Appendix J
Traffic Impact Analysis

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CITY OF TORRANCE
GENERAL PLAN UPDATE
TRAFFIC IMPACT ANALYSIS

DRAFT

Prepared for

THE PLANNING CENTER

Prepared by

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April 28, 2009

JN 10-106570

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EXECUTIVE SUMMARY

This study analyzes forecast traffic conditions associated with the proposed General Plan Update project in the City of Torrance. The proposed General Plan Update project consists of an overall increase citywide of 2,593 residential dwelling units and a reduction citywide of 343,044 square feet of non-residential land uses.

Mitigation measures are identified at the following five impacted study intersections to reduce traffic impacts to a level considered less than significant for forecast existing plus proposed General Plan Update conditions:

- Anza Avenue/Sepulveda Boulevard;
- Crenshaw Boulevard/190th Street;
- Crenshaw Boulevard/Pacific Coast Highway (SR-1);
- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard; and
- Hawthorne Boulevard (SR-107)/Lomita Boulevard.

INTRODUCTION

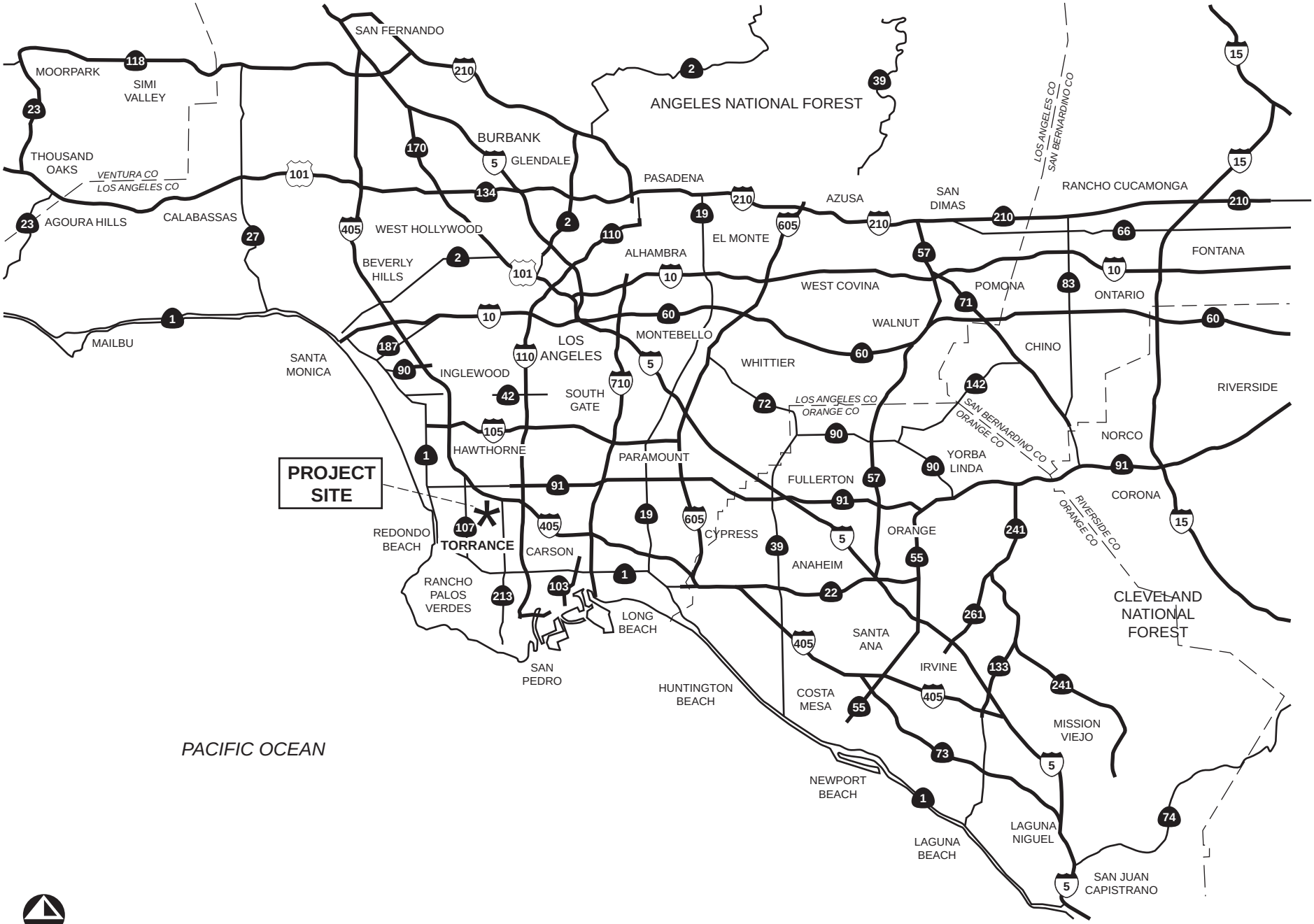
This study analyzes forecast traffic conditions associated with the proposed General Plan Update project in the City of Torrance. The proposed General Plan Update project consists of an overall increase citywide of 2,593 residential dwelling units and a reduction citywide of 343,044 square feet of non-residential land uses.

Exhibit 1 shows the regional location of the project study area.

Study Area

This study evaluates the following 100 signalized intersections in the City of Torrance identified by City staff shown in Exhibit 2:

1. Amie Avenue/Torrance Boulevard (Area 4);
2. Anza Avenue/190th Street (Area 3);
3. Anza Avenue/Del Amo Boulevard (Area 3);
4. Anza Avenue/Spencer Street (Area 3);
5. Anza Avenue/Emerald Street (Area 3);
6. Anza Avenue/Torrance Boulevard (Area 6);
7. Anza Avenue/Carson Street (Area 6);
8. Anza Avenue/Sepulveda Boulevard (Area 6);
9. Anza Avenue/Lomita Boulevard (Area 9);
10. Anza Avenue/Calle Mayor (Area 9);
11. Anza Avenue/Pacific Coast Highway (SR-1) (Area 9);
12. Arlington Avenue/Carson Street (Area 5);
13. Arlington Avenue/Plaza Del Amo-Washington Avenue (Area 8);
14. Arlington Avenue/Sepulveda Boulevard (Area 8);
15. Arlington Avenue/235th Street (Area 8);
16. Cabrillo Avenue/Carson Street (Area 5);
17. Cabrillo Avenue/Sepulveda Boulevard (Area 8);
18. Cabrillo Avenue-Van Ness Avenue/Torrance Boulevard (Area 5);
19. Calle Mayor/Pacific Coast Highway (SR-1) (Area 9);
20. Crenshaw Boulevard/Redondo Beach Boulevard (Area 2);
21. Crenshaw Boulevard/Artesia Boulevard (Area 2);
22. Crenshaw Boulevard/182nd Street (Area 2);
23. Crenshaw Boulevard/190th Street (Area 4);



Not to Scale

Regional Project Location

Exhibit 1

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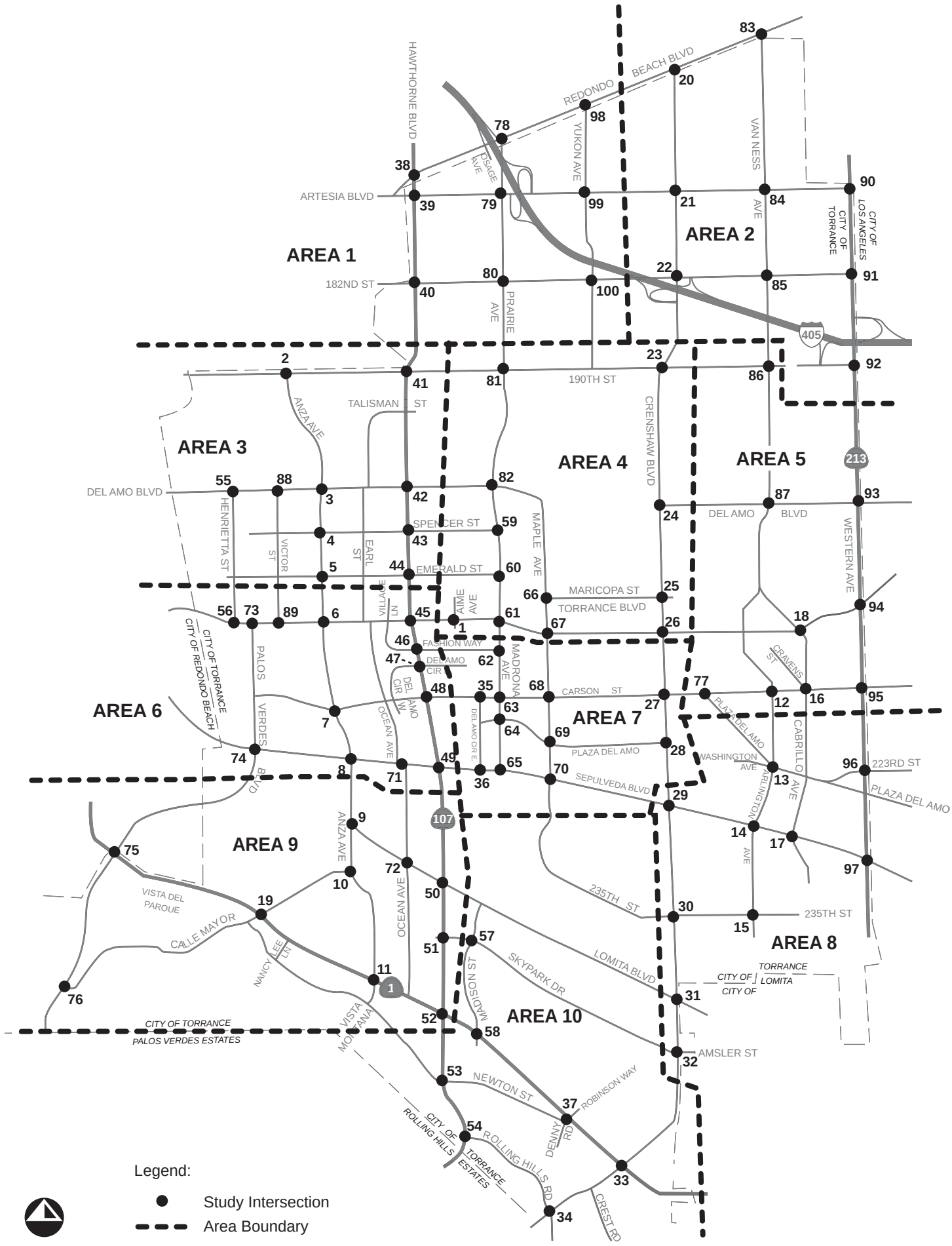

City of Torrance General Plan Update Study Intersection Locations

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Exhibit 2

24. Crenshaw Boulevard/Del Amo Boulevard (Area 4);
25. Crenshaw Boulevard/Maricopa Street (Area 4);
26. Crenshaw Boulevard/Torrance Boulevard (Area 4);
27. Crenshaw Boulevard/Carson Street (Area 7);
28. Crenshaw Boulevard/Plaza Del Amo (Area 7);
29. Crenshaw Boulevard/Sepulveda Boulevard (Area 8);
30. Crenshaw Boulevard/235th Street (Area 8);
31. Crenshaw Boulevard/Lomita Boulevard (Area 8);
32. Crenshaw Boulevard/Skypark Drive-Amsler Street (Area 8);
33. Crenshaw Boulevard/Pacific Coast Highway (SR-1) (Area 10);
34. Crenshaw Boulevard/Rolling Hills Road (Area 10);
35. Del Amo Circle East/Carson Street (Area 7);
36. Del Amo Circle East/Sepulveda Boulevard (Area 7);
37. Denny Road-Robinson Avenue/Pacific Coast Highway (SR-1) (Area 10);
38. Hawthorne Boulevard (SR-107)/Redondo Beach Boulevard (Area 1);
39. Hawthorne Boulevard (SR-107)/Artesia Boulevard (Area 1);
40. Hawthorne Boulevard (SR-107)/182nd Street (Area 1);
41. Hawthorne Boulevard (SR-107)/190th Street (Area 3);
42. Hawthorne Boulevard (SR-107)/Del Amo Boulevard (Area 3);
43. Hawthorne Boulevard (SR-107)/Spencer Street (Area 3);
44. Hawthorne Boulevard (SR-107)/Emerald Street (Area 3);
45. Hawthorne Boulevard (SR-107)/Torrance Boulevard (Area 6);
46. Hawthorne Boulevard (SR-107)/Village Lane-Fashion Way (Area 6);
47. Hawthorne Boulevard (SR-107)/Del Amo Circle-Del Amo Circle North (Area 6);
48. Hawthorne Boulevard (SR-107)/Carson Street (Area 6);
49. Hawthorne Boulevard (SR-107)/Sepulveda Boulevard (Area 6);
50. Hawthorne Boulevard (SR-107)/Lomita Boulevard (Area 9);
51. Hawthorne Boulevard (SR-107)/Skypark Drive (Area 9);
52. Hawthorne Boulevard (SR-107)/Pacific Coast Highway (SR-1) (Area 9);
53. Hawthorne Boulevard (SR-107)/Newton Street (Area 10);
54. Hawthorne Boulevard (SR-107)/Rolling Hills Road (Area 10);
55. Henrietta Street/Del Amo Boulevard (Area 3);
56. Henrietta Street/Torrance Boulevard (Area 6);
57. Madison Street/Skypark Drive (Area 10);

58. Madison Street/Pacific Coast Highway (SR-1) (Area 10);
59. Madrona Avenue/Spencer Street (Area 4);
60. Madrona Avenue/Emerald Street (Area 4);
61. Madrona Avenue/Torrance Boulevard (Area 4);
62. Madrona Avenue/Fashion Way (Area 7);
63. Madrona Avenue/Carson Street (Area 7);
64. Madrona Avenue/Plaza Del Amo (Area 7);
65. Madrona Avenue/Sepulveda Boulevard (Area 7);
66. Maple Avenue/Maricopa Street (Area 4);
67. Maple Avenue/Torrance Boulevard (Area 4);
68. Maple Avenue/Carson Street (Area 7);
69. Maple Avenue/Plaza Del Amo (Area 7);
70. Maple Avenue/Sepulveda Boulevard (Area 7);
71. Ocean Avenue/Sepulveda Boulevard (Area 6);
72. Ocean Avenue/Lomita Boulevard (Area 9);
73. Palos Verdes Boulevard/Torrance Boulevard (Area 6);
74. Palos Verdes Boulevard/Sepulveda Boulevard (Area 6);
75. Palos Verdes Boulevard/Pacific Coast Highway (SR-1) (Area 9);
76. Palos Verdes Boulevard/Calle Mayor (Area 9);
77. Plaza Del Amo/Carson Street (Area 5);
78. Prairie Avenue/Redondo Beach Boulevard (Area 1);
79. Prairie Avenue/Artesia Boulevard (Area 1);
80. Prairie Avenue/182nd Street (Area 1);
81. Prairie Avenue/190th Street (Area 4);
82. Prairie Avenue/Del Amo Boulevard (Area 4);
83. Van Ness Avenue/Redondo Beach Boulevard (Area 2);
84. Van Ness Avenue/Artesia Boulevard (Area 2);
85. Van Ness Avenue/182nd Street (Area 2);
86. Van Ness Avenue/190th Street (Area 5);
87. Van Ness Avenue/Del Amo Boulevard (Area 5);
88. Victor Street/Del Amo Boulevard (Area 3);
89. Victor Street/Torrance Boulevard (Area 6);
90. Western Avenue (SR-213)/Artesia Boulevard (Area 2);
91. Western Avenue (SR-213)/182nd Street (Area 2);
92. Western Avenue (SR-213)/190th Street (Area 2);

93. Western Avenue (SR-213)/Del Amo Boulevard (Area 5);
94. Western Avenue (SR-213)/Torrance Boulevard (Area 5);
95. Western Avenue (SR-213)/Carson Street (Area 5);
96. Western Avenue (SR-213)/223rd Street (Area 8);
97. Western Avenue (SR-213)/Sepulveda Boulevard (Area 8);
98. Yukon Avenue/Redondo Beach Boulevard (Area 1);
99. Yukon Avenue/Artesia Boulevard (Area 1); and
100. Yukon Avenue/182nd Street (Area 1).

The study intersections are analyzed for the following study scenarios:

- Existing Conditions; and
- Forecast Existing Plus Proposed General Plan Update Conditions.

Analysis Methodology

Level of service (LOS) is commonly used as a qualitative description of intersection operation and is based on the type of traffic control and delay experienced at the intersection. This study summarizes LOS operation of the study intersection using both the 2000 Highway Capacity Manual (*HCM*) analysis methodology and the Intersection Capacity Utilization (*ICU*) analysis methodology.

***HCM* Intersection Analysis**

The *2000 HCM* analysis methodology describes the operation of an 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 shown in Table 1.

Table 1
***HCM* LOS & Delay Ranges**
for Signalized Intersections

LOS	Delay (seconds/vehicle)
A	$\leq$ 10.0
B	> 10.0 $\leq$ 20.0
C	> 20.0 $\leq$ 35.0
D	> 35.0 $\leq$ 55.0
E	> 55.0 $\leq$ 80.0
F	> 80.0

Source: *2000 Highway Capacity Manual*

Level of service is based on the average stopped delay per vehicle for all movements of signalized intersections.

ICU Intersection Analysis

The *ICU* intersection analysis methodology describes the operation of a signalized intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on corresponding volume/capacity (V/C) ratios shown in Table 2.

Table 2
***ICU* LOS & V/C Ratios**
for Signalized Intersections

LOS	V/C Ratio
A	$\leq$ 0.60
B	> 0.60 $\leq$ 0.70
C	> 0.70 $\leq$ 0.80
D	> 0.80 $\leq$ 0.90
E	> 0.90 $\leq$ 1.00
F	> 1.00

Source: *1990 Transportation Research Board*

Performance Criteria

The City of Torrance target for peak hour intersection operation is LOS D or better.

City of Torrance Thresholds of Significance:

The City of Torrance requires significant impacts to be determined based on the *HCM* analysis; the *ICU* analysis is provided for informational purposes only

To determine whether the addition of project-generated trips at a study intersection results in a significant impact, the City of Torrance has established the following thresholds of significance:

- A significant project-related impact occurs at a study intersection if the addition of project-generated trips reduces 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) based on the *HCM* methodology; or
- A significant impact occurs at a study intersection if the addition of project-generated trips increases the delay at an intersection already operating at a deficient LOS (LOS E or F) based on the *HCM* methodology.

Mitigation Measures

If mitigation measures are required to address significant impacts based on *HCM* methodology, City of Torrance requires mitigation measures improve facility operation to an acceptable LOS (LOS D or better) if the facility is operating at an acceptable LOS (LOS D or better) during pre-project conditions. However, if the facility is operating at a deficient LOS (LOS E or worse) during pre-project conditions, City of Torrance requires mitigation measures improve the vehicular delay to better than pre-project conditions vehicular delay.

EXISTING CONDITIONS

The characteristics of the study roadway system in the City of Torrance are described below:

182nd Street is a four-lane undivided roadway trending in an east-west direction. 182nd Street is identified in the City of Torrance General Plan as a Minor Arterial. Between I-405 Northbound Ramps and Van Ness Avenue, 182nd Street is a four-lane divided roadway with a continuous left-turn lane. 182nd Street transitions to a two-lane undivided roadway west of Hawthorne Boulevard (SR-107). On-street parking is permitted on segments of 182nd Street.

190th Street varies from a four-lane undivided roadway to a five-lane divided roadway with a continuous left-turn lane trending in an east-west direction. 190th Street is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is prohibited on 190th Street east of Hawthorne Boulevard (SR-107). On-street parking is permitted on the north side of 190th Street west of Hawthorne Boulevard (SR-107).

223rd Street is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. 223rd Street is identified in the City of Torrance General Plan as a Minor Arterial. On-street parking is prohibited on 223rd Street west of Western Avenue (SR-213) and permitted on 223rd Street east of Western Avenue (SR-213).

Amie Avenue is a two-lane undivided discontinuous roadway trending in a north-south direction. Amie Avenue is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Amie Avenue south of Torrance Boulevard. On-street parking is permitted on Amie Avenue north of Torrance Avenue. Amie Avenue terminates on the north at Redondo Beach Boulevard.

Anza Avenue is a four-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Anza Avenue is identified in the City of Torrance General Plan as a Minor Arterial. On-street parking is prohibited on Anza Avenue. Anza Avenue transitions to a four-lane divided roadway with a raised median south of Sepulveda Boulevard; on-street parking is permitted. Anza Avenue terminates on the south at Pacific Coast Highway (SR-1) and on the north at 190th Street.

Arlington Avenue is a two-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Arlington Avenue is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on Arlington Avenue. Arlington Avenue terminates on the north at 190th Street, where it changes name to Van Ness Avenue, and on the south at El Dorado Street.

Artesia Boulevard varies from a four- to six-lane divided roadway with a raised median trending in an east-west direction. Artesia Boulevard is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is prohibited on Artesia Boulevard. Artesia Boulevard terminates on the west at Pacific Coast Highway (SR-1) and on the east at Interstate 60 in Riverside, California.

Cabrillo Avenue is a two-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Cabrillo Avenue is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on Cabrillo Avenue. Cabrillo Avenue terminates on the north at Torrance Boulevard and on the south at 238th Street.

Calle Mayor is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Calle Mayor is identified in the City of Torrance General Plan as a Collector south of Pacific Coast Highway (SR-1) and a Minor Arterial north of Pacific Coast Highway (SR-1). Calle Mayor terminates on the east at Camino De Encanto and on the west at Palos Verdes Boulevard. On-street parking is permitted on Calle Mayor.

Carson Street is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Carson Street is identified in the City of Torrance General Plan as a Minor Arterial west of Hawthorne Boulevard (SR-107) and a Major Arterial east of Hawthorne Boulevard (SR-107). The Del Amo Fashion Center spans Carson Street between Hawthorne Boulevard (SR-107) and Del Amo Circle. Carson Street transitions to a six-lane roadway with a painted median east of the Del Amo Fashion Center. On-street parking is prohibited on Carson Street.

Crenshaw Boulevard varies from a four- to six-lane divided roadway with a continuous left-turn lane to a six-lane divided roadway with a raised median trending in a north-south direction. Crenshaw Boulevard is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is prohibited on Crenshaw Boulevard. On-street parking is permitted on 190th Street.

Del Amo Boulevard is a four-lane divided discontinuous roadway with a raised median trending in an east-west direction. Del Amo Boulevard is identified in the City of Torrance General Plan as a Major Arterial. Del Amo Boulevard transitions to a four-lane undivided roadway west of Madrona and transitions to a four-lane roadway with a continuous left-turn lane west of Hawthorne Boulevard (SR-107). On-street parking is prohibited on Del Amo Boulevard west of Hawthorne Boulevard (SR-107) and east of Madrona Avenue.

Del Amo Circle East is a four-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Del Amo Circle East is identified in the City of Torrance General Plan as a Collector. Del Amo Circle East terminates on the south at Sepulveda Boulevard. Del Amo Circle East provides access to parking for the Del Amo Fashion Center. On-street parking is prohibited on Del Amo Circle East.

Del Amo Circle West is a four-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Del Amo Circle West is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Del Amo Circle West.

Emerald Street is a two-lane undivided roadway trending in an east-west direction. Emerald Street is identified in the City of Torrance General Plan as a Collector. On-street parking is

permitted on Emerald Street, and identified in the City of Torrance General Plan as a Collector. Emerald Street terminates on the west at Henrietta Street and on the east at Madrona Avenue.

Fashion Way is a four-lane undivided roadway trending in an east-west direction. Fashion Way is identified in the City of Torrance General Plan as a Collector. Fashion Way provides access to the Del Amo Fashion Center. On-street parking is prohibited on Fashion Way.

Hawthorne Boulevard (SR-107) is an eight-lane divided roadway with a raised median trending in a north-south direction. Hawthorne Boulevard (SR-107) is identified in the City of Torrance General Plan as a Principal Arterial. On-street parking is prohibited on Hawthorne Boulevard (SR-107). Hawthorne Boulevard (SR-107) provides access to the Del Amo Fashion Center and residential areas from Interstate 405. On-street parking is permitted south of Skypark Drive.

Henrietta Street is a two-lane undivided roadway trending in a north-south direction. Henrietta Street is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on Henrietta Street. Henrietta Street terminates on the north at Del Amo Boulevard and on the south at Torrance Boulevard.

Lomita Boulevard is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Lomita Boulevard is identified in the City of Torrance General Plan as a Minor Arterial west of Hawthorne Boulevard (SR-107) and a Major Arterial east of Hawthorne Boulevard (SR-107). On-street parking is prohibited on Lomita Boulevard. On-street parking is permitted on Lomita Boulevard east of Crenshaw Boulevard. Lomita Boulevard terminates on the west at Anza Avenue.

Madison Street is a two-lane undivided roadway trending in a north-south direction. Madison Street is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on Madison Avenue. Madison Street terminates on the north at Sepulveda Boulevard and on the south at Lomita Boulevard.

Madrona Avenue is a six-lane divided roadway with a raised median trending in a north-south direction. Madrona Avenue is identified in the City of Torrance General Plan as a Major Arterial. Madrona Avenue transitions to a four-lane divided roadway with a raised median south of Carson Street. On-street parking is prohibited on Madrona Avenue. Madrona Avenue terminates on the north at Del Amo Boulevard where it changes name to Prairie Avenue.

Maple Avenue is a four-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Maple Avenue is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Maple Avenue. Maple Avenue is a two-lane divided roadway with a continuous left-turn lane south of Carson Avenue, and a two-lane undivided roadway north of Carson Street. Maple Avenue transitions to a three-lane undivided roadway north of Torrance Avenue.

Maricopa Street is a four-lane undivided discontinuous roadway trending in an east-west direction. Maricopa Street is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on the south side of the Maricopa Street west of Hawthorne Boulevard (SR-107). Maricopa Street transitions to a two-lane undivided roadway east of Hawthorne Boulevard (SR-107). On-street parking is permitted on Maricopa Street east of Hawthorne Boulevard (SR-107).

Newton Street is a two-lane undivided roadway trending in an east-west direction. Newton Street is identified in the City of Torrance General Plan as a Collector. Newton Street

terminates on the west at Calle Mayor and on the east at Pacific Coast Highway (SR-1). On-street parking is permitted on Newton Street.

Pacific Coast Highway (SR-1) is a six-lane divided roadway trending in an east-west direction. Pacific Coast Highway (SR-1) is identified in the City of Torrance General Plan as a Major Arterial. Pacific Coast Highway (SR-1) transitions from a six-lane divided roadway with a continuous left-turn lane to a six-lane roadway divided with a raised median between Crenshaw Boulevard and Hawthorne Boulevard (SR-107). On-street parking is prohibited on Pacific Coast Highway (SR-1).

Palos Verdes Boulevard is a four-lane divided roadway with a raised median trending in a north-south direction. Palos Verdes Boulevard is identified in the City of Torrance General Plan as a Minor Arterial. Palos Verdes Boulevard transitions to a four-lane divided roadway with a continuous left-turn lane south of Pacific Coast Highway (SR-1). On-street parking is prohibited on Palos Verdes Boulevard. Palos Verdes Boulevard terminates on the north at Torrance Boulevard and on the south at Palos Verdes Boulevard N/Palos Verdes Boulevard W.

Plaza Del Amo is a two-lane undivided roadway trending in an east-west direction. Plaza Del Amo is identified in the City of Torrance General Plan as a Minor Arterial. Plaza Del Amo transitions to a four-lane divided roadway with a continuous left-turn lane west of Del Amo Circle East. Parking is prohibited on Del Amo Circle East. On-street parking is prohibited on Plaza Del Amo. Plaza Del Amo is blocked off west of Western Avenue (SR-213) prohibiting through traffic.

Prairie Avenue varies from a four-lane divided roadway with a continuous left-turn lane and a raised median to a six-lane divided roadway with a raised median trending in a north-south direction. Prairie Avenue is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is permitted on the east side of Prairie Avenue north of 182nd Street. Prairie Avenue terminates on the south at Del Amo Boulevard where it changes name to Madrona Avenue.

Redondo Beach Boulevard is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Redondo Beach Boulevard is identified in the City of Torrance General Plan as a Major Arterial. Redondo Beach Boulevard transitions to a four-lane undivided roadway west of Hawthorne Boulevard (SR-107) and terminates on the west at Artesia Boulevard. On-street parking is permitted on the north side of Redondo Beach Boulevard west of Van Ness Avenue.

Rolling Hills Road is a four-lane divided roadway with a raised median trending in an east-west direction and transitions to a four-lane divided roadway trending in a north-south direction east of Crenshaw Boulevard. Rolling Hills Road is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Rolling Hills Road. Rolling Hills Road terminates on the west at Hawthorne Boulevard (SR-107) and on the south at Palos Verdes Drive North.

Sepulveda Boulevard is a six-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Sepulveda Boulevard is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is prohibited on Sepulveda Boulevard. Sepulveda Boulevard terminates on the west at Palos Verdes Boulevard.

Skypark Drive is a four-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Skypark Drive is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Skypark Drive.

Spencer Street is a two-lane undivided roadway trending in an east-west direction. Spencer Street is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on the south side of Spencer Street. Spencer Street terminates on the west at Henrietta Street and on the east at Madrona Avenue.

Torrance Boulevard is a six-lane divided roadway with a continuous left-turn lane trending in an east-west direction. Torrance Boulevard is identified in the City of Torrance General Plan as a Major Arterial. On-street parking is prohibited on Torrance Boulevard east of Anza Avenue and west of Henrietta Street. Torrance Boulevard transitions to a four-lane divided roadway with a painted median east of Prairie Avenue. On-street parking is prohibited on Torrance Boulevard east of Prairie Avenue.

Van Ness Avenue is a four-lane undivided roadway trending in a north-south direction. Van Ness Avenue is identified in the City of Torrance General Plan as a Minor Arterial. On-street parking is permitted on Van Ness Avenue. Van Ness terminates on the south at Torrance Boulevard.

Victor Street is a two-lane undivided roadway trending in a north-south direction. Victor Street is identified in the City of Torrance General Plan as a Collector. On-street parking is permitted on Victor Street. Victor Street terminates on the north at Del Amo Boulevard and on the south at Torrance Boulevard.

Western Avenue (SR-213) is a four-lane divided roadway with a continuous left-turn lane trending in a north-south direction. Western Avenue (SR-213) is identified in the City of Torrance General Plan as a Major Arterial. Western Avenue (SR-213) transitions to a six-lane divided roadway with a continuous left-turn lane between 182nd Street and 190th Street; on-street parking is prohibited. Western Avenue (SR-213) transitions to a five-lane divided roadway with a raised median between Del Amo Boulevard and Carson Street; on-street parking is permitted on the east side of Western Avenue (SR-213) between Del Amo Boulevard and Carson Street. Western Avenue (SR-213) transitions to a four-lane divided roadway with a raised median south of Carson Street; on-street parking is permitted.

Yukon Avenue is a two-lane undivided roadway trending in a north-south direction. Yukon Avenue is identified in the City of Torrance General Plan as a Collector. On-street parking is prohibited on Yukon Avenue. Yukon Avenue terminates on the north at Redondo Beach Boulevard and on the south at 190th Street.

