown in Exhibit 2, the study area includes the following twenty-four (24) intersections:

1. Sepulveda Boulevard at El Segundo Boulevard (signalized) – El Segundo;
2. Sepulveda Boulevard at Hughes Way (signalized) – El Segundo;
3. Sepulveda Boulevard at Park Place (signalized) – El Segundo;
4. Sepulveda Boulevard at Rosecrans Avenue (signalized) – El Segundo and Manhattan Beach;
5. Sepulveda Boulevard at Marine Avenue (signalized) – Manhattan Beach;
6. Plaza El Segundo Access at Park Place (signalized) – El Segundo;
7. Village Drive at Rosecrans Avenue (signalized) – El Segundo and Manhattan Beach;
8. Cedar Avenue at Marine Avenue (signalized) – Manhattan Beach;
9. Continental Boulevard at Sepulveda Boulevard (signalized) – El Segundo;
10. Allied Way at Hughes Way (signalized) – El Segundo;



Legend:

-  Existing Study Intersection
-  Future Planned Study Intersection
-  Existing Roadway
-  Future Planned Roadway



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Exhibit 2 Project Study Area

Park Place Extension Project
Traffic Impact Analysis

11. Nash Street at Sepulveda Boulevard (signalized) – El Segundo;
12. Nash Street at Park Place (un-signalized) – El Segundo;
13. Nash Street/Park Way at Rosecrans Avenue (signalized) – El Segundo and Manhattan Beach;
14. Apollo Street at Park Place (un-signalized) – El Segundo;
15. Apollo Street/Market Place at Rosecrans Avenue (signalized) – El Segundo and Manhattan Beach;
16. Douglas Street at El Segundo Boulevard (signalized) – El Segundo;
17. Douglas Street at Transit Center (signalized) – El Segundo;
18. Douglas Street at Park Place (un-signalized) – El Segundo;
19. Redondo Avenue at Rosecrans Avenue (signalized) – El Segundo and Manhattan Beach;
20. Aviation Boulevard at El Segundo Boulevard (signalized) – El Segundo and Hawthorne;
21. Aviation Boulevard at Utah Avenue/135th Street (signalized) – El Segundo and Hawthorne;
22. Aviation Boulevard at Alaska Avenue (signalized) – El Segundo and Hawthorne;
23. Aviation Boulevard at Rosecrans Avenue (signalized) – El Segundo, Manhattan Beach and Hawthorne; and
24. Allied Way at Park Place (future intersection) – El Segundo.

1.3 Analysis Scenarios

The study intersections are analyzed for the following study scenarios:

- Existing (2016) Conditions;
- Existing (2016) plus Project Conditions;
- Opening Year 2021 without Project Conditions; and
- Opening Year 2021 with Project Conditions.

1.4 Analysis Time Period

The study area intersections are analyzed for the following time periods:

- Weekday AM Peak Hour – Peak hour within 7:00 AM and 9:00 AM
- Weekday PM Peak Hour – Peak hour within 4:00 PM and 6:00 PM

2.0 ANALYSIS METHODOLOGY

This section describes the intersection analysis, performance criteria, thresholds of significance, and traffic volume forecast methodologies utilized in this traffic analysis.

2.1 Intersection Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection. Level of service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection. The Intersection Capacity Utilization (ICU) analysis methodology is utilized to determine the operating LOS of the signalized intersections. For un-signalized intersections, the Highway Capacity Manual (HCM) analysis methodology is utilized to determine the operating.

2.1.1 Intersection Capacity Utilization (ICU) Method for Signalized Intersection

The signalized intersections are analyzed using the Intersection Capacity Utilization (ICU) method. The ICU technique estimates the volume-to-capacity (V/C) ratio for an intersection based on the individual V/C ratios for the conflicting traffic movements. The ICU value represents the percent signal green time or capacity of the intersection movements. It should be noted that the ICU method assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

The ICU value translates to a LOS estimate, which is a relative measure of the intersection performance. The grade scales of LOS have been defined with the corresponding ICU value range as shown in Table 1. The ICU value is the sum of the critical volume-to-capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements.

Table 1 – Level of Service for Signalized Intersection

Level of Service	Intersection Capacity Utilization (ICU)	
	Volume/Capacity (V/C)	Description
A	≤ 0.600	Excellent
B	$> 0.601 \leq 0.700$	Very Good
C	$> 0.700 \text{ to } \leq 0.800$	Good
D	$> 0.800 \text{ to } \leq 0.900$	Fair
E	$> 0.900 \text{ to } \leq 1.000$	Poor
F	> 1.000	Failure

ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through and right-turn lanes, and a dual left-turn capacity of 2,880 vph. A 10% clearance interval is included in the analysis calculations based on City of El Segundo requirements.

2.1.2 Highway Capacity Manual (HCM) Method for Unsignalized Intersection

The 2010 HCM analysis methodology describes the operation of an unsignalized intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding ranges of stopped delay experienced per vehicle for unsignalized intersections shown in Table 2.

Table 2 – Level of Service for Un-Signalized Intersections

Level of Service	Highway Capacity Manual (HCM)	
	Delay (seconds/vehicle)	Description
A	≤ 10.0	Little or no delay
B	> 10.0 to ≤ 15.0	Short traffic delay
C	> 15.0 to ≤ 25.0	Average traffic delay
D	> 25.0 to ≤ 35.0	Long traffic delay
E	> 35.0 to ≤ 50.0	Very long traffic delay
F	> 50.0	Severe congestion

Source: 2010 Highway Capacity Manual (HCM)

Level of service is based on the average stopped delay per vehicle for all movements of all-way stop-controlled intersections; for one-way or two-way stop-controlled intersections, LOS is based on the worst stop-controlled approach. The HCM analysis is conducted using the Synchro analysis software.

2.2 City of El Segundo Traffic Impact Criteria and Thresholds

As stated in the City of El Segundo General Plan Circulation Element, the City goal for peak hour intersection operation is LOS D or better.

To determine whether the addition of project-generated trips results in a significant impact at a signalized study intersection, and thus requires mitigation, the City of El Segundo has established the following thresholds of significance:

- A significant project impact occurs at a signalized study intersection when the addition of project-generated trips causes the peak hour level of service of the study intersection to change from acceptable operation (LOS A, B, C, or D) to deficient operation (LOS E or F); or
- A significant project impact occurs at a signalized study intersection when the addition of project-generated trips causes an ICU increase of 0.02 or more when the “With Project” intersection LOS is at LOS E or F.

Most jurisdictions, including the City of El Segundo, have not established thresholds of significance for stop-controlled intersections. However, the following threshold of significance, which is in the range of thresholds used by several jurisdictions, is utilized to determine whether the addition of project-generated trips results in a significant impact at an un-signalized study intersection, and thus requires mitigation:

- At stop-controlled intersections, a significant project impact occurs if one of the minor street approaches is forecast to operate at LOS E or F and the addition of project-generated trips causes an increase in delay of four (4) or more seconds. However, this is not a rigid threshold and judgment is required to consider the relevance of turning traffic volume, lane configuration, queuing impacts and other parameters affecting intersection operations.

2.3 City of Manhattan Beach Traffic Impact Criteria and Thresholds

The City of Manhattan Beach goal for peak hour intersection operation is LOS D or better.

To determine whether the addition of project-generated trips results in a significant impact at a study intersection, and thus requires mitigation, the City of Manhattan Beach has established the following thresholds of significance, which is based on the County of Los Angeles Department of Public Works (January 1997):

- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an ICU increase of 0.02 while operating at LOS D; or
- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an ICU increase of 0.01 while operating at LOS E or F.

2.4 City of Hawthorne Traffic Impact Criteria and Thresholds

Since intersection LOS performance criteria is not stated in the traffic study guidelines for the City of Hawthorne, this report assumes a goal for peak hour operation at the study intersections of LOS D or better.

To determine whether the addition of project-generated trips results in a significant impact at a study intersection, and thus requires mitigation, the City of Hawthorne has established the following thresholds of significance based on the Los Angeles County Congestion Management Program (CMP) Manual (2010):

- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an ICU increase of 0.04 while operating at LOS C; or
- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an ICU increase of 0.02 while operating at LOS D; or
- A significant project impact occurs at a study intersection when the addition of project-generated trips causes an ICU increase of 0.01 while operating at LOS E or F.

2.5 Traffic Signal Warrant Analysis Methodology

Traffic signal warrant analysis has been conducted at the un-signalized intersections to ascertain the need for installation of traffic signals. This study uses the signal warrant criteria presented in the 2014 edition of the California Manual on Uniform Traffic Control Devices (MUTCD).

The signal warrant criteria for existing conditions are based upon several factors, including volume of vehicular and pedestrian traffic, frequency of accidents, and location of school areas. The California MUTCD indicates that the installation of a traffic signal should be considered if one or more of the signal warrants are met. Specifically, the study utilized the Peak Hour Warrant (#3) (Figures 4C-3 and 4C-4 of the California MUTCD) as the appropriate and representative traffic signal warrant analyses. Since the warrants provide specialized warrant criteria for intersections with rural characteristics (e.g. located in communities with populations of less than 10,000 persons or with adjacent major streets operating at or above 40 miles per hour), this factor was considered in preparation of the warrants. For the purposes of this analysis, the posted speed limit is the basis of determining whether “Urban” or “Rural” warrants were used. Since the posted speed limits on Park Place is 25 miles per hour, the “Urban” area warrant was used.

3.0 EXISTING CONDITIONS

This section describes the existing conditions of the study area including the existing roadway description, intersection geometry and traffic volumes.

3.1 Roadway Description

Exhibit 3 illustrates the existing intersection controls and lane geometry for the study area. The characteristics of the roadway system in the vicinity of the project site are described below.

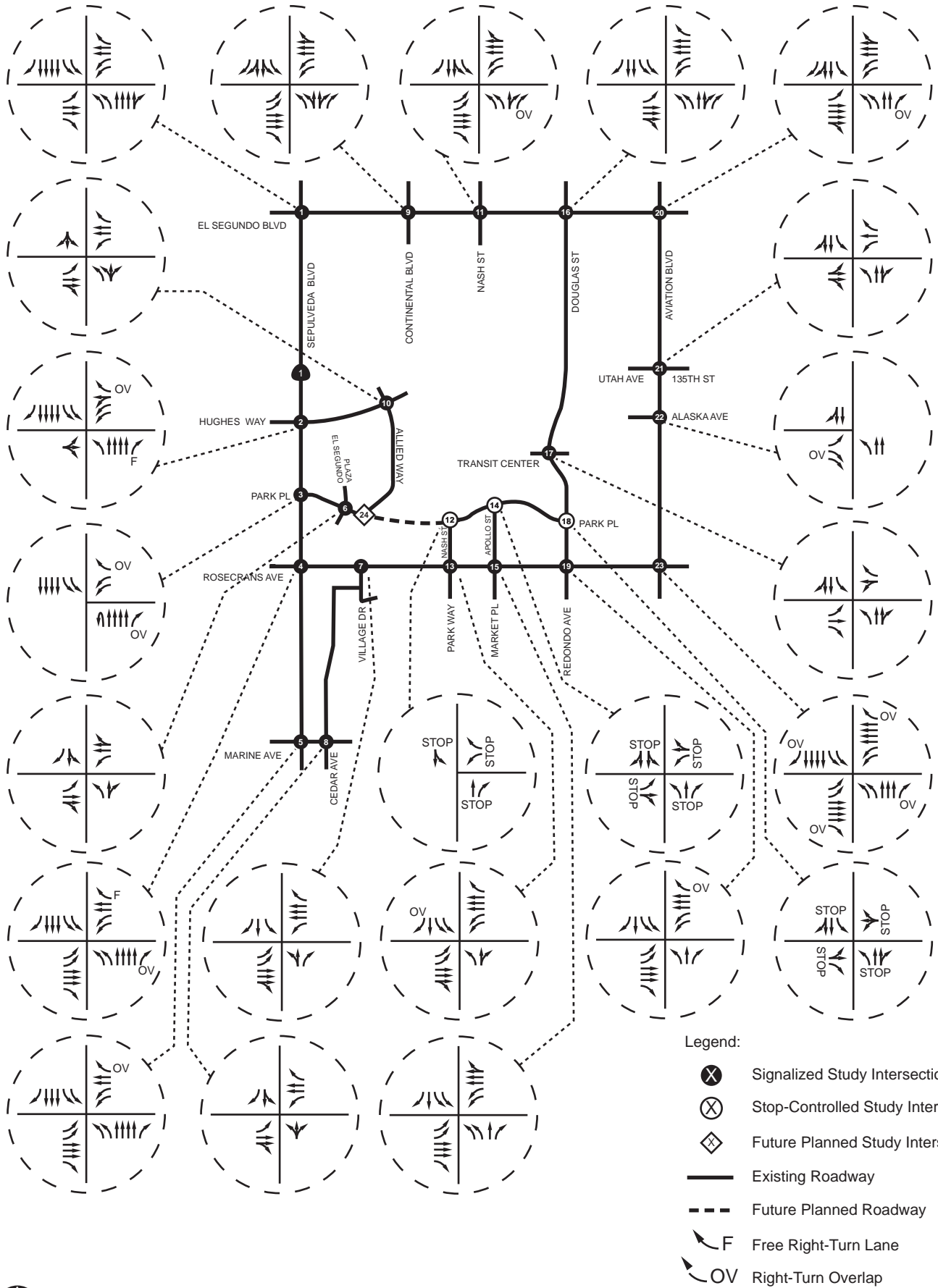
Park Place is a four-lane divided roadway with a raised median trending in an east-west direction between Sepulveda Boulevard (SR-1) and Allied Way. Between Nash Street and Douglas Street, Park Place is a four-lane divided roadway with two-way left turn lanes. Park Place is currently divided into two segments between Allied Way and Nash Street by an undeveloped land adjacent to the railroad spurs. The proposed project will extend Park Place between Allied Way and Nash Street. There is no posted speed limit on Park Place. On-street parking is prohibited on Park Place.

El Segundo Boulevard west of Sepulveda Boulevard is four-lane divided roadway with a painted median trending in an east-west direction. El Segundo Boulevard continues as a six-lane divided roadway with a raised median between Sepulveda Boulevard (SR-1) and Douglas Street. Between Douglas Street and Aviation Boulevard, El Segundo Boulevard is a seven-lane divided roadway (four eastbound lanes and three westbound lanes) with a raised median and it begins to transition into a six-lane divided roadway east of Aviation Boulevard. The posted speed limit on El Segundo Boulevard ranges between 35 and 40 miles per hour. On-street parking is prohibited on El Segundo Boulevard.

Rosecrans Avenue west of Sepulveda Boulevard (SR-1) is a five-lane divided roadway (two eastbound lanes and three westbound lanes) with a raised median trending in an east-west direction. On-street parking is permitted on the eastbound direction, and on-street parking is prohibited on the westbound direction. From Sepulveda Boulevard (SR-1) to Douglas Street, Rosecrans Avenue is a six-lane divided roadway with a raised median with on-street parking prohibited. East of Douglas Street, Rosecrans Avenue continues as an eight-lane divided roadway with a painted median. The posted speed limit on Rosecrans Avenue is 45 miles per hour.

Hughes Way is a four to six-lane divided roadway with a raised median east of Sepulveda Boulevard (SR-1). Approximately 2,000 feet east of Sepulveda Boulevard (SR-1), Hughes Way provides gated access into the Raytheon site and public traffic access is prohibited beyond the gates. The posted speed limit on Hughes Way is 40 miles an hour. On-street parking is prohibited on Hughes Way. West of Sepulveda Boulevard (SR-1), Hughes Way becomes a private gated access to the Chevron site.

Marine Avenue is west of Sepulveda Boulevard (SR-1) is a two-lane undivided roadway trending in the east-west direction with on-street parking prohibited. East of Sepulveda Boulevard (SR-1) Marine Way is a four-lane divided roadway with a raised median and permitted on-street parking. The posted speed limit on Marine Avenue is ranges from 25 to 35 miles per hour.



Not to Scale

Exhibit 3 Existing Intersection Geometry

Utah Avenue / 135th Street is a four-lane undivided roadway with a painted double-yellow centerline trending in an east-west direction. Utah Avenue becomes 135th Street east of Aviation Boulevard. The posted speed limit on Utah Avenue and 135th Street is 35 miles per hour. On-street parking is prohibited on Utah Avenue and 135th Street.

Alaska Avenue is a four-lane undivided roadway with a painted double-yellow centerline trending in an east-west direction. The posted speed limit on Alaska Avenue is 35 miles per hour. On-street parking is prohibited on Alaska Avenue.

Sepulveda Boulevard (SR-1) north of Rosecrans Avenue is an eight-lane divided roadway with a raised median trending in a north-south direction. South of Rosecrans Avenue, Sepulveda Boulevard (SR-1) is a six-lane divided roadway with a raised median. The posted speed limit on Sepulveda Boulevard (SR-1) ranges from 35 to 45 miles per hour. On-street parking is prohibited on Sepulveda Boulevard.

Allied Way is a four-lane undivided roadway with a painted double-yellow centerline trending in a north-south direction between El Segundo Boulevard and Park Place. There is no posted speed limit on Allied Way. On-street parking is prohibited on Allied Way.

Continental Boulevard is a six-lane divided roadway with a raised median trending in a north-south direction north of El Segundo Boulevard. Continental Boulevard south of El Segundo Boulevard provides gated access into the Raytheon site and public traffic access is prohibited beyond the gates. The posted speed limit on Continental Boulevard is 30 miles per hour. On-street parking is prohibited on Continental Boulevard.