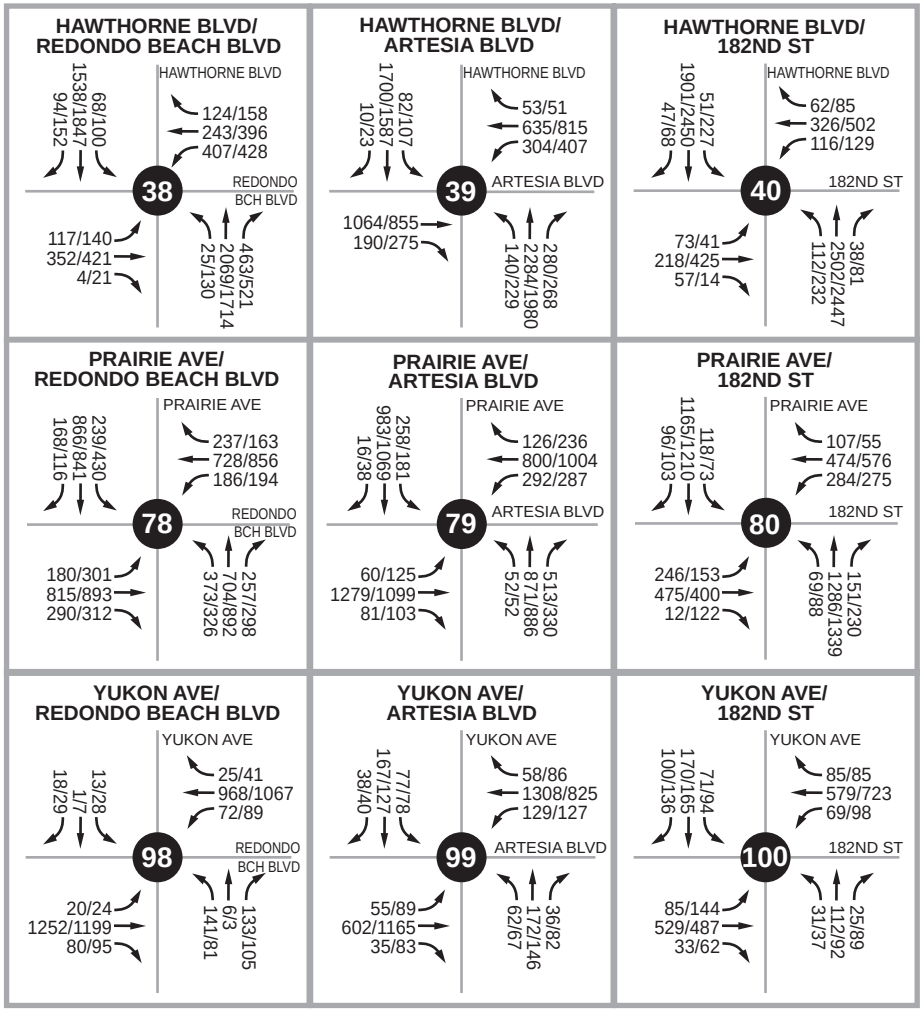
Existing Conditions Traffic Volumes

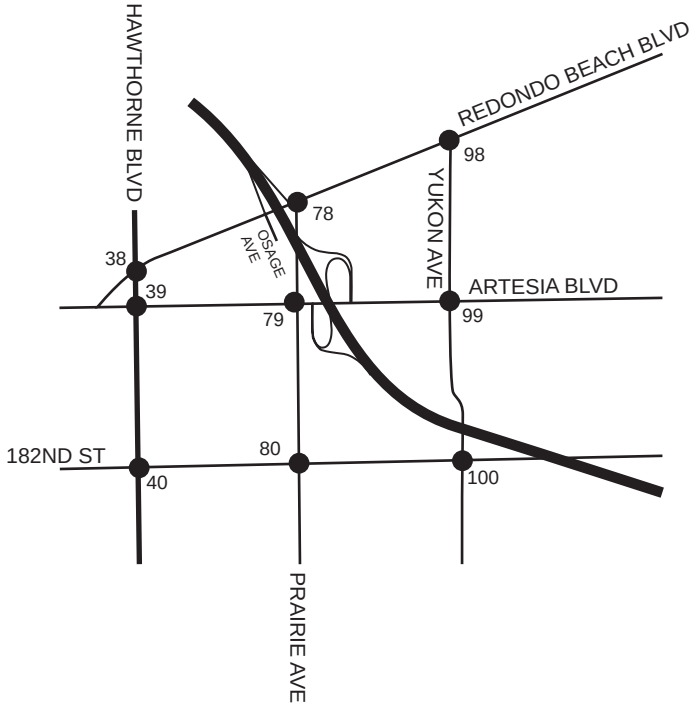
To analyze existing operation of the study intersections, a.m. peak hour and p.m. peak hour intersection movement counts were collected in March 2005 through May 2005 on a typical weekday (Tuesday, Wednesday, or Thursday). The a.m. peak period intersection counts were collected from 7:00 a.m. to 9:00 a.m., and the p.m. peak period intersection counts were collected from 4:00 p.m. to 6:00 p.m. The counts used in this analysis were taken from the highest one hour within the peak period counted; detail traffic count data is contained in Appendix A.

Exhibits 3 through 12 show existing conditions a.m. and p.m. peak hour volumes at the study intersections. Exhibits 13 through 22 show existing study intersection/roadway geometry.

Existing Conditions Peak Hour LOS – *HCM* Methodology

Table 3 summarizes existing conditions a.m. peak hour and p.m. peak hour LOS of the study intersections utilizing the *HCM* analysis methodology; detailed LOS analysis sheets are contained in Appendix B.





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

Area 1 - Existing AM/PM Peak Hour Intersection Volumes

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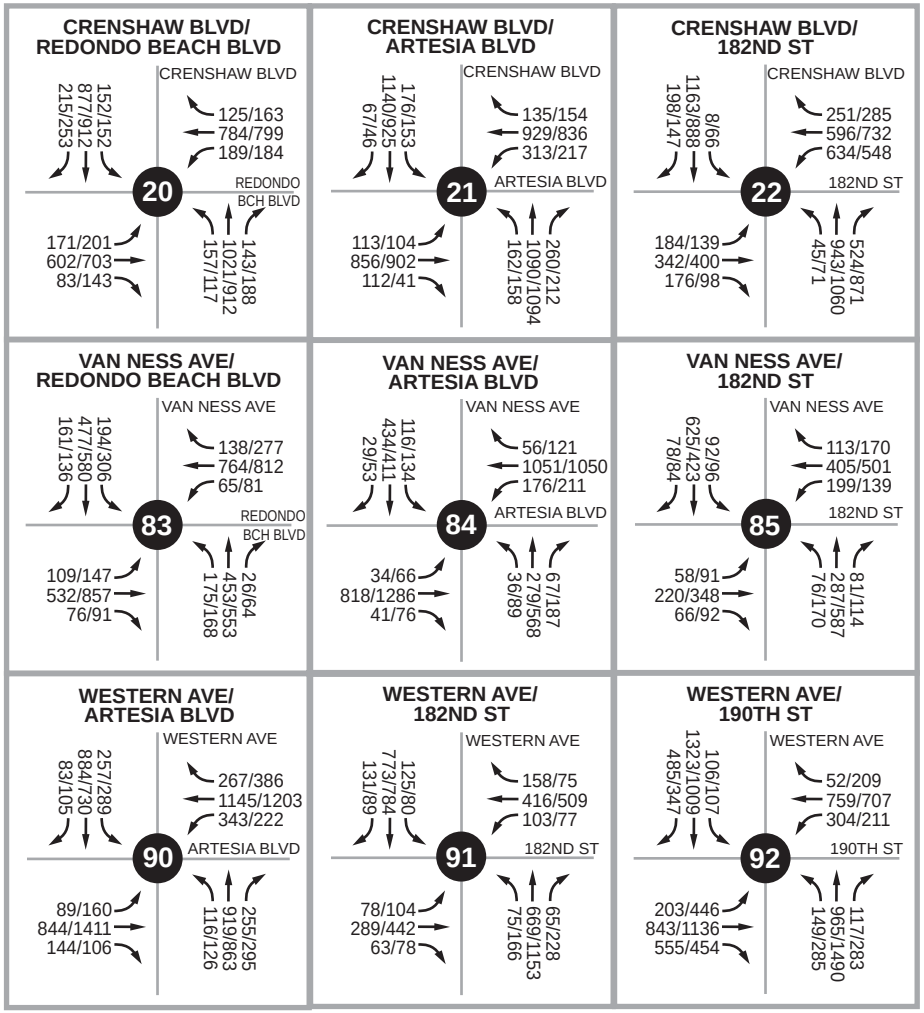
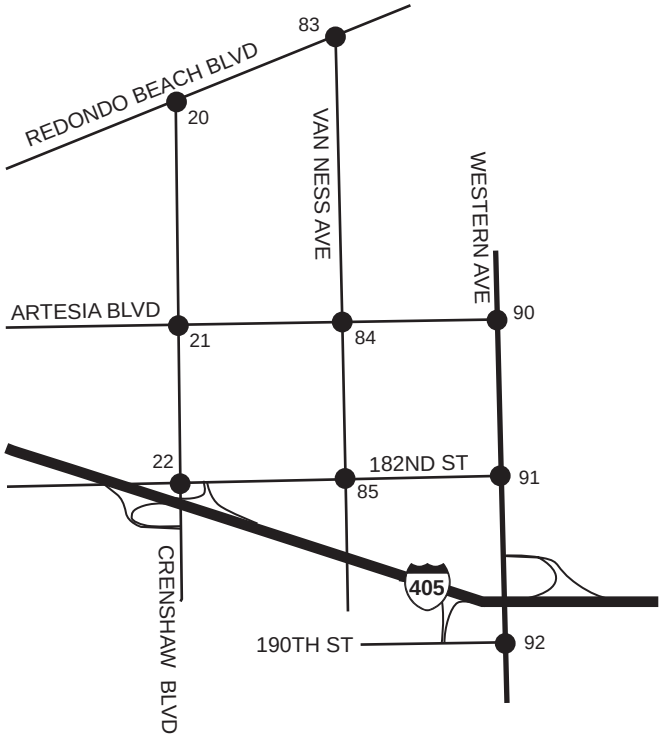
Exhibit 3





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

Area 2 - Existing AM/PM Peak Hour Intersection Volumes

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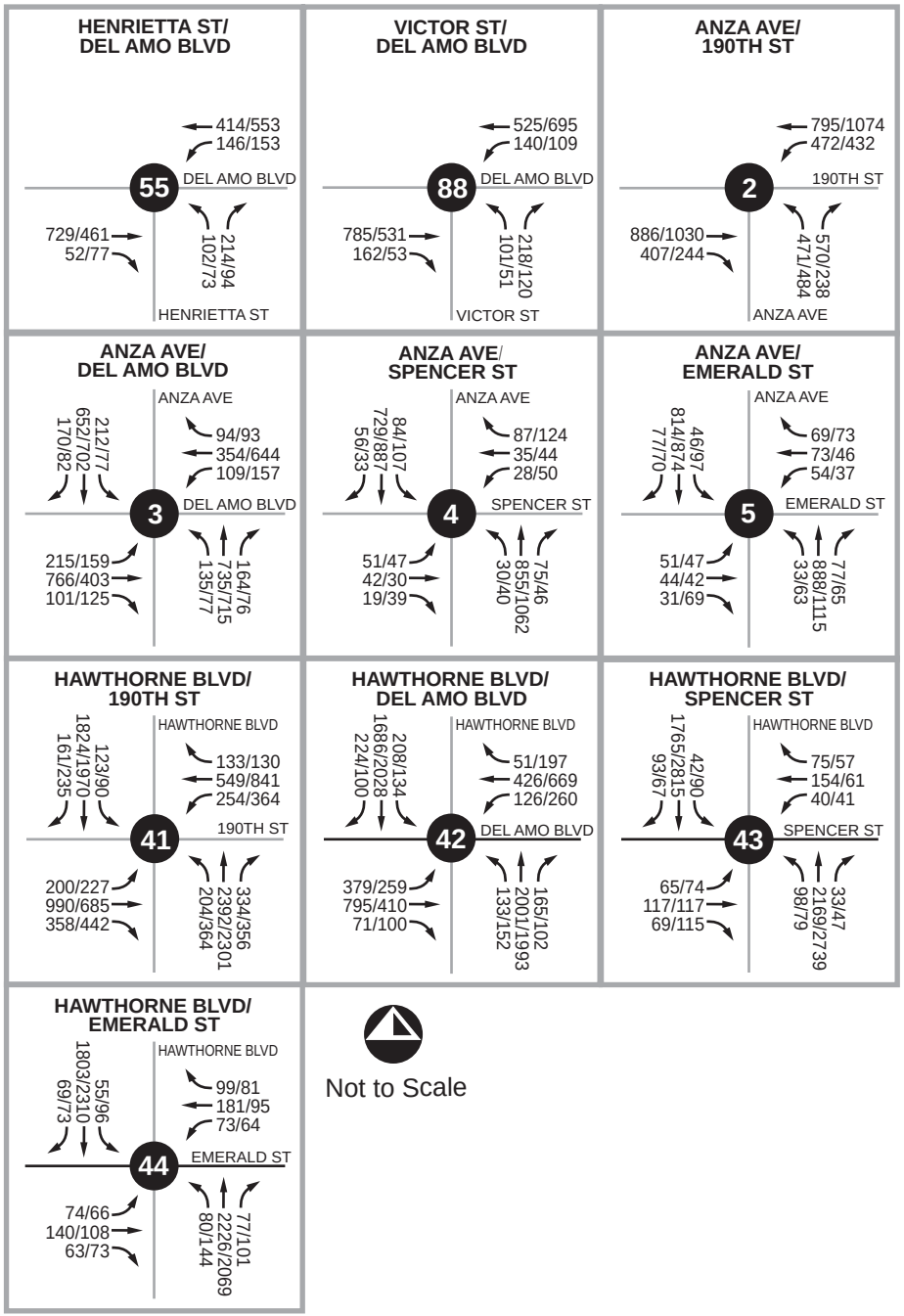
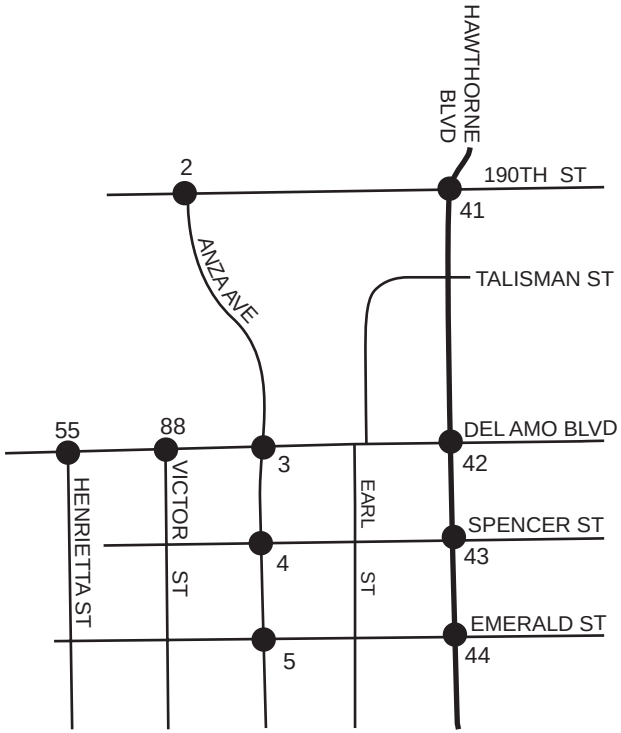
Exhibit 4





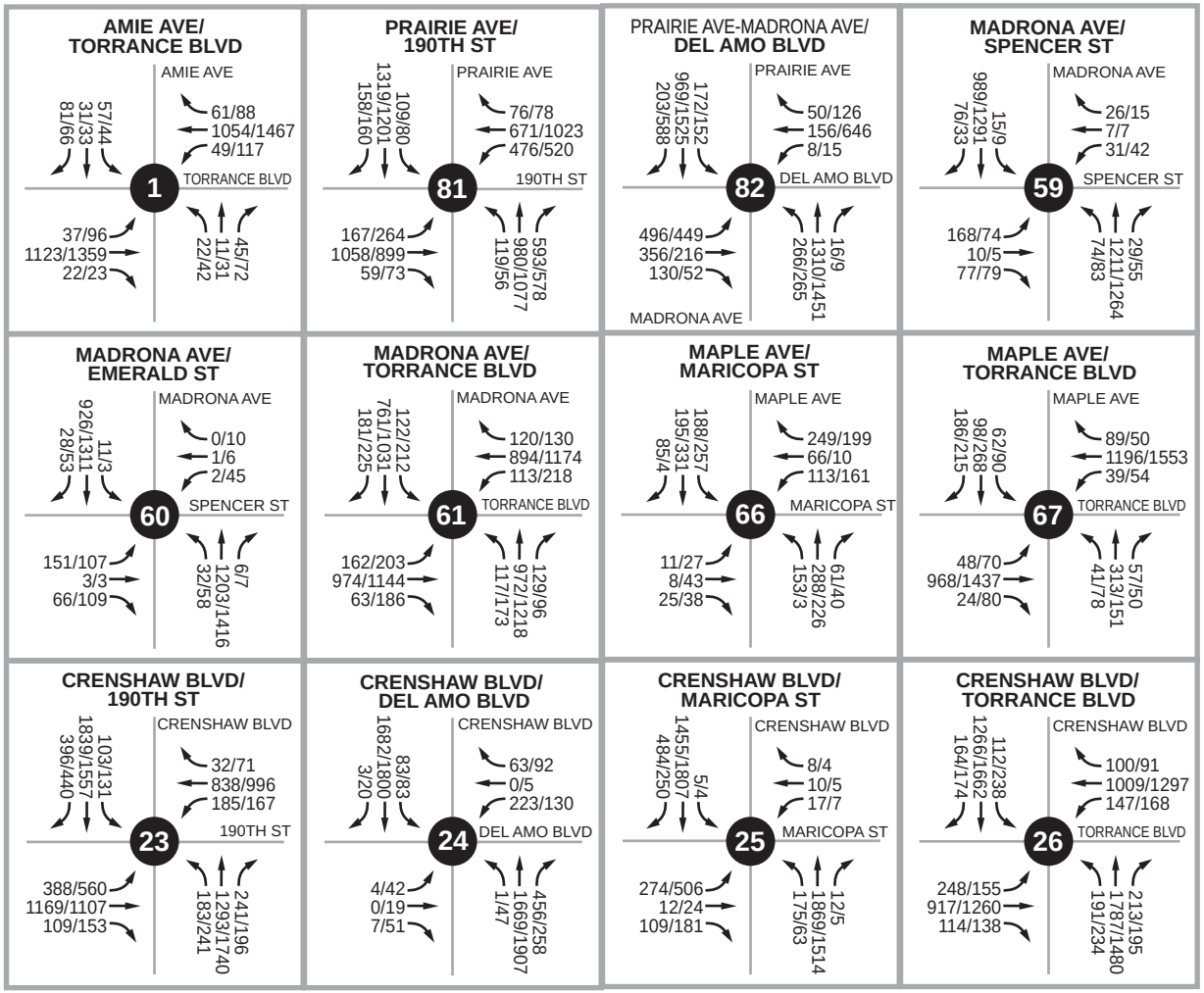
Legend:

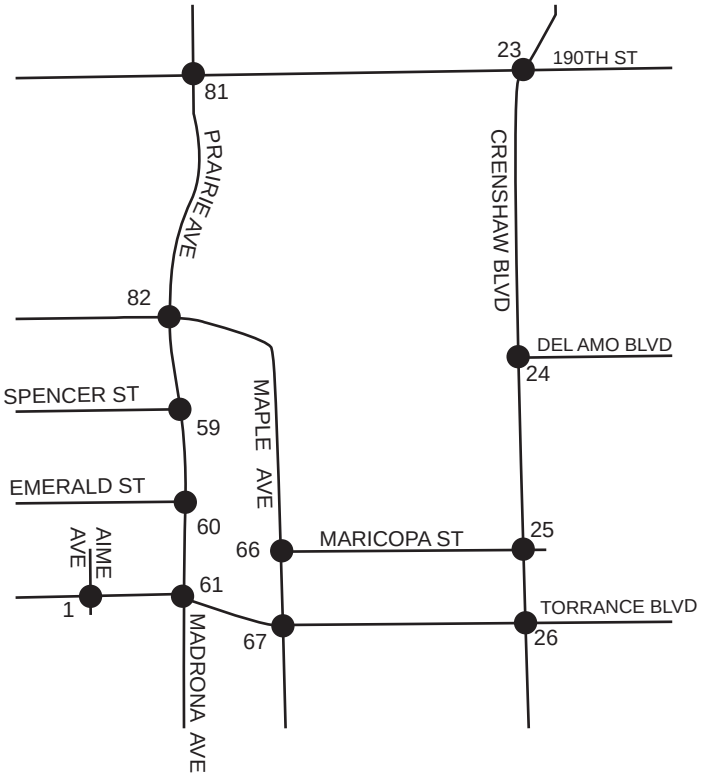
XX/XX AM/PM Peak Hour Volumes

Area 3 - Existing AM/PM Peak Hour Intersection Volumes

H:\PDATA\10106570\Traffic\Exhibits\Exh05.ai APR/2009

Exhibit 5





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

Area 4 - Existing AM/PM Peak Hour Intersection Volumes

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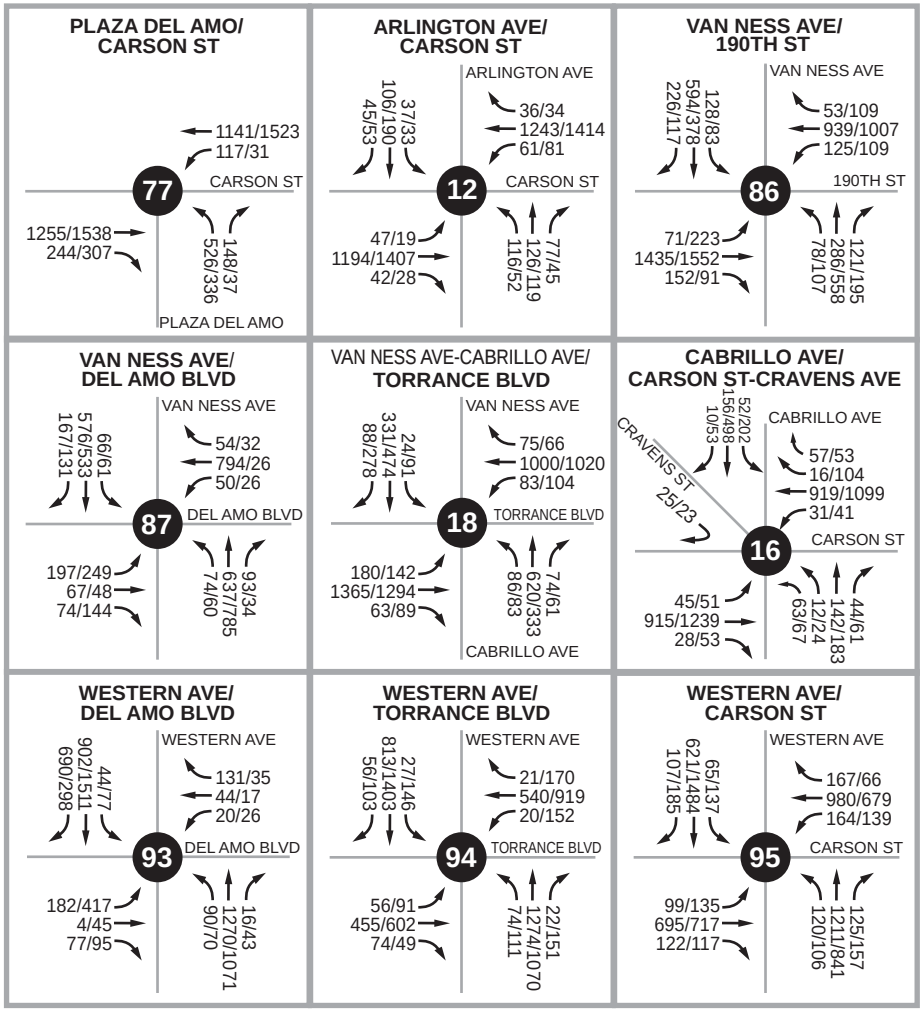
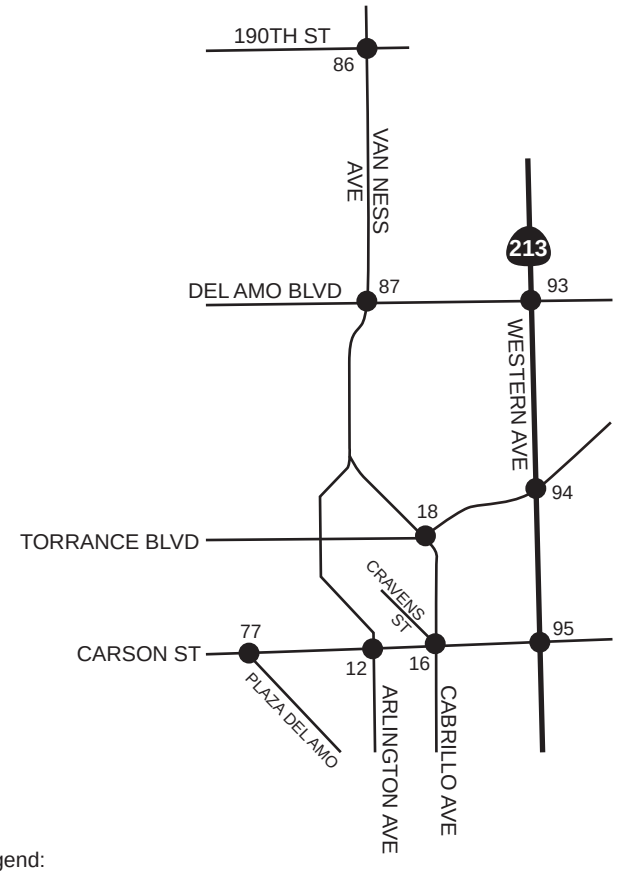
Exhibit 6



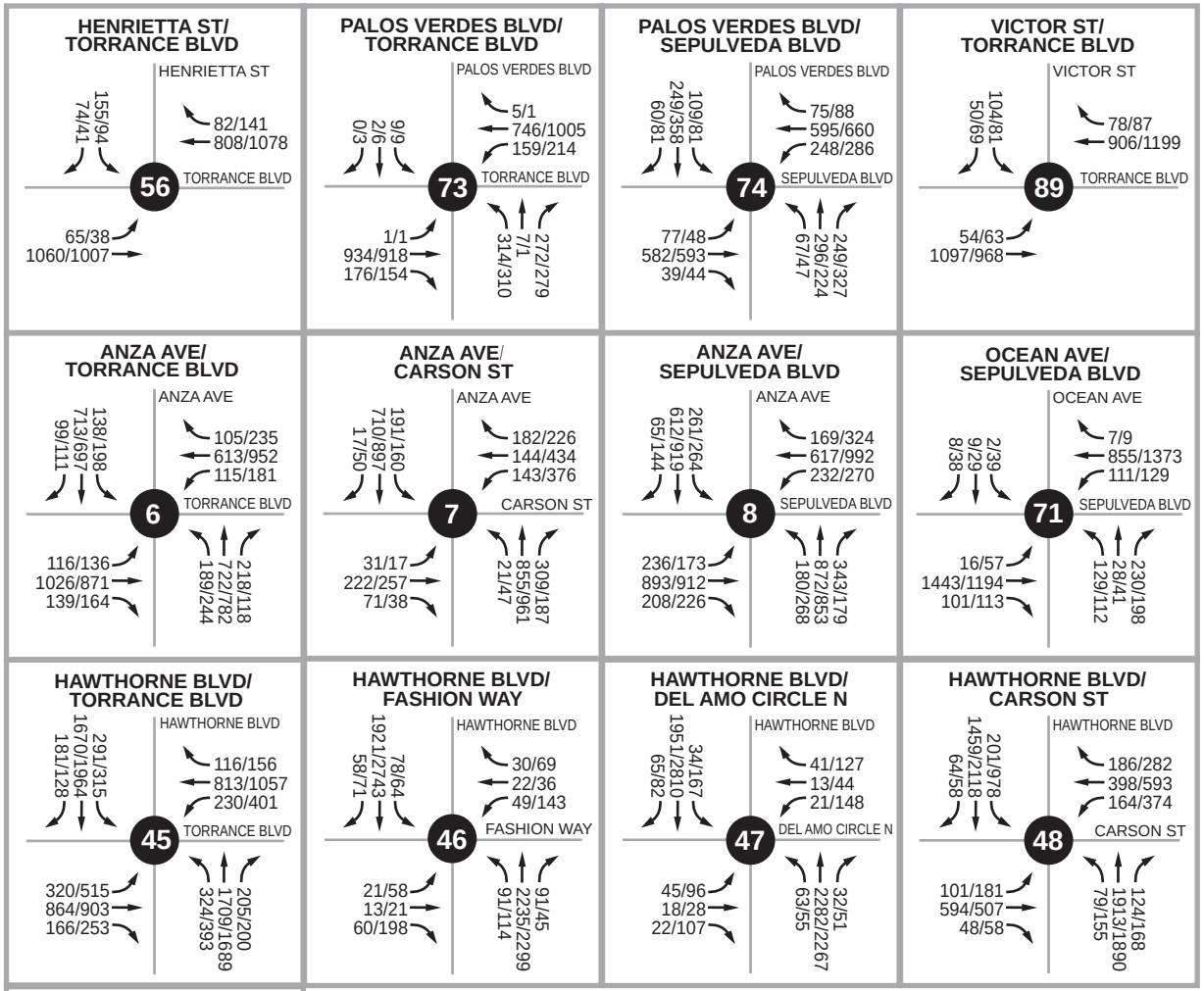


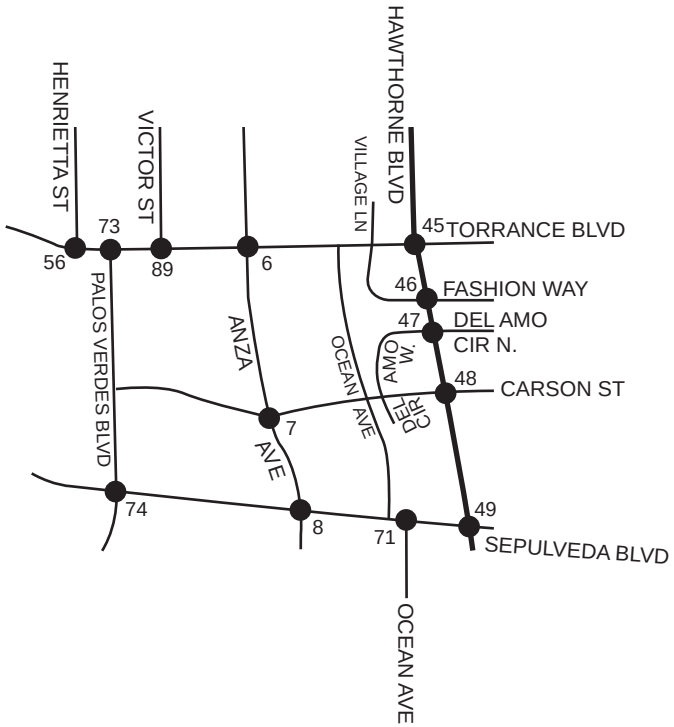
Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

Area 5 - Existing AM/PM Peak Hour Intersection Volumes





Legend:

XX/XX AM/PM Peak Hour Volumes

Area 6 - Existing AM/PM Peak Hour Intersection Volumes

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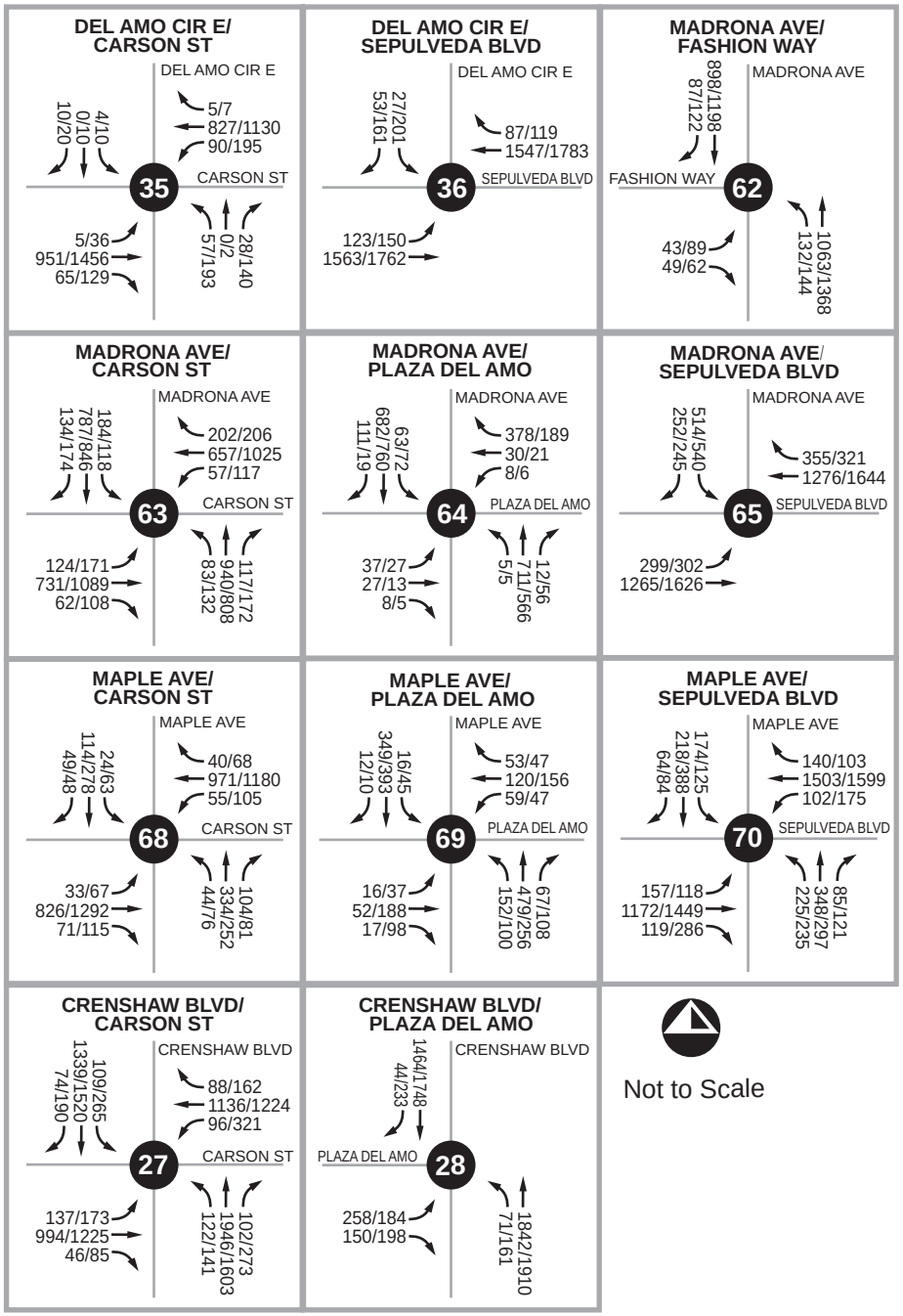
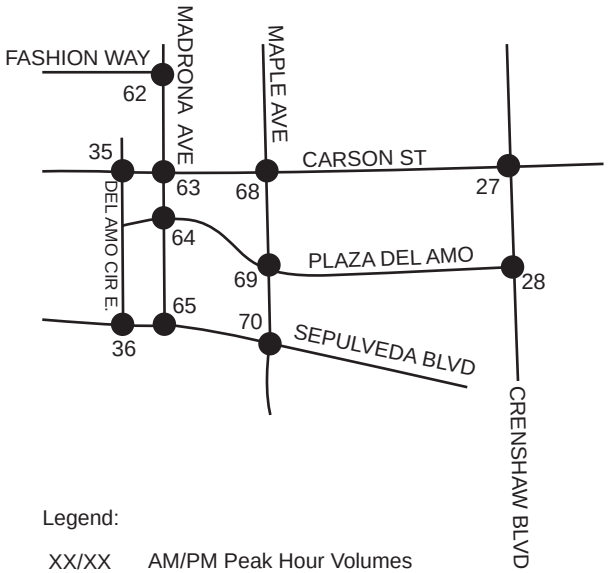
Exhibit 8





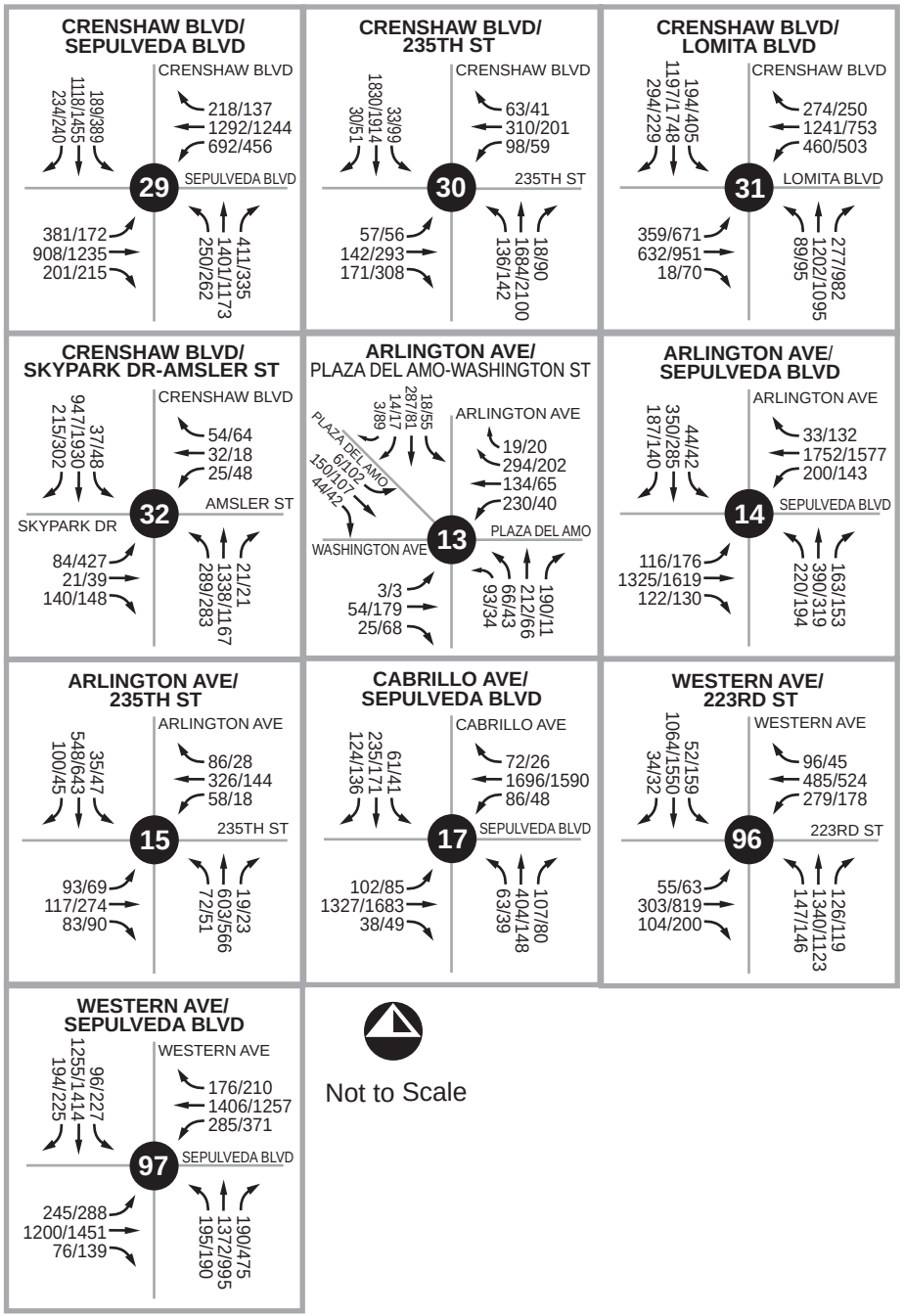
Legend:

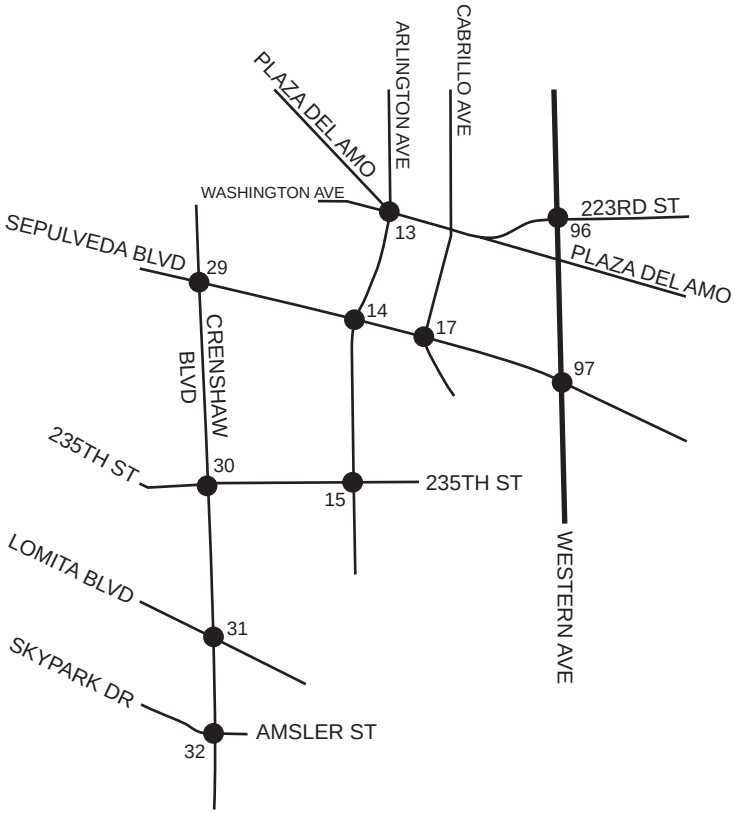
XX/XX AM/PM Peak Hour Volumes

Area 7 - Existing AM/PM Peak Hour Intersection Volumes

H:\PDATA\10106570\Traffic\Exhibits\Exh09.ai APR/2009

Exhibit 9





Legend:

XX/XX AM/PM Peak Hour Volumes

Area 8 - Existing AM/PM Peak Hour Intersection Volumes

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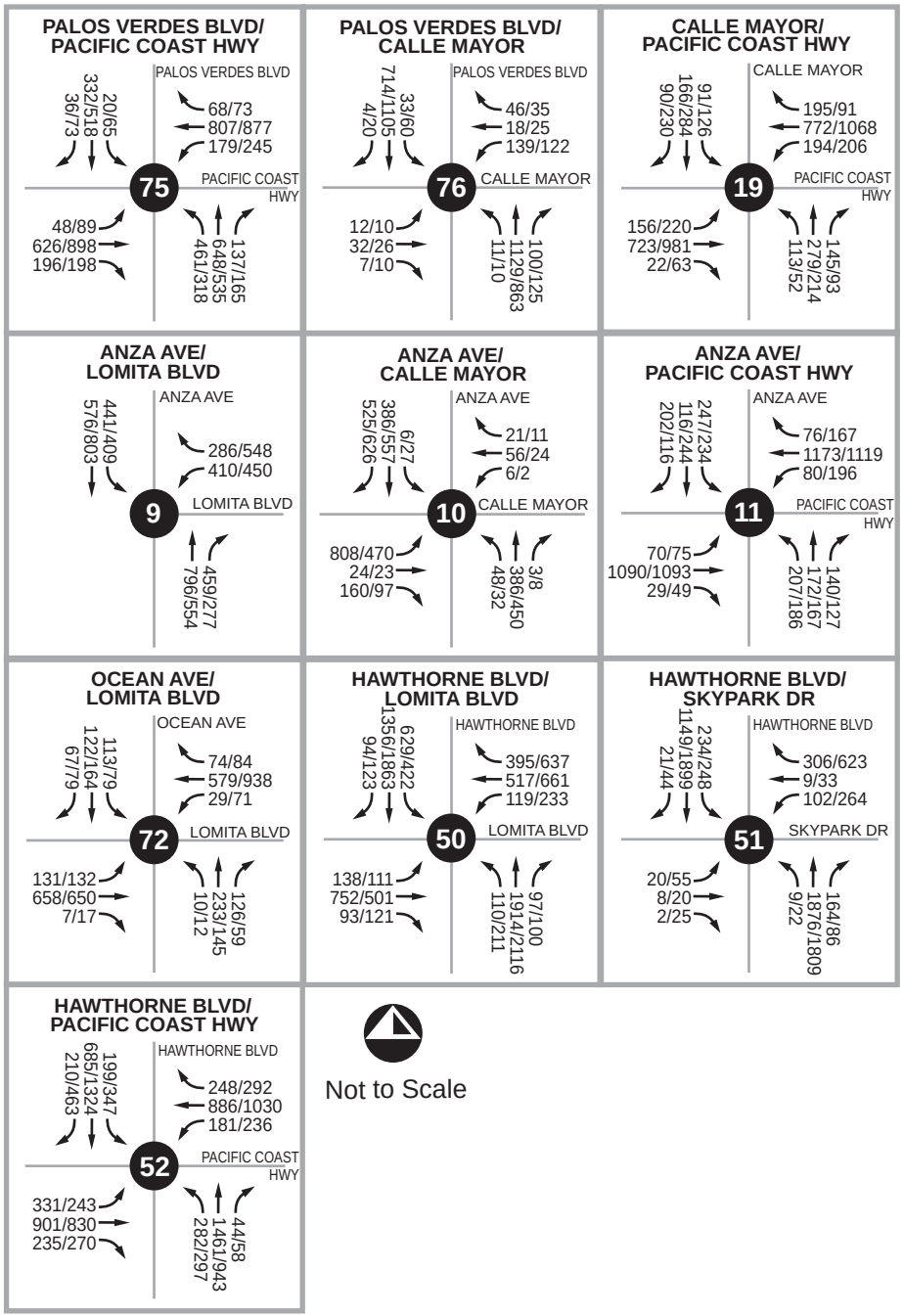
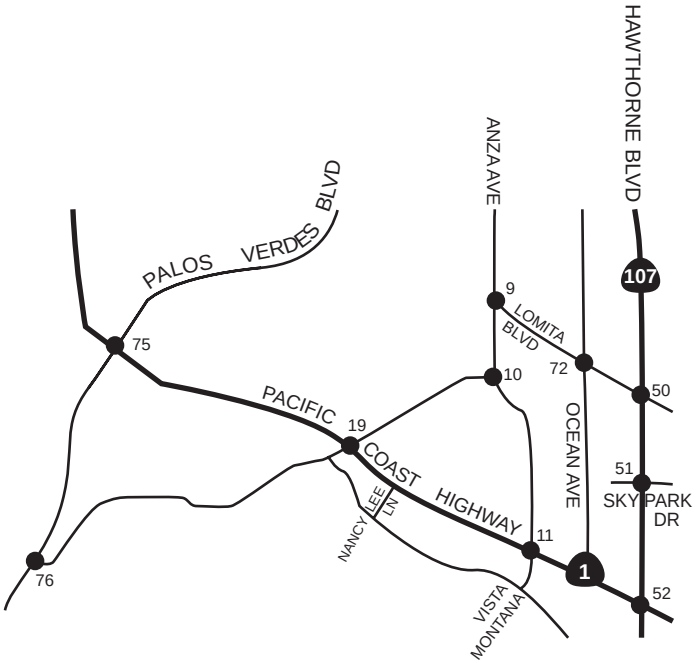
Exhibit 10

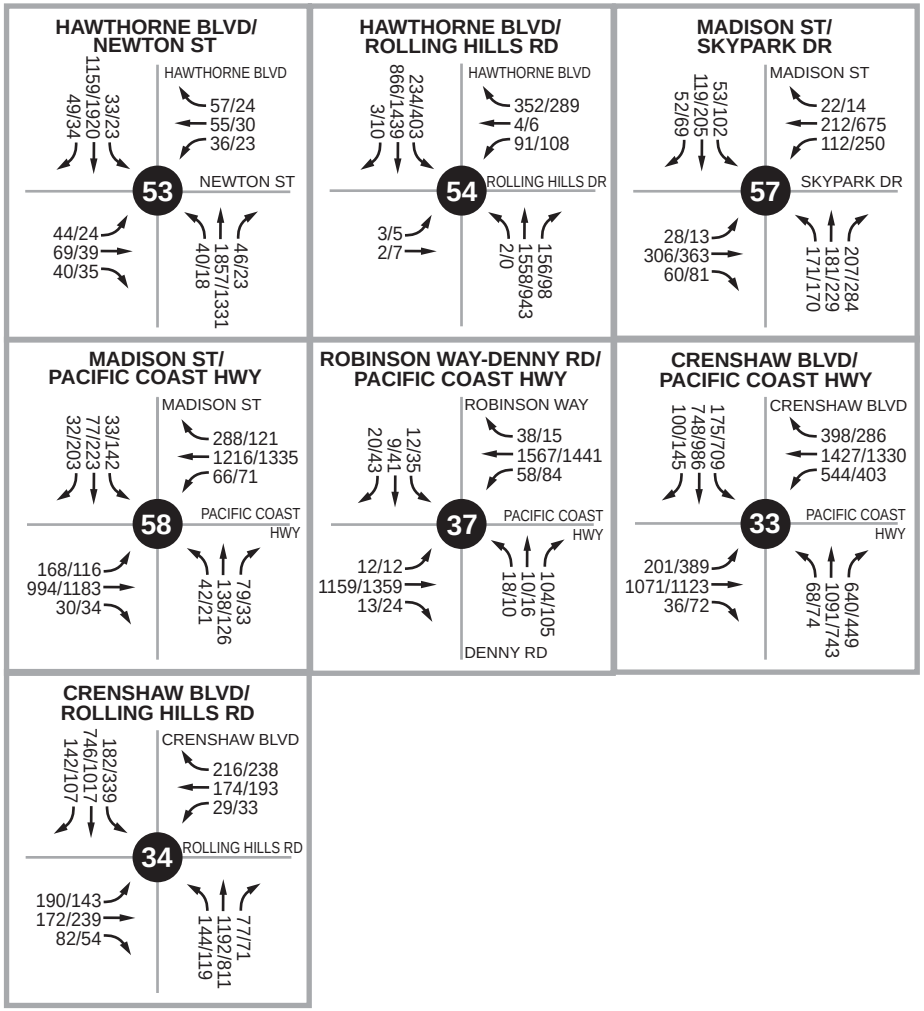


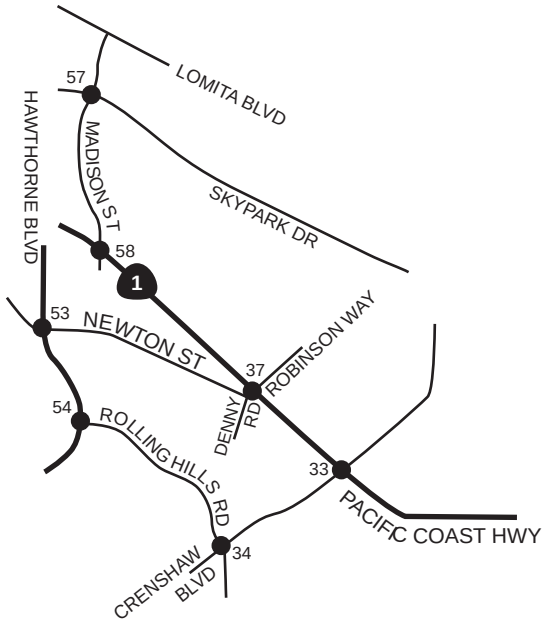


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 9 - Existing AM/PM Peak Hour Intersection Volumes





Legend:

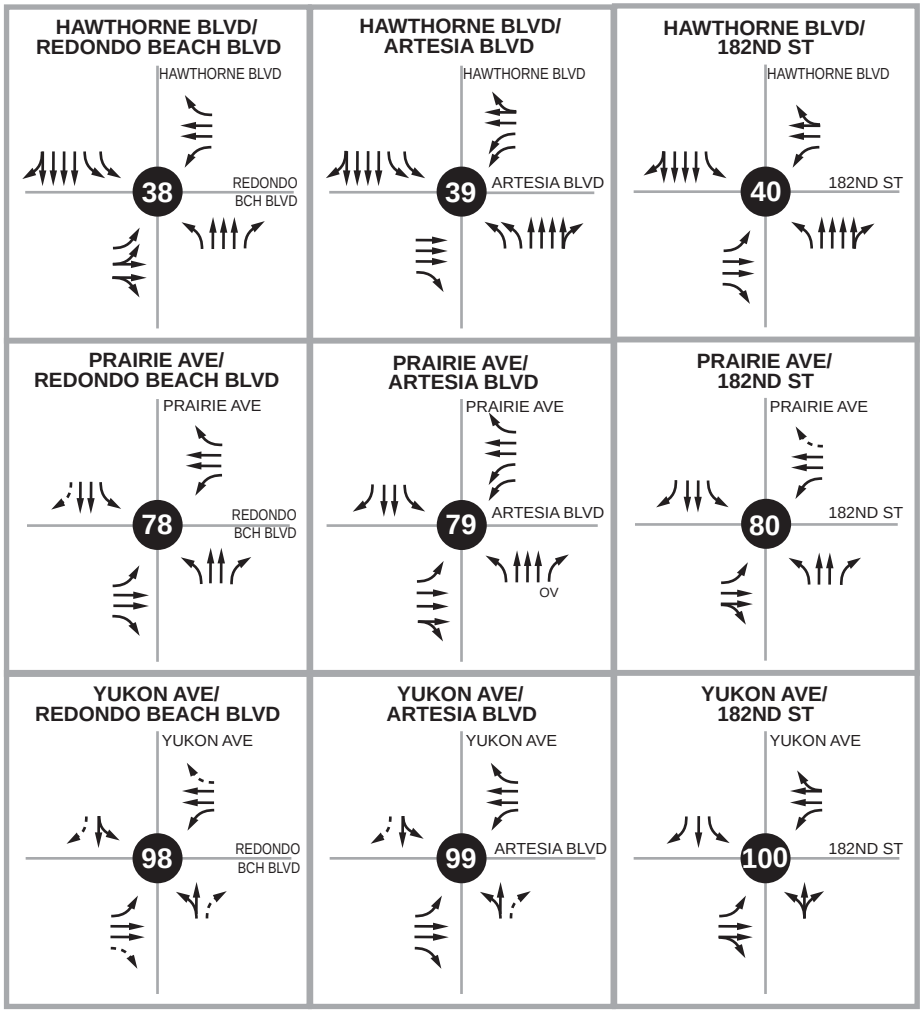
XX/XX AM/PM Peak Hour Volumes

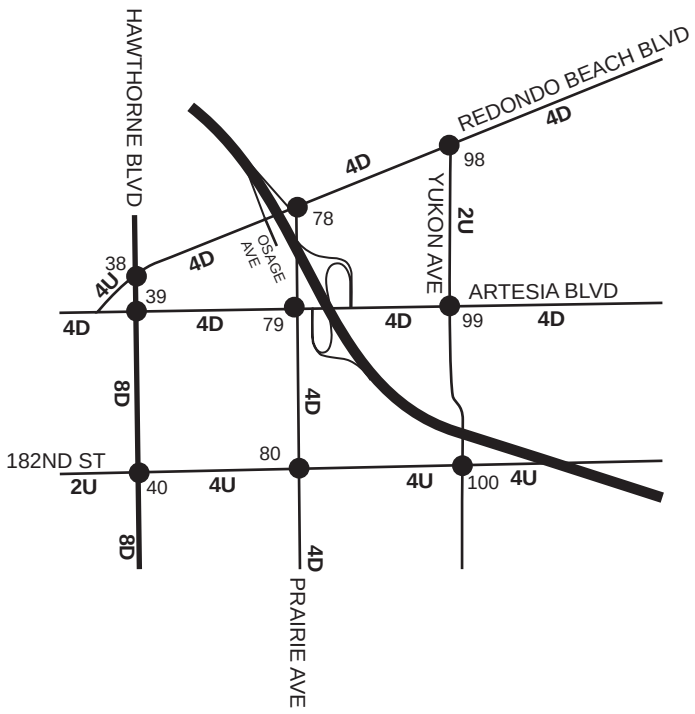
Not to Scale

Area 10 - Existing AM/PM Peak Hour Intersection Volumes

H:\PDATA\10106570\Traffic\Exhibits\Exh12.ai APR/2009

Exhibit 12





Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	4U	4-lane Undivided roadway
- -	Defacto Right-Turn Lane	4D	4-lane Divided roadway
OV	Overlap Right-Turn Lane	8D	8-lane Divided roadway

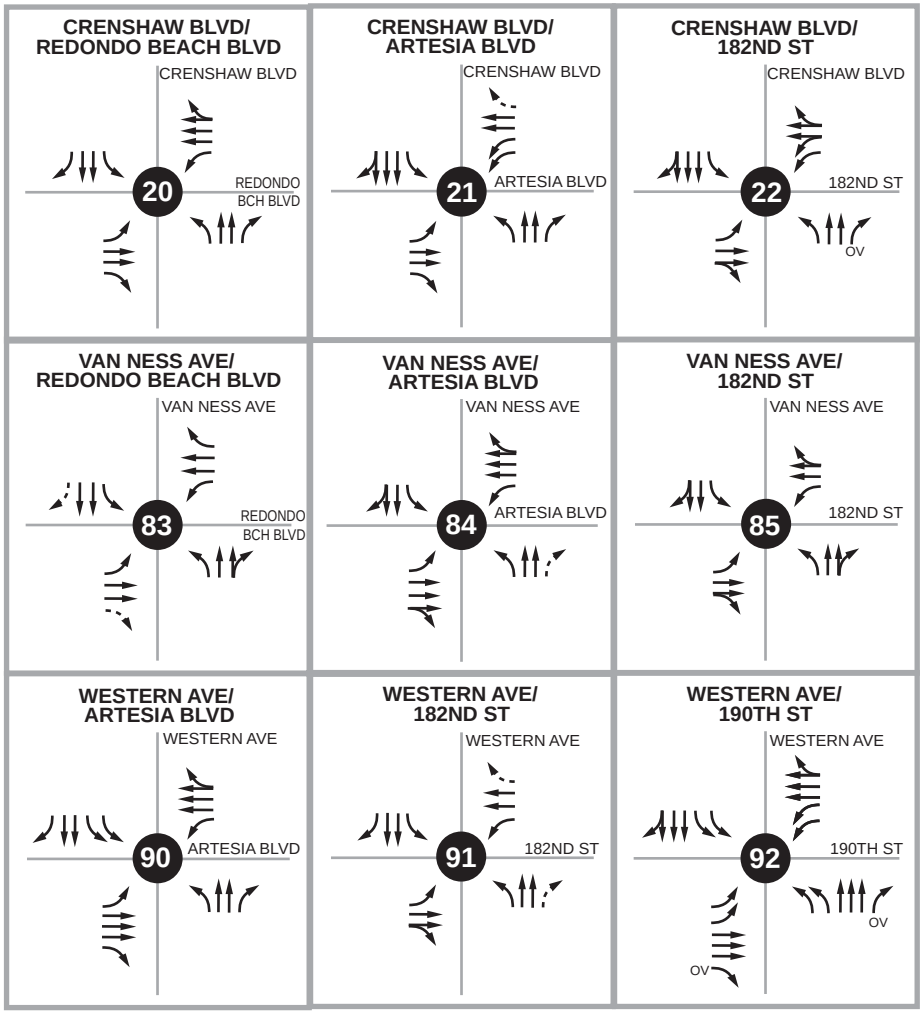
Not to Scale

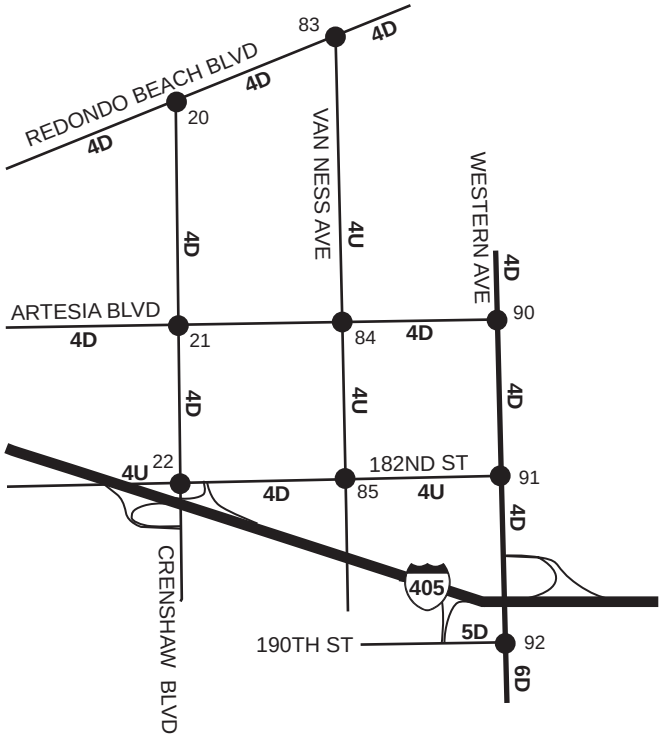
RBF

Area 1 - Existing Intersection/Roadway Geometry

H:\PDATA\10106570\Traffic\Exhibits\Exh13.ai APR/2009

Exhibit 13





Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	4U	4-lane Undivided roadway
- -	Defacto Right-Turn Lane	4D	4-lane Divided roadway
OV	Overlap Right-Turn Lane	5D	5-lane Divided roadway (3 east, 2 west)
		6D	6-lane Divided roadway