Nash Street is a four-lane undivided roadway with a painted double-yellow centerline trending in a north-south direction north of El Segundo Boulevard with a posted speed limit of 35 miles per hour. Nash Street south of El Segundo Boulevard provides gated access into the Raytheon site and public traffic access is prohibited beyond the gates. Nash Street is a four-lane divided roadway with two-way left turn lanes trending in a north-south direction between Park Place and Rosecrans Avenue with a posted speed limit of 25 miles per hour. Nash Street becomes Park Way south of Rosecrans Avenue. On-street parking is prohibited on Nash Street and Park Way.

Apollo Street is a four-lane divided roadway with two-way left turn lanes trending in a north-south direction between Park Place and Rosecrans Avenue. There is no posted speed limit on Apollo Street. Apollo Street becomes Market Place south of Rosecrans Avenue. On-street parking is prohibited on Apollo Street and Market Place.

Douglas Street north of El Segundo Boulevard is a six-lane divided roadway with a painted median trending in the north-south direction. Douglas Street between El Segundo Boulevard and the Transit Center (Metro station access located just north of the Green Line overcrossing) is a four-lane divided roadway with a painted median. South of Transit Center, Douglas Street continues as a four-lane divided roadway with a raised median. The posted speed limit on Douglas Street is 40 miles per hour north of Transit Center and 25 miles per hour south of Transit Center. On-street parking is prohibited on Douglas Street. Douglas Street becomes Redondo Avenue south of Rosecrans Avenue.

Aviation Boulevard north of Rosecrans Avenue is a four-lane divided roadway with a painted median trending in a north-south direction. South of Rosecrans Avenue, Aviation Boulevard is a

six-lane divided roadway with a painted median. The posted speed limit on Aviation Boulevard is 40 miles per hour. On-street parking is prohibited on Aviation Boulevard.

Cedar Avenue is a two-lane undivided roadway trending in a north-south direction south of Marine Way. There is no posted speed limit on Cedar Avenue. On-street parking is permitted on the southbound direction of Cedar Avenue.

Village Drive is a two-lane undivided roadway with a painted double-yellow centerline trending in a north-south direction. There is no posted speed limit on Village Drive. On-street parking is permitted on Village Drive south of Rosecrans Avenue, and on-street parking is prohibited on Village Drive north of Rosecrans Avenue.

3.2 Existing Conditions Traffic Volumes

To determine the existing operation of the study intersections, AM and PM peak hour intersection movement counts were collected in May 2015. AM peak period intersection counts were collected from 7:00 AM to 9:00 AM, and PM peak period intersection counts were collected from 4:00 PM to 6:00 PM. The counts used in this analysis were taken from the highest hour within the peak period counted. Exhibit 4 shows the intersection traffic volumes for existing 2016 conditions based on a 0.26% annual growth rate from the 2015 counts. The 0.26% annual growth is based on the general traffic volume growth factor in the 2010 Los Angeles County Congestion Management Program (CMP). Traffic count data sheets are included in Appendix B of this report.

3.3 Existing Conditions Intersection Analysis

Table 6 summarizes the intersection analysis results for existing 2016 AM and PM peak hour conditions. Appendix C includes the existing 2016 conditions intersection analysis worksheets. As shown in Table 6, all study intersections are operating at acceptable LOS D or better for existing 2016 conditions, except for the following five (5) intersections:

1. Sepulveda Boulevard at El Segundo Boulevard – LOS F (PM)
4. Sepulveda Boulevard at Rosecrans Avenue – LOS E (PM)
18. Douglas Street at Park Place – LOS F (PM)
21. Aviation Boulevard at Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard at Rosecrans Avenue – LOS E (AM)

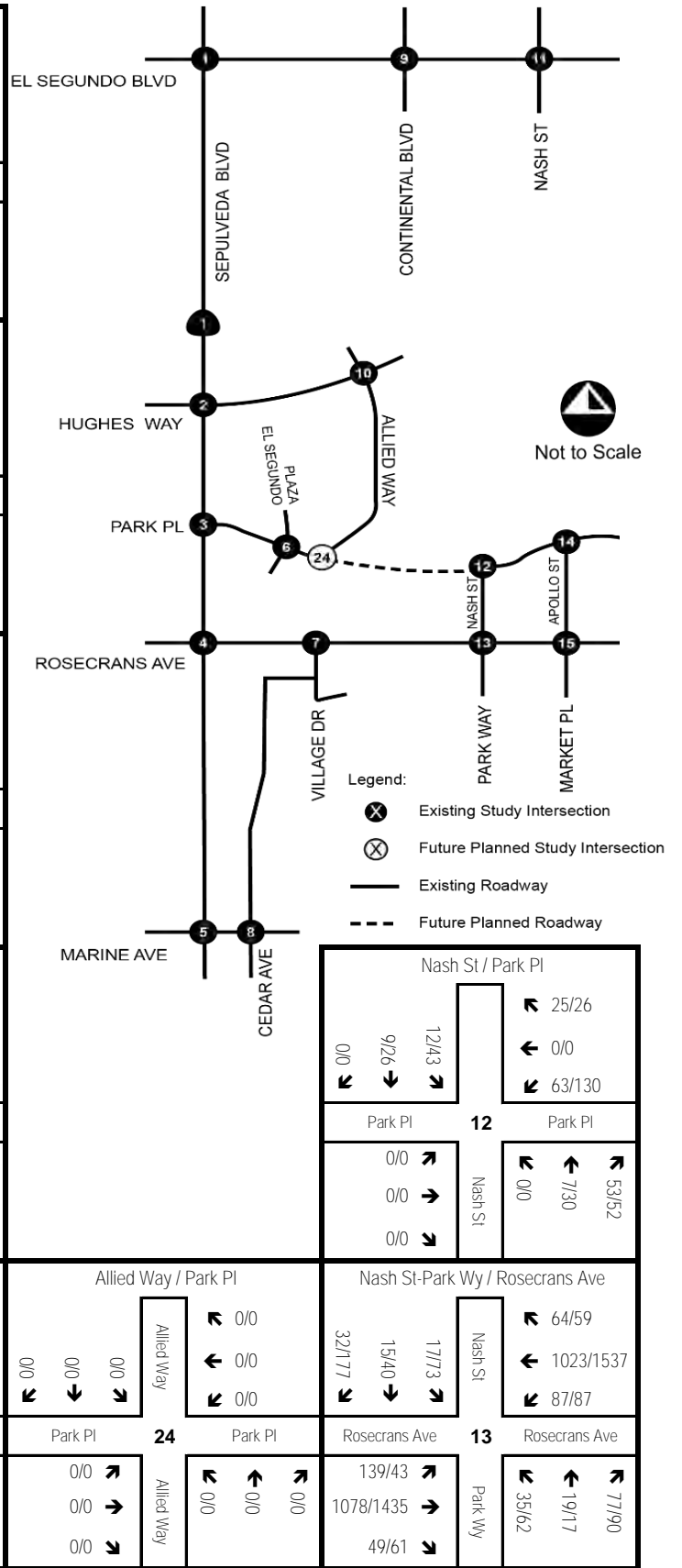
3.4 Existing Conditions Traffic Signal Warrant Analysis

A traffic signal warrant analysis has been conducted at the following three (3) intersections to ascertain the need for installation of a traffic signal at otherwise an un-signalized intersection:

12. Nash Street at Park Place;
14. Apollo Street at Park Place; and
18. Douglas Street at Park Place.

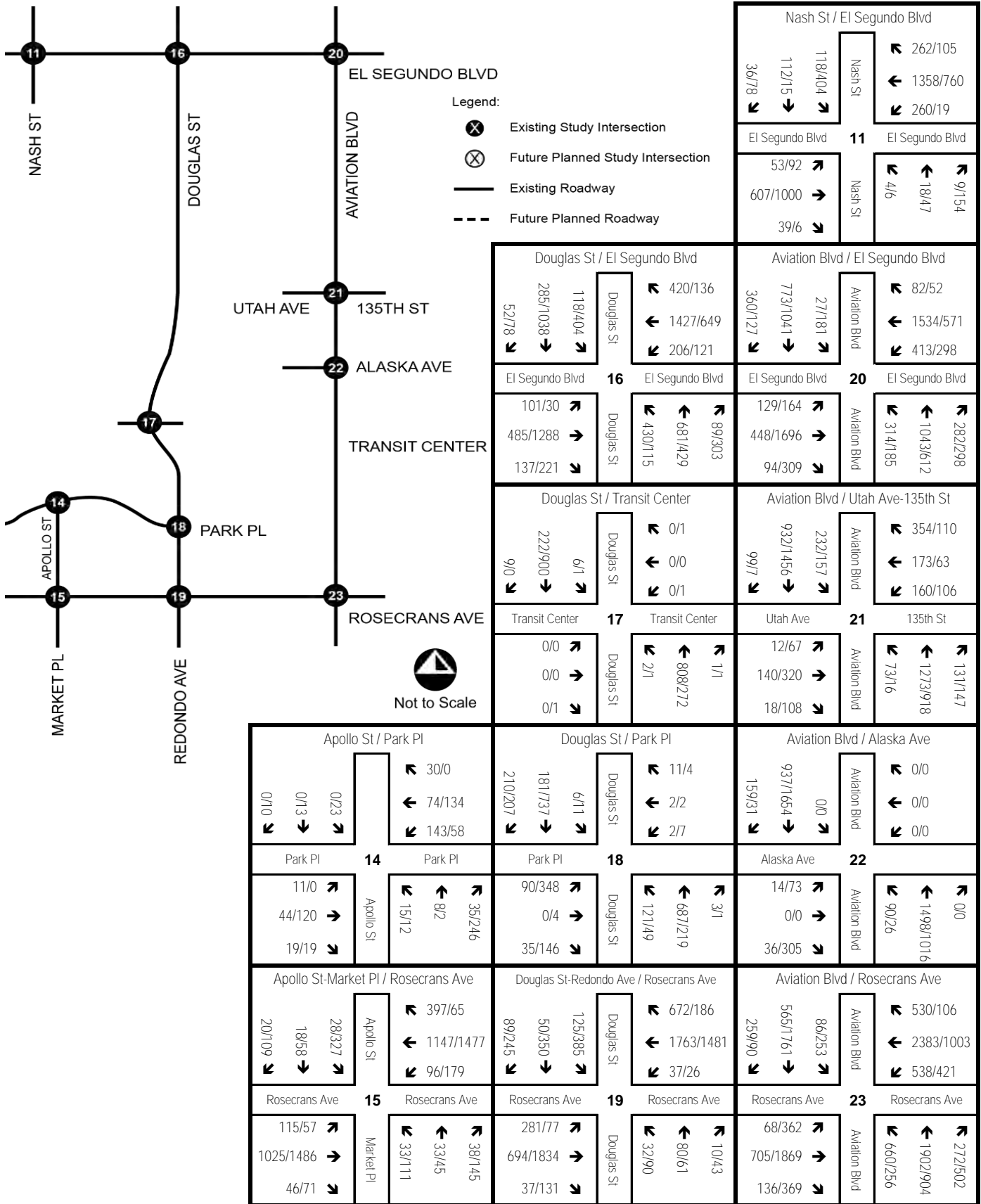
Based on the signal warrant analysis, a traffic signal is currently warranted at the intersection of Douglas Street and Park Place [Intersection #18] based on existing 2016 conditions. For the other locations, no traffic signals are currently warranted based on existing 2016 conditions. Appendix D contains the traffic signal warrant analysis worksheets for existing 2016 conditions.

Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
112/88	160/180 1060/2916	40/87	50/221 23/17 40/87
185/192	355/413	394/62	959/774
170/502		34/15	
El Segundo Blvd	1	El Segundo Blvd	9
98/126	405/368	119/38	622/794
240/398	248/212	42/4	8/118
2672/1312	341/285	5/56	24/110
Sepulveda Blvd		Continental Blvd	
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
8/55	1351/3019	3/10	0/0
60/189	34/120	0/0	1/0
0/0	14/179	9/161	9/161
1/34		1/34	
Private Driveway	2	Hughes Way	10
9/71	0/1	13/0	221/8
6/60	6/60	41/197	15/8
3083/1614	211/19	33/113	4/0
15/59		15/8	
Sepulveda Blvd		Allied Way	
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
0/0	1362/3136	51/231	0/1
23/68	50/131	3/16	16/115
0/0	65/464	0/1	1/13
0/0		64/129	57/134
0/0		204/455	23/26
3215/1587	2/1	2/15	2/12
2/1		5/39	
Sepulveda Blvd		El Segundo Plaza	
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
119/586	1055/2990	5/1	6/15
241/514	351/529	0/0	9/0
284/464	389/653	976/1502	128/263
9/13		1205/1338	67/148
9/13		40/135	77/191
2700/1258	271/318	1/0	
519/305		40/135	
Sepulveda Blvd		Village Dr	
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
57/154	1047/2393	47/101	66/338
176/230	51/57	32/68	408/331
107/120	238/227	40/31	345/288
38/56		464/579	17/13
2992/1390	82/136	30/43	22/51
53/92		57/27	
Sepulveda Blvd		Cedar Ave	
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
0/0	0/0	32/177	177/3
0/0	0/0	15/40	64/59
0/0	0/0	1023/1537	87/87
0/0	0/0	139/43	1078/1435
0/0	0/0	49/61	35/62
0/0	0/0	19/17	77/90
0/0	0/0		
Park Pl	24	Rosecrans Ave	13
0/0	0/0	139/43	1078/1435
0/0	0/0	49/61	35/62
0/0	0/0	19/17	77/90
0/0	0/0		
Allied Way		Park Wy	



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 4 (1 of 2)
Existing 2016 Intersection Volumes



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 4 (2 of 2)
Existing 2016 Intersection Volumes

**Table 3
Existing 2016 Conditions Intersection Analysis**

Intersection			Existing Conditions			
			AM Peak		PM Peak	
No.	Name	Type ¹	V/C / Delay ²	LOS	V/C / Delay ²	LOS
1	Sepulveda Blvd / El Segundo Blvd	TS	38.2	D	84.5	F
2	Sepulveda Blvd / Hughes Wy	TS	8.3	A	25.2	C
3	Sepulveda Blvd / Park Pl	TS	6.2	A	10.8	B
4	Sepulveda Blvd / Rosecrans Ave	TS	40.4	D	79.8	E
5	Sepulveda Blvd / Marine Ave	TS	53.5	D	32.9	C
6	Plaza El Segundo Acces / Park Pl	TS	0.181	A	0.387	A
7	Village Dr / Rosecrans Ave	TS	0.497	A	0.703	C
8	Cedar Ave / Marine Ave	TS	0.480	A	0.610	B
9	Continental Blvd / El Segundo Blvd	TS	0.445	A	0.406	A
10	Allied Way / Hughes Wy	TS	0.199	A	0.288	A
11	Nash St / El Segundo Blvd	TS	0.513	A	0.503	A
12	Nash St / Park Pl	AWS	7.7	A	8.6	A
13	Nash St / Rosecrans Ave	TS	0.428	A	0.575	A
14	Apollo St / Park Pl	AWS	8.8	A	10.6	B
15	Apollo St / Rosecrans Ave	TS	0.487	A	0.659	B
16	Douglas St / El Segundo Blvd	TS	0.710	C	0.813	D
17	Douglas St / Transit Center	TS	0.357	A	0.383	A
18	Douglas St / Park Pl	AWS	22.0	C	54.2	F
19	Douglas St / Rosecrans Ave	TS	0.658	B	0.765	C
20	Aviation Blvd / El Segundo Blvd	TS	0.860	D	0.890	D
21	Aviation Blvd / Utah Ave	TS	0.912	E	0.788	C
22	Aviation Blvd / Alaska Ave	TS	0.577	A	0.722	C
23	Aviation Blvd / Rosecrans Ave	TS	0.917	E	0.879	D

Note

- ¹ Intersection Type: TS = Traffic Signal; AWS = All-Way Stop
- ² Signalized Intersections: Intersection Capacity Utilization (ICU) Analysis Method, Volume/Capacity (V/C) Ratio
State Highway & Unsignalized Intersections: Highway Capacity Manual (HCM) Analysis Method, Average Delay (seconds)

4.0 PROJECT-RELATED TRAFFIC DIVERSION

This section presents the methodology behind the diversion of existing traffic due to the proposed Park Place Extension project. The project proposes to construct a new segment of Park Place from Allied Way to Nash Street including a railroad grade separation to improve traffic conditions and traffic circulation on the surrounding roadway network. Park Place currently exists in two separate segments with an approximate quarter-mile gap within an undeveloped area which consists of Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) railroad spurs. The project would implement a roadway gap closure to establish Park Place as an alternate east-west route between Sepulveda Boulevard and Douglas Street to relieve congestion along portions of Rosecrans Avenue and Sepulveda Boulevard, as well as to improve local traffic circulation.

From a traffic analysis standpoint, all the different project alternatives for the Park Place Extension project have the same intersection connectivity between the quarter-mile gap as well as the same traffic flow patterns.

The potential amount of traffic diversion, due to the construction of the Park Place Extension project, is estimated based on identifying currently congested intersection locations where existing traffic may want to avoid by using the new Park Place Extension as an alternate travel route. For intersection locations where there are available traffic capacities, potential traffic diversion may also occur along these alternate routes in combination with the new Park Place Extension to utilize the excess capacities and avoiding congested intersections and reduce travel time.