Not to Scale

RBF

Area 2 - Existing Intersection/Roadway Geometry

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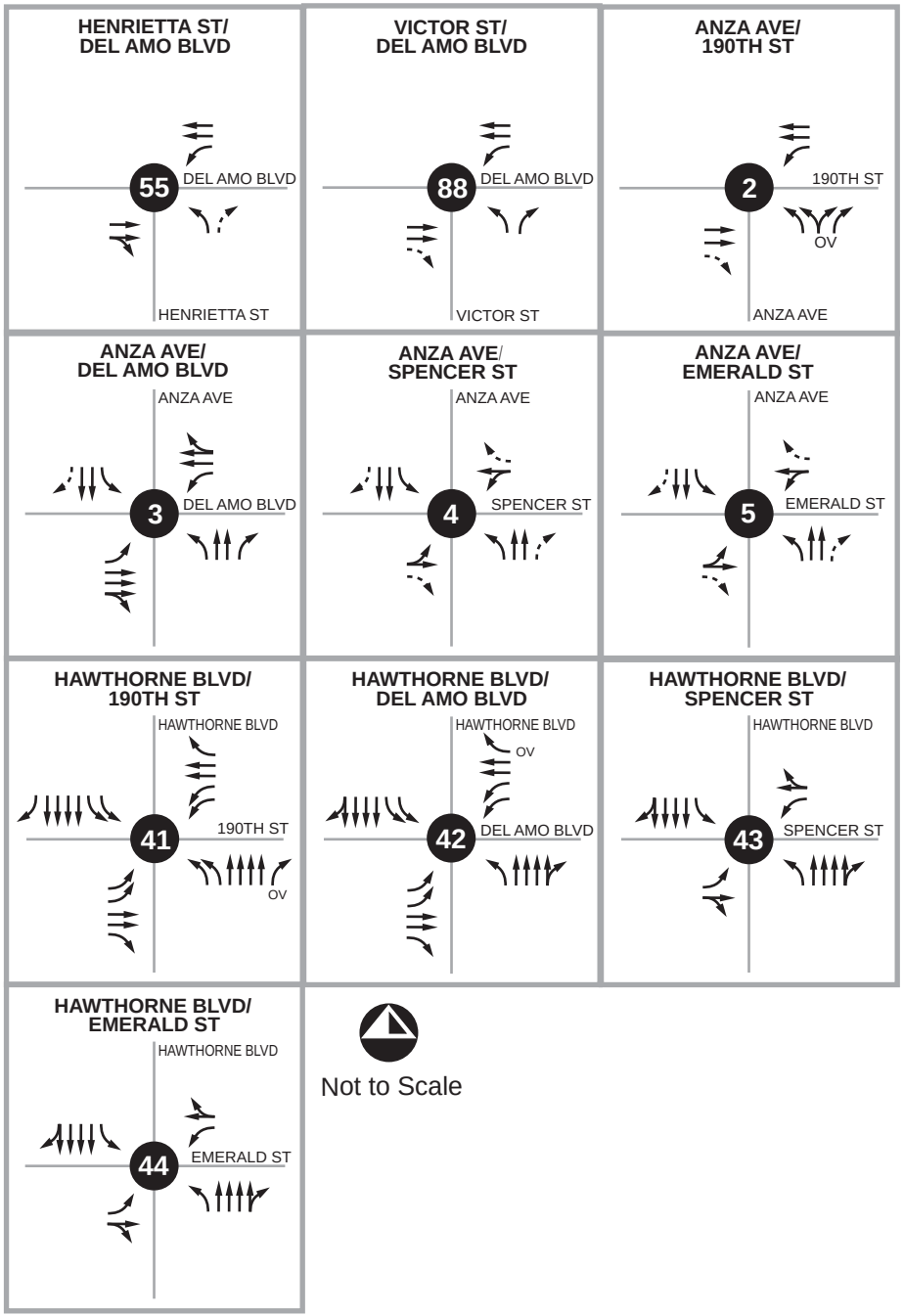
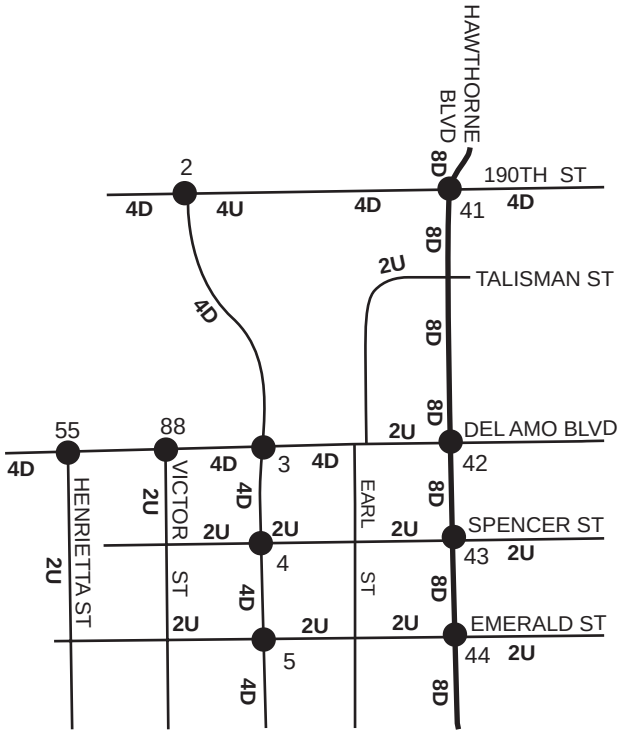
APR/2009

Exhibit 14

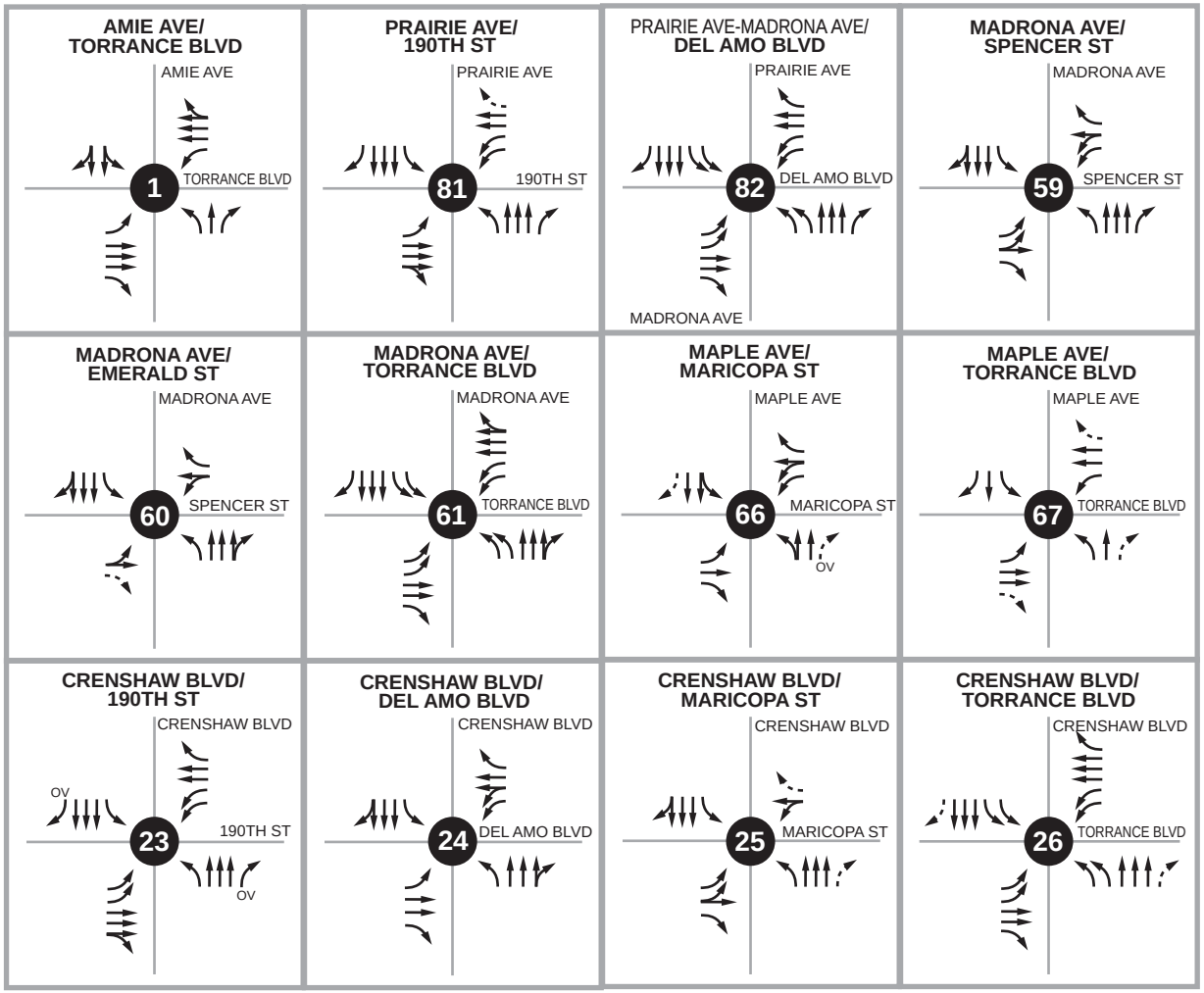


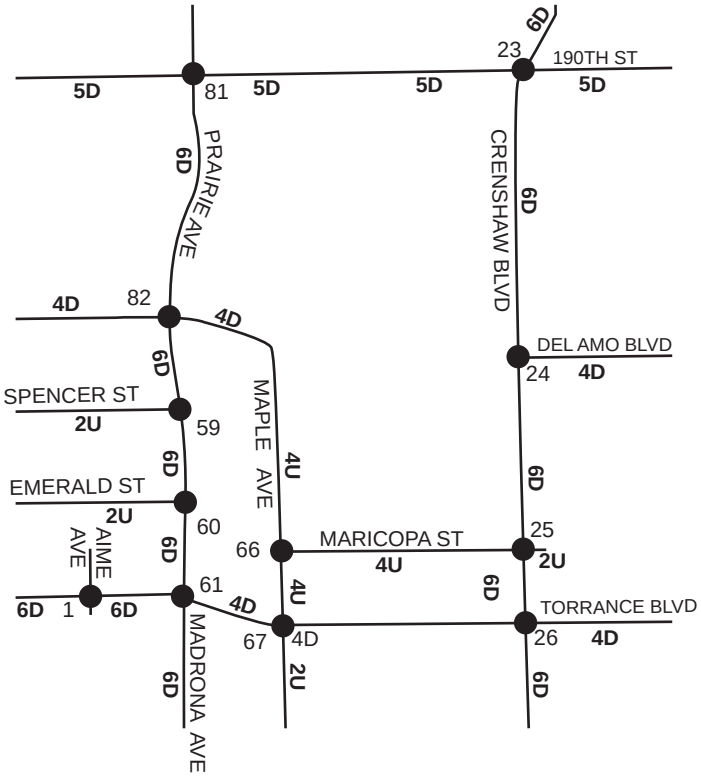


Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	4U	4-lane Undivided roadway
- -	Defacto Right-Turn Lane	4D	4-lane Divided roadway
OV	Overlap Right-Turn Lane	8D	8-lane Divided roadway

Area 3 - Existing Intersection/Roadway Geometry





Legend:

Existing Lane	2U 2-lane Undivided roadway
F Free Right-Turn Lane	4D 4-lane Divided roadway
Defacto Right-Turn Lane	5D 5-lane Divided roadway (3 east, 2 west)
OV Overlap Right-Turn Lane	6D 6-lane Divided roadway

Not to Scale

RBF

Area 4 - Existing Intersection/Roadway Geometry

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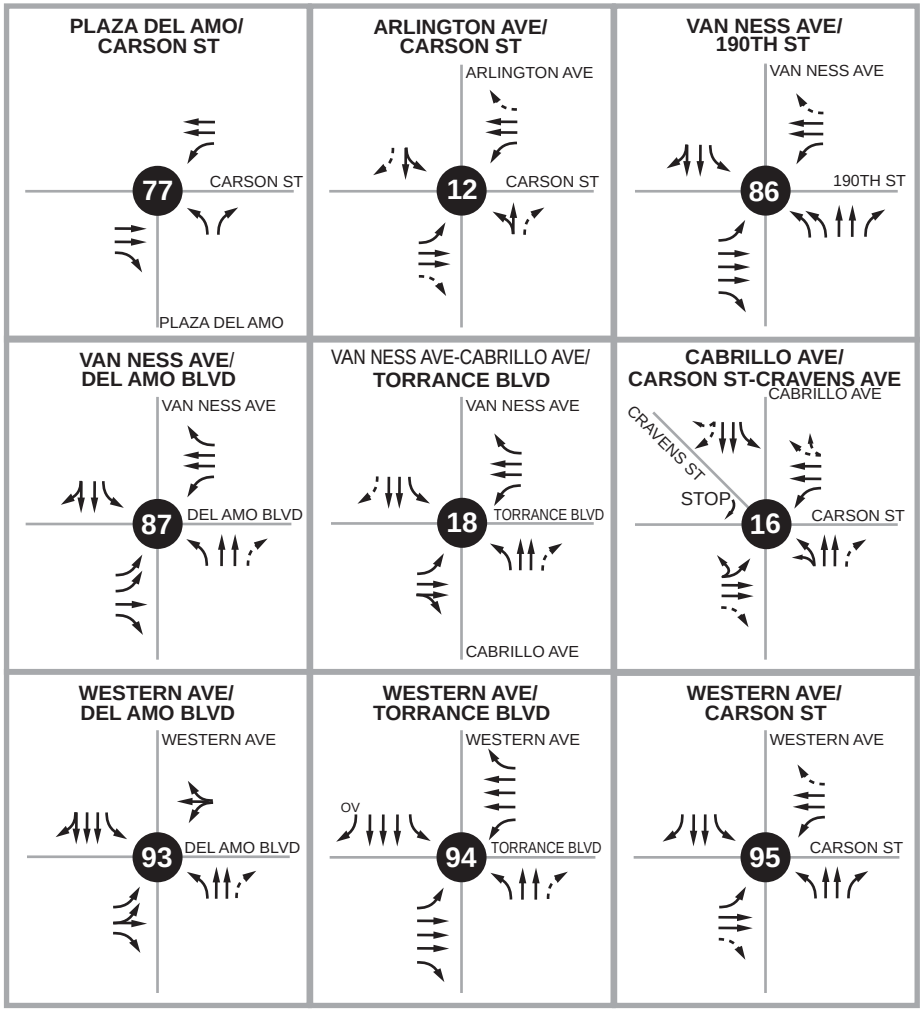
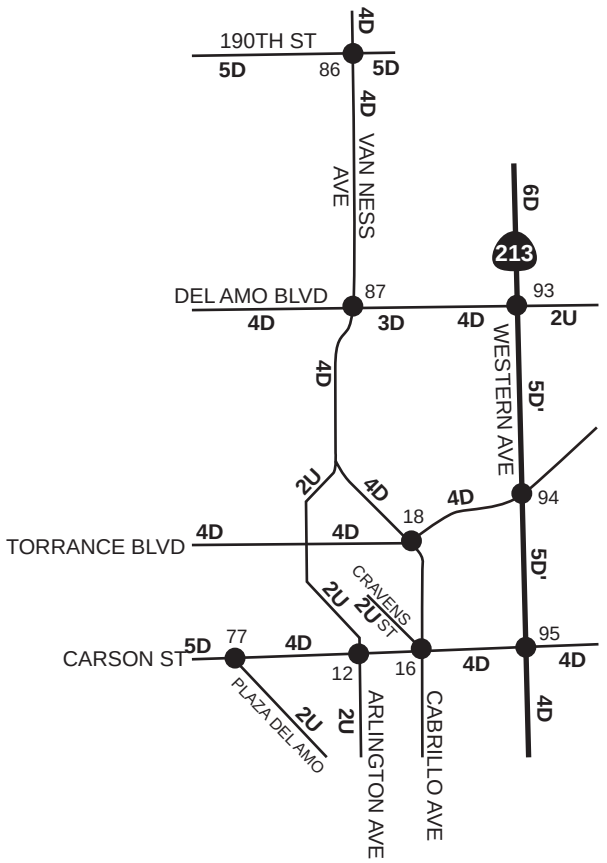
Exhibit 16





Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	2D	2-lane Divided roadway
- -	Defacto Right-Turn Lane	3D	3-lane Divided roadway (1 east, 2 west)
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		5D	5-lane Divided roadway (3 east, 2 west)
		5D'	5-lane Divided roadway (2 north, 3 south)

Not to Scale

RBF

Area 5 - Existing Intersection/Roadway Geometry

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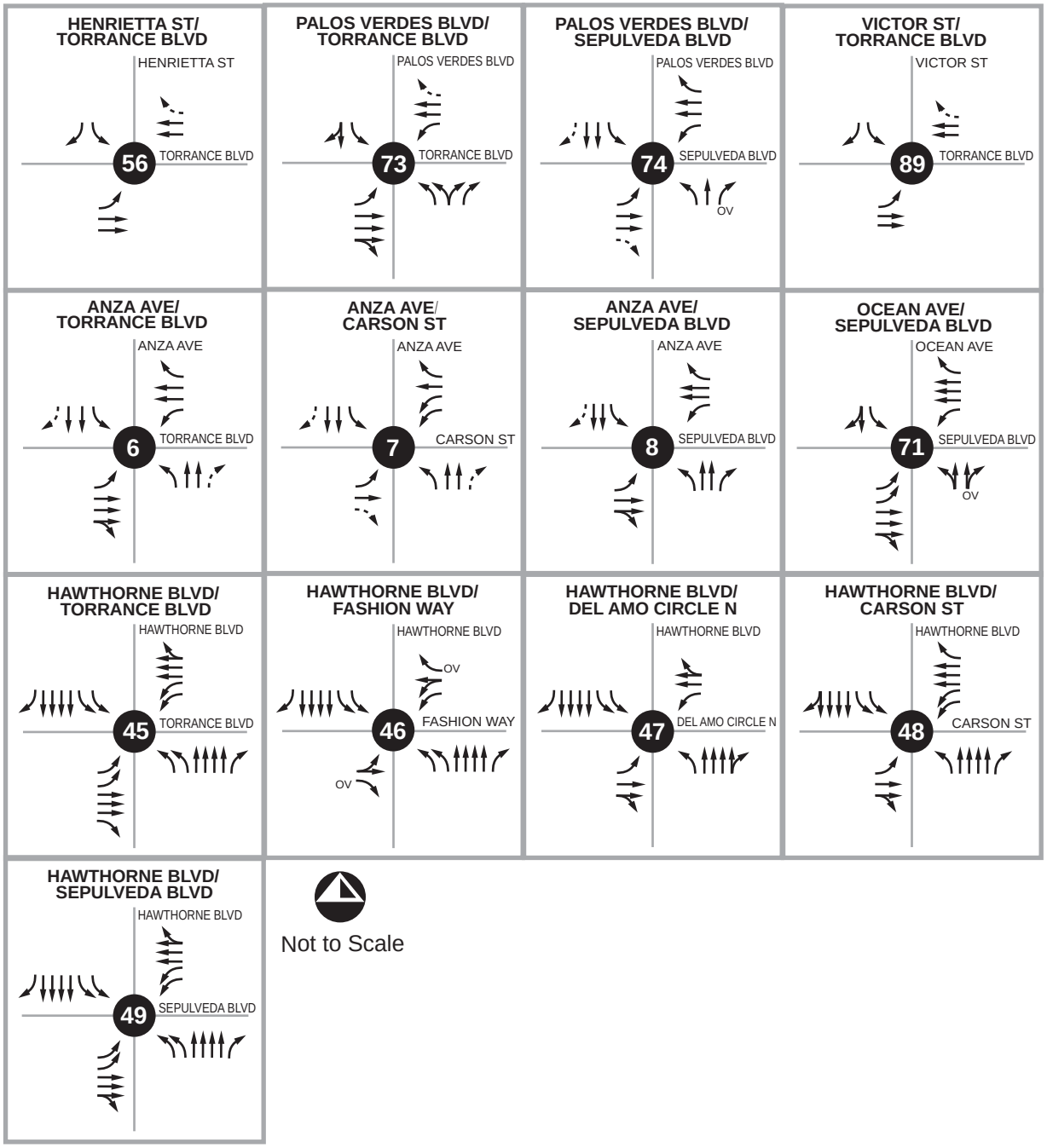
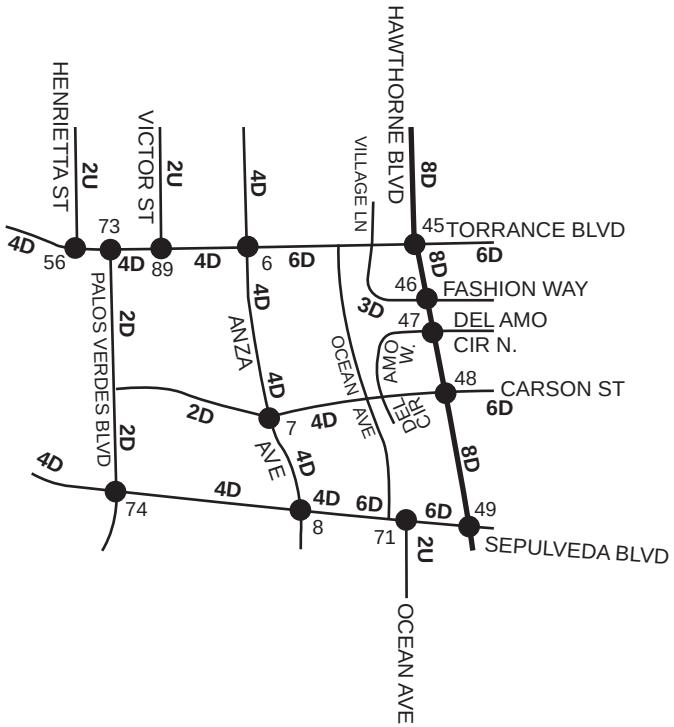
Exhibit 17





Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	3D	3-lane Divided roadway (1 east, 2 west)
- -	Defacto Right-Turn Lane	4U	4-lane Undivided roadway
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		6D	6-lane Divided roadway
		8D	8-lane Divided roadway

RBF

Area 6 - Existing Intersection/Roadway Geometry

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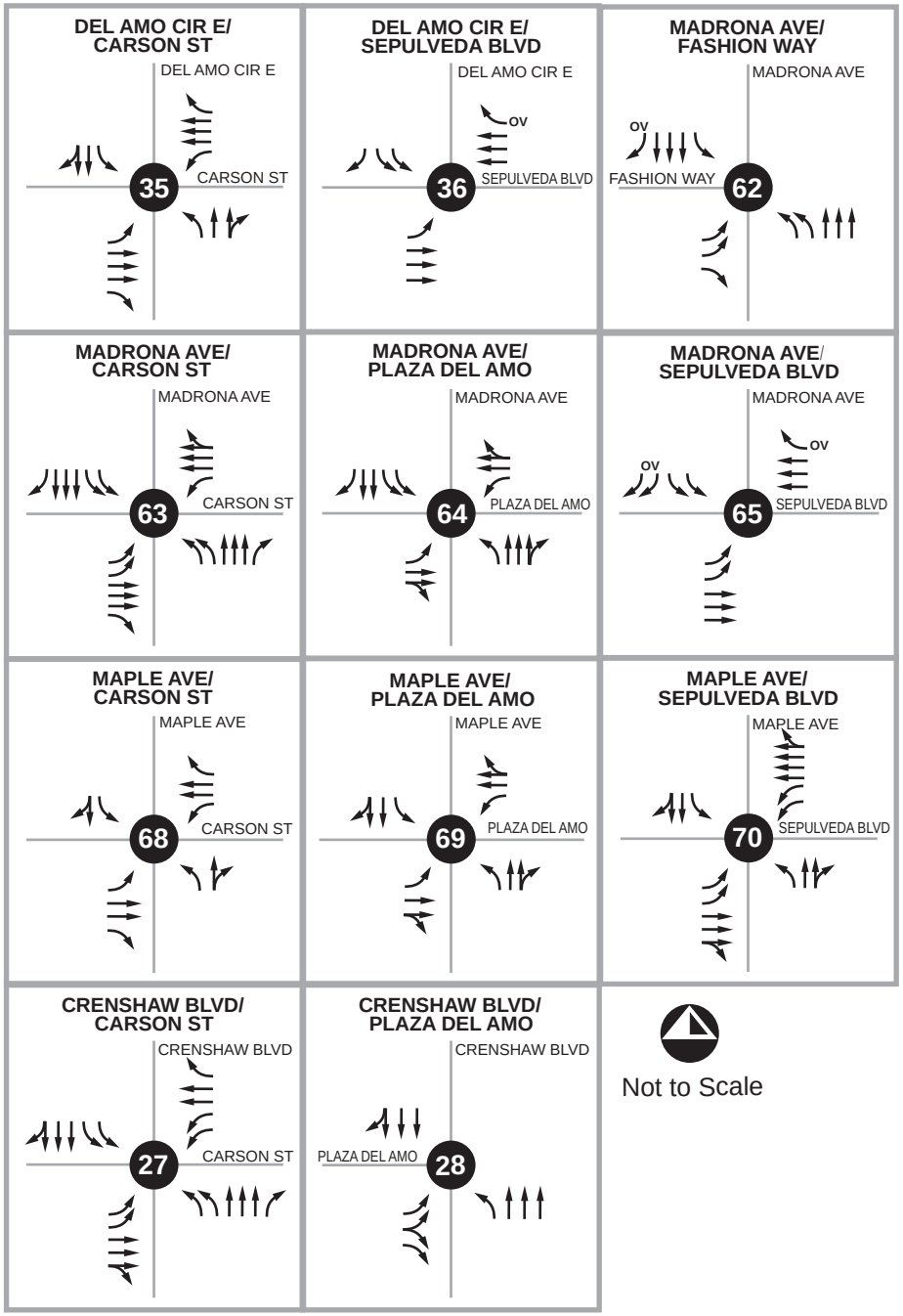
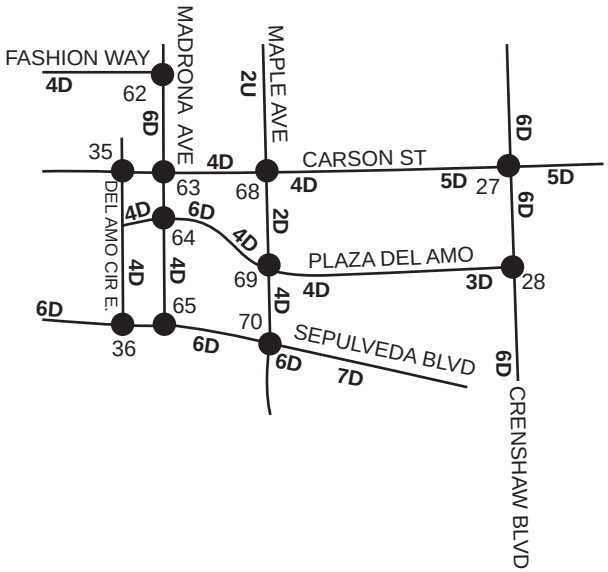
Exhibit 18

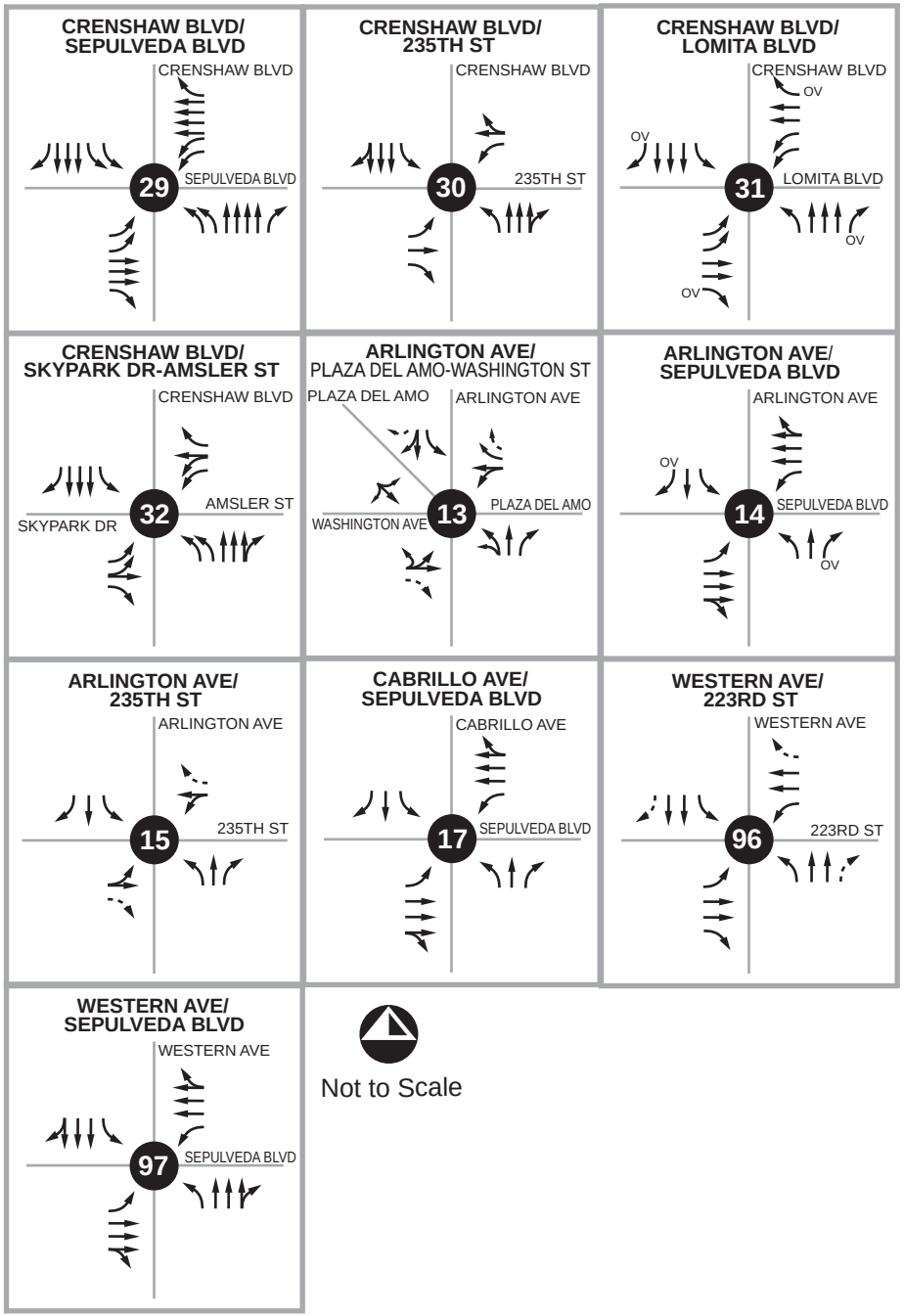




Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	2D	2-lane Divided roadway
- -	Defacto Right-Turn Lane	3D	3-lane Divided roadway (2 east, 1 west)
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		5D	5-lane Divided roadway (3 east, 2 west)
		6D	6-lane Divided roadway
		7D	7-lane Divided roadway (3 east, 4 west)

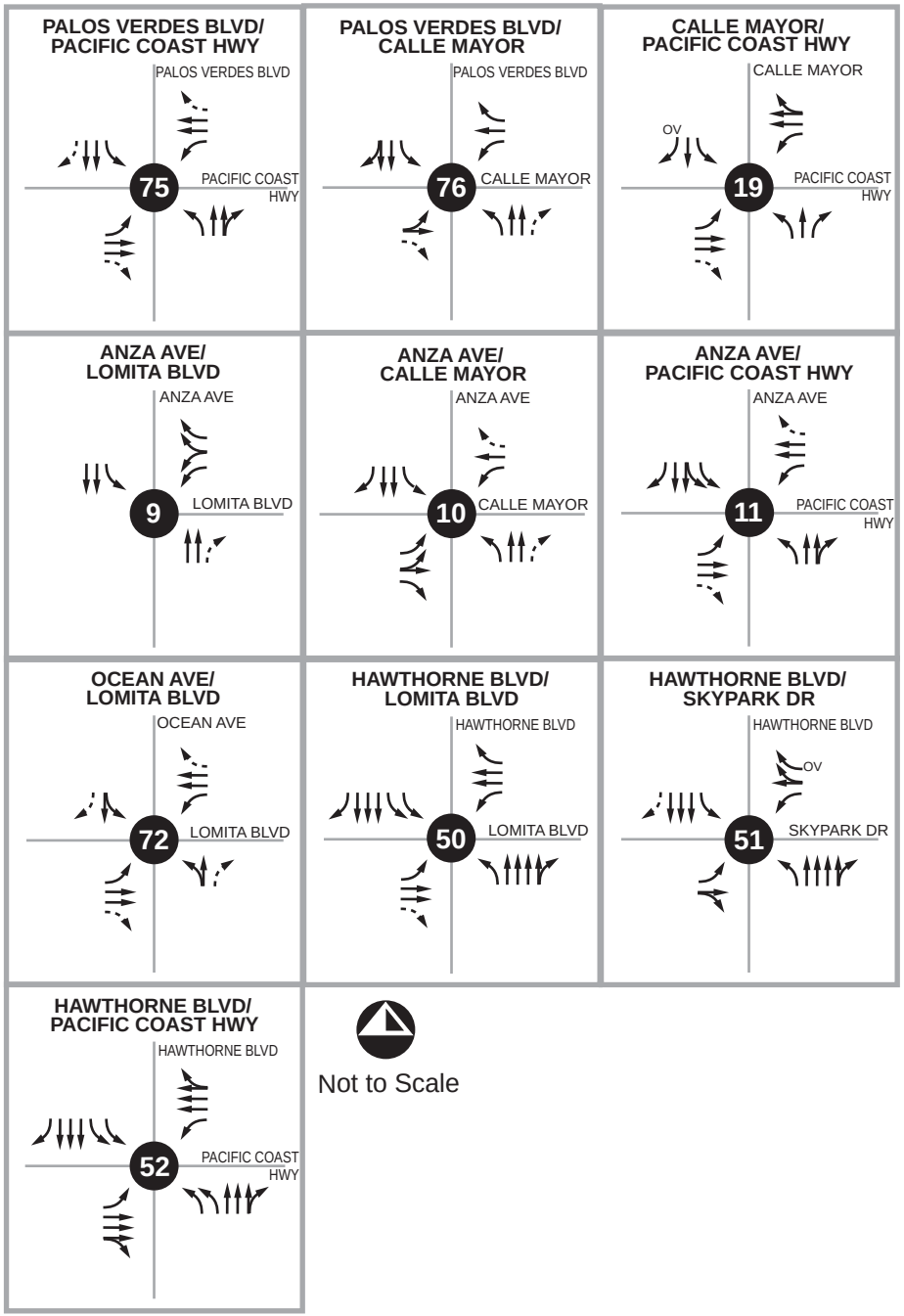
Area 7 - Existing Intersection/Roadway Geometry

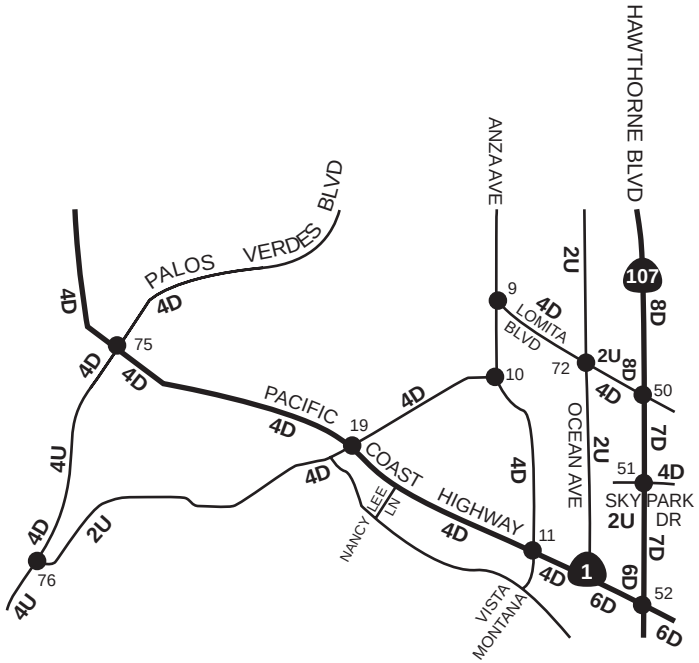


Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	2D	2-lane Divided roadway
- -	Defacto Right-Turn Lane	4U	4-lane Undivided roadway
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		6D	6-lane Divided roadway
		7D	7-lane Divided roadway (3 east, 4 west)

Area 8 - Existing Intersection/Roadway Geometry

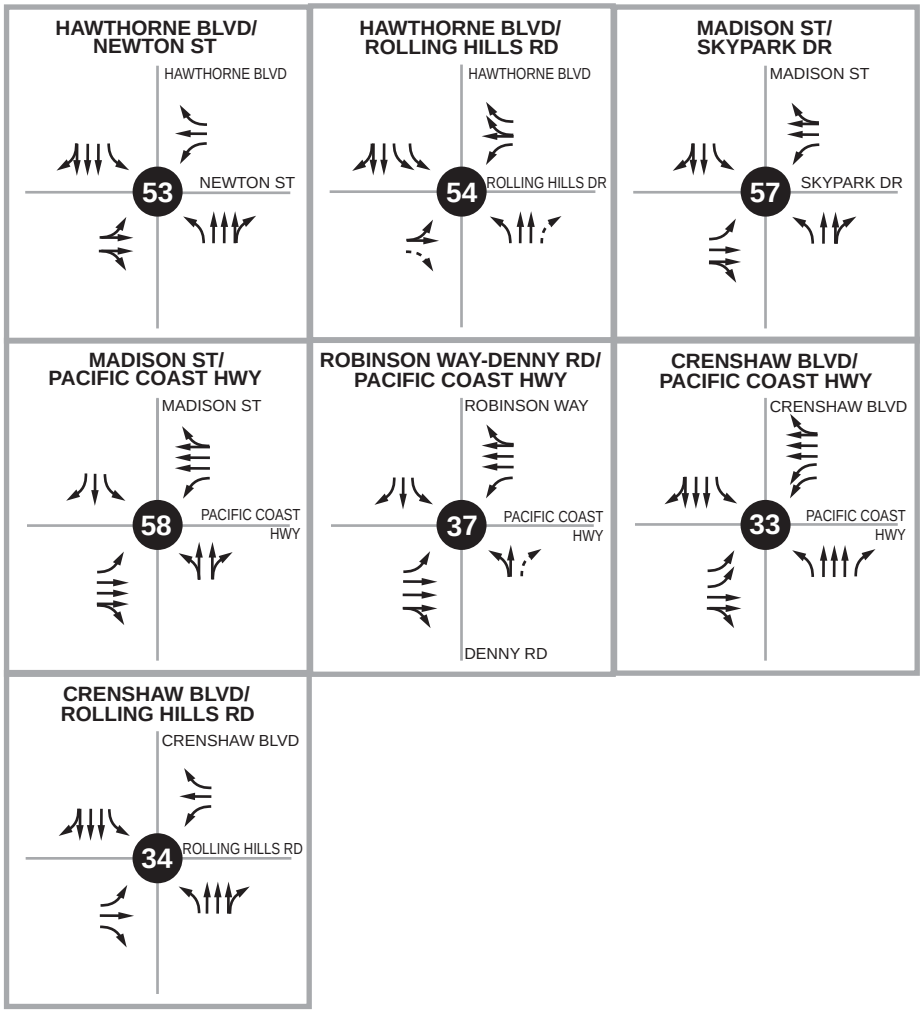


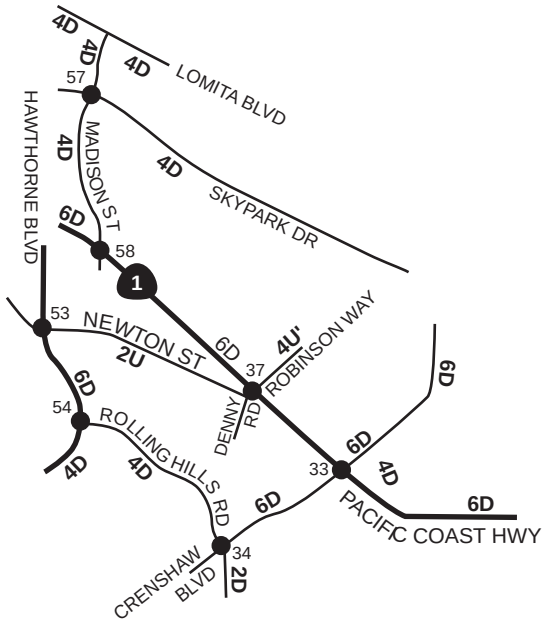


Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	2D	2-lane Divided roadway
- -	Defacto Right-Turn Lane	4U	4-lane undivided roadway
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		7D	7-lane Divided roadway (4 north, 3 south)
		8D	8-lane Divided roadway

Area 9 - Existing Intersection/Roadway Geometry





Legend:

←	Existing Lane	2U	2-lane Undivided roadway
F	Free Right-Turn Lane	2D	2-lane Divided roadway
- -	Defacto Right-Turn Lane	4U'	4-lane undivided roadway (1 north, 3 south)
OV	Overlap Right-Turn Lane	4D	4-lane Divided roadway
		5D	5-lane Divided roadway (2 north, 3 south)
		6D	6-lane Divided roadway

Not to Scale

RBF

Area 10 - Existing Intersection/Roadway Geometry

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Exhibit 22

Table 3
Existing Conditions AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		Delay – LOS	Delay – LOS
1	Amie Ave/Torrance Blvd (Area 4)	10.0 – B	11.9 – B
2	Anza Ave/190th St (Area 3)	27.7 – C	26.0 – C
3	Anza Ave/Del Amo Blvd (Area 3)	37.5 – D	35.4 – D
4	Anza Ave/Spencer St (Area 3)	7.0 – A	7.7 – A
5	Anza Ave/Emerald St (Area 3)	8.3 – A	6.7 – A
6	Anza Ave/Torrance Blvd (Area 6)	36.3 – D	40.4 – D
7	Anza Ave/Carson St (Area 6)	24.4 – C	28.2 – C
8	Anza Ave/Sepulveda Blvd (Area 6)	48.7 – D	54.8 – D
9	Anza Ave/Lomita Blvd (Area 9)	26.2 – C	25.6 – C
10	Anza Ave/Calle Mayor (Area 9)	20.7 – C	14.8 – B
11	Anza Ave/Pacific Coast Hwy (SR-1) (Area 9)	27.7 – C	28.1 – C
12	Arlington Ave/Carson St (Area 5)	10.9 – B	10.0 – A
13	Arlington Ave/Plaza Del Amo-Washington Ave (Area 8)	39.9 – D	34.1 – C
14	Arlington Ave/Sepulveda Blvd (Area 8)	31.0 – C	28.5 – C
15	Arlington Ave/235th St (Area 8)	16.6 – B	15.6 – B
16	Cabrillo Ave/Carson St (Area 5)	12.6 – B	19.0 – B
17	Cabrillo Ave/Sepulveda Blvd (Area 8)	21.4 – C	13.8 – C
18	Cabrillo Ave-Van Ness Ave/Torrance Blvd (Area 5)	22.6 – C	22.6 – C
19	Calle Mayor/Pacific Coast Hwy (SR-1) (Area 9)	30.1 – C	30.4 – C
20	Crenshaw Blvd/Redondo Beach Blvd (Area 2)	38.2 – D	38.2 – D
21	Crenshaw Blvd/Artesia Blvd (Area 2)	40.0 – D	38.0 – D
22	Crenshaw Blvd/182nd St (Area 2)	33.6 – C	31.7 – C
23	Crenshaw Blvd/190th St (Area 4)	39.7 – D	49.4 – D
24	Crenshaw Blvd/Del Amo Blvd (Area 4)	9.3 – A	11.3 – B
25	Crenshaw Blvd/Maricopa St (Area 4)	13.9 – B	15.7 – B
26	Crenshaw Blvd/Torrance Blvd (Area 4)	33.2 – C	38.0 – D
27	Crenshaw Blvd/Carson St (Area 7)	33.3 – C	39.3 – D
28	Crenshaw Blvd/Plaza Del Amo (Area 7)	10.5 – B	10.8 – B
29	Crenshaw Blvd/Sepulveda Blvd (Area 8)	39.6 – D	39.2 – D
30	Crenshaw Blvd/235th St (Area 8)	19.5 – B	20.2 – C
31	Crenshaw Blvd/Lomita Blvd (Area 8)	40.1 – D	***77.1 – E***
32	Crenshaw Blvd/Skypark Drive-Amsler St (Area 8)	22.8 – C	24.9 – C
33	Crenshaw Blvd/Pacific Coast Hwy (SR-1) (Area 10)	52.0 – D	***104.3 – F***
34	Crenshaw Blvd/Rolling Hills Rd (Area 10)	23.1 – C	25.0 – C
35	Del Amo Cir East/Carson St (Area 7)	3.9 – A	9.3 – A
36	Del Amo Cir East/Sepulveda Blvd (Area 7)	22.5 – C	29.0 – C
37	Denny Rd-Robinson Ave/Pacific Coast Hwy (SR-1) (Area 10)	7.7 – A	9.3 – A
38	Hawthorne Blvd (SR-107)/Redondo Beach Blvd (Area 1)	30.6 – C	38.0 – D

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***.

Table 3 (Continued)
Existing Conditions AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		Delay – LOS	Delay – LOS
39	Hawthorne Blvd (SR-107)/Artesia Blvd (Area 1)	31.2 – C	33.6 – C
40	Hawthorne Blvd (SR-107)/182nd St (Area 1)	17.7 – B	28.5 – C
41	Hawthorne Blvd (SR-107)/190th St (Area 3)	34.4 – C	36.5 – D
42	Hawthorne Blvd (SR-107)/Del Amo Blvd (Area 3)	33.2 – C	32.6 – C
43	Hawthorne Blvd (SR-107)/Spencer St (Area 3)	15.4 – B	14.3 – B
44	Hawthorne Blvd (SR-107)/Emerald St (Area 3)	16.7 – B	15.4 – B
45	Hawthorne Blvd (SR-107)/Torrance Blvd (Area 6)	37.4 – D	43.7 – D
46	Hawthorne Blvd (SR-107)/Village Lane-Fashion Way (Area 6)	8.0 – A	14.3 – B
47	Hawthorne Blvd (SR-107)/Del Amo Cir-Del Amo Cir North (Area 6)	5.6 – A	12.2 – B
48	Hawthorne Blvd (SR-107)/Carson St (Area 6)	30.3 – C	44.3 – D
49	Hawthorne Blvd (SR-107)/Sepulveda Blvd (Area 6)	39.4 – D	50.4 – D
50	Hawthorne Blvd (SR-107)/Lomita Blvd (Area 9)	40.1 – D	48.5 – D
51	Hawthorne Blvd (SR-107)/Skypark Dr (Area 9)	19.3 – B	26.6 – C
52	Hawthorne Blvd (SR-107)/Pacific Coast Hwy (SR-1) (Area 9)	43.3 – D	44.5 – D
53	Hawthorne Blvd (SR-107)/Newton St (Area 10)	7.7 – A	4.6 – A
54	Hawthorne Blvd (SR-107)/Rolling Hills Rd (Area 10)	15.0 – B	15.4 – B
55	Henrietta St/Del Amo Blvd (Area 3)	11.8 – B	7.8 – A
56	Henrietta St/Torrance Blvd (Area 6)	7.7 – A	4.6 – A
57	Madison St/Skypark Dr (Area 10)	14.8 – B	15.5 – B
58	Madison St/Pacific Coast Hwy (SR-1) (Area 10)	15.8 – B	18.2 – B
59	Madrona Ave/Spencer St (Area 4)	8.7 – A	6.6 – A
60	Madrona Ave/Emerald St (Area 4)	10.7 – B	8.9 – A
61	Madrona Ave/Torrance Blvd (Area 4)	31.5 – C	35.9 – D
62	Madrona Ave/Fashion Way (Area 7)	7.4 – A	7.4 – A
63	Madrona Ave/Carson St (Area 7)	25.7 – C	26.9 – C
64	Madrona Ave/Plaza Del Amo (Area 7)	20.1 – C	14.4 – B
65	Madrona Ave/Sepulveda Blvd (Area 7)	26.4 – C	30.2 – C
66	Maple Ave/Maricopa St (Area 4)	18.1 – B	18.5 – B
67	Maple Ave/Torrance Blvd (Area 4)	17.4 – B	17.1 – B
68	Maple Ave/Carson St (Area 7)	20.9 – C	20.2 – C
69	Maple Ave/Plaza Del Amo (Area 7)	10.3 – B	14.1 – B
70	Maple Ave/Sepulveda Blvd (Area 7)	26.6 – C	27.2 – C
71	Ocean Ave/Sepulveda Blvd (Area 6)	12.9 – B	13.9 – B
72	Ocean Ave/Lomita Blvd (Area 9)	14.5 – B	12.3 – B
73	Palos Verdes Blvd/Torrance Blvd (Area 6)	22.0 – C	22.5 – C
74	Palos Verdes Blvd/Sepulveda Blvd (Area 6)	22.9 – C	21.7 – C
75	Palos Verdes Blvd/Pacific Coast Hwy (SR-1) (Area 9)	35.7 – D	39.4 – D
76	Palos Verdes Blvd/Calle Mayor (Area 9)	7.4 – A	6.4 – A
77	Plaza Del Amo/Carson St (Area 5)	19.2 – B	12.7 – B
78	Prairie Ave/Redondo Beach Blvd (Area 1)	46.4 – D	***60.0 – E***
79	Prairie Ave/Artesia Blvd (Area 1)	36.4 – D	36.1 – D

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***.

Table 3 (Continued)
Existing Conditions AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		Delay – LOS	Delay – LOS
80	Prairie Ave/182nd St (Area 1)	32.7 – C	31.2 – C
81	Prairie Ave/190th St (Area 4)	38.3 – D	40.2 – D
82	Prairie Ave/Del Amo Blvd (Area 4)	30.8 – C	35.7 – D
83	Van Ness Ave/Redondo Beach Blvd (Area 2)	30.2 – C	33.5 – C
84	Van Ness Ave/Artesia Blvd (Area 2)	24.5 – C	28.6 – C
85	Van Ness Ave/182nd St (Area 2)	15.6 – B	16.1 – B
86	Van Ness Ave/190th St (Area 5)	27.8 – C	28.2 – C
87	Van Ness Ave/Del Amo Blvd (Area 5)	24.3 – C	14.6 – B
88	Victor St/Del Amo Blvd (Area 3)	11.5 – B	7.7 – A
89	Victor St/Torrance Blvd (Area 6)	5.2 – A	4.3 – A
90	Western Ave (SR-213)/Artesia Blvd (Area 2)	38.8 – D	39.9 – D
91	Western Ave (SR-213)/182nd St (Area 2)	14.6 – B	14.8 – B
92	Western Ave (SR-213)/190th St (Area 2)	35.0 – D	35.1 – D
93	Western Ave (SR-213)/Del Amo Blvd (Area 5)	13.2 – B	14.9 – B
94	Western Ave (SR-213)/Torrance Blvd (Area 5)	19.1 – B	24.7 – C
95	Western Ave (SR-213)/Carson St (Area 5)	21.3 – C	20.2 – C
96	Western Ave (SR-213)/223rd St (Area 8)	14.9 – B	17.4 – B
97	Western Ave (SR-213)/Sepulveda Blvd (Area 8)	45.5 – D	***62.3 – E***
98	Yukon Ave/Redondo Beach Blvd (Area 1)	7.4 – A	5.8 – A
99	Yukon Ave/Artesia Blvd (Area 1)	18.4 – B	18.4 – B
100	Yukon Ave/182nd St (Area 1)	12.6 – B	13.1 – B

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***.

As shown in Table 3, the following four study intersections are currently operating at a deficient LOS (LOS E or worse) according to City of Torrance performance criteria based on *HCM* analysis methodology during one or both peak hours:

- Crenshaw Boulevard/Lomita Boulevard (p.m. peak hour only);
- Crenshaw Boulevard/Pacific Coast Highway (SR-1) (p.m. peak hour only);
- Prairie Avenue/Redondo Beach Boulevard (p.m. peak hour only); and
- Western Avenue/Sepulveda Boulevard (p.m. peak hour only).

Existing Conditions Peak Hour LOS – *ICU* Methodology

Table 4 summarizes existing conditions a.m. peak hour and p.m. peak hour LOS of the study intersections utilizing the *ICU* analysis methodology; detailed LOS analysis sheets are contained in Appendix B.

Table 4
Existing Conditions AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS
1	Amie Ave/Torrance Blvd (Area 4)	0.39 – A	0.52 – A
2	Anza Ave/190th St (Area 3)	0.84 – D	0.79 – C
3	Anza Ave/Del Amo Blvd (Area 3)	0.70 – B	0.66 – B
4	Anza Ave/Spencer St (Area 3)	0.45 – A	0.55 – A
5	Anza Ave/Emerald St (Area 3)	0.46 – A	0.53 – A
6	Anza Ave/Torrance Blvd (Area 6)	0.72 – C	0.82 – D
7	Anza Ave/Carson St (Area 6)	0.66 – B	0.78 – C
8	Anza Ave/Sepulveda Blvd (Area 6)	***0.99 – E***	***1.05 – F***
9	Anza Ave/Lomita Blvd (Area 9)	0.77 – C	0.70 – B
10	Anza Ave/Calle Mayor (Area 9)	0.71 – C	0.64 – B
11	Anza Ave/Pacific Coast Hwy (SR-1) (Area 9)	0.77 – C	0.78 – C
12	Arlington Ave/Carson St (Area 5)	0.63 – B	0.70 – B
13	Arlington Ave/Plaza Del Amo-Washington Ave (Area 8)	***0.96 – E***	0.84 – D
14	Arlington Ave/Sepulveda Blvd (Area 8)	0.86 – D	0.83 – D
15	Arlington Ave/235th St (Area 8)	0.74 – C	0.70 – B
16	Cabrillo Ave/Carson St (Area 5)	0.47 – A	0.69 – B
17	Cabrillo Ave/Sepulveda Blvd (Area 8)	0.78 – C	0.58 – A
18	Cabrillo Ave-Van Ness Ave/Torrance Blvd (Area 5)	0.77 – C	0.78 – C
19	Calle Mayor/Pacific Coast Hwy (SR-1) (Area 9)	0.73 – C	0.82 – D
20	Crenshaw Blvd/Redondo Beach Blvd (Area 2)	0.79 – C	0.78 – C
21	Crenshaw Blvd/Artesia Blvd (Area 2)	0.90 – D	0.86 – D
22	Crenshaw Blvd/182nd St (Area 2)	***0.93 – E***	***0.92 – E***
23	Crenshaw Blvd/190th St (Area 4)	***0.98 – E***	***1.07 – F***
24	Crenshaw Blvd/Del Amo Blvd (Area 4)	0.66 – B	0.67 – B
25	Crenshaw Blvd/Maricopa St (Area 4)	0.70 – B	0.72 – C
26	Crenshaw Blvd/Torrance Blvd (Area 4)	0.82 – D	***0.95 – E***
27	Crenshaw Blvd/Carson St (Area 7)	***0.92 – E***	***0.94 – E***
28	Crenshaw Blvd/Plaza Del Amo (Area 7)	0.53 – A	0.65 – B
29	Crenshaw Blvd/Sepulveda Blvd (Area 8)	0.83 – D	0.88 – D
30	Crenshaw Blvd/235th St (Area 8)	0.80 – C	0.81 – D
31	Crenshaw Blvd/Lomita Blvd (Area 8)	***0.95 – E***	***1.23 – F***
32	Crenshaw Blvd/Skypark Drive-Amsler St (Area 8)	0.49 – A	0.76 – C
33	Crenshaw Blvd/Pacific Coast Hwy (SR-1) (Area 10)	***1.12 – F***	***1.31 – F***
34	Crenshaw Blvd/Rolling Hills Rd (Area 10)	0.69 – B	0.69 – B
35	Del Amo Cir East/Carson St (Area 7)	0.34 – A	0.59 – A
36	Del Amo Cir East/Sepulveda Blvd (Area 7)	0.74 – C	0.90 – D
37	Denny Rd-Robinson Ave/Pacific Coast Hwy (SR-1) (Area 10)	0.47 – A	0.49 – A
38	Hawthorne Blvd (SR-107)/Redondo Beach Blvd (Area 1)	0.89 – D	0.87 – D

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics***.

Table 4 (Continued)
Existing Conditions AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS
39	Hawthorne Blvd (SR-107)/Artesia Blvd (Area 1)	0.84 – D	0.80 – C
40	Hawthorne Blvd (SR-107)/182nd St (Area 1)	0.66 – B	0.82 – D
41	Hawthorne Blvd (SR-107)/190th St (Area 3)	0.88 – D	***0.91 – E***
42	Hawthorne Blvd (SR-107)/Del Amo Blvd (Area 3)	0.77 – C	0.80 – C
43	Hawthorne Blvd (SR-107)/Spencer St (Area 3)	0.63 – B	0.74 – C
44	Hawthorne Blvd (SR-107)/Emerald St (Area 3)	0.70 – B	0.69 – B
45	Hawthorne Blvd (SR-107)/Torrance Blvd (Area 6)	0.77 – C	***0.97 – E***
46	Hawthorne Blvd (SR-107)/Village Lane-Fashion Way (Area 6)	0.52 – A	0.71 – C
47	Hawthorne Blvd (SR-107)/Del Amo Cir-Del Amo Cir North (Area 6)	0.51 – A	0.71 – C
48	Hawthorne Blvd (SR-107)/Carson St (Area 6)	0.70 – B	***1.02 – F***
49	Hawthorne Blvd (SR-107)/Sepulveda Blvd (Area 6)	0.88 – D	***1.13 – F***
50	Hawthorne Blvd (SR-107)/Lomita Blvd (Area 9)	***0.94 – E***	***1.05 – F***
51	Hawthorne Blvd (SR-107)/Skypark Dr (Area 9)	0.66 – B	0.77 – C
52	Hawthorne Blvd (SR-107)/Pacific Coast Hwy (SR-1) (Area 9)	***0.92 – E***	***0.92 – E***
53	Hawthorne Blvd (SR-107)/Newton St (Area 10)	0.54 – A	0.51 – A
54	Hawthorne Blvd (SR-107)/Rolling Hills Rd (Area 10)	0.74 – C	0.61 – B
55	Henrietta St/Del Amo Blvd (Area 3)	0.51 – A	0.36 – A
56	Henrietta St/Torrance Blvd (Area 6)	0.47 – A	0.46 – A
57	Madison St/Skypark Dr (Area 10)	0.39 – A	0.58 – A
58	Madison St/Pacific Coast Hwy (SR-1) (Area 10)	0.58 – A	0.59 – A
59	Madrona Ave/Spencer St (Area 4)	0.40 – A	0.45 – A
60	Madrona Ave/Emerald St (Area 4)	0.42 – A	0.48 – A
61	Madrona Ave/Torrance Blvd (Area 4)	0.68 – B	0.85 – D
62	Madrona Ave/Fashion Way (Area 7)	0.33 – A	0.40 – A
63	Madrona Ave/Carson St (Area 7)	0.57 – A	0.62 – B
64	Madrona Ave/Plaza Del Amo (Area 7)	0.54 – A	0.44 – A
65	Madrona Ave/Sepulveda Blvd (Area 7)	0.77 – C	***0.93 – E***
66	Maple Ave/Maricopa St (Area 4)	0.49 – A	0.44 – A
67	Maple Ave/Torrance Blvd (Area 4)	0.70 – B	0.81 – D
68	Maple Ave/Carson St (Area 7)	0.67 – B	0.78 – C
69	Maple Ave/Plaza Del Amo (Area 7)	0.31 – A	0.35 – A
70	Maple Ave/Sepulveda Blvd (Area 7)	0.64 – B	0.80 – C
71	Ocean Ave/Sepulveda Blvd (Area 6)	0.54 – A	0.53 – A
72	Ocean Ave/Lomita Blvd (Area 9)	0.53 – A	0.58 – A
73	Palos Verdes Blvd/Torrance Blvd (Area 6)	0.56 – A	0.59 – A
74	Palos Verdes Blvd/Sepulveda Blvd (Area 6)	0.65 – B	0.62 – B
75	Palos Verdes Blvd/Pacific Coast Hwy (SR-1) (Area 9)	0.77 – C	0.86 – D
76	Palos Verdes Blvd/Calle Mayor (Area 9)	0.53 – A	0.50 – A
77	Plaza Del Amo/Carson St (Area 5)	0.83 – D	0.75 – C
78	Prairie Ave/Redondo Beach Blvd (Area 1)	***0.94 – E***	***1.07 – F***
79	Prairie Ave/Artesia Blvd (Area 1)	0.83 – D	0.83 – D

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics***.

Table 4 (Continued)
Existing Conditions AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS
80	Prairie Ave/182nd St (Area 1)	0.89 – D	0.88 – D
81	Prairie Ave/190th St (Area 4)	***0.91 – E***	***0.96 – E***
82	Prairie Ave/Del Amo Blvd (Area 4)	0.63 – B	0.89 – D
83	Van Ness Ave/Redondo Beach Blvd (Area 2)	0.66 – B	0.81 – D
84	Van Ness Ave/Artesia Blvd (Area 2)	0.53 – A	0.76 – C
85	Van Ness Ave/182nd St (Area 2)	0.52 – A	0.59 – A
86	Van Ness Ave/190th St (Area 5)	0.76 – C	0.78 – C
87	Van Ness Ave/Del Amo Blvd (Area 5)	0.68 – B	0.47 – A
88	Victor St/Del Amo Blvd (Area 3)	0.51 – A	0.35 – A
89	Victor St/Torrance Blvd (Area 6)	0.45 – A	0.51 – A
90	Western Ave (SR-213)/Artesia Blvd (Area 2)	0.84 – D	0.87 – D
91	Western Ave (SR-213)/182nd St (Area 2)	0.51 – A	0.67 – B
92	Western Ave (SR-213)/190th St (Area 2)	0.90 – D	0.80 – C
93	Western Ave (SR-213)/Del Amo Blvd (Area 5)	0.73 – C	0.67 – B
94	Western Ave (SR-213)/Torrance Blvd (Area 5)	0.60 – A	0.71 – C
95	Western Ave (SR-213)/Carson St (Area 5)	0.82 – D	0.87 – D
96	Western Ave (SR-213)/223rd St (Area 8)	0.76 – C	***0.98 – E***
97	Western Ave (SR-213)/Sepulveda Blvd (Area 8)	***0.97 – E***	***1.09 – F***
98	Yukon Ave/Redondo Beach Blvd (Area 1)	0.57 – A	0.55 – A
99	Yukon Ave/Artesia Blvd (Area 1)	0.70 – B	0.69 – B
100	Yukon Ave/182nd St (Area 1)	0.45 – A	0.58 – A

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics*****.**

As shown in Table 4, the following 19 study intersections are currently operating at a deficient LOS (LOS E or worse) according to City of Torrance performance criteria based on *ICU* analysis methodology during the one or both peak hours:

- Anza Avenue/Sepulveda Boulevard (both a.m. and p.m. peak hours);
- Arlington Avenue/Plaza Del Amo-Washington Avenue (a.m. peak hour only);
- Crenshaw Boulevard/182nd Street (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/190th Street (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/Torrance Boulevard (p.m. peak hour only);
- Crenshaw Boulevard/Carson Street (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/Lomita Boulevard (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/Pacific Coast Highway (SR-1) (both a.m. and p.m. peak hours);
- Hawthorne Boulevard (SR-107)/190th Street (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Torrance Boulevard (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Carson Street (p.m. peak hour only);

- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Lomita Boulevard (both a.m. and p.m. peak hours);
- Hawthorne Boulevard (SR-107)/Pacific Coast Highway (SR-1) (both a.m. and p.m. peak hours);
- Madrona Avenue/Sepulveda Boulevard (p.m. peak hour only);
- Prairie Avenue/Redondo Beach Boulevard (both a.m. and p.m. peak hours);
- Prairie Avenue/190th Street (both a.m. and p.m. peak hours);
- Western Avenue (SR-213)/223rd Street (p.m. peak hour only); and
- Western Avenue (SR-213)/Sepulveda Boulevard (both a.m. and p.m. peak hours).

PROPOSED GENERAL PLAN UPDATE

The proposed General Plan Update project consists of an overall increase citywide of 2,593 residential dwelling units and a reduction citywide of 343,044 square feet of non-residential land uses.

General Plan Update Project Trip Generation

To calculate trip generation of the proposed General Plan Update project, *Institute of Transportation Engineers (ITE)* trip generation rates were utilized. Table 5 summarizes the *ITE* trip generation rates used to calculate the number of trips forecast to be generated by the various land uses Citywide comprising the proposed project.