4.1 Current Critical Locations

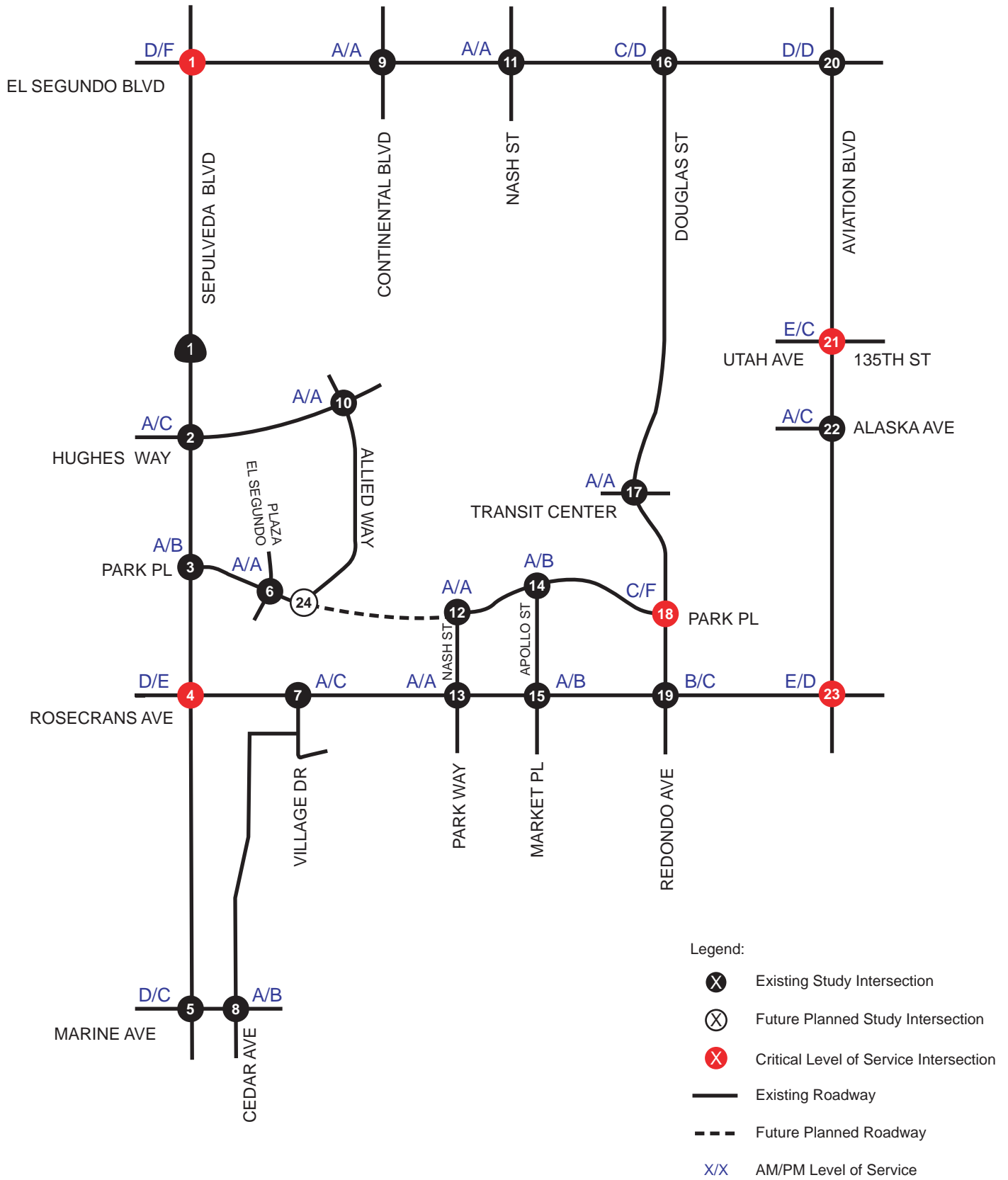
Based on the existing 2016 conditions traffic analysis (in Section 3.3), Exhibit 5 graphically summarize the current intersection level of service (LOS) of the study area intersections, and it highlights the following five (5) critical intersections that are experiencing LOS E or worse:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (PM)
18. Douglas Street and Park Place – LOS F (PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM)

Therefore, the existing traffic may potentially want to avoid these critical intersections if the Park Place Extension project is constructed.

4.2 Potential Traffic Diversion Patterns

Exhibits 6 through 9 illustrates the potential amount of traffic diversion due to the new Park Place Extension project. By reviewing the analysis results of the existing 2016 conditions analysis in Exhibit 5 and Table 3, the amount of traffic diversion is estimated based on the following considerations:



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Exhibit 5 Existing 2016 Intersection Level of Service

Park Place Extension Project
Traffic Impact Analysis

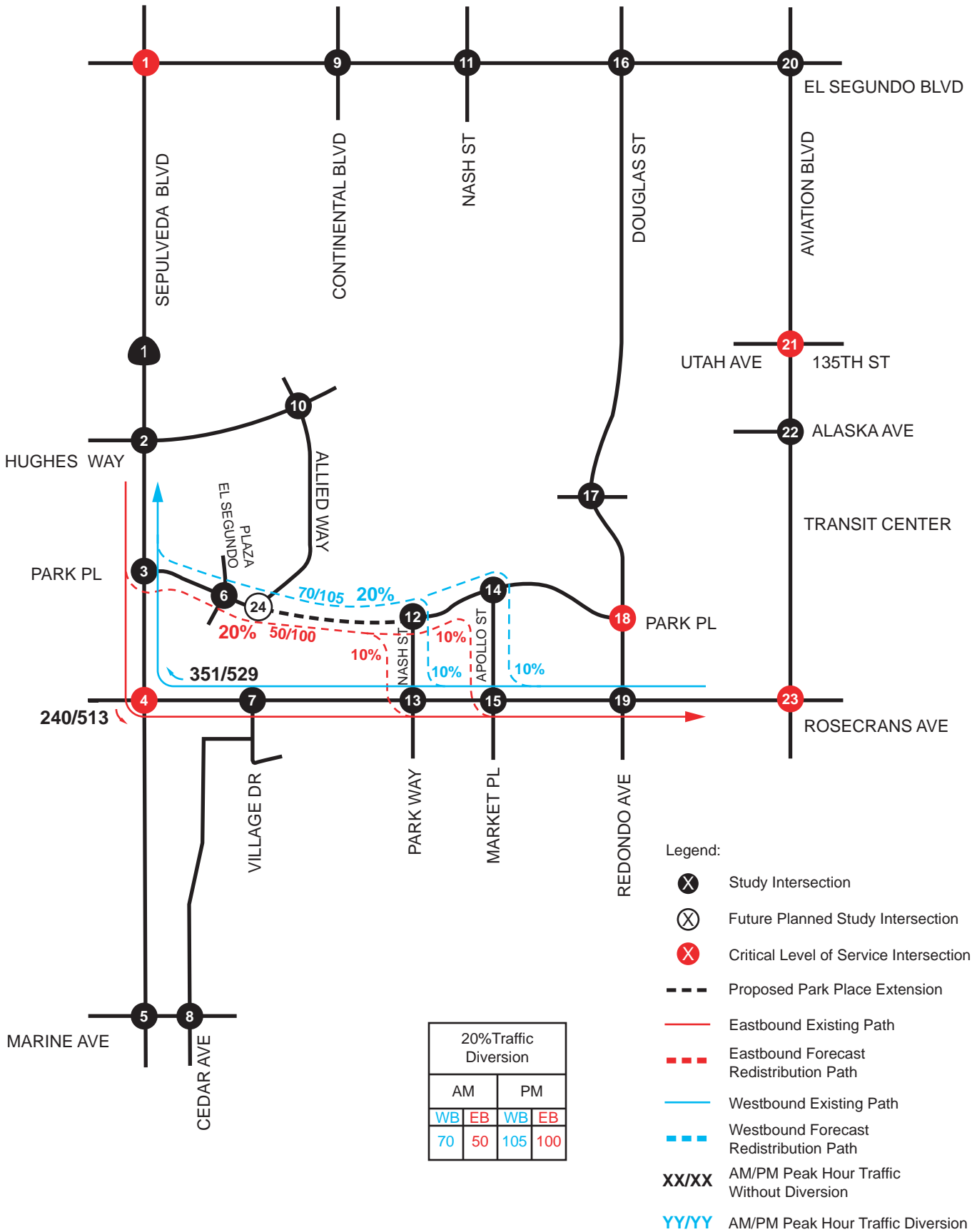


Exhibit 6

Diversion Redistribution Patterns for Southbound Left and Westbound Right at Sepulveda Boulevard and Rosecrans Ave

Park Place Extension Project
Traffic Impact Analysis



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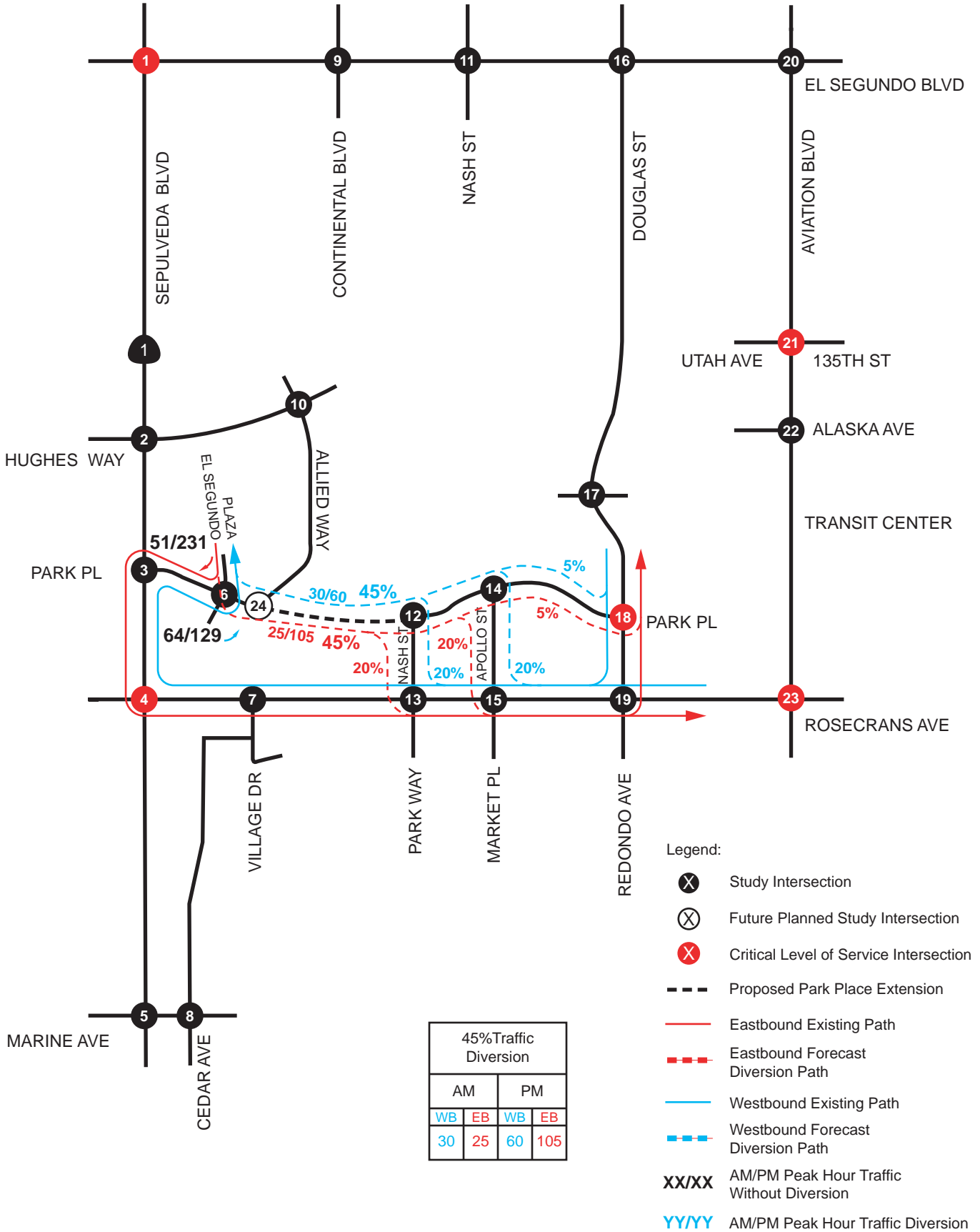


Exhibit 7 Diversion Redistribution Patterns for Southbound Right and Eastbound Left at the Access of Plaza El Segundo on Park Place

Park Place Extension Project
Traffic Impact Analysis



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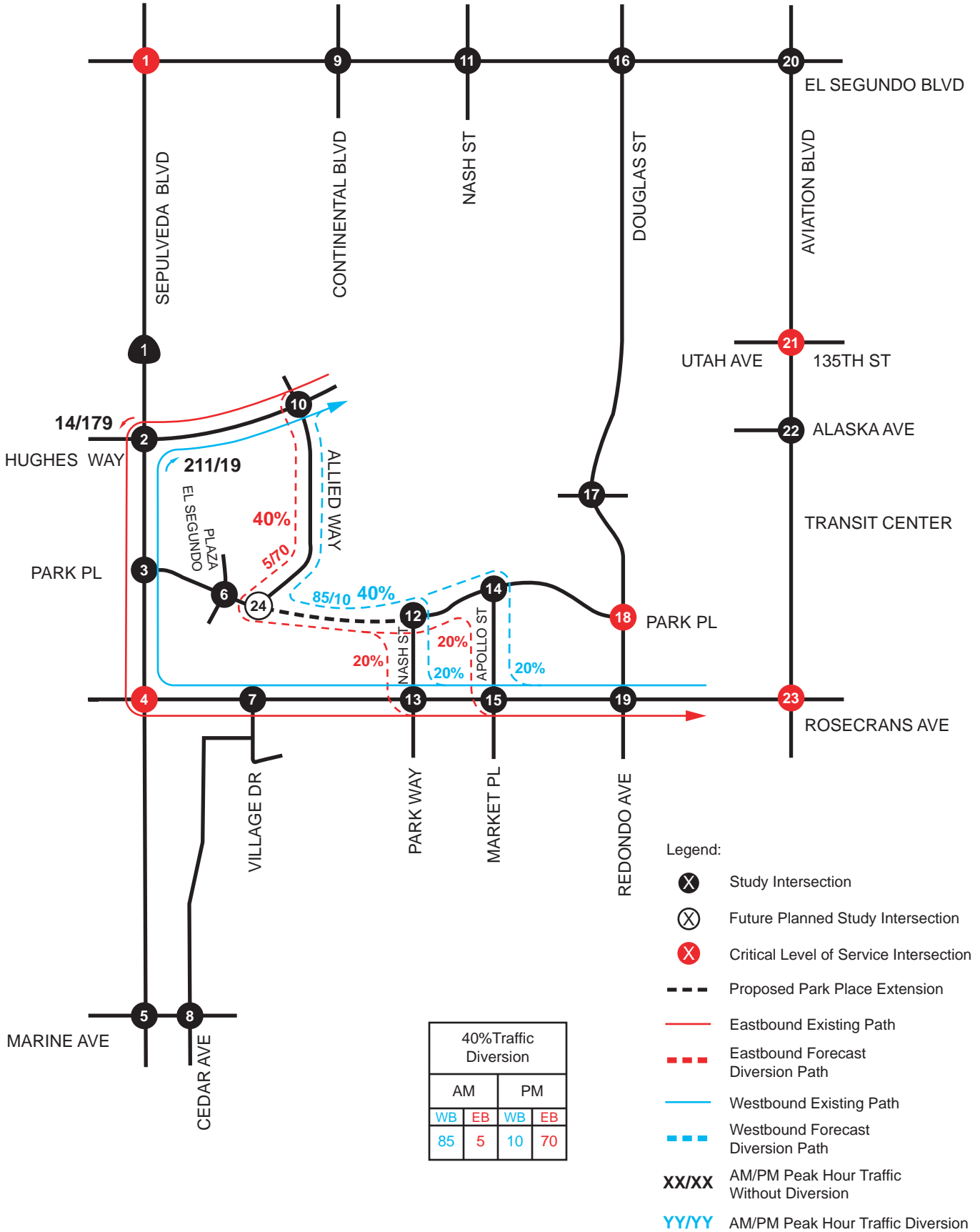


Exhibit 8 Diversion Redistribution Patterns for Northbound Right and Westbound Left at Sepulveda Boulevard and Hughes Way

Park Place Extension Project
Traffic Impact Analysis



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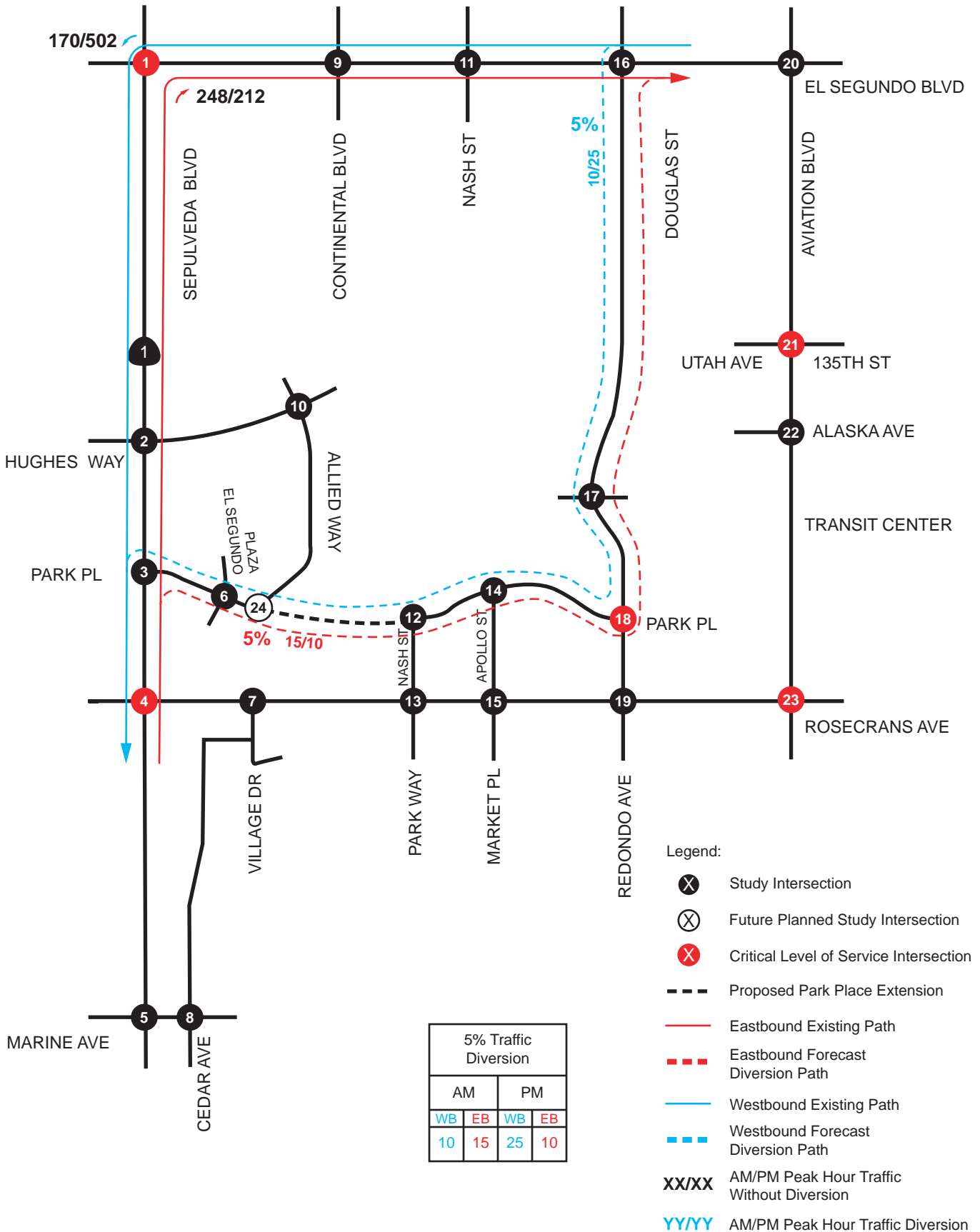


Exhibit 9

Diversion Redistribution Patterns for Northbound Right and Westbound Left at Sepulveda Boulevard and El Segundo Boulevard

Park Place Extension Project
Traffic Impact Analysis



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- For an intersection that experiences deficient operations (LOS E or F), a significant amount of existing traffic movement may be assumed to divert to the new Park Place Extension, if there is an alternate route with excess capacity.
- For an intersection that continues to operate at satisfactory operations or below deficient operations (LOS A through D), none or a very limited amount of existing traffic may be assumed to divert to the new Park Place Extension.

Exhibit 6 shows a 20% traffic diversion to Park Place for the southbound left and westbound right at the intersection of Sepulveda Boulevard and Rosecrans Avenue (Intersection #4). Since Intersection #4 is currently operating at LOS D during the AM peak hour and LOS E during the PM peak hour where the delay at the intersection is high, a high amount of diversion traffic is assumed to distribute to Park Place where there will be less delay. Motorists travelling west on Rosecrans Avenue will divert to Apollo Street and Nash Street, then head westbound on Park Place until they reach Sepulveda Boulevard. Motorists travelling south on Sepulveda Boulevard will divert eastbound on Park Place, then head south to Rosecrans Avenue by Nash Street and Apollo Street. No traffic diversion is assumed to Douglas Street and Park Place (Intersection #18) because it is already operating at critical LOS, which is undesirable for motorists to use as an alternate route. Since the intersection of Douglas Street and Park Place (Intersection #18) is currently warranted for a traffic signal based on existing 2016 traffic conditions, a new traffic signal should be considered because the City has been receiving complaints about the traffic operations at this location.

Exhibit 7 shows a 45% traffic diversion to Park Place for the southbound right and eastbound left at the access of Plaza El Segundo on Park Place (Intersection #6). Although Exhibit 5 shows that Intersection #6 is currently operating at LOS A during the AM and PM peak hours, diversion to Park Place is likely because it is a shorter and more convenient alternate route for motorists. Motorists travelling west on Rosecrans Avenue will divert north to Park Place by Apollo Street and Nash Street, then head westbound on Park Place until they reach the access of Plaza El Segundo. Motorists travelling south on Douglas Street to Rosecrans Avenue will divert directly into Park Place on continue on to the access of Plaza El Segundo. Motorists exiting the access of Plaza El Segundo will divert eastbound on Park Place, then head south to Rosecrans Avenue by Nash Street and Apollo Street, or continue on to Douglas Street. Although the intersection of Douglas Street and Park Place (Intersection #18) is currently operating at critical LOS, a small amount of traffic diversion is likely because it is a shorter alternate route.

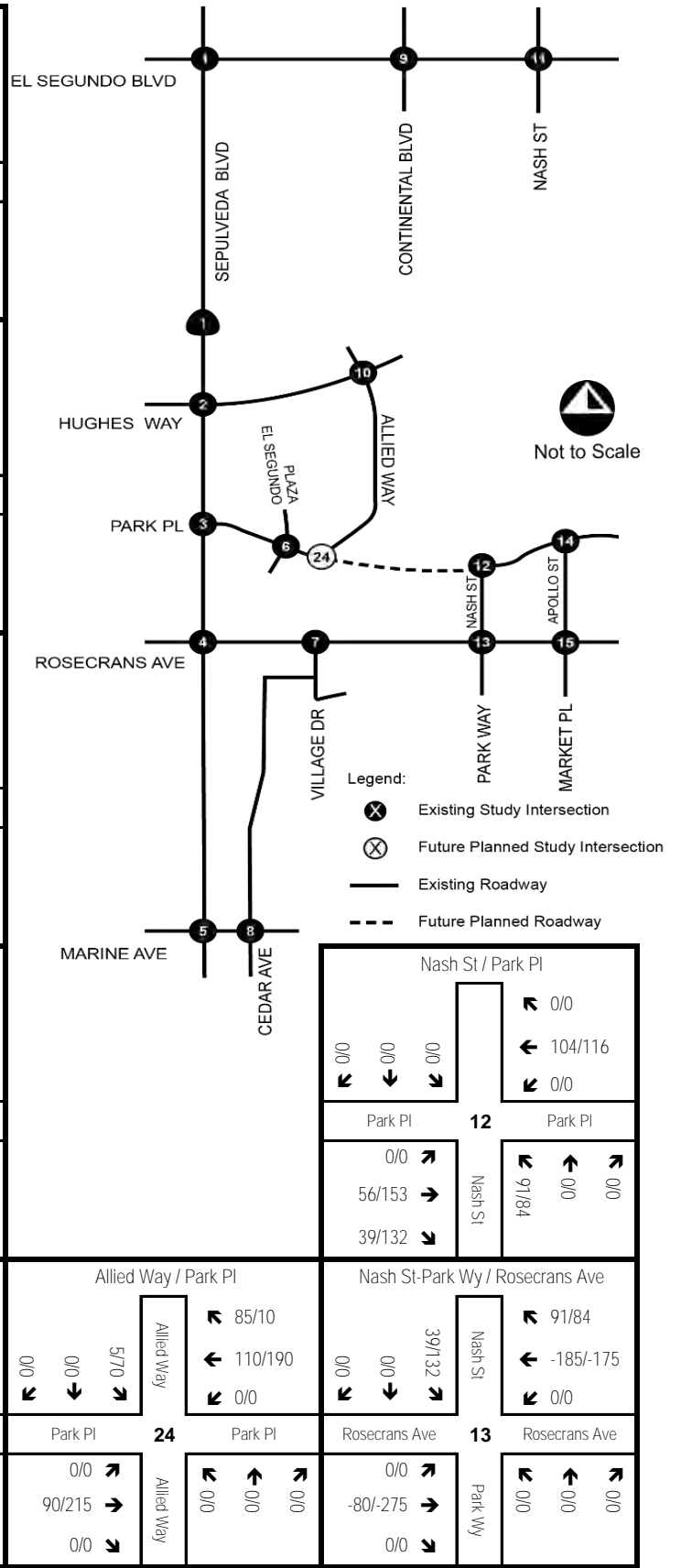
Exhibit 8 shows a 40% traffic diversion to Park Place for the northbound right and westbound left at the intersection of Sepulveda Boulevard and Hughes Way (Intersection #2). Although Intersection #2 is currently operating at LOS A during the AM peak hour and LOS C during the PM peak hour, a diversion is assumed to Park Place because it is a shorter and more convenient route for motorists. Using Park Place as an alternate route also allows motorists to avoid Intersection #4, which is currently operating at critical LOS. Motorists travelling west on Rosecrans Avenue will divert north to Park Place by Apollo Street and Nash Street, head westbound on Park Place, and head northbound on Allied Way to the destination. Motorists travelling west on Hughes Way will divert south on Allied Way, head eastbound Park Place, then head south to Rosecrans Avenue by Nash Street and Apollo Street. No traffic diversion is assumed to Douglas Street and Park Place (Intersection #18) because it is already operating at critical LOS, which is undesirable for motorists to use as an alternate route.

Exhibit 9 shows a 5% traffic diversion to Park Place for the northbound right and westbound left at the intersection of Sepulveda Boulevard and El Segundo Boulevard (Intersection #1). Since Intersection #1 is currently operating at LOS D during the AM peak hour and LOS F during the PM peak hour where the delay is high, a diversion is assumed to Park Place where there is less delay. Motorists travelling west on El Segundo Boulevard will divert south using Douglas Street, then divert westbound to Park Place until they reach Sepulveda Boulevard. Motorists travelling north on Sepulveda Boulevard will divert eastbound on Park Place, then head north on Douglas Street until El Segundo Boulevard. Although Douglas Street and Park Place (Intersection #18) is currently operating at critical LOS, a small amount of traffic diversion is still assumed because the Intersection #18 has more capacity than Intersection #1.

4.3 Project-Related Diverted Traffic Volumes

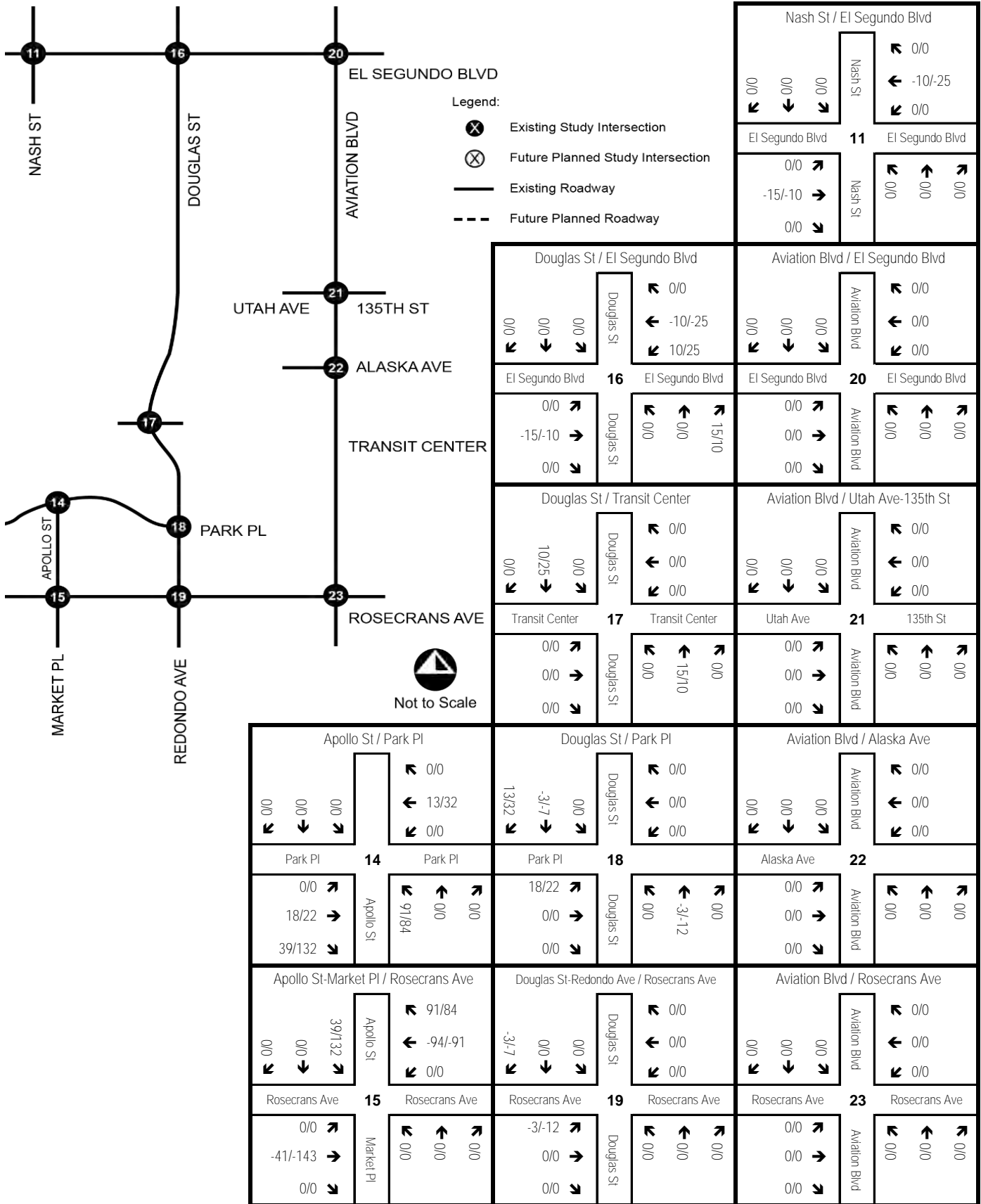
Exhibit 10 shows the project-related diverted traffic volumes based on the potential traffic redistribution patterns shown in Exhibits 6 through 9.

Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
0/0 0/0 0/0	0/0 0/0 -10/-25	0/0 0/0 0/0	0/0 -10/-25 0/0
El Segundo Blvd 1	El Segundo Blvd	El Segundo Blvd 9	El Segundo Blvd
0/0 0/0 0/0	0/0 0/0 -15/-10	0/0 -15/-10 0/0	0/0 0/0 0/0
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
0/0 -10/-25 0/0	0/0 0/0 -5/-70	0/0 0/0 0/0	0/0 -5/-70 5/70
Private Driveway 2	Hughes Way	Hughes Way 10	Hughes Way
0/0 0/0 0/0	0/0 -15/-10 -85/-10	0/0 -85/-10 0/0	0/0 0/0 85/10
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
-190/-245 -10/-25 0/0	45/0 0/0 10/25	-25/-105 25/105 0/0	30/60 80/130 0/0
3	Park Pl	Park Pl 6	Park Pl
0/0 0/0 0/0	0/0 -15/-10 15/10	-30/-60 65/110 0/0	0/0 0/0 0/0
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
-80/-275 0/0 0/0	-185/-175 0/0 0/0	0/0 0/0 0/0	0/0 -185/-175 0/0
Rosecrans Ave 4	Rosecrans Ave	Rosecrans Ave 7	Rosecrans Ave
0/0 0/0 0/0	0/0 0/0 0/0	0/0 -80/-275 0/0	0/0 0/0 0/0
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
Marine Ave 5	Marine Ave	Marine Ave 8	Marine Ave
0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0	0/0 0/0 0/0
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
0/0 0/0 5/70	85/10 110/190 0/0	0/0 0/0 39/132	91/84 -185/-175 0/0
Park Pl 24	Park Pl	Rosecrans Ave 13	Rosecrans Ave
0/0 90/215 0/0	0/0 0/0 0/0	0/0 -80/-275 0/0	0/0 0/0 0/0



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 10 (1 of 2)
Project-Related Diverted Traffic



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 10 (2 of 2)

Project-Related Diverted Traffic

5.0 FUTURE TRAFFIC FORECAST

This section presents the future traffic forecast with the anticipated diverted traffic due to the proposed Park Place Extension project on the existing conditions including the background ambient growth. Future conditions with other cumulative developments are also considered. The following future conditions are presented:

- Existing 2016 plus Project conditions;
- Opening Year 2021 without Project conditions; and
- Opening Year 2021 with Project conditions.

5.1 Ambient Growth Rate

Based on the 2010 Los Angeles County Congestion Management Program (CMP), the 5-year general traffic volume growth factor for El Segundo (which is located within RSA 18) is 1.013 (1.3%) from 2015 to 2020. The annual (1-year) growth factor is calculated to be 1.0026 (0.26%). An annual ambient growth rate of 0.26% for one year has been applied to the 2015 intersection traffic count to estimate existing 2016 conditions. The project is anticipated to be completed in Year 2021. An annual growth rate of 0.26% for five years from Year 2016 to Year 2021 is a total of 1.31%. The assumption of 0.26% annual growth rate has been reviewed and approved by the City staff during the initial scoping process (see the April 22, 2016 memorandum included in Appendix E).

5.2 Cumulative Development Traffic

Based on the development status information provided by the Cities of El Segundo, Manhattan Beach and Hawthorne, there are 38 cumulative developments in the study area. The general locations for the cumulative developments are shown in Exhibit 11.

Table 4 summarizes the cumulative development trip generation summary. Trip rates published in the *Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition, 2012)* are used to calculate the number of trips that will be generated by the cumulative developments. Appendix E shows the detailed calculations of the cumulative development trips. As summarized in Table 4, the cumulative developments will generate approximately 99,319 daily trips with 8,549 AM peak hour trips and 10,116 PM peak hour trips.