Table 5
***ITE* Trip Rates for Proposed General Plan Update Project Land Uses Citywide**

Land Use (*ITE* Code)	Units	AM Peak Hour			PM Peak Hour			Daily Trip Rate
		In	Out	Total	In	Out	Total	
Heavy Industrial (120)	tsf	0.45	0.06	0.51	0.08	0.37	0.45	1.50
Industrial Park (130)	tsf	0.69	0.15	0.84	0.18	0.68	0.86	6.96
Single-Family Detached Housing (210)	du	0.19	0.56	0.75	0.64	0.37	1.01	9.57
Apartment (220)	du	0.10	0.41	0.51	0.40	0.22	0.62	6.72
Residential Condominium (230)	du	0.07	0.37	0.44	0.35	0.17	0.52	5.86
General Office (710)	tsf	1.36	0.19	1.55	0.25	1.24	1.49	11.01
Business Park (770)	tsf	1.20	0.23	1.43	0.30	0.99	1.29	12.76
Shopping Center (820)	tsf	0.63	0.40	1.03	1.80	1.95	3.75	42.94

Source: *2003 ITE Trip Generation Manual, 7th Edition.*
Note: tsf = thousand square feet; du = dwelling unit.

Table 6 summarizes the total trips forecast to be generated by the proposed project utilizing the trip generation data shown in Table 5.

Table 6
Forecast Trip Generation of Proposed General Plan Update Project

Land Use	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
	In	Out	Total	In	Out	Total	
- 5.441 tsf Heavy Industrial	- 2	0	- 2	0	- 2	- 2	- 8
- 473.153 tsf Industrial Park	- 326	- 71	- 397	- 85	- 322	- 407	- 3,293
- 63-du Single-Family Detached Housing	- 12	- 35	- 47	- 40	- 23	- 63	- 603
664-du Apartment	66	272	338	266	146	412	4,462
1,992-du Residential Condominium	139	737	876	697	339	1,036	11,673
177.198 tsf Shopping Center	112	71	183	319	346	665	7,609
Pass-By Reduction (34 Percent PM Peak Hour Only)	N/A	N/A	N/A	- 108	- 118	- 226	- 226
431.505 tsf General Office	587	82	669	108	535	643	4,751
- 473.153 tsf Business Park	- 568	- 109	- 677	- 142	- 468	- 610	- 6,037
Total Forecast Trip Generation of Proposed Project	**- 4**	**947**	**943**	**1,015**	**433**	**1,448**	**18,328**

Note: tsf = thousand square feet; du = dwelling unit; N/A = not applicable.

As shown in Table 6, the proposed General Plan Update project is forecast to generate approximately 18,328 daily trips, which include approximately 943 a.m. peak hour trips and approximately 1,448 p.m. peak hour trips.

Project Trip Distribution and Assignment

Exhibits 23 through 32 show the corresponding assignment of project-generated peak hour trips for the proposed General Plan Update utilizing the City of Torrance adopted Citywide Traffic Analysis Model prepared by *RBF Consulting*.

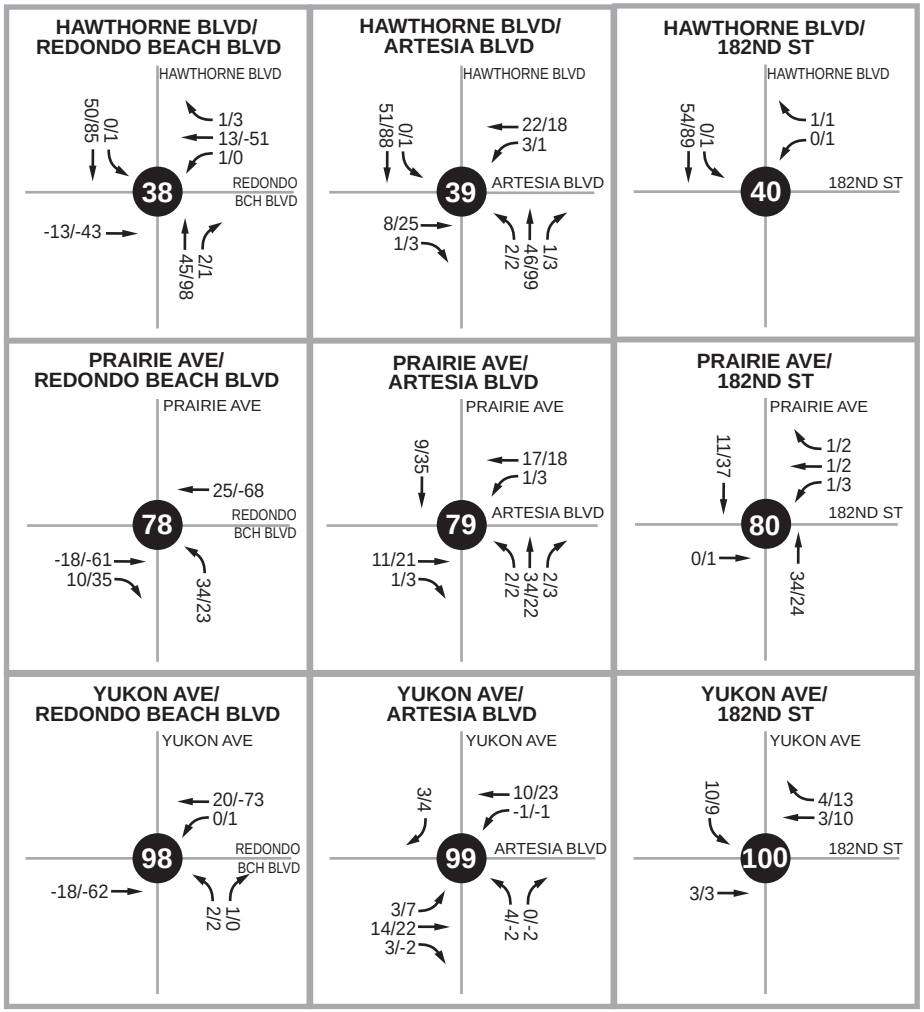
FORECAST EXISTING PLUS PROPOSED GENERAL PLAN UPDATE CONDITIONS

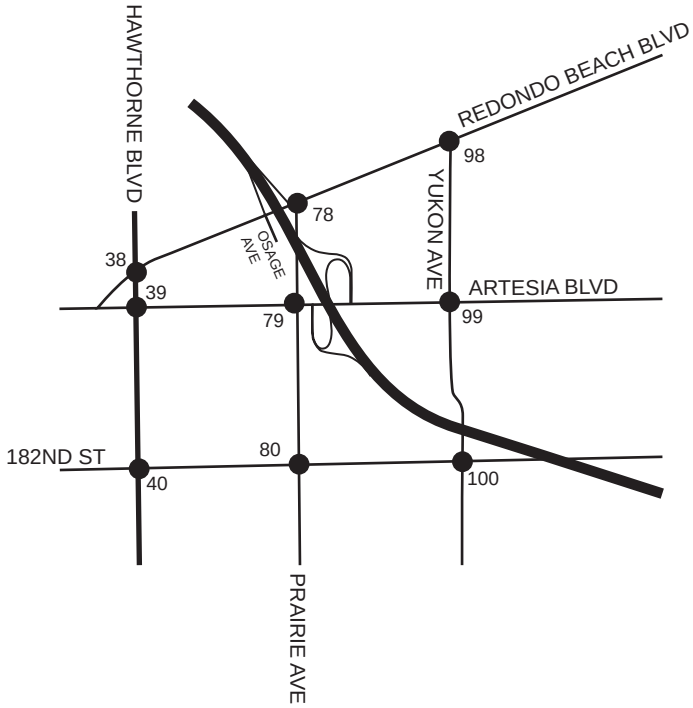
This section analyzes the traffic conditions associated with implementation of the proposed General Plan Update project.

Forecast Existing Plus Proposed General Plan Update Conditions Traffic Volumes

Forecast existing plus proposed General Plan Update conditions a.m. and p.m. peak hour volumes were derived by adding project trip generation to existing conditions traffic volumes.

Exhibits 33 through 42 show forecast existing plus proposed General Plan Update conditions a.m. and p.m. peak hour volumes at the study intersections.





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

RBF

Area 1 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

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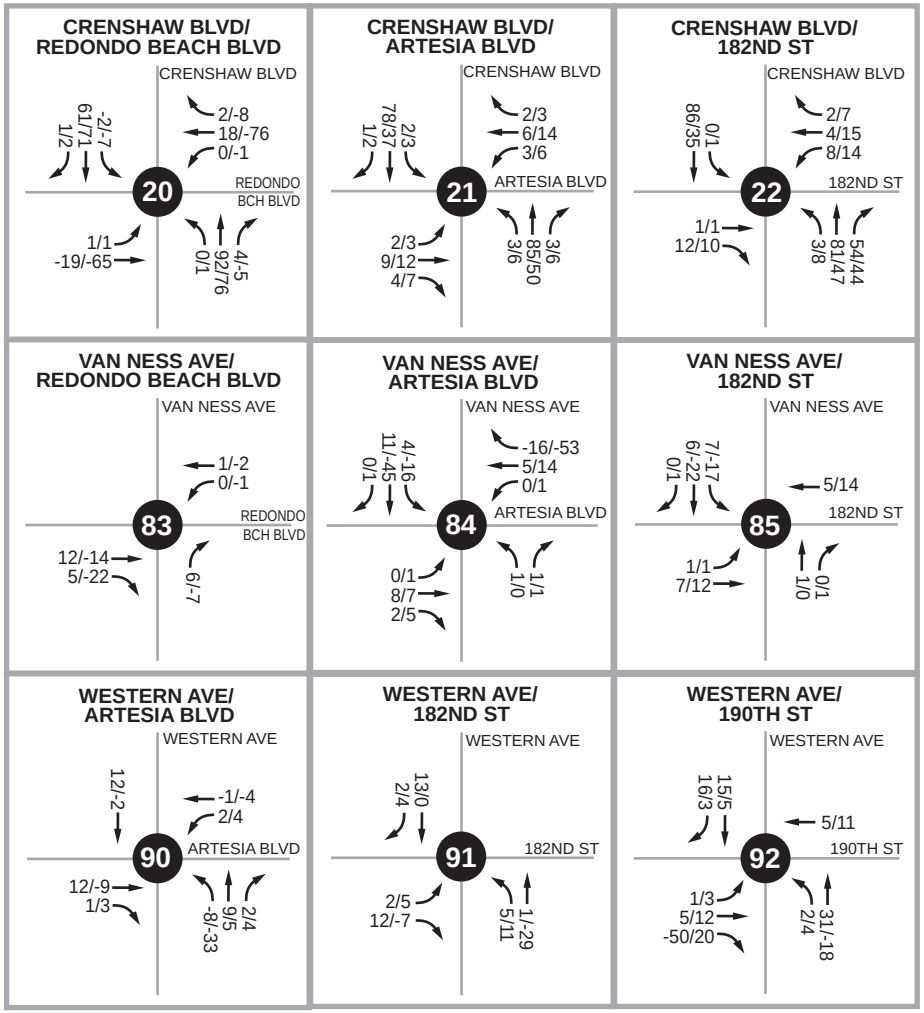
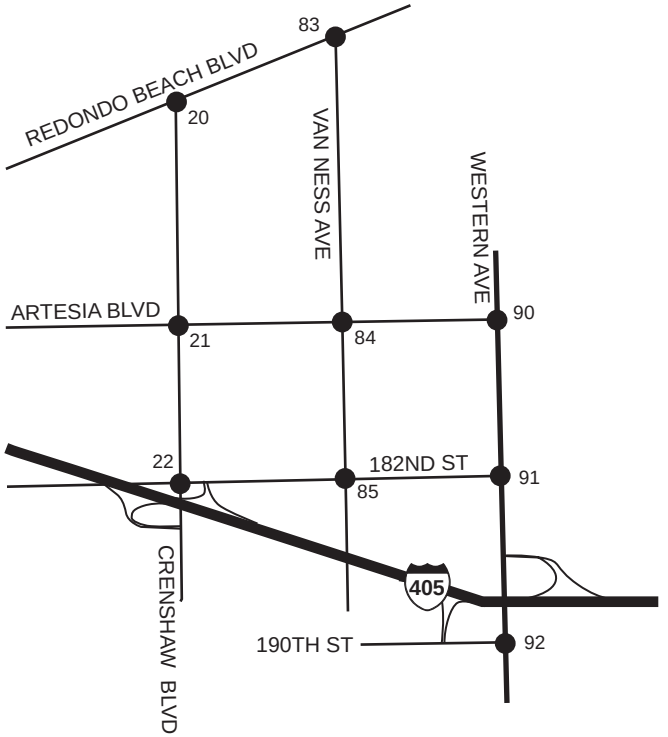
Exhibit 23





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

RBF

Area 2 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

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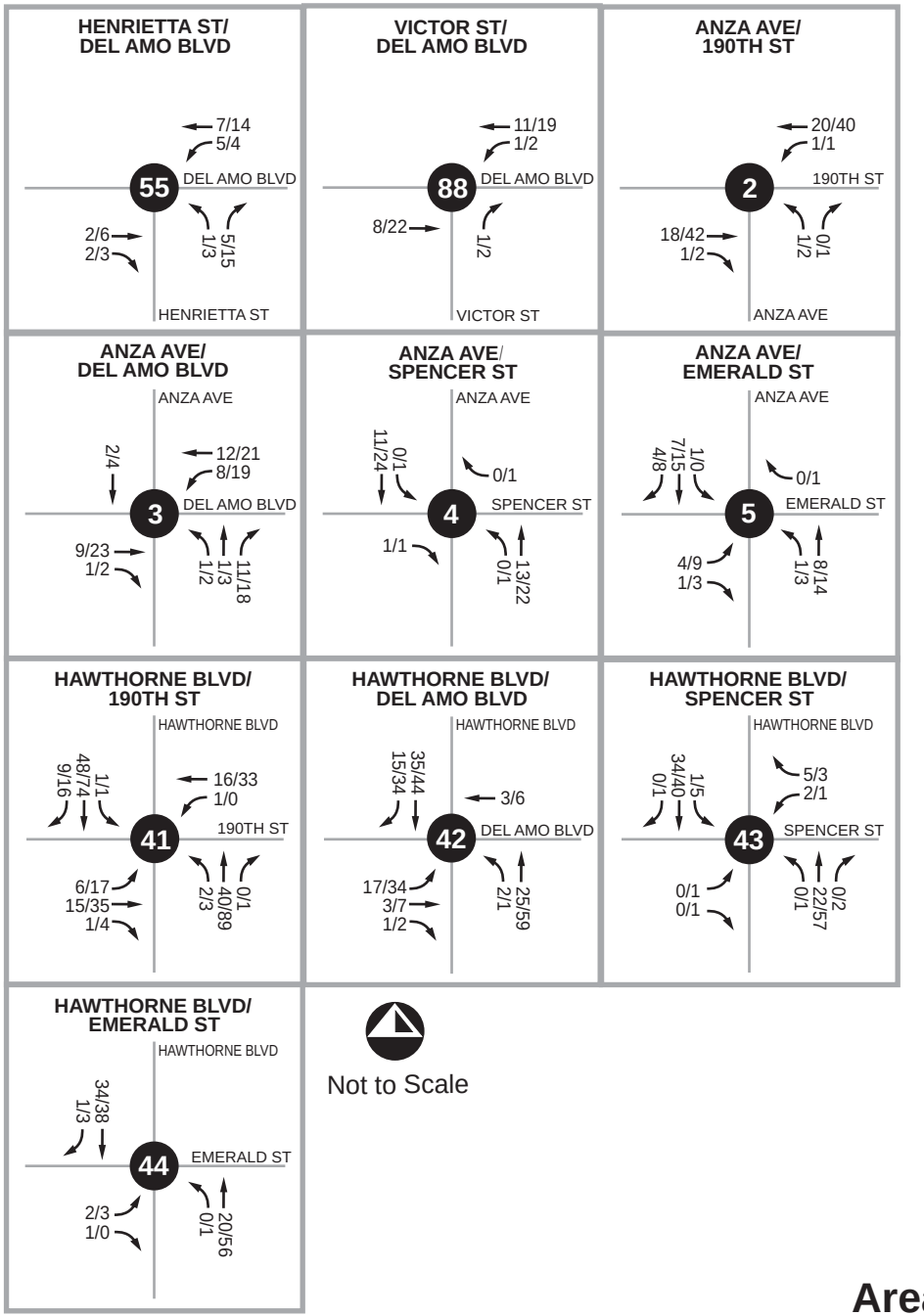
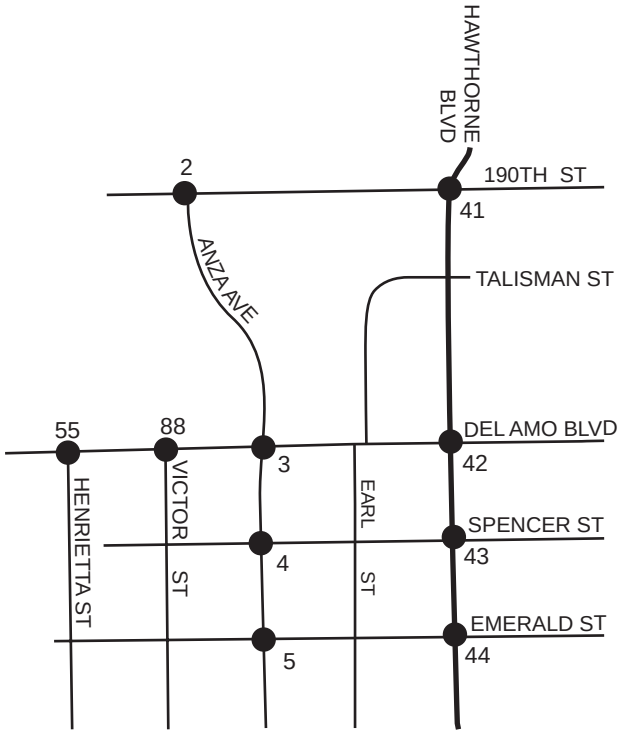
Exhibit 24

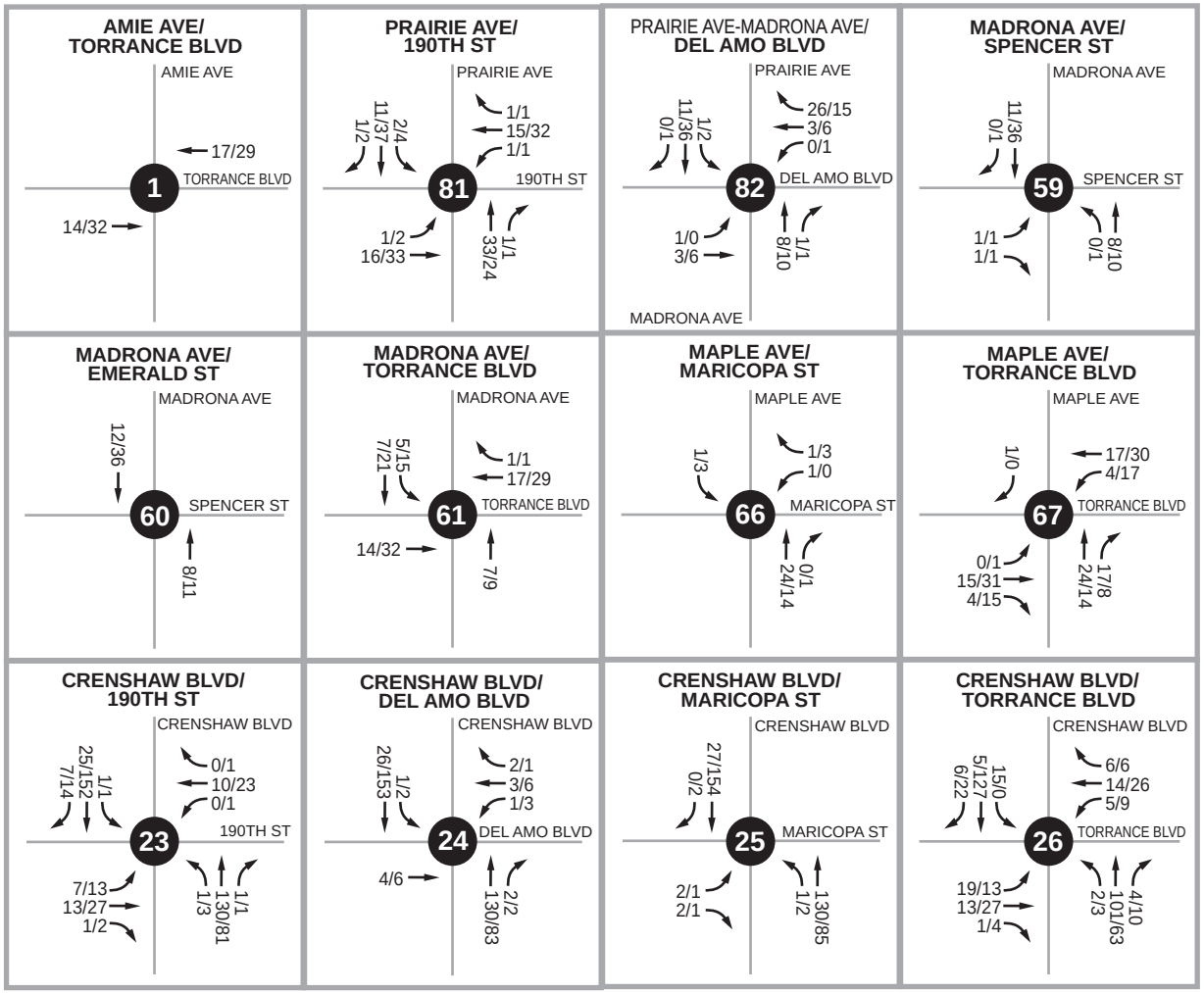


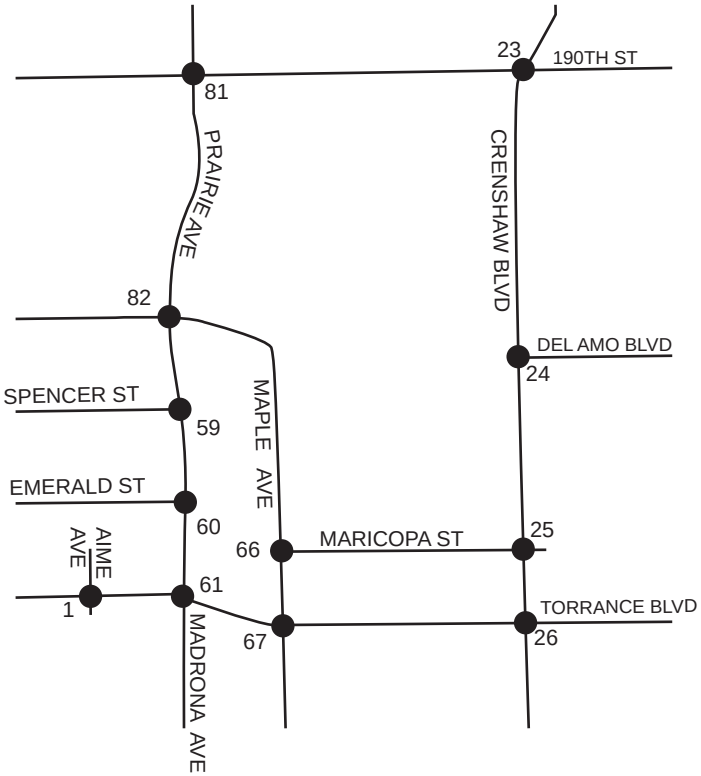


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 3 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project





Legend:

XX/XX AM/PM Peak Hour Volumes

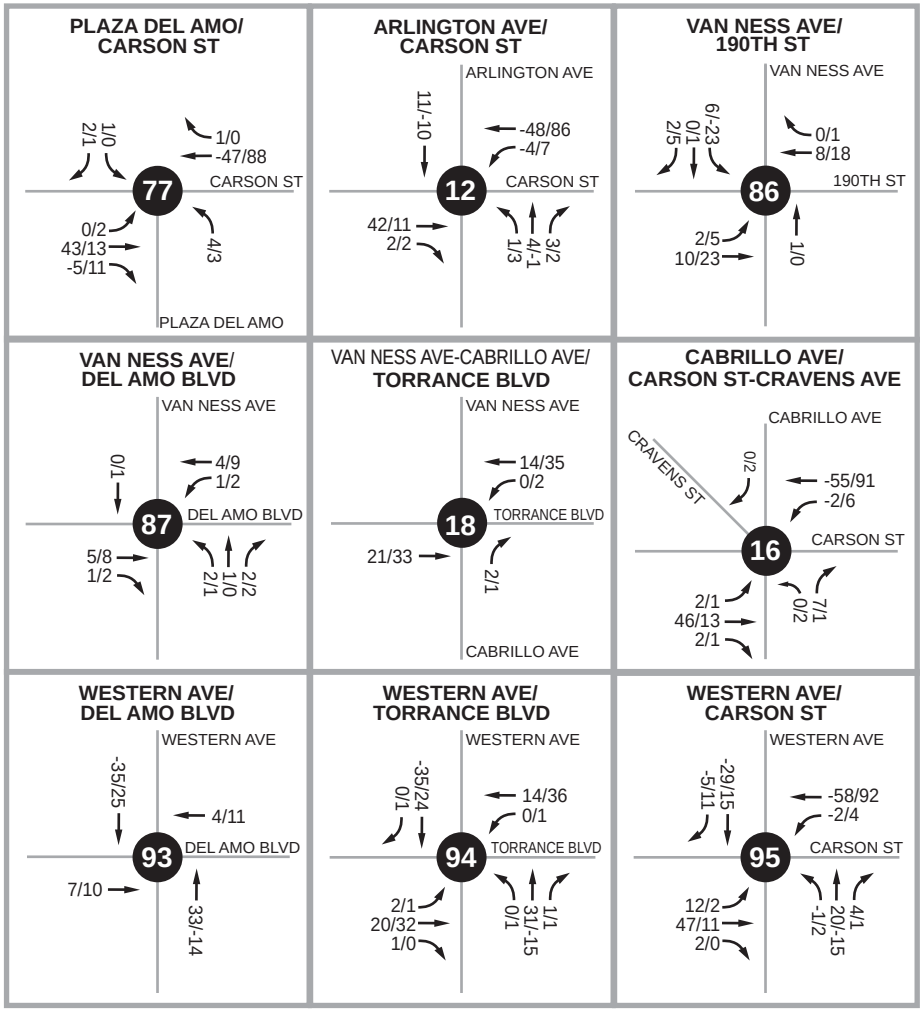
Not to Scale

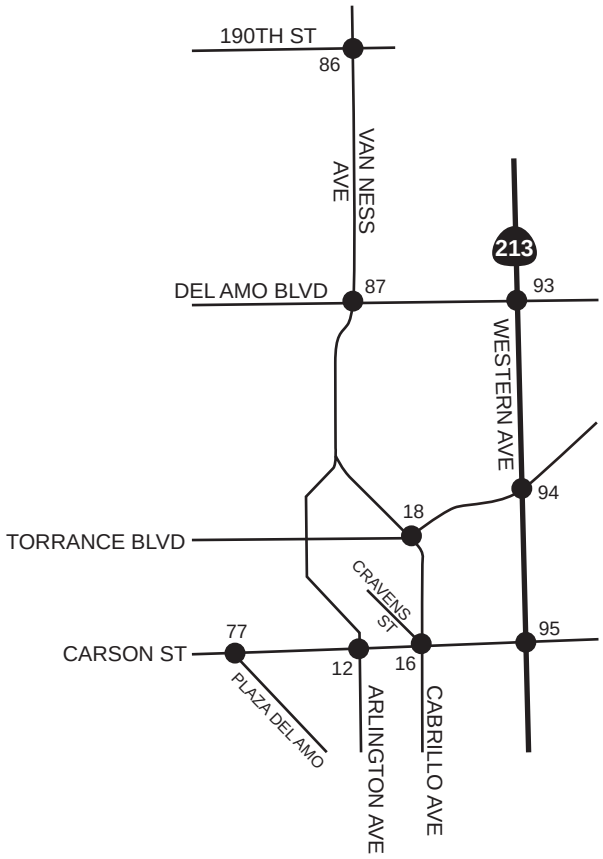
RBF

Area 4 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

H:\PDATA\10106570\Traffic\Exhibits\Exh26.ai APR/2009

Exhibit 26





Legend:

XX/XX AM/PM Peak Hour Volumes

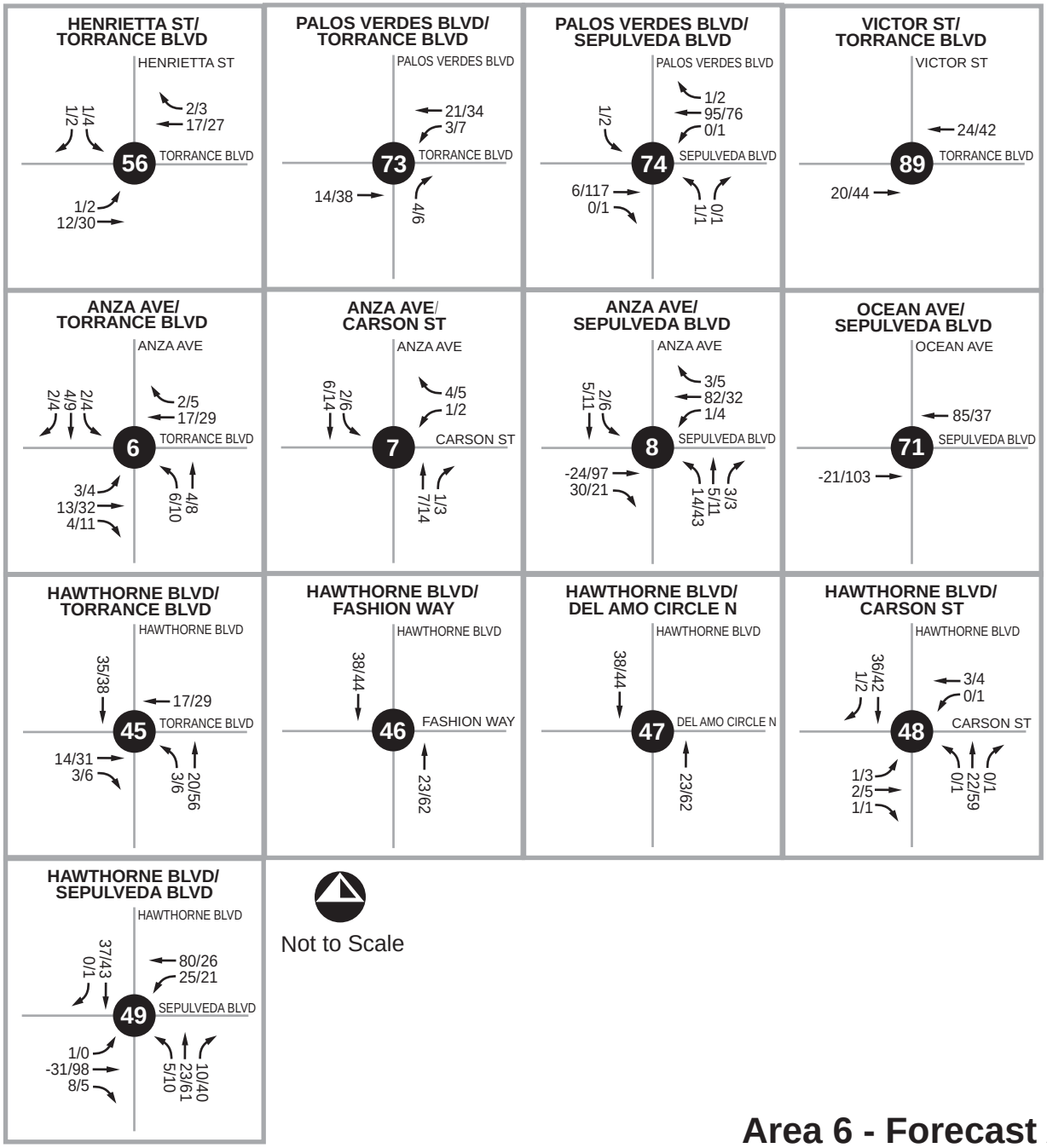
Not to Scale

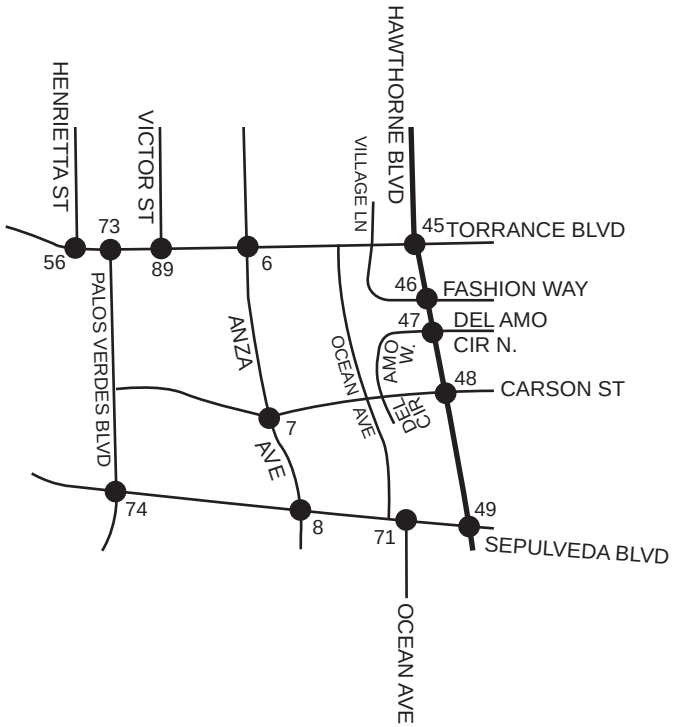
RBF

Area 5 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

H:\PDATA\10106570\Traffic\Exhibits\Exh27.ai APR/2009

Exhibit 27

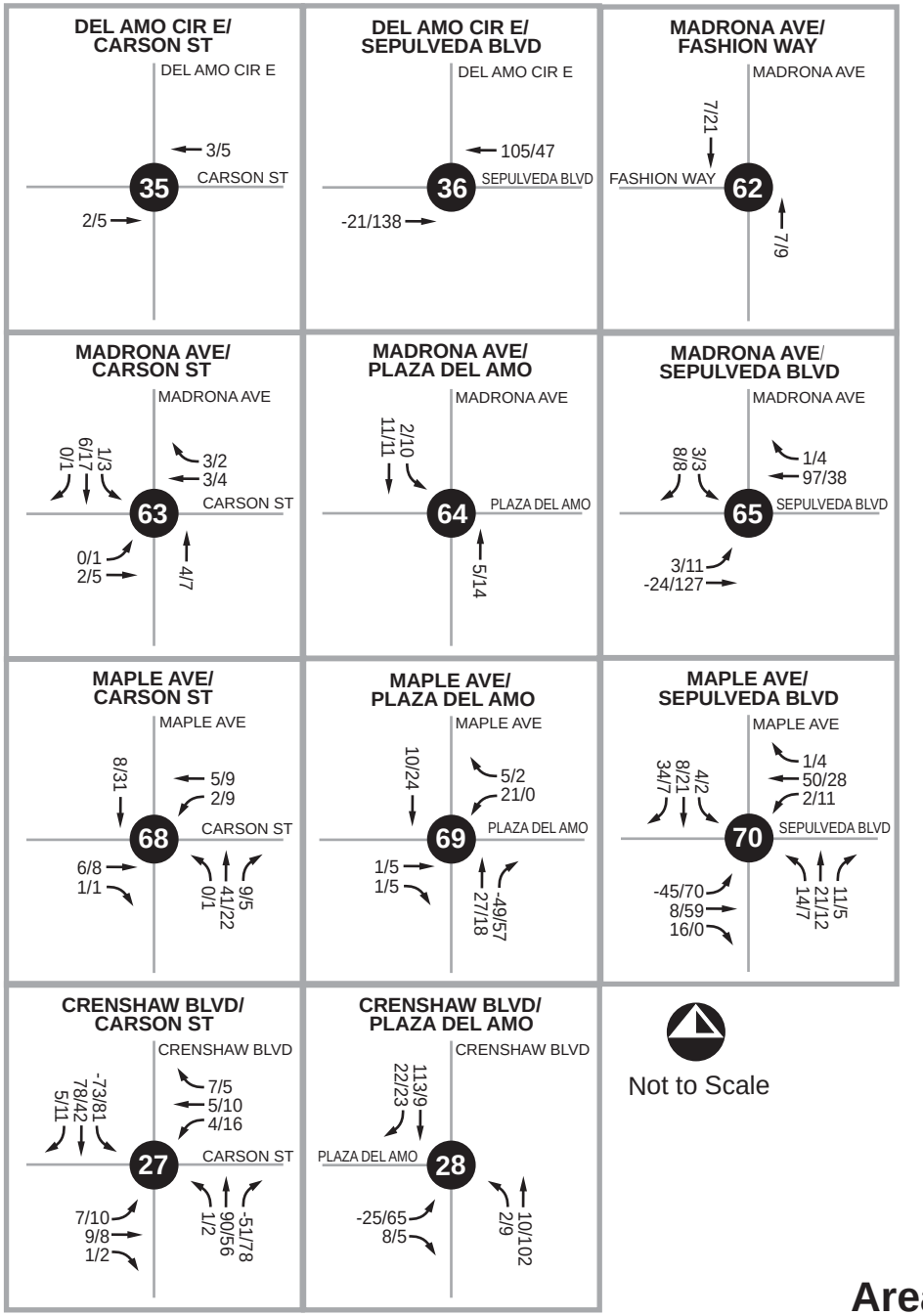




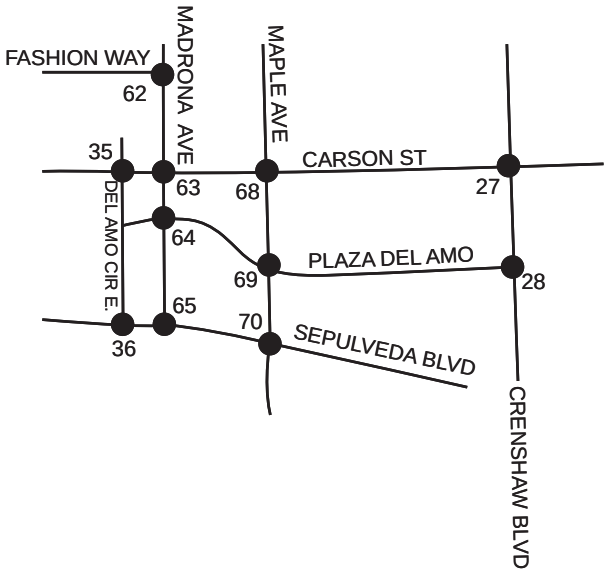
Legend:

XX/XX AM/PM Peak Hour Volumes

Area 6 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project



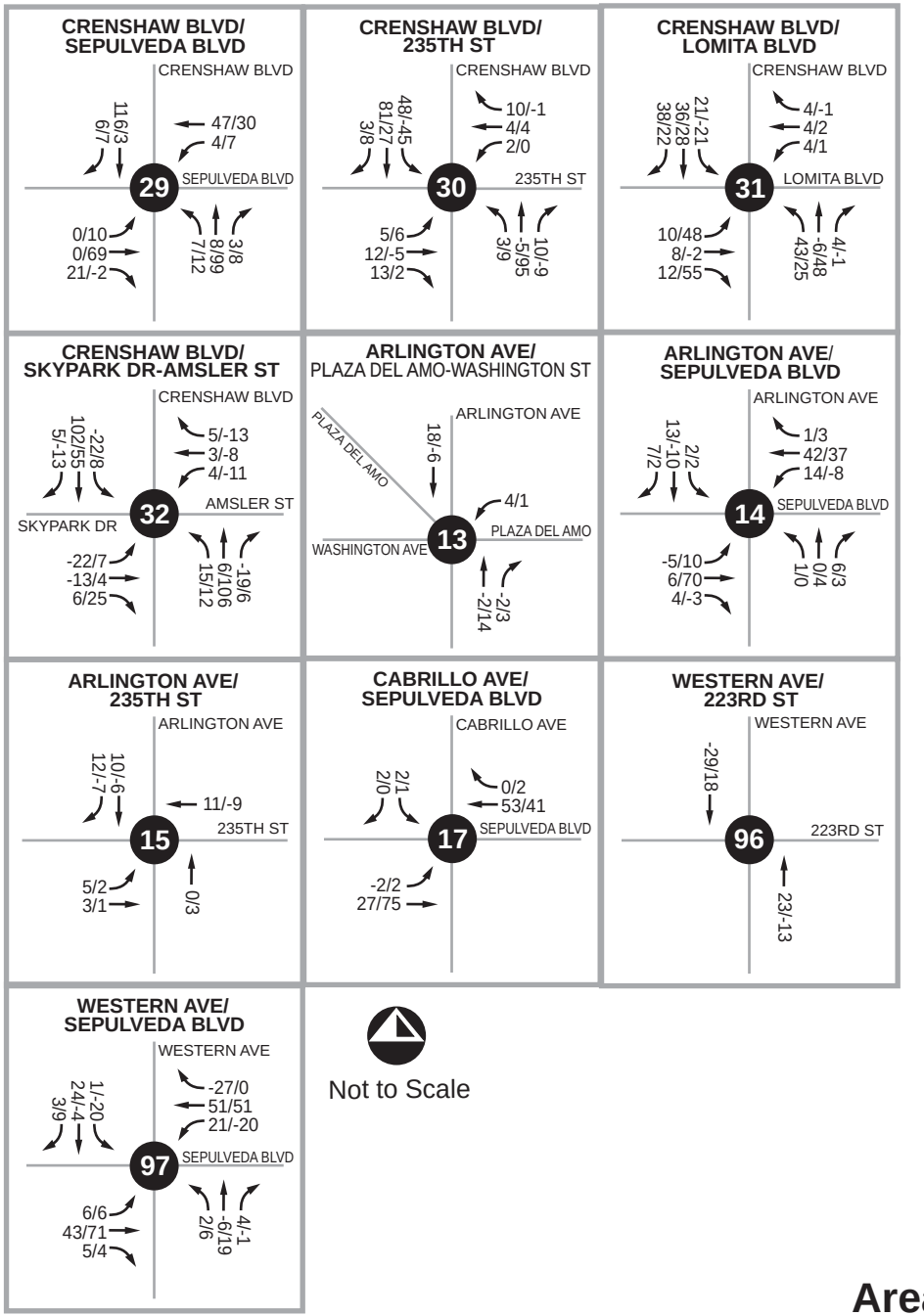
Not to Scale



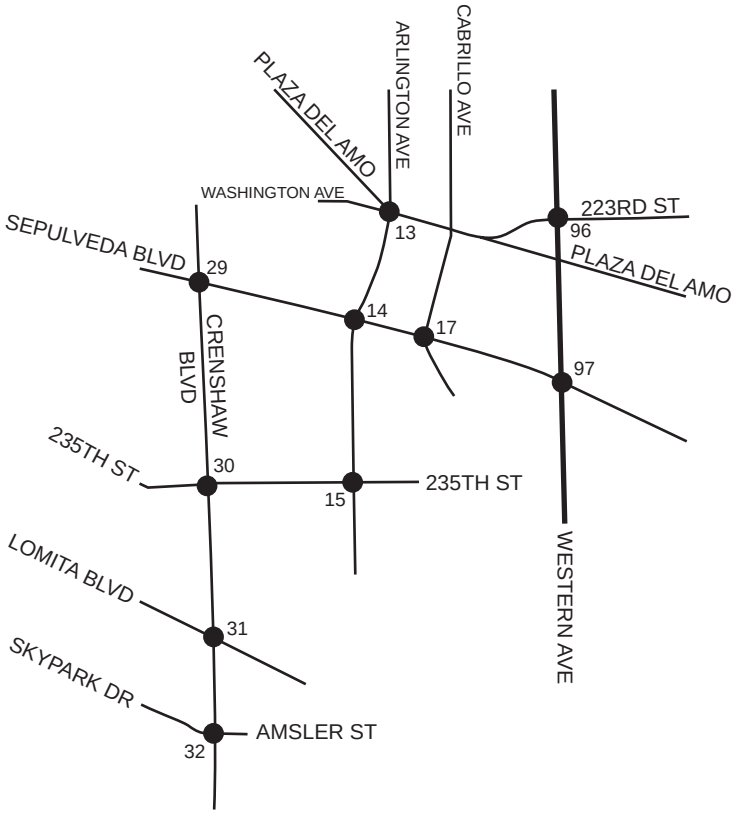
Legend:

XX/XX AM/PM Peak Hour Volumes

Area 7 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project



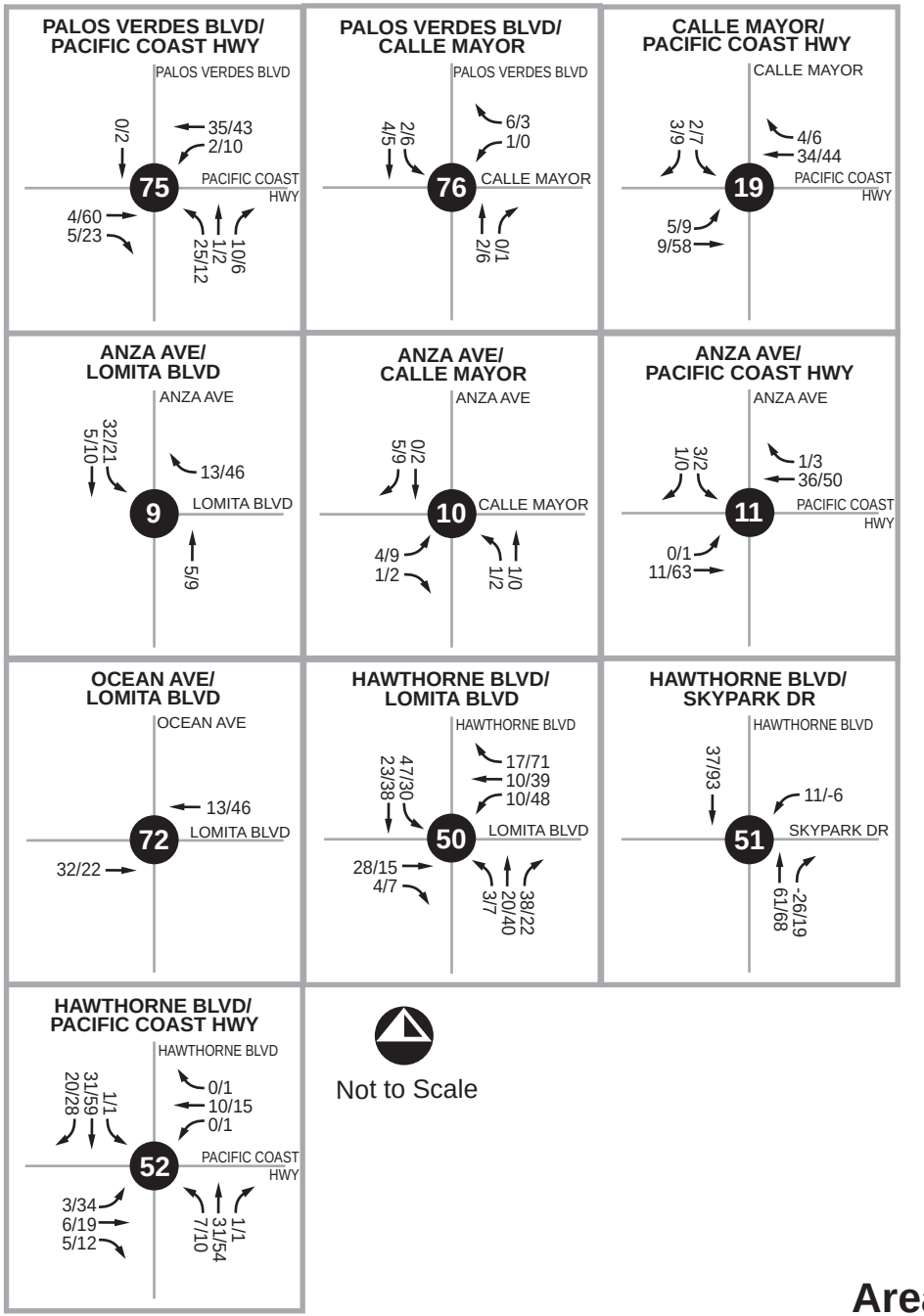
Not to Scale

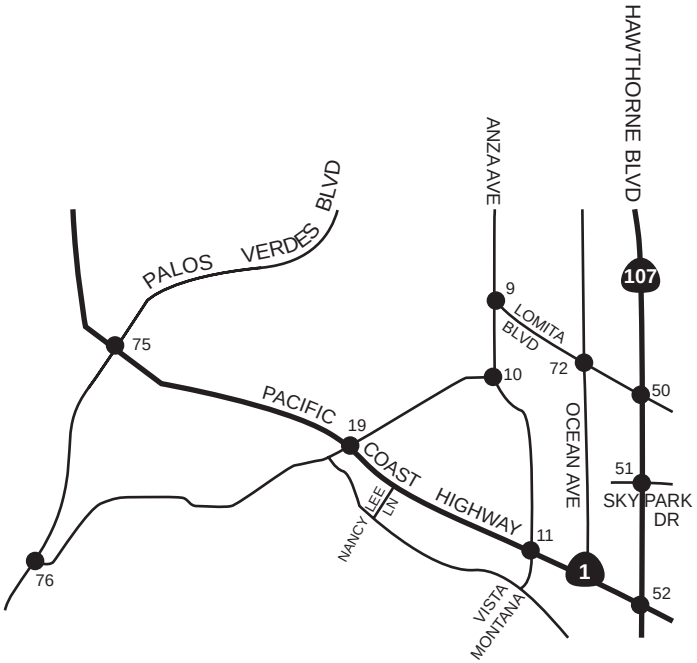


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 8 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

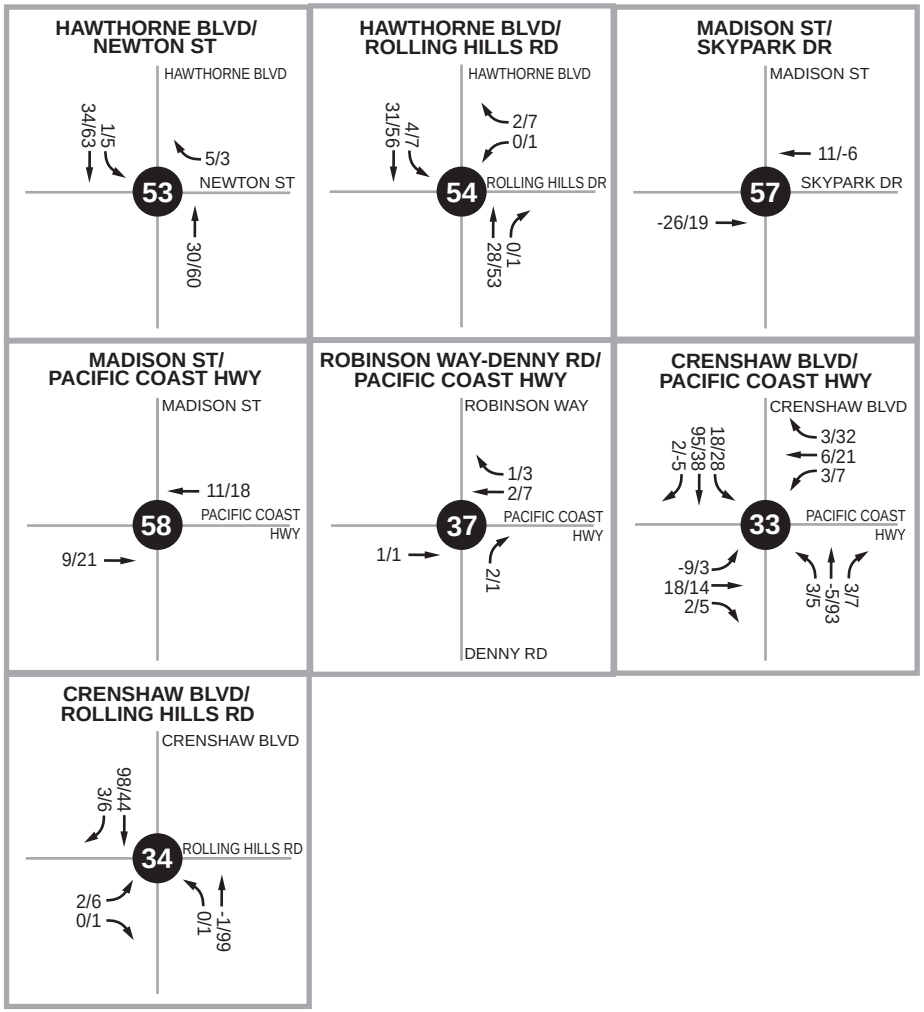


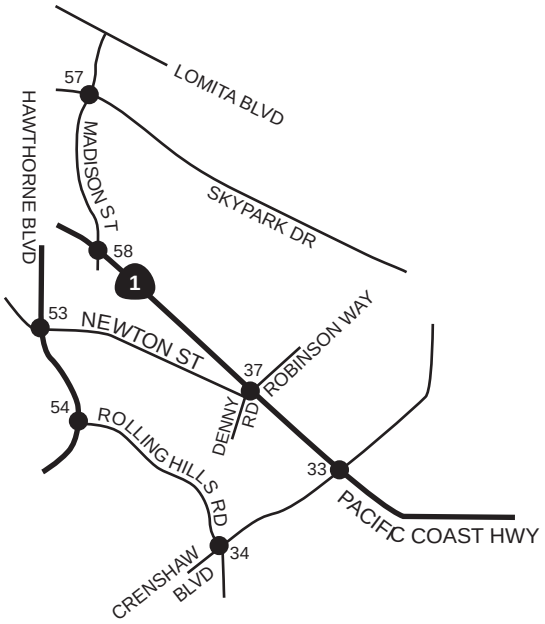


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 9 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project





Legend:

XX/XX AM/PM Peak Hour Volumes

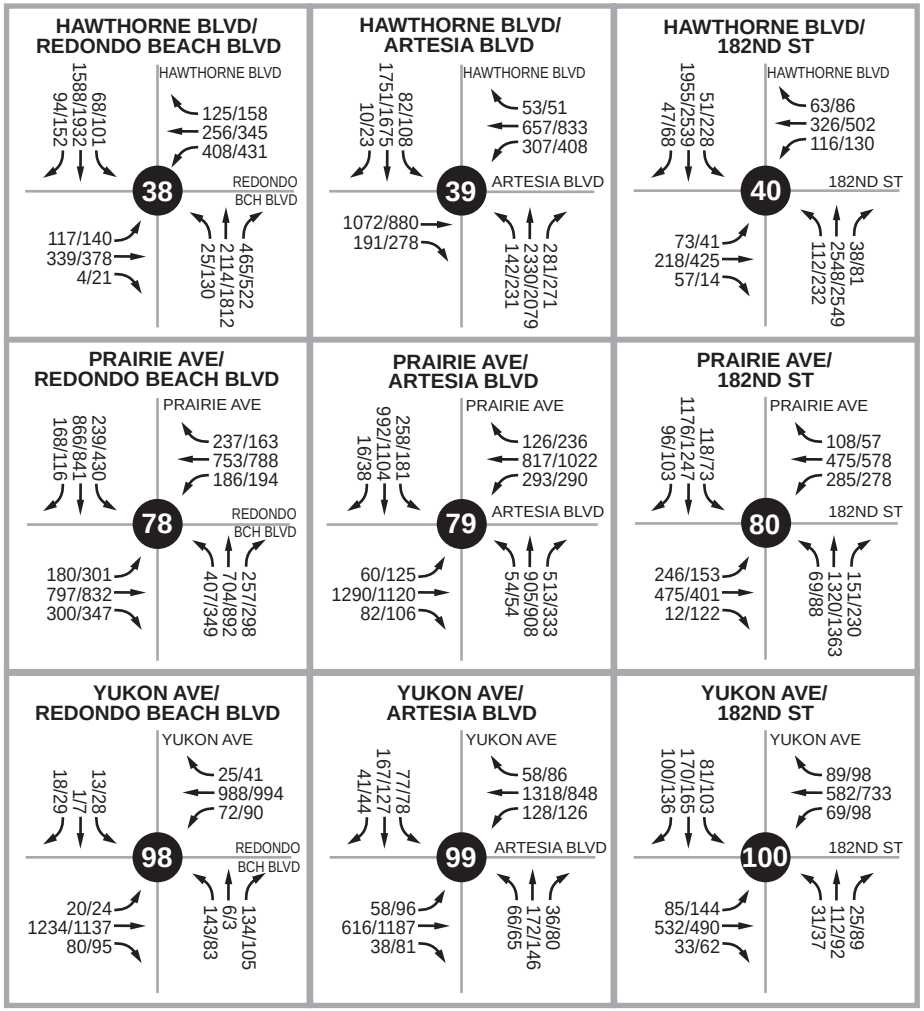
Not to Scale

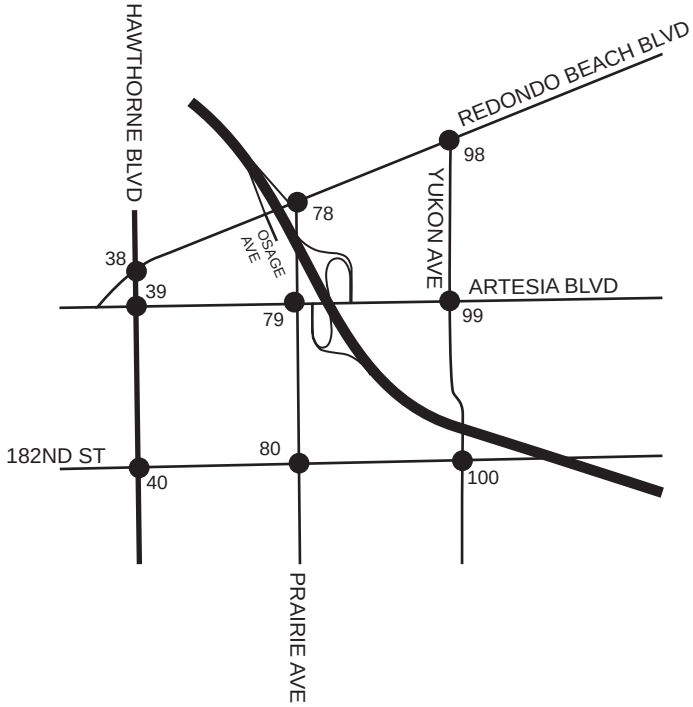
RBF

Area 10 - Forecast AM/PM Peak Hour Trip Assignment of Proposed General Plan Update Project

H:\PDATA\10106570\Traffic\Exhibits\Exh32.ai APR/2009

Exhibit 32





Legend:

XX/XX AM/PM Peak Hour Volumes

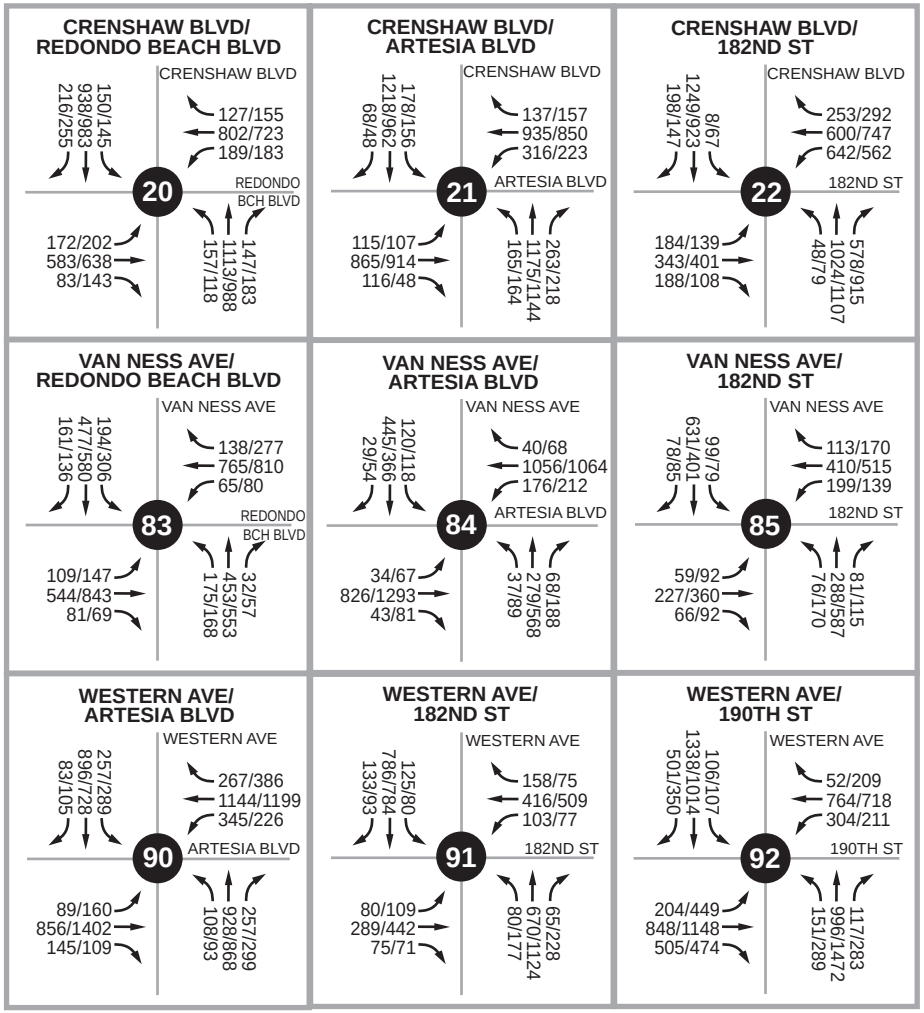
Not to Scale

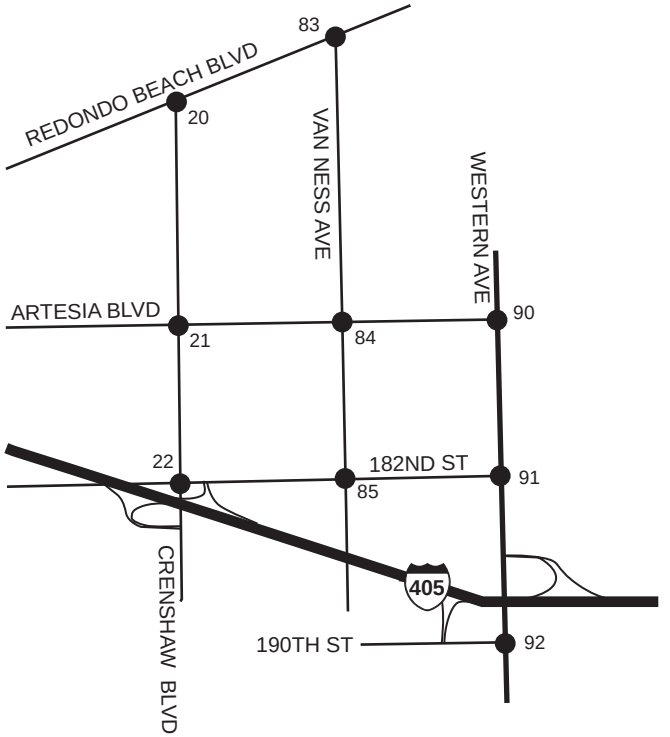
RBF

Area 1 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

H:\PDATA\10106570\Traffic\Exhibits\Exh33.ai APR/2009

Exhibit 33





Legend:

XX/XX AM/PM Peak Hour Volumes

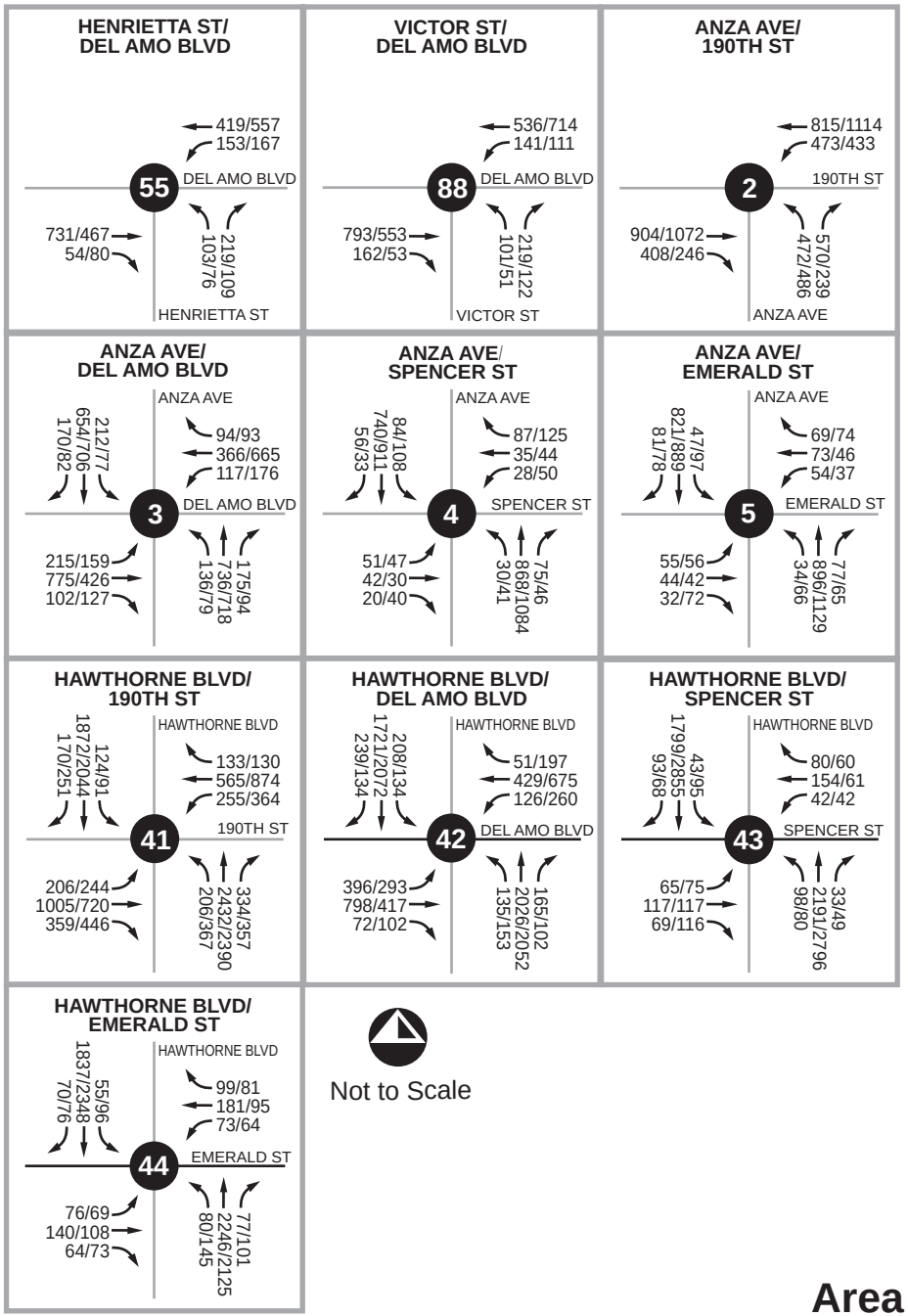
Not to Scale

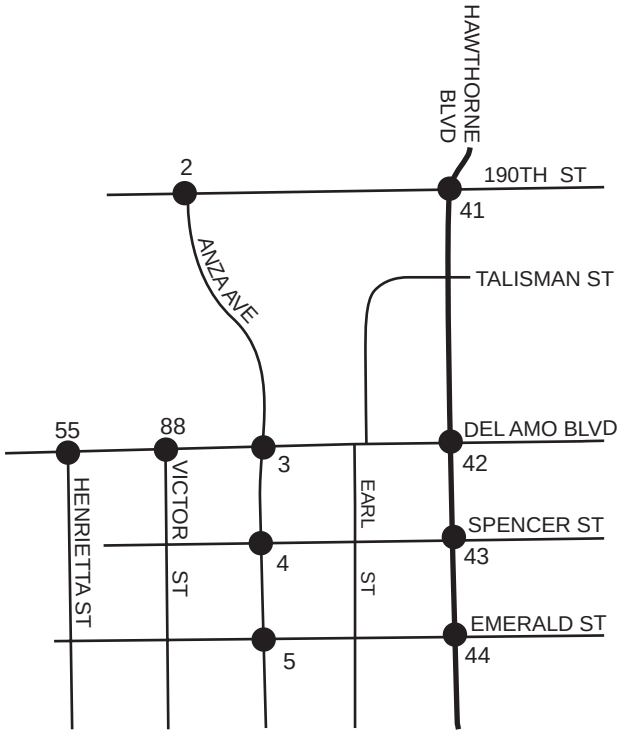
RBF

Area 2 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

H:\PDATA\10106570\Traffic\Exhibits\Exh34.ai APR/2009

Exhibit 34

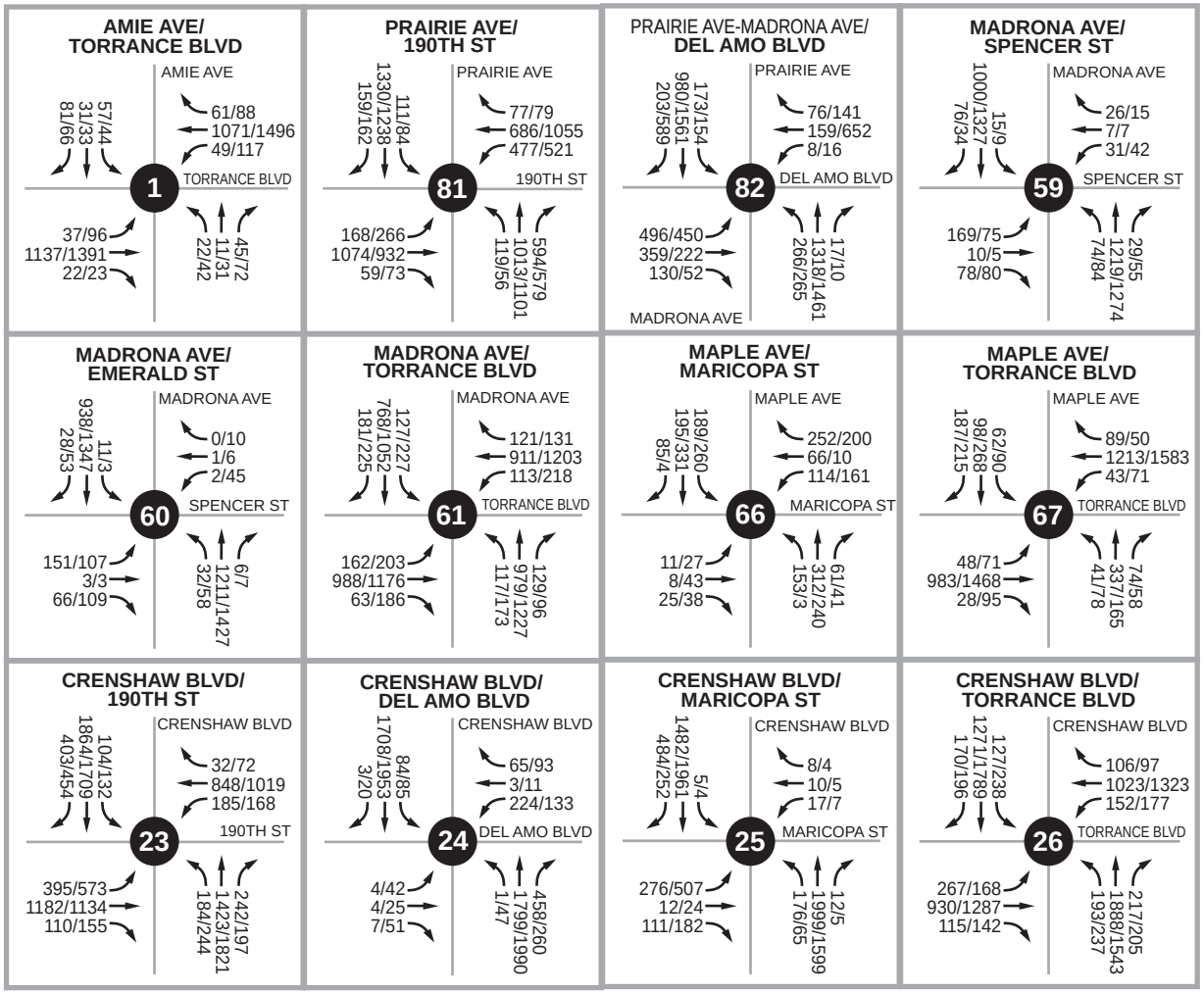


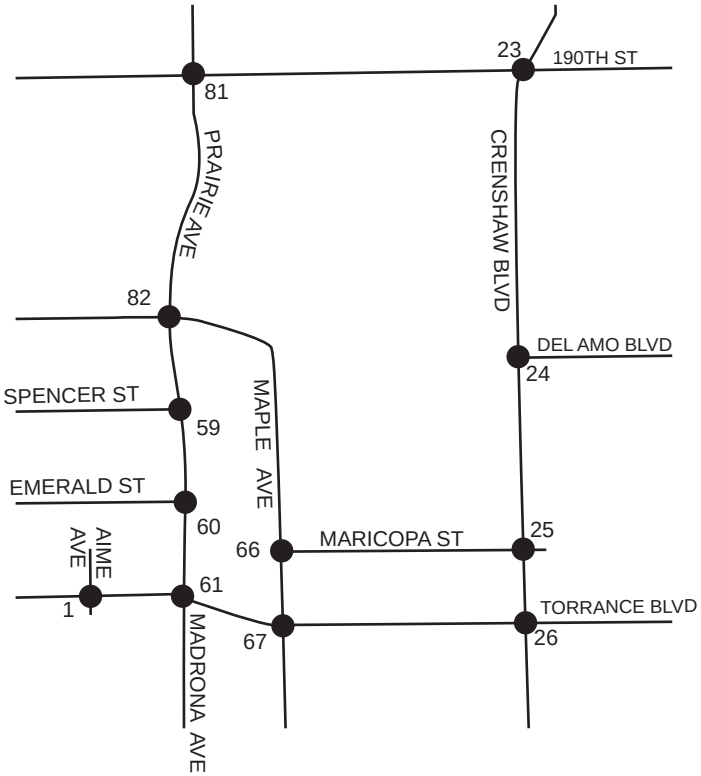


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 3 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

Area 4 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

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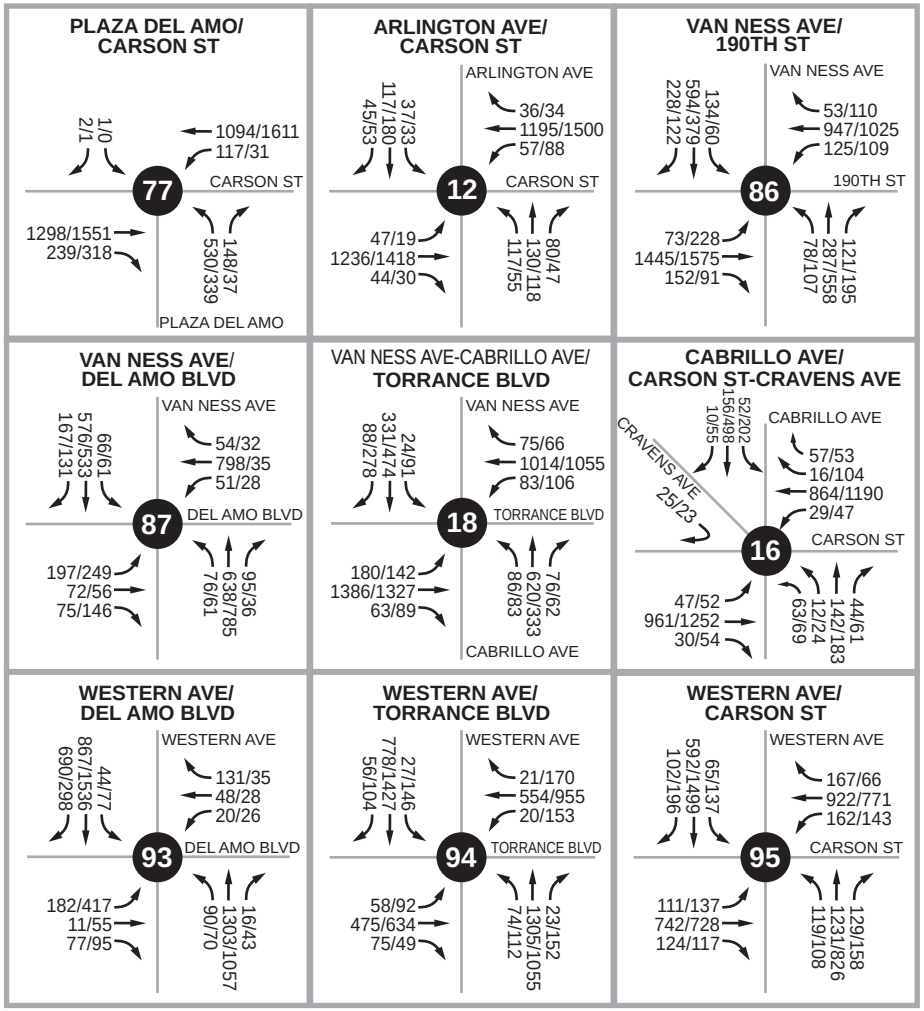
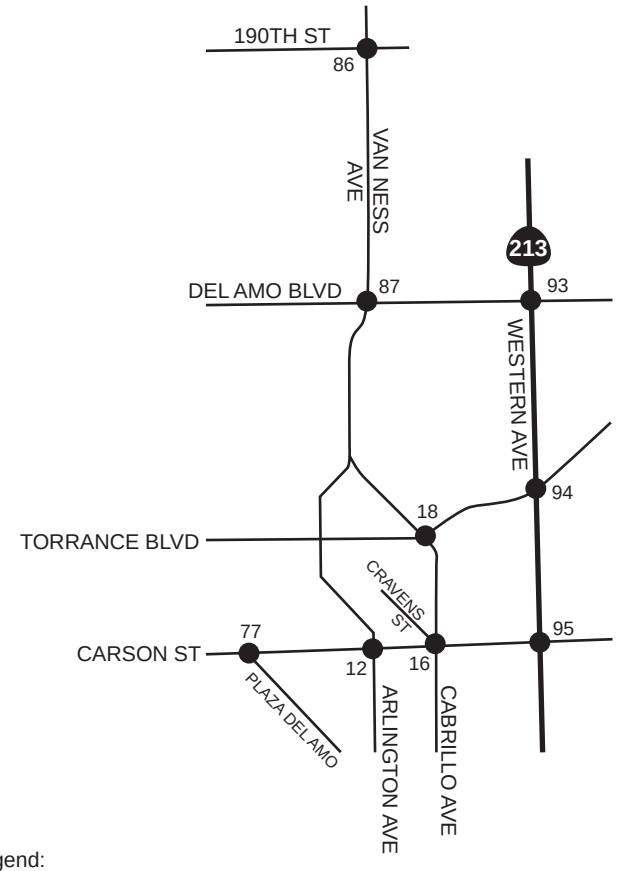
Exhibit 36





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

RBF

Area 5 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

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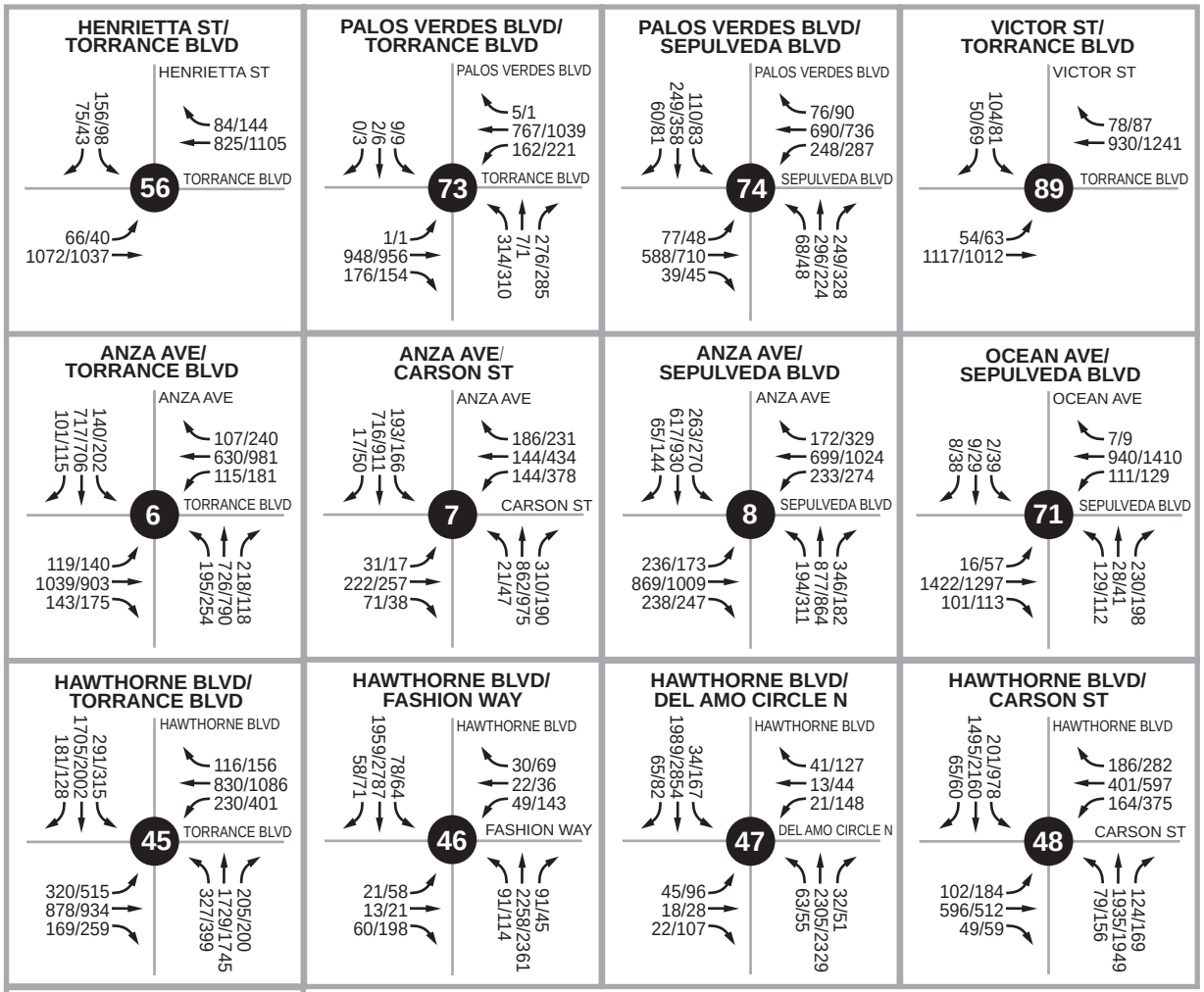
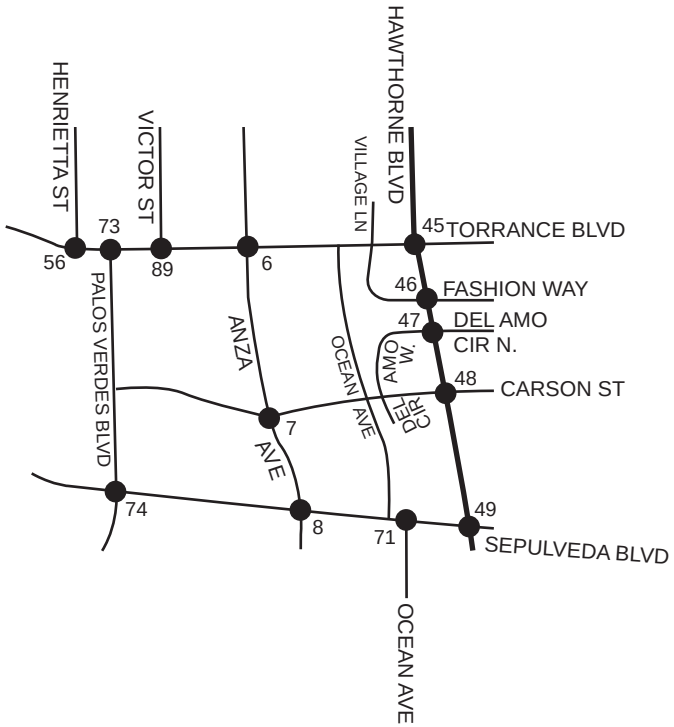
Exhibit 37

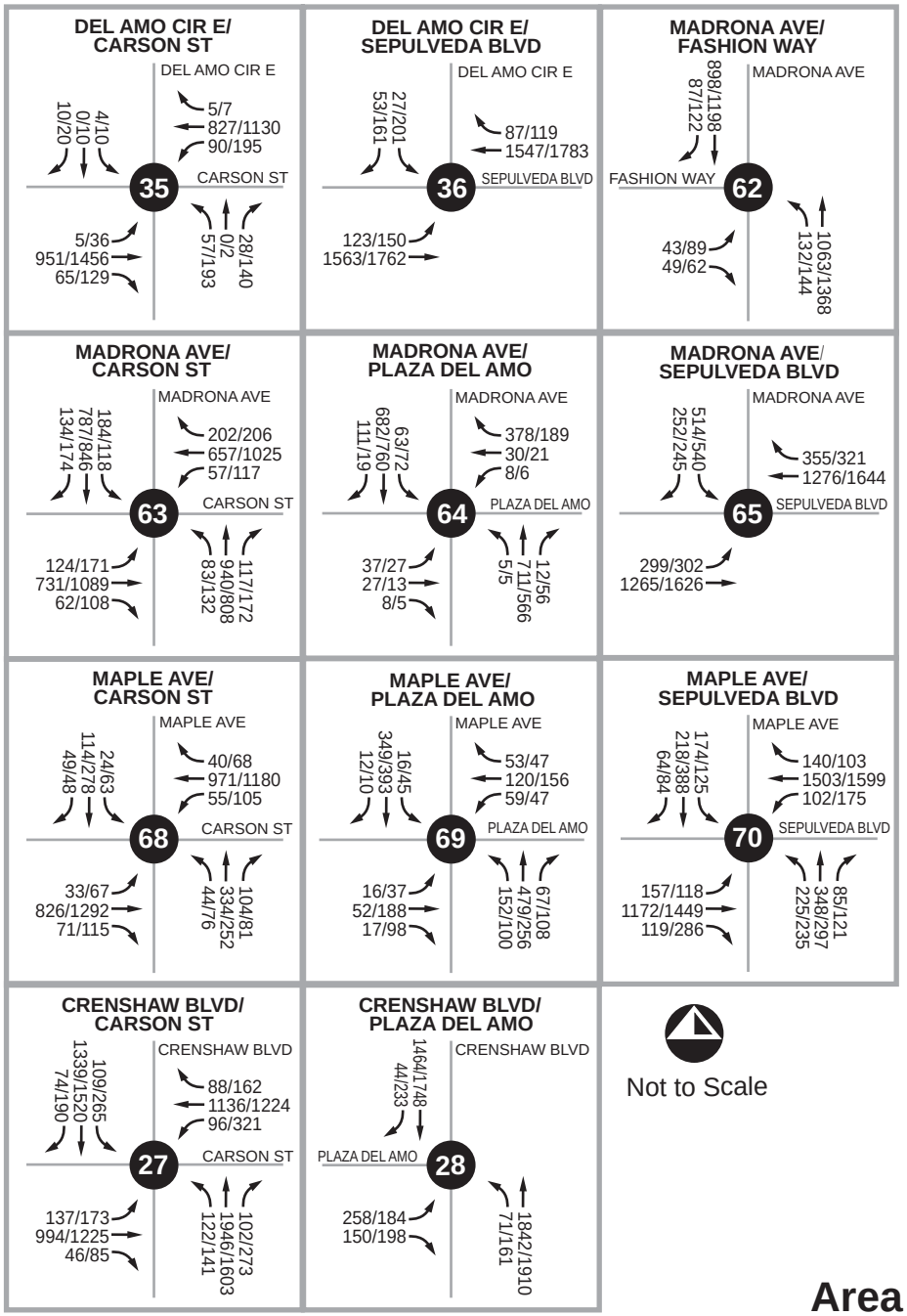


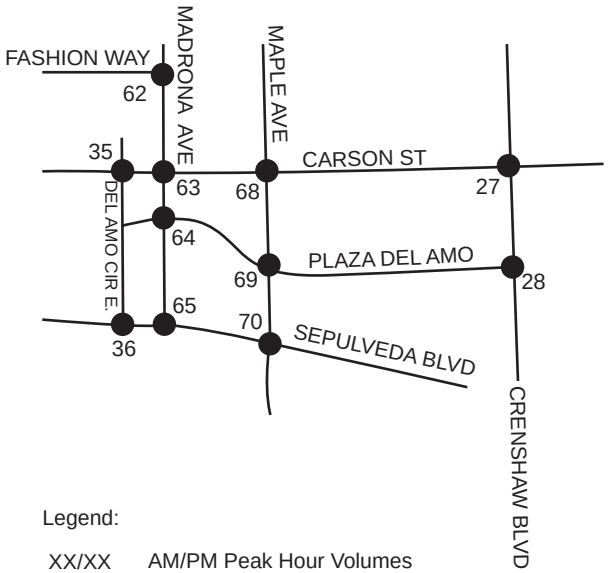


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 6 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

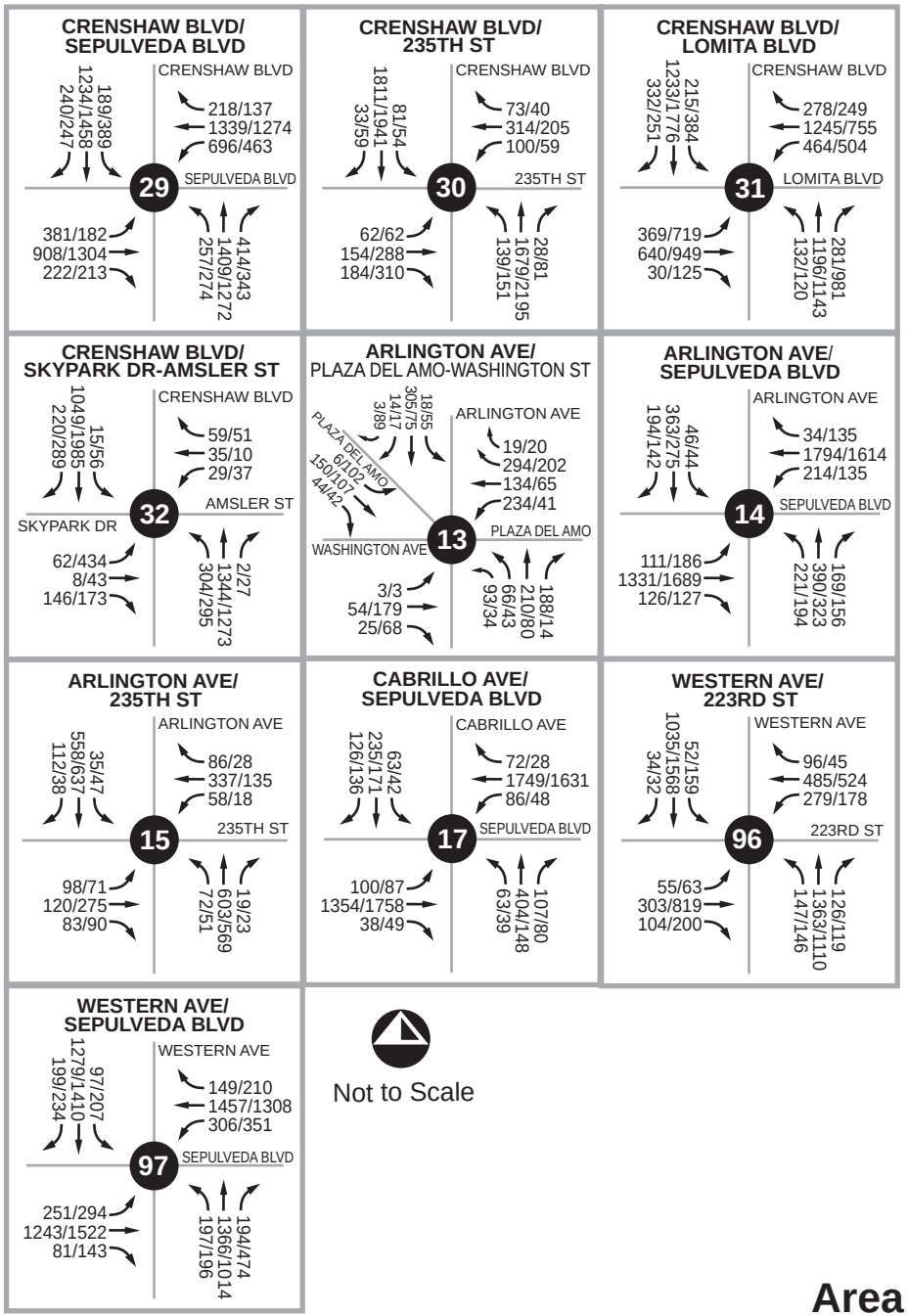




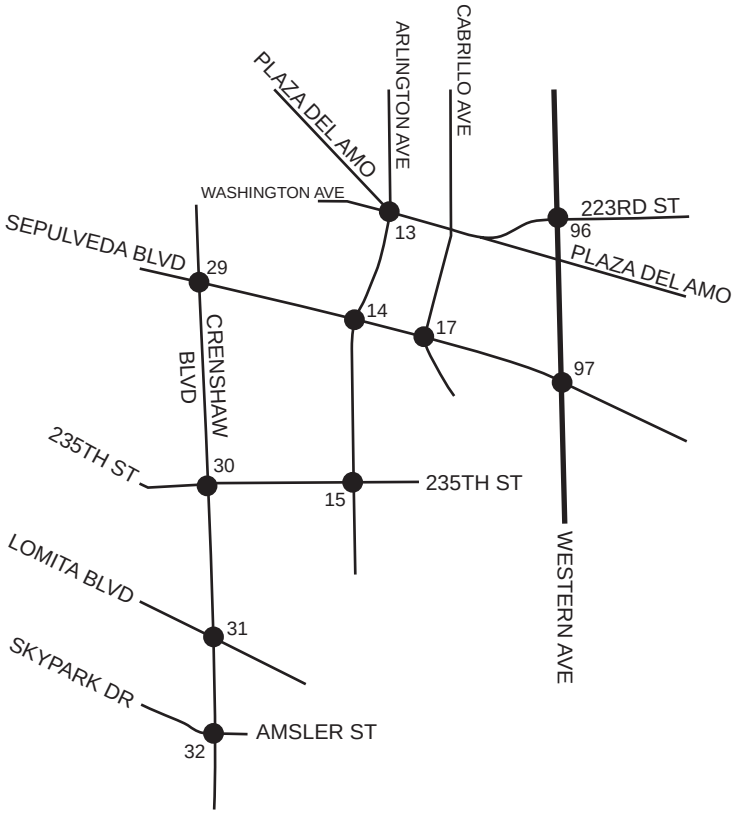
Legend:

XX/XX AM/PM Peak Hour Volumes

Area 7 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes