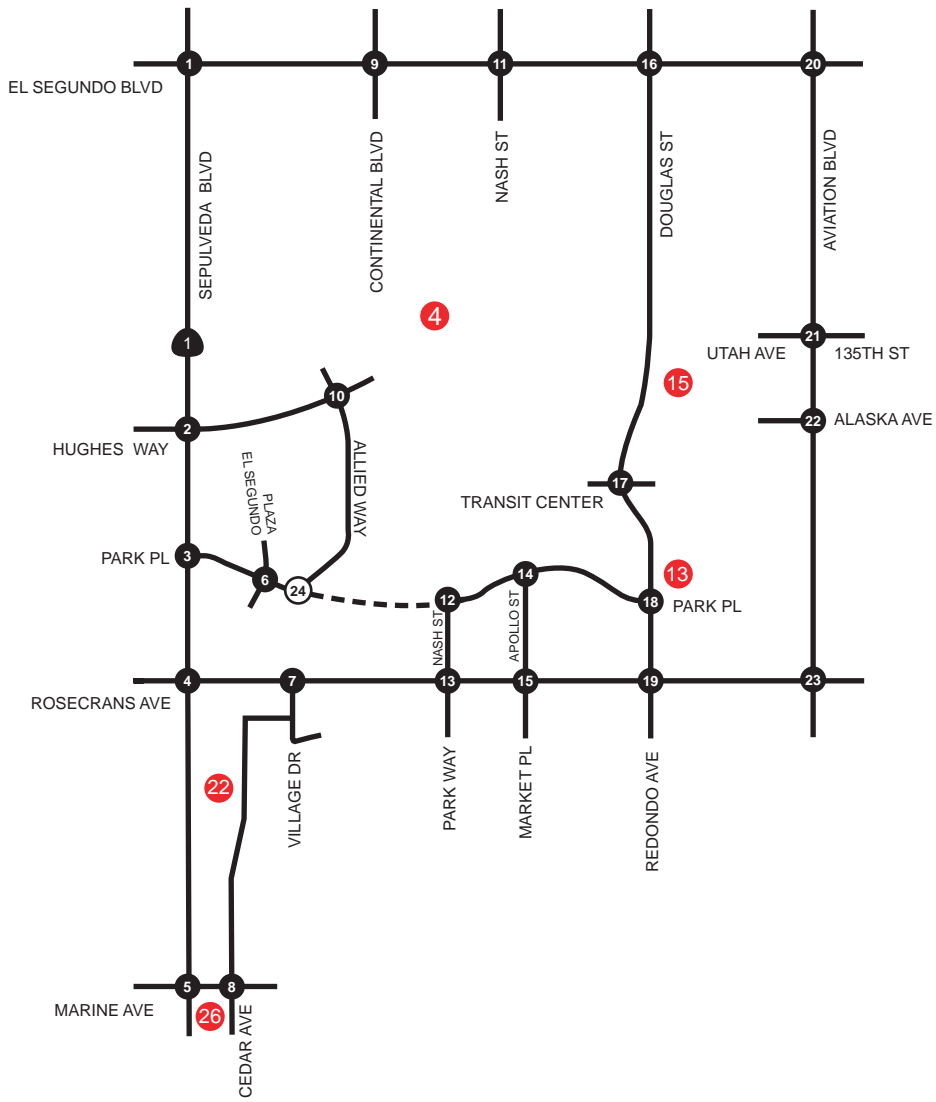
Appendix E shows the trip distribution patterns for the cumulative developments. Exhibit 12 shows the cumulative development AM and PM peak hour intersection traffic volumes.

5.3 Existing 2016 Plus Project Traffic






Exhibit 13 shows Existing 2016 plus Project conditions AM and PM peak hour intersection traffic volumes, with diverted traffic.

5.4 Opening Year 2021 Without Project Traffic

Exhibit 14 shows Opening Year 2021 without Project conditions AM and PM peak hour intersection traffic volumes, without diverted traffic.



Legend:

-  Existing Study Intersection
-  Future Planned Study Intersection
-  Existing Roadway
-  Future Planned Roadway
-  Cumulative Project



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Exhibit 11 Cumulative Development Location Map

Park Place Extension Project
Traffic Impact Analysis

Table 4 (1 of 2)
Cumulative Development Traffic Generation

Traffic Generation									
Proj No.	Cumulative Project		Daily	AM Peak			PM Peak		
	Land Use	Quantity**		Total	In	Out	Total	In	Out
City of El Segundo									
1	Data Center	332.137 TSF	329	30	16	14	30	6	24
2	Hotel	152.000 ORM	1356	102	59	43	107	52	55
3	Senior Adult Housing - Attached	304.000 DU	1046	61	21	40	79	43	36
4	Retail	148.960 TSF	6111	143	89	54	360	173	187
	Non-Retail	1993.498 TSF	20474	2899	2545	354	2760	458	2302
5	Fast Food w/ Drive-Thru	7.100 TSF	3522	322	164	158	232	121	111
6	Data Center	75.435 TSF	75	7	4	3	6	1	5
	Less Existing Data Center	-11.769 TSF	-12	-2	-1	-1	-1	0	-1
7	Research and Development Center	300.000 TSF	2433	366	303	63	321	48	273
8	Hotel	190.000 ORM	1695	127	74	53	133	65	68
9	High School	240.000 TSF	3094	735	521	214	233	125	108
10	General Office	611.545 TSF	6745	954	838	116	911	153	758
	Shopping Center	13.660 TSF	583	13	8	5	50	24	26
11	General Office	67.000 TSF	739	105	92	13	100	17	83
12	Hotel	10.000 ORM	89	7	4	3	7	3	4
13	General Light Industrial	4.986 TSF	35	5	4	1	5	1	4
14	Corporate Headquarters Building	52.000 TSF	415	79	73	6	73	7	66
	Athletic Club	68.380 TSF	2940	203	124	79	408	253	155
15	General Office	78.000 TSF	860	122	107	15	117	20	97
16	General Office	14.998 TSF	165	24	21	3	23	4	19
17	Hotel	240.000 ORM	2141	161	94	67	168	82	86
	General Office	63.550 TSF	701	99	87	12	95	16	79
18	General Office	86.521 TSF	954	135	119	16	129	22	107
19	Condominium/Townhouse - (Attached)	86.521 DU	503	38	6	32	45	30	15
20	Hotel	178.000 ORM	1588	119	69	50	125	61	64
	General Office	20.955 TSF	231	33	29	4	31	5	26
21	Research and Development Center	7.692 TSF	62	10	8	2	8	1	7
City of Manhattan Beach ²									
22	Shopping Center	110.000 TSF	715	48	29	19	176	97	79
23	Shopping Center	3.371 TSF	144	3	2	1	13	6	7
	General Office	3.073 TSF	34	5	4	1	5	1	4
24	Supermarket	12.000 TSF	1227	41	25	16	114	58	56
25	General Office	15.000 TSF	165	23	20	3	22	4	18
26	Day Care Center	119.000 STU	170	87	45	42	65	30	35
27	Medical-Dental Office Building	23.050 TSF	833	55	43	12	82	23	59
	Pharmacy/Drugstore without Drive-Through Window	0.665 TSF	60	2	1	1	6	3	3
	Coffee/Donut Shop no Drive-Thru ³	1.715 TSF	1860	186	95	91	70	35	35
	Less Existing Restaurant		-687	-58	-32	-26	-53	-32	-21
28	Supermarket	27.583 TSF	1717	8	2	6	109	55	54
29	Medical-Dental Office Building	40.000 TSF	1445	96	76	20	143	40	103
	Less General Office	-40.000 TSF	-441	-62	-55	-7	-60	-10	-50

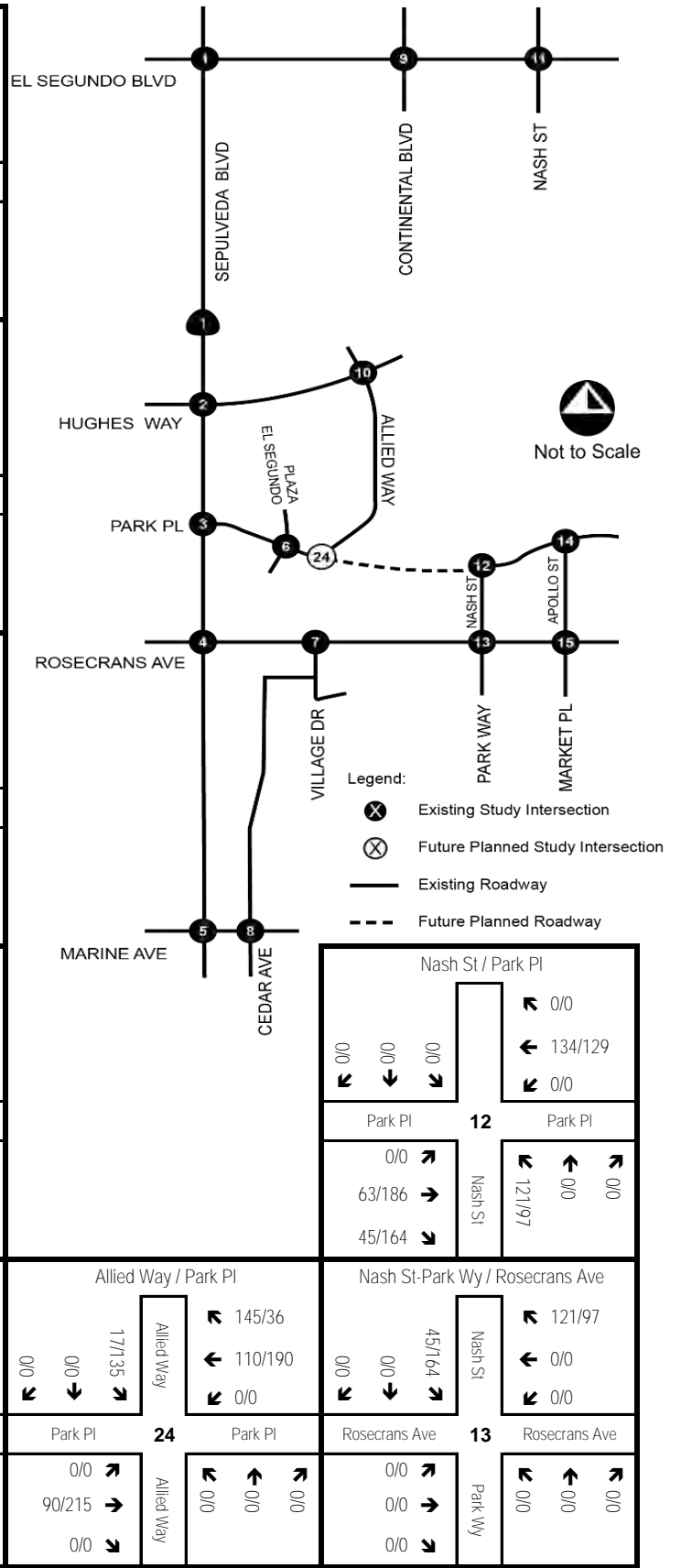
Table 4 (2 of 2)
Cumulative Development Traffic Generation

Traffic Generation									
Proj No.	Cumulative Project		Daily	AM Peak			PM Peak		
	Land Use	Quantity**		Total	In	Out	Total	In	Out
City of Redondo Beach									
30	Shopping Center	304.058 TSF	12983	291	182	109	1128	541	587
31	Shopping Center	217.864 TSF	9303	209	131	78	808	388	420
	Hotel	150.000 ORM	1338	101	59	42	105	51	54
	Condominium/Townhouse - (Attached)	650.000 DU	3777	287	46	241	339	228	111
32	Senior Adult Housing - Attached	98.000 DU	337	20	7	13	26	14	12
33	Condominium/Townhouse - (Attached)	149.000 DU	866	65	10	55	77	52	25
	Shopping Center	37.000 TSF	1580	35	22	13	137	66	71
34	General Office	6.451 TSF	71	10	9	1	10	2	8
35	Hotel	121.000 ORM	1079	81	47	34	85	41	44
36	Condominium/Townhouse - (Attached)	52.000 DU	302	23	4	19	27	18	9
	Shopping Center	10.000 TSF	427	10	6	4	37	18	19
City of Hawthorne									
37	Condominium/Townhouse - (Attached)	12.000 DU	70	5	1	4	6	4	2
38	Hotel	120.000 ORM	1070	81	47	34	84	41	43
Total Project Trips			99,319	8,549	6,304	2,245	10,116	3,565	6,551

Note

- ** TSF = Thousand Square Feet; ORM = Occupied Rooms; DU = Dwelling Units
- ¹ Trip generation rates taken from Approved 2014 Raytheon South Campus TIA by RBF
- ² Trip generation rates provided by the City of Manhattan

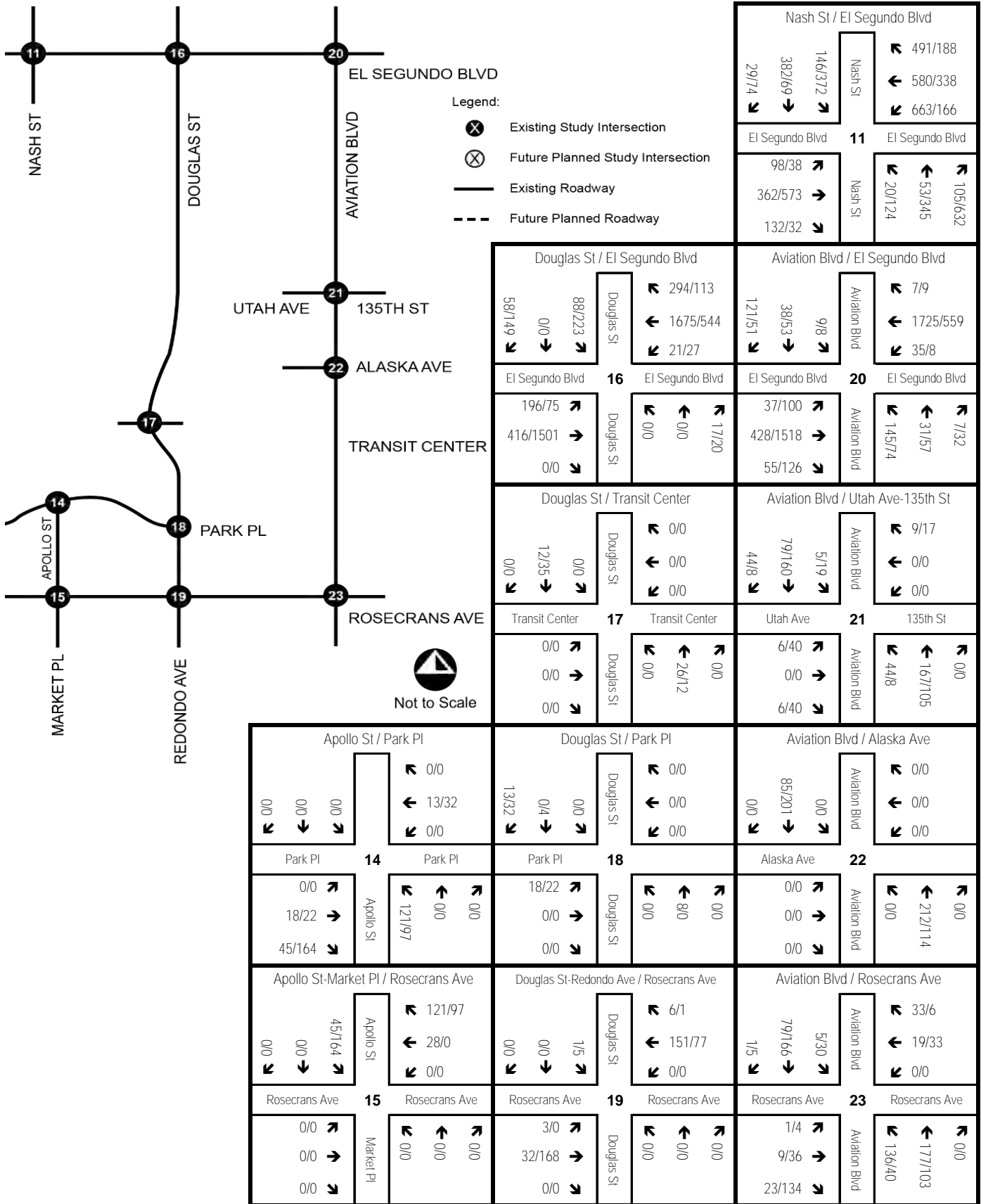
Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
8/2	603/202 232/199	180/559 36/85 60/154	42/131 0/0 5/16
1	1/8 103/50 2/8	18/5 503/244 391/86	145/40 212/417 272/80
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
0/0	132/32 162/329	20/124 0/0 87/497	0/0 108/621 17/135
2	0/0 0/0 0/0	0/0 325/241 518/130	0/0 0/0 145/36
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
0/0	50/100 199/726	70/105 0/0 0/0	25/105 0/0 0/0
3	0/0 0/0 0/0	0/0 773/266 0/0	30/60 80/130 0/0
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
0/0	248/833 0/0	0/0 0/0 2/10	0/0 0/0 4/15
4	0/0 0/0 7/13	0/0 6/11 858/360 7/5	0/0 0/0 3/12
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
1/4	251/836 0/0	0/0 0/0 0/0	1/5 0/0 9/6
5	1/5 0/0 5/3	0/0 4/4 870/370 0/0	0/0 0/0 8/7
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
0/0	177/135 0/0	121/97 0/0 0/0	145/36 110/190 0/0
24	0/0 90/215 0/0	0/0 0/0 0/0	45/164 0/0 0/0



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 12 (1 of 2)

Cumulative Development Intersection Volumes

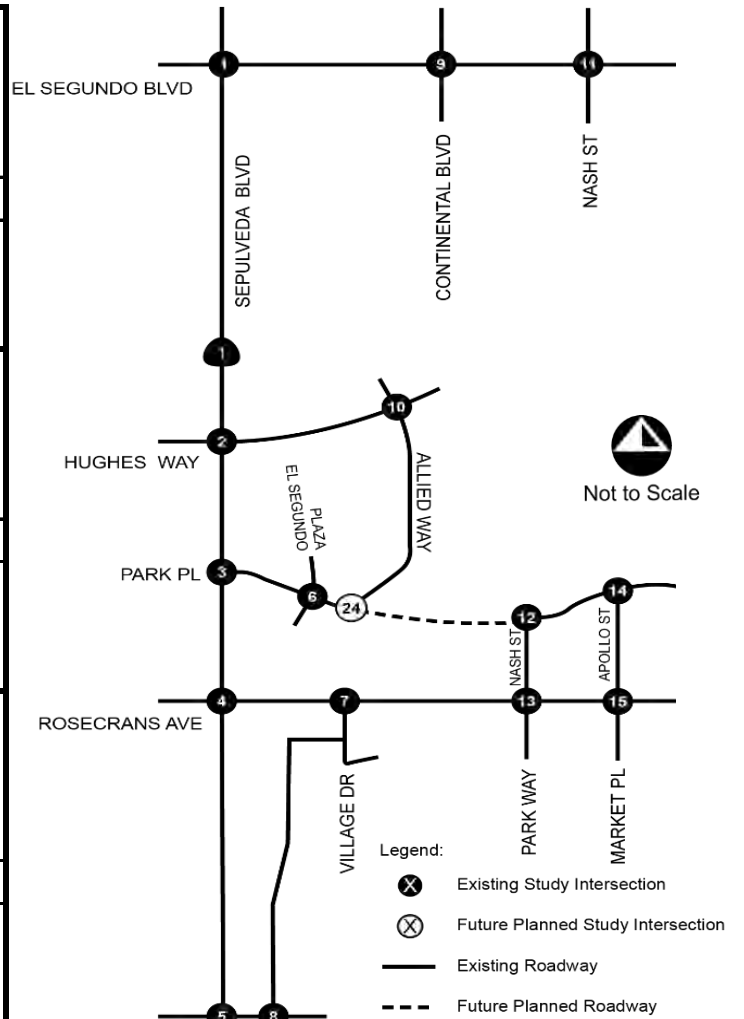


XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 12 (2 of 2)

Cumulative Development Intersection Volumes

Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
112/88	160/180 1060/2916	40/87	50/221 23/17 40/87
185/192	355/413	394/62	949/749
160/180	160/477	34/15	
El Segundo Blvd 1	El Segundo Blvd	El Segundo Blvd 9	El Segundo Blvd
98/126	2672/1312	119/38	8/118
405/368	233/202	607/784	24/110
240/398	341/285	42/4	5/56
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
8/55	60/189	3/10	0/0
1341/2994	34/120	0/0	1/0
60/189	0/0	0/0	4/91
60/189	9/109	0/0	6/104
Private Driveway 2	Hughes Way	Hughes Way 10	Hughes Way
9/71	126/9	13/0	100/18
0/1	3068/1604	136/0	4/0
6/60	15/59	41/197	33/113
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
2/1	0/0	26/126	25/106
1350/3110	95/131	3/16	31/64
0/0	0/0	3/16	96/245
0/0	75/489	2/1	1/13
0	Park Pl 3	Park Pl 6	Park Pl
0/0	21/1	34/69	2/12
0/0	3200/1577	122/244	2/15
0/0	219/465	23/26	5/39
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
119/586	161/239	5/1	6/15
1055/2590	166/354	0/0	9/0
161/239	389/653	0/0	791/1327
161/239	284/464	5/1	128/263
Rosecrans Ave 4	Rosecrans Ave	Rosecrans Ave 7	Rosecrans Ave
333/241	519/305	9/13	771/91
547/640	2700/1258	1125/1063	1/0
152/187	271/318	67/148	40/135
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
57/154	176/230	47/101	66/338
1047/2393	51/57	32/68	408/331
176/230	238/227	47/101	345/288
176/230	107/120	47/101	40/31
Marine Ave 5	Marine Ave	Marine Ave 8	Marine Ave
77/70	82/136	38/56	22/51
274/298	2992/1390	464/579	57/27
34/47	53/92	30/43	17/13
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
18/132	5/70	85/10	155/143
18/132	110/190	110/190	838/1362
0/0	0/0	0/0	87/87
0/0	0/0	0/0	
Park Pl 24	Park Pl	Rosecrans Ave 13	Rosecrans Ave
59/147	0/0	139/43	77/90
90/215	0/0	998/1160	35/62
0/0	0/0	49/61	19/17

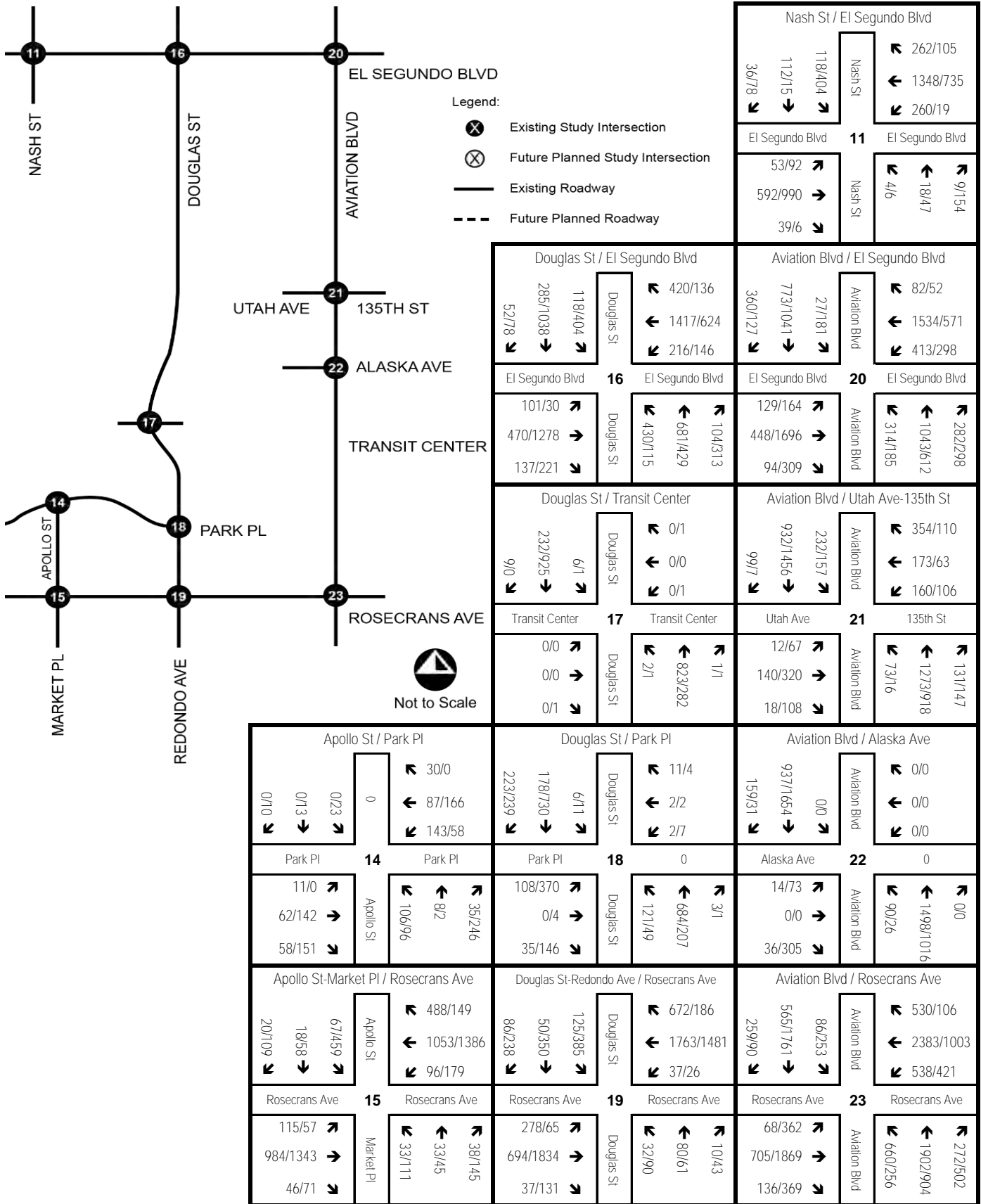


Nash St / Park Pl	
0/0	25/26
9/26	104/116
12/43	63/130
0	
Park Pl 12	Park Pl
0/0	53/52
56/153	7/29
39/132	91/85
Nash St / Park Wy / Rosecrans Ave	
32/177	155/143
56/205	838/1362
15/40	87/87
0/0	
Rosecrans Ave 13	Rosecrans Ave
139/43	77/90
998/1160	35/62
49/61	19/17

XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 13 (1 of 2)

Existing 2016 Plus Project Intersection Volumes

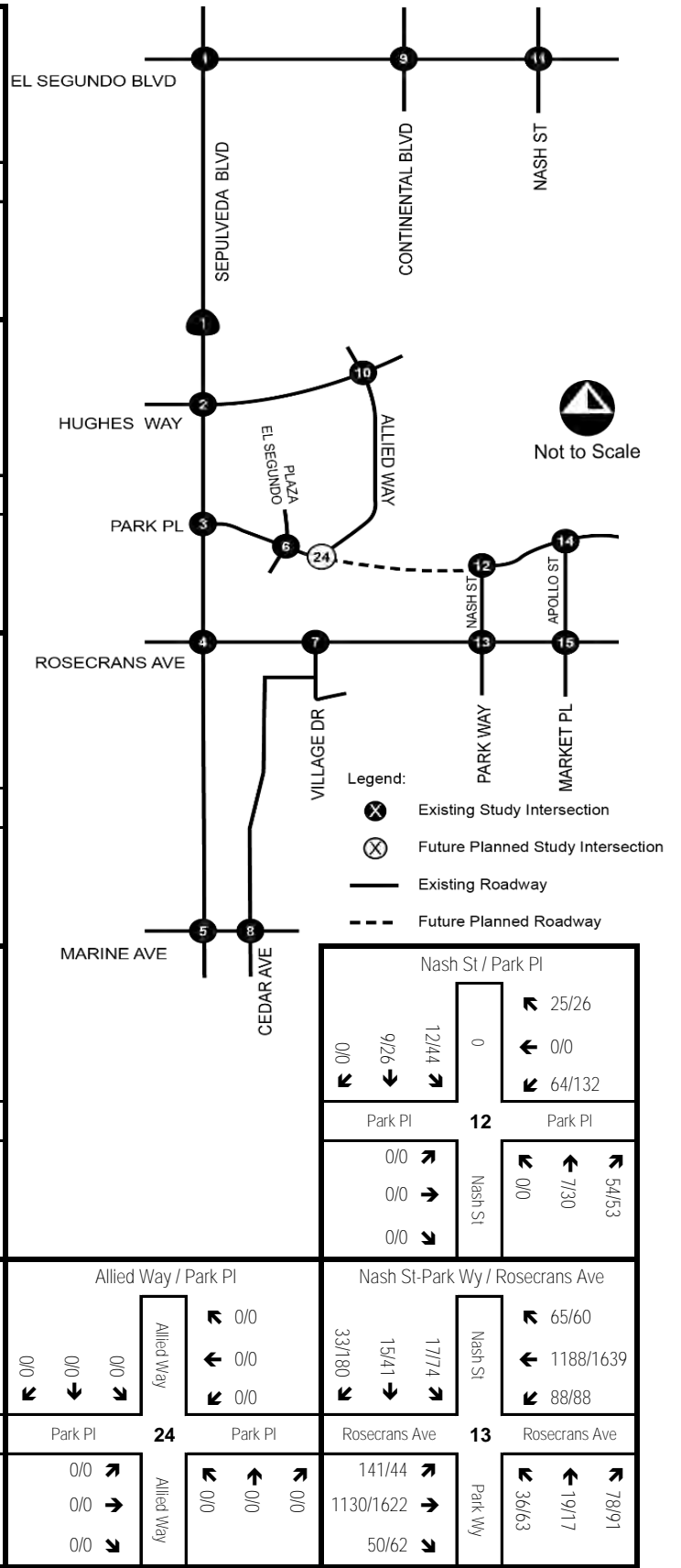


XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 13 (2 of 2)

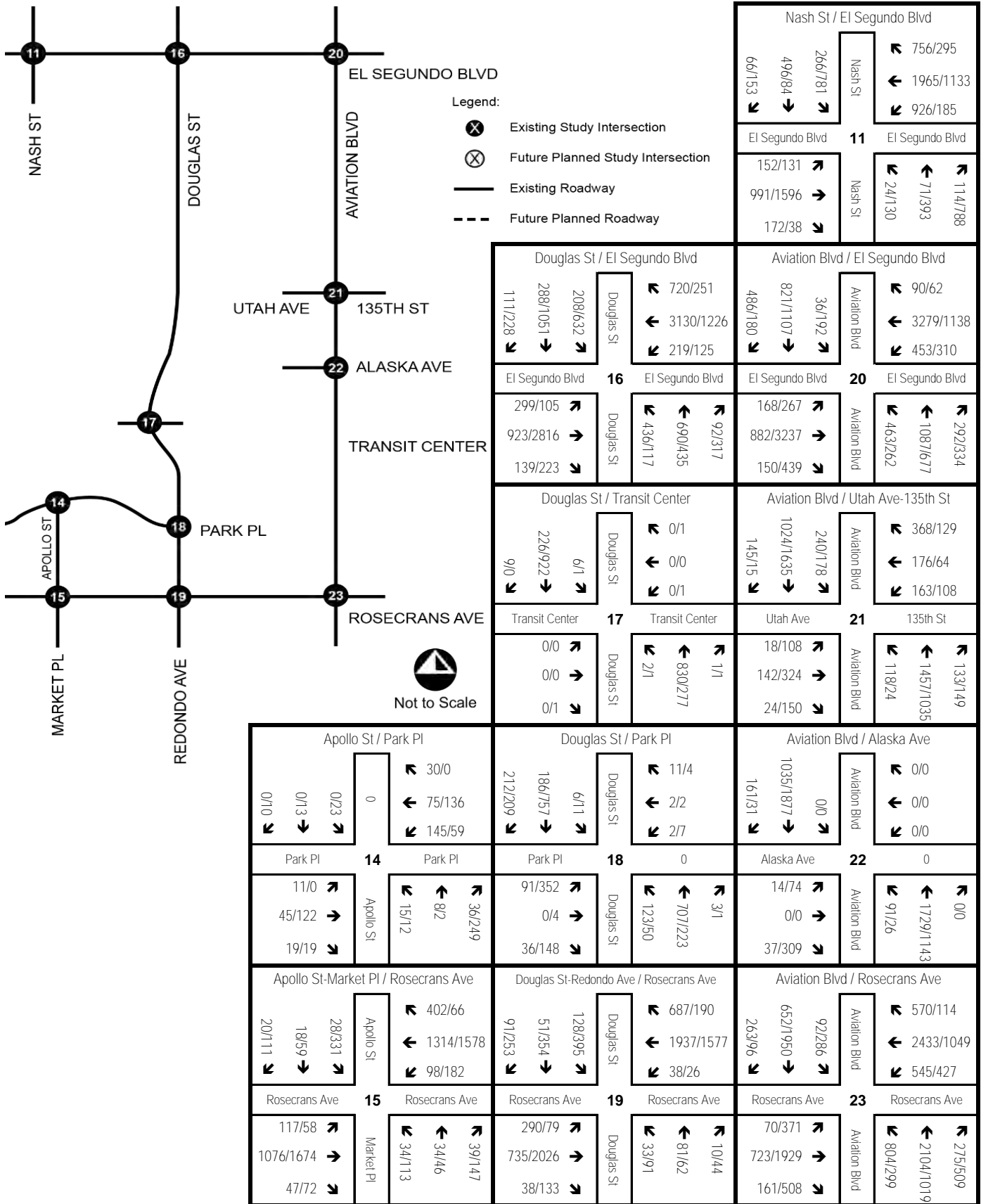
Existing 2016 Plus Project Intersection Volumes

Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
1221/91	766/385	46/104	93/354
1306/3153	368/754	23/17	23/17
↖ ↗	↖ ↗	↖ ↗	↖ ↗
↖ ↗	396/503	1194/1226	544/103
↖ ↗	243/688	307/95	1194/1226
El Segundo Blvd	1	El Segundo Blvd	9
101/136	↖ ↗	139/44	↖ ↗
513/423	↖ ↗	1148/1058	↖ ↗
245/411	↖ ↗	434/90	↖ ↗
↖ ↗	349/293	63/421	24/112
↖ ↗	2842/1609	54/388	54/388
↖ ↗	472/306	↖ ↗	↖ ↗
Sepulveda Blvd	1	Continental Blvd	9
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
8/56	1540/3412	3/10	0/0
↖ ↗	↖ ↗	0/0	0/0
↖ ↗	55/246	134/920	1/0
↖ ↗	0/0	1/35	1/35
↖ ↗	119/814	↖ ↗	↖ ↗
Private Driveway	2	Hughes Way	10
9/72	↖ ↗	13/0	↖ ↗
0/1	↖ ↗	1018/206	↖ ↗
6/61	↖ ↗	42/199	↖ ↗
↖ ↗	15/60	34/115	4/0
↖ ↗	3463/1886	15/8	15/8
↖ ↗	876/185	↖ ↗	↖ ↗
Sepulveda Blvd	2	Hughes Way	10
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
0/0	1656/4163	52/234	0/1
↖ ↗	↖ ↗	3/16	0/1
↖ ↗	51/133	16/117	1/4
↖ ↗	0/0	1/13	1/13
↖ ↗	66/470	↖ ↗	↖ ↗
0	3	Park Pl	6
0/0	↖ ↗	65/131	↖ ↗
0/0	↖ ↗	58/136	↖ ↗
0/0	↖ ↗	23/26	↖ ↗
↖ ↗	2/1	5/40	2/15
↖ ↗	4260/2026	2/12	2/12
↖ ↗	206/461	↖ ↗	↖ ↗
Sepulveda Blvd	3	Park Pl	6
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
121/593	273/674	5/1	6/15
↖ ↗	↖ ↗	0/0	0/0
↖ ↗	500/594	1135/1589	9/0
↖ ↗	394/661	134/281	134/281
↖ ↗	289/480	↖ ↗	↖ ↗
Rosecrans Ave	4	Rosecrans Ave	7
337/244	↖ ↗	9/13	↖ ↗
555/648	↖ ↗	1256/1514	↖ ↗
161/203	↖ ↗	68/150	↖ ↗
↖ ↗	280/333	41/137	1/0
↖ ↗	3593/1635	81/206	81/206
↖ ↗	533/314	↖ ↗	↖ ↗
Sepulveda Blvd	4	Rosecrans Ave	7
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
59/160	1311/3260	48/103	68/346
↖ ↗	↖ ↗	33/69	33/69
↖ ↗	52/58	414/340	414/340
↖ ↗	241/230	349/292	349/292
↖ ↗	109/122	50/37	50/37
Marine Ave	5	Marine Ave	8
79/76	↖ ↗	39/57	↖ ↗
277/302	↖ ↗	470/586	↖ ↗
40/51	↖ ↗	30/44	↖ ↗
↖ ↗	58/97	17/13	17/13
↖ ↗	3901/1778	30/59	30/59
↖ ↗	83/138	↖ ↗	↖ ↗
Sepulveda Blvd	5	Marine Ave	8
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
0/0	0/0	33/180	177/4
0/0	0/0	15/41	15/41
0/0	0/0	65/60	65/60
0/0	0/0	1188/1639	1188/1639
0/0	0/0	88/88	88/88
Park Pl	24	Park Pl	13
0/0	↖ ↗	141/44	↖ ↗
0/0	↖ ↗	1130/1622	↖ ↗
0/0	↖ ↗	50/62	↖ ↗
↖ ↗	0/0	36/63	36/63
↖ ↗	0/0	19/17	19/17
↖ ↗	0/0	78/91	78/91
↖ ↗	0/0	↖ ↗	↖ ↗
Allied Way	24	Park Wy	13



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 14 (1 of 2)
Opening Year 2021 Without Project Intersection Volumes



XX/XX = AM / PM Peak Hour Intersection Volumes

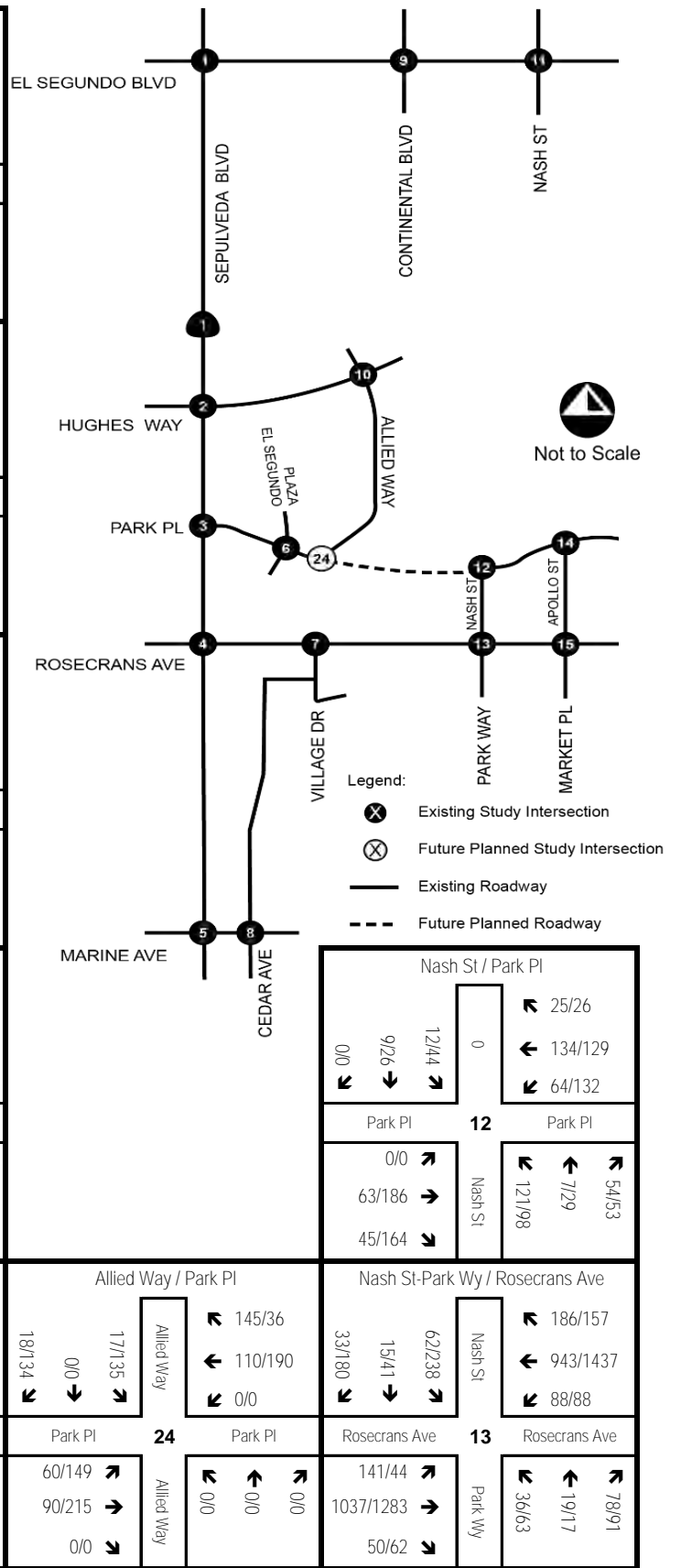
Exhibit 14 (2 of 2)

Opening Year 2021 Without Project Intersection Volumes

5.5 Opening Year 2021 With Project Traffic

Exhibit 15 shows Opening Year 2021 with Project conditions AM and PM peak hour intersection traffic volumes, with diverted traffic.

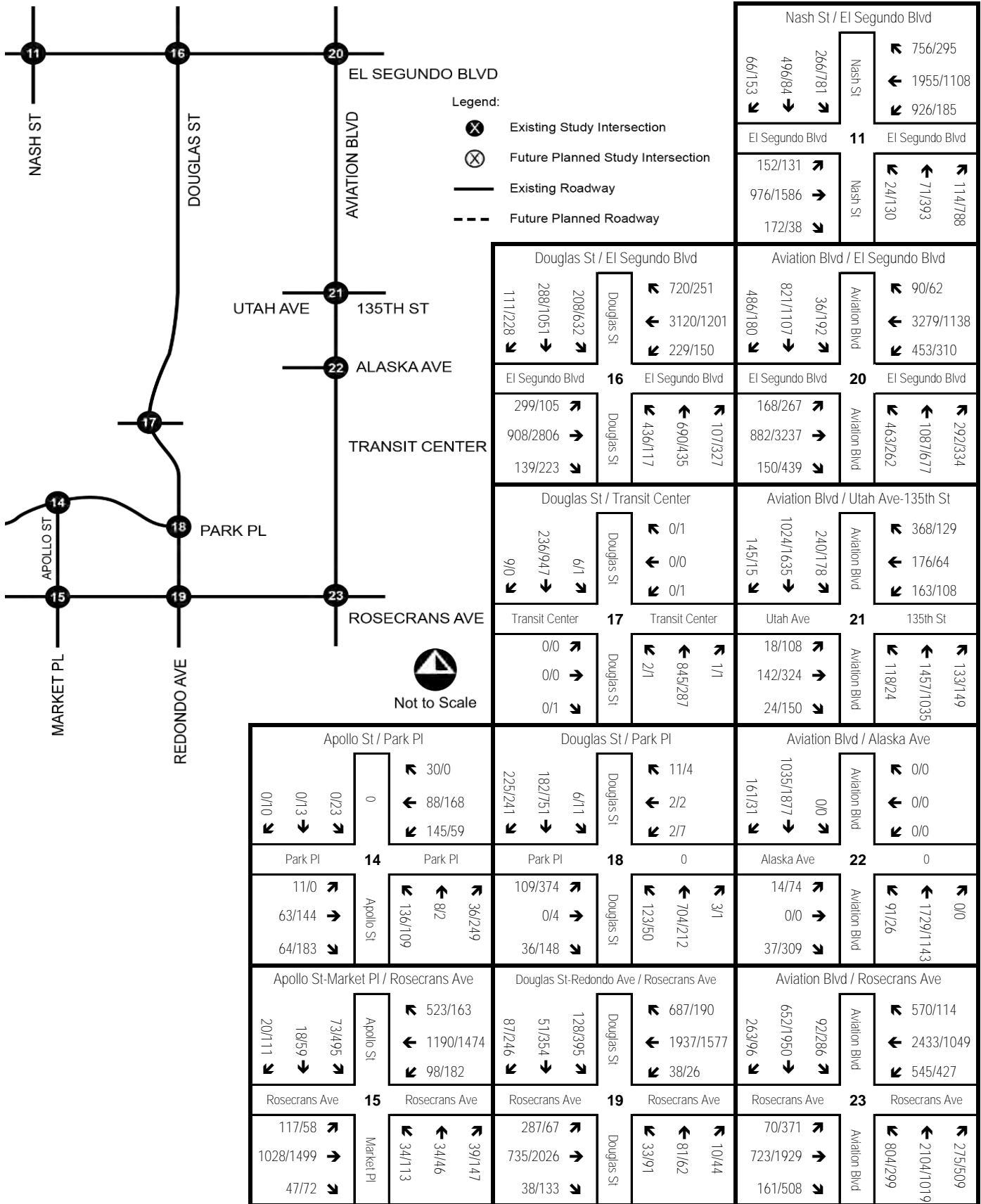
Sepulveda Blvd / El Segundo Blvd		Continental Blvd / El Segundo Blvd	
1221/91	766/385 1306/3153	46/104	93/354 23/17
368/754	396/503 233/663	544/103	1184/1201 307/95
El Segundo Blvd	1	El Segundo Blvd	9
101/136	513/423 245/411	139/44	1133/1048 434/90
2842/1609	457/296	63/421	24/112 54/388
Sepulveda Blvd	1	Continental Blvd	9
Sepulveda Blvd / Hughes Way		Allied Way / Hughes Way	
8/56	1530/3387 193/224	3/10	0/0
55/246	0/0 101/679	0/0	1/0 117/785 18/170
Private Driveway	2	Hughes Way	10
9/72	0/1 6/61	13/0	873/169 42/199
15/60	3448/1876 731/149	34/115	4/0 160/44
Sepulveda Blvd	2	Hughes Way	10
Sepulveda Blvd / Park Pl		Plaza El Segundo / Park Pl	
0/0	1576/3902 731/69	27/129	25/106 3/16
121/238	0/0 51/390	31/64	96/247 1/13
0	3	Park Pl	6
0/0	0/0 0/0	35/71	123/246 23/26
2/1	4030/1874 191/411	5/40	2/15 2/12
Sepulveda Blvd	3	Park Pl	6
Sepulveda Blvd / Rosecrans Ave		Village Dr / Rosecrans Ave	
121/593	180/334 1317/3457	5/1	6/15
255/392	394/661 289/480	9/0	890/1388 134/281
Rosecrans Ave	4	Rosecrans Ave	7
337/244	555/648 161/203	9/13	1164/1174 68/150
280/333	3593/1635 533/374	41/137	1/0 81/206
Sepulveda Blvd	4	Rosecrans Ave	7
Sepulveda Blvd / Marine Ave		Cedar Ave / Marine Ave	
59/160	1311/3260 179/233	48/103	68/346 33/69
52/58	241/230 109/122	414/340	349/292 50/37
Marine Ave	5	Marine Ave	8
79/76	277/302 40/51	39/57	470/586 30/44
58/97	3901/1778 83/138	58/27	17/13
Sepulveda Blvd	5	Marine Ave	8
Allied Way / Park Pl		Nash St / Park Wy / Rosecrans Ave	
18/134	177/135	145/36	110/190
0/0	0/0	0/0	0/0
60/149	90/215	62/238	15/41
0/0	0/0	33/180	186/157 943/1437 88/88
Park Pl	24	Park Pl	13
0/0	0/0	141/44	1037/1283 50/62
0/0	0/0	36/63	19/17 78/91
Allied Way	24	Park Wy	13



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 15 (1 of 2)

Opening Year 2021 With Project Intersection Volumes



XX/XX = AM / PM Peak Hour Intersection Volumes

Exhibit 15 (2 of 2)

Opening Year 2021 With Project Intersection Volumes

6.0 FUTURE CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS

This section presents the traffic signal warrant analysis for the future traffic scenarios at the four (4) un-signalized and future intersection locations. Appendix F contains the traffic signal warrant analysis worksheets for future conditions. Table 5 summarizes the results of the traffic signal warrant analysis. As shown in Table 5, a traffic signal is currently warranted at the intersection of Douglas Street and Park Place [#6] based on existing 2016 conditions. For all other locations, no traffic signals are warranted.

Table 5 – Traffic Signal Warrant Analysis Summary

Intersection		Existing 2016 Conditions		Existing 2016 With Project Conditions		Opening Year 2021 Without Project Conditions		Opening Year 2021 With Project Conditions	
No.	Name	AM	PM	AM	PM	AM	PM	AM	PM
12	Nash Street / Park Place	X	X	X	X	X	X	X	X
14	Apollo Street / Park Place	X	X	X	X	X	X	X	X
18	Douglas Street / Park Place	O	O	O	O	O	O	O	O
24	Allied Way / Park Place (Future)	N/A	N/A	X	X	N/A	N/A	X	X

Note

X = Not Warranted; O = Warranted for a traffic signal

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

- 12. Nash Street at Park Place; and
- 24. Allied Way at Park Place.

7.0 FUTURE CONDITIONS INTERSECTION ANALYSIS

This section presents the intersection operations analysis for the following future traffic scenarios, based on existing and proposed geometry:

- Existing 2016 plus Project conditions;
- Opening Year 2021 without Project conditions; and
- Opening Year 2021 with Project conditions.

7.1 Existing 2016 Plus Project Intersection Analysis

Table 6 summarizes the AM and PM peak hour intersection operations analysis results for Existing 2016 plus Project conditions, based on existing and future geometry. Appendix G includes the Existing 2016 plus Project conditions intersection operations analysis worksheets, with existing and future geometry.

As shown in Table 6, all study intersections are projected to operate at LOS D or better, except for the following five (5) critical intersections that continue to experience deficient LOS with the diverted traffic conditions:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS E (PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (PM)
18. Douglas Street and Park Place – LOS F (PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM)

As shown on Table 6, all of the five critical intersections will experience improved LOS except for the un-signalized intersection of Douglas Street at Park Place (Intersection #18). There will be no significant project impact at all the study area intersections even though the un-signalized intersection of Douglas Street at Park Place (Intersection #18) is projected to operate at LOS F. Although the City of El Segundo has not established thresholds of significance for stop-controlled intersections, it is recommended that this traffic study utilize the following impact threshold which is used by several jurisdictions to determine significant project impact at an un-signalized study intersection: if one of the minor street approaches is forecast to operate at LOS E or F and the addition of project-generated trips causes an increase in delay of four (4) or more seconds. Even though there is no project traffic impact or cumulative traffic impact, a new traffic signal is recommended at the intersection of Douglas Street at Park Place (Intersection #18) to address the deficient LOS because the City has been receiving complaints about the traffic operations at this location.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

12. Nash Street at Park Place; and
24. Allied Way at Park Place.

Table 6 (1 of 2)

**Existing 2016 Plus Project Conditions Intersection and Impact Analysis Summary,
Without and With Traffic Diversion to Park Place Extension**

Intersection			Existing Conditions				Existing 2016 Plus Project Conditions				Project Change		Project Impact
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak	
No.	Name	Type ¹	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS			
1	Sepulveda Blvd / El Segundo Blvd	TS	38.2	D	84.5	F	37.4	D	83.8	F	-0.8	-0.7	No
2	Sepulveda Blvd / Hughes Wy	TS	8.3	A	25.2	C	7.8	A	22.0	C	-0.5	-3.2	No
3	Sepulveda Blvd / Park Pl	TS	6.2	A	10.8	B	8.3	A	11.7	B	2.1	0.9	No
4	Sepulveda Blvd / Rosecrans Ave	TS	40.4	D	79.8	E	35.8	D	78.5	E	-4.6	-1.3	No
5	Sepulveda Blvd / Marine Ave	TS	53.5	D	32.9	C	53.5	D	32.9	C	0.0	0.0	No
6	Plaza El Segundo Acces / Park Pl	TS	0.181	A	0.387	A	0.179	A	0.341	A	-0.002	-0.046	No
7	Village Dr / Rosecrans Ave	TS	0.497	A	0.703	C	0.481	A	0.646	B	-0.016	-0.057	No
8	Cedar Ave / Marine Ave	TS	0.480	A	0.610	B	0.480	A	0.610	B	0.000	0.000	No
9	Continental Blvd / El Segundo Blvd	TS	0.445	A	0.406	A	0.442	A	0.401	A	-0.003	-0.005	No
10	Allied Way / Hughes Wy	TS	0.199	A	0.288	A	0.410	A	0.335	A	0.211	0.047	No
11	Nash St / El Segundo Blvd	TS	0.513	A	0.503	A	0.511	A	0.501	A	-0.002	-0.002	No
12	Nash St / Park Pl •With Traffic Signal	AWS	7.7	A	8.6	A	8.8	A	10.5	B	1.1	1.9	No
		TS					0.139	A	0.257	A	N/A	N/A	No
13	Nash St / Rosecrans Ave	TS	0.428	A	0.575	A	0.423	A	0.534	A	-0.005	-0.041	No
14	Apollo St / Park Pl	AWS	8.8	A	10.6	B	9.7	A	13.8	B	0.9	3.2	No
15	Apollo St / Rosecrans Ave	TS	0.487	A	0.659	B	0.499	A	0.670	B	0.012	0.011	No
16	Douglas St / El Segundo Blvd	TS	0.710	C	0.813	D	0.708	C	0.818	D	-0.002	0.005	No
17	Douglas St / Transit Center	TS	0.357	A	0.383	A	0.361	A	0.391	A	0.004	0.008	No
18	Douglas St / Park Pl •With Traffic Signal	AWS	22.0	C	54.2	F	23.3	C	57.2	F	1.3	3.0	No
		TS					0.292	A	0.575	A	N/A	N/A	No
19	Douglas St / Rosecrans Ave	TS	0.658	B	0.765	C	0.657	B	0.765	C	-0.001	0.000	No
20	Aviation Blvd / El Segundo Blvd	TS	0.860	D	0.890	D	0.860	D	0.890	D	0.000	0.000	No
21	Aviation Blvd / Utah Ave	TS	0.912	E	0.788	C	0.912	E	0.788	C	0.000	0.000	No
22	Aviation Blvd / Alaska Ave	TS	0.577	A	0.722	C	0.577	A	0.722	C	0.000	0.000	No
23	Aviation Blvd / Rosecrans Ave	TS	0.917	E	0.879	D	0.917	E	0.879	D	0.000	0.000	No

Table 6 (2 of 2)

Existing 2016 Plus Project Conditions Intersection and Impact Analysis Summary,
Without and With Traffic Diversion to Park Place Extension

Intersection			Existing Conditions				Existing 2016 Plus Project Conditions				Project Change		Project Impact
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak	
No.	Name	Type ¹	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS			
24	Allied Way / Park Pl	TS					0.099	A	0.201	A	0.099	0.201	No
	•With Roundabout	RBT					4.1	A	5.3	A	4.100	5.300	No
	•With SB Stop	TWS					9.5	A	12.5	B	9.500	12.500	No

Note

- ¹ Intersection Type: TS = Traffic Signal; AWS = All-Way Stop; TWS = Two-Way Stop; RBT = Roundabout
- ² Signalized Intersections: Intersection Capacity Utilization (ICU) Analysis Method, Volume/Capacity (V/C) Ratio
State Highway & Unsignalized Intersections: Highway Capacity Manual (HCM) Analysis Method, Average Delay (seconds)

7.2 Opening Year 2021 Without Project Intersection Analysis

Table 7 summarizes the AM and PM peak hour intersection operations analysis results for Opening Year 2021 without Project conditions, based on existing geometry. Appendix H includes the Opening Year 2021 without Project conditions intersection operations analysis worksheets, with existing geometry.

As shown in Table 7, all study intersections are projected to operate at LOS D or better, except for the following ten (10) intersections:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (AM, PM)
2. Sepulveda Boulevard at Hughes Way – LOS E (PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (AM), LOS F (PM)
5. Sepulveda Boulevard at Marine Avenue – LOS F (AM), LOS E (PM)
11. Nash Street at Sepulveda Boulevard – LOS E (AM), LOS F (PM)
16. Douglas Street at El Segundo Boulevard – LOS F (AM, PM)
18. Douglas Street and Park Place – LOS F (PM)
20. Aviation Boulevard at El Segundo Boulevard – LOS F (AM, PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM, PM)

7.3 Opening Year 2021 With Project Intersection Analysis

Table 7 summarizes the AM and PM peak hour intersection operations analysis results for Opening Year 2021 with Project conditions, based on existing and future intersection geometry. Appendix I includes the Opening Year 2021 with Project conditions intersection operations analysis worksheets, with existing and future geometry.

As shown in Table 7, all study intersections are projected to operate at LOS D or better, except for the following nine (9) critical intersections that continue to experience deficient LOS with the diverted traffic conditions:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (AM, PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (AM), LOS F (PM)
5. Sepulveda Boulevard at Marine Avenue – LOS F (AM), LOS E (PM)
11. Nash Street at Sepulveda Boulevard – LOS E (AM), LOS F (PM)
16. Douglas Street at El Segundo Boulevard – LOS F (AM, PM)
18. Douglas Street and Park Place – LOS F (PM)
20. Aviation Boulevard at El Segundo Boulevard – LOS F (AM, PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM, PM)

As shown on Table 7, all of the critical intersections will experience improved LOS except for the un-signalized intersection of Douglas Street at Park Place (Intersection #18). There will be no significant project impact at all the study area intersections even though the un-signalized intersection of Douglas Street at Park Place (Intersection #18) is projected to operate at LOS F. Although the City of El Segundo has not established thresholds of significance for stop-controlled intersections, it is recommended that this traffic study utilize the following impact threshold which is used by several jurisdictions to determine significant project impact at an un-signalized study intersection: if one of the minor street approaches is forecast to operate at LOS E or F and the addition of project-generated trips causes an increase in delay of four (4) or more seconds. Even

though there is no project traffic impact or cumulative traffic impact, a new traffic signal is recommended at the intersection of Douglas Street at Park Place (Intersection #18) to address the deficient LOS because the City has been receiving complaints about the traffic operations at this location.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

- 12. Nash Street at Park Place; and
- 24. Allied Way at Park Place.

Table 7 (1 of 2)

**Opening Year 2021 With Project Conditions Intersection and Impact Analysis Summary,
Without and With Traffic Diversion to Park Place Extension**

Intersection			OY2021 Plus Cumulative Conditions				OY2021 Plus Cumulative and Project Conditions				Project Change		Project Impact
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak	
No.	Name	Type ¹	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS			
1	Sepulveda Blvd / El Segundo Blvd	TS	129.5	F	149.0	F	127.9	F	146.8	F	-1.6	-2.2	No
2	Sepulveda Blvd / Hughes Wy	TS	15.4	B	57.1	E	14.3	B	47.4	D	-1.1	-9.7	No
3	Sepulveda Blvd / Park Pl	TS	8.9	A	17.4	B	15.5	B	16.0	B	6.6	-1.4	No
4	Sepulveda Blvd / Rosecrans Ave	TS	67.8	E	136.7	F	58.6	E	135.2	F	-9.2	-1.5	No
5	Sepulveda Blvd / Marine Ave	TS	112.3	F	62.4	E	112.3	F	62.4	E	0.0	0.0	No
6	Plaza El Segundo Acces / Park Pl	TS	0.182	A	0.390	A	0.180	A	0.343	A	-0.002	-0.047	No
7	Village Dr / Rosecrans Ave	TS	0.514	A	0.761	C	0.495	A	0.690	B	-0.019	-0.071	No
8	Cedar Ave / Marine Ave	TS	0.492	A	0.627	B	0.492	A	0.627	B	0.000	0.000	No
9	Continental Blvd / El Segundo Blvd	TS	0.557	A	0.646	B	0.555	A	0.640	B	-0.002	-0.006	No
10	Allied Way / Hughes Wy	TS	0.448	A	0.432	A	0.651	B	0.401	A	0.203	-0.031	No
11	Nash St / El Segundo Blvd	TS	0.931	E	1.104	F	0.929	E	1.102	F	-0.002	-0.002	No
12	Nash St / Park Pl •With Traffic Signal	AWS	7.8	A	8.7	A	9.2	A	11.3	B	1.4	2.6	No
		TS					0.163	A	0.287	A	N/A	N/A	No
13	Nash St / Rosecrans Ave	TS	0.458	A	0.617	B	0.434	A	0.550	A	-0.024	-0.067	No
14	Apollo St / Park Pl	AWS	8.8	A	10.7	B	10.2	B	15.0	B	1.4	4.3	No
15	Apollo St / Rosecrans Ave	TS	0.524	A	0.701	C	0.537	A	0.716	C	0.013	0.015	No
16	Douglas St / El Segundo Blvd	TS	1.219	F	1.137	F	1.217	F	1.143	F	-0.002	0.006	No
17	Douglas St / Transit Center	TS	0.363	A	0.390	A	0.368	A	0.398	A	0.005	0.008	No
18	Douglas St / Park Pl •With Traffic Signal	AWS	23.9	C	55.0	F	25.4	D	57.3	F	1.5	2.3	No
		TS					0.296	A	0.586	A	N/A	N/A	No
19	Douglas St / Rosecrans Ave	TS	0.685	B	0.809	D	0.684	B	0.809	D	-0.001	0.000	No
20	Aviation Blvd / El Segundo Blvd	TS	1.324	F	1.199	F	1.324	F	1.199	F	0.000	0.000	No
21	Aviation Blvd / Utah Ave	TS	0.988	E	0.880	D	0.988	E	0.880	D	0.000	0.000	No
22	Aviation Blvd / Alaska Ave	TS	0.649	B	0.793	C	0.649	B	0.793	C	0.000	0.000	No
23	Aviation Blvd / Rosecrans Ave	TS	0.969	E	0.933	E	0.969	E	0.933	E	0.000	0.000	No

Table 7 (2 of 2)

**Opening Year 2021 With Project Conditions Intersection and Impact Analysis Summary,
Without and With Traffic Diversion to Park Place Extension**

Intersection			OY2021 Plus Cumulative Conditions				OY2021 Plus Cumulative and Project Conditions				Project Change		Project Impact
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak	
No.	Name	Type ¹	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS	V/C / Delay ²	LOS			
24	Allied Way / Park PI (Alt 1A)	TS					0.133	A	0.231	A	0.133	0.231	No
	•With Roundabout	RBT					4.3	A	5.5	A	4.300	5.500	No
	•With SB Stop	TWS					10.4	B	16.4	C	10.400	16.400	No

Note

- ¹ Intersection Type: TS = Traffic Signal; AWS = All-Way Stop; RBT = Roundabout
- ² Signalized Intersections: Intersection Capacity Utilization (ICU) Analysis Method, Volume/Capacity (V/C) Ratio
State Highway & Unsignalized Intersections: Highway Capacity Manual (HCM) Analysis Method, Average Delay (seconds)

8.0 CONCLUSIONS

The City of El Segundo (City) proposes to extend Park Place from Allied Way to Nash Street with a railroad grade separation to implement a critical project improving traffic and circulation in the project area. Park Place currently exists in two segments with a roughly quarter mile gap across an undeveloped area which consists of Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe (BNSF) railroad spurs. The project would implement a gap closure to develop Park Place as an alternate east-west route between Sepulveda Boulevard and Douglas Street to relieve congestion along portions of Rosecrans Avenue and Sepulveda Boulevard, as well as to improve local traffic circulation and access to and from the I-105 freeway. The proposed project is anticipated to be completed and operational in year 2021.

The potential amount of traffic diversion, due to the construction of the Park Place Extension project, is estimated based on identifying currently congested intersection locations where existing traffic may want to avoid by using the new Park Place Extension as an alternate travel route. For intersection locations where there are available traffic capacities, potential traffic diversion may also occur along these alternate routes in combination with the new Park Place Extension to utilize the excess capacities and avoiding congested intersections.

Based on the existing 2016 conditions traffic analysis, it highlights the following five (5) critical intersections that are experiencing LOS E or worse:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (PM)
18. Douglas Street and Park Place – LOS F (PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM)

Therefore, the existing traffic may potentially want to avoid these critical intersections if the Park Place Extension project is constructed. The amount of traffic diversion is estimated based on the following considerations:

- For an intersection that experiences deficient operations (LOS E or F), a significant amount of existing traffic movement may be assumed to divert to the new Park Place Extension, if there is an alternate route with excess capacity.
- For an intersection that continues to operate at satisfactory operations or below deficient operations (LOS A through D), none or a very low amount of existing traffic may be assumed to divert to the new Park Place Extension.

8.1 Traffic Signal Warrant Analysis Results

A traffic signal is currently warranted at the intersection of Douglas Street and Park Place [#6] based on existing 2016 conditions. Since the intersection of Douglas Street and Park Place (Intersection #18) is currently warranted for a traffic signal based on existing 2016 traffic conditions, a new traffic signal should be considered because the City has been receiving complaints about the traffic operations at this location. For all other locations, no traffic signals are warranted for existing and future traffic conditions.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

- 12. Nash Street at Park Place; and
- 24. Allied Way at Park Place.

8.2 Intersection Analysis Results

For existing 2016 traffic conditions, all study intersections are operating at acceptable LOS D or better for existing 2016 conditions, except for the following five (5) intersections:

- 1. Sepulveda Boulevard at El Segundo Boulevard – LOS F (PM)
- 4. Sepulveda Boulevard at Rosecrans Avenue – LOS E (PM)
- 18. Douglas Street at Park Place – LOS F (PM)
- 21. Aviation Boulevard at Utah Avenue/135th Street – LOS E (AM)
- 23. Aviation Boulevard at Rosecrans Avenue – LOS E (AM)

For Existing 2016 plus Project conditions, all study intersections are projected to operate at LOS D or better, except for the following five (5) critical intersections that continue to experience deficient LOS with the diverted traffic conditions:

- 1. Sepulveda Boulevard and El Segundo Boulevard – LOS E (PM)
- 4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (PM)
- 18. Douglas Street and Park Place – LOS F (PM)
- 21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
- 23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM)

All of the five critical intersections will experience improved LOS except for the un-signalized intersection of Douglas Street at Park Place (Intersection #18). There will be no significant project impact at all the study area intersections even though the un-signalized intersection of Douglas Street at Park Place (Intersection #18) is projected to operate at LOS F. The City has been receiving complaints about the traffic operations at this location. Although the City of El Segundo has not established thresholds of significance for stop-controlled intersections, it is recommended that this traffic study utilize the following impact threshold which is used by several jurisdictions to determine significant project impact at an un-signalized study intersection: if one of the minor street approaches is forecast to operate at LOS E or F and the addition of project-generated trips causes an increase in delay of four (4) or more seconds. Even though there is no project traffic impact or cumulative traffic impact, a new traffic signal is recommended at the intersection of Douglas Street at Park Place (Intersection #18) to address the deficient LOS because the City has been receiving complaints about the traffic operations at this location.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

- 12. Nash Street at Park Place; and
- 24. Allied Way at Park Place.

For Opening Year 2021 without Project conditions, all study intersections are projected to operate at LOS D or better, except for the following ten (10) intersections:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (AM, PM)
2. Sepulveda Boulevard at Hughes Way – LOS E (PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (AM), LOS F (PM)
5. Sepulveda Boulevard at Marine Avenue – LOS F (AM), LOS E (PM)
11. Nash Street at Sepulveda Boulevard – LOS E (AM), LOS F (PM)
16. Douglas Street at El Segundo Boulevard – LOS F (AM, PM)
18. Douglas Street and Park Place – LOS F (PM)
20. Aviation Boulevard at El Segundo Boulevard – LOS F (AM, PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM, PM)

For Opening Year 2021 with Project conditions, all study intersections are projected to operate at LOS D or better, except for the following nine (9) critical intersections that continue to experience deficient LOS with the diverted traffic conditions:

1. Sepulveda Boulevard and El Segundo Boulevard – LOS F (AM, PM)
4. Sepulveda Boulevard and Rosecrans Avenue – LOS E (AM), LOS F (PM)
5. Sepulveda Boulevard at Marine Avenue – LOS F (AM), LOS E (PM)
11. Nash Street at Sepulveda Boulevard – LOS E (AM), LOS F (PM)
16. Douglas Street at El Segundo Boulevard – LOS F (AM, PM)
18. Douglas Street and Park Place – LOS F (PM)
20. Aviation Boulevard at El Segundo Boulevard – LOS F (AM, PM)
21. Aviation Boulevard and Utah Avenue/135th Street – LOS E (AM)
23. Aviation Boulevard and Rosecrans Avenue – LOS E (AM, PM)

All of the critical intersections will experience improved LOS except for the un-signalized intersection of Douglas Street at Park Place (Intersection #18). There will be no significant project impact at all the study area intersections even though the un-signalized intersection of Douglas Street at Park Place (Intersection #18) is projected to operate at LOS F. Even though there is no project traffic impact or cumulative traffic impact, a new traffic signal is recommended at the intersection of Douglas Street at Park Place (Intersection #18) to address the deficient LOS because the City has been receiving complaints about the traffic operations at this location.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

12. Nash Street at Park Place; and
24. Allied Way at Park Place.

8.3 Recommended Improvements

Even though there is no project traffic impact or cumulative traffic impact, a new traffic signal is recommended at the intersection of Douglas Street at Park Place (Intersection #18) to address the deficient LOS because the City has been receiving complaints about the traffic operations at

this location. A traffic signal is currently warranted at the intersection of Douglas Street at Park Place (Intersection #18) based on existing 2016 traffic conditions.

Since the two intersections (#12 and #24) located at both ends of the proposed Park Place Extension project are forecasted NOT to be warranted for a traffic signal based on future traffic conditions, these two intersections should initially be stop-controlled and monitored to determine if the actual traffic count satisfies the signal warrants:

- 12. Nash Street at Park Place; and
- 24. Allied Way at Park Place.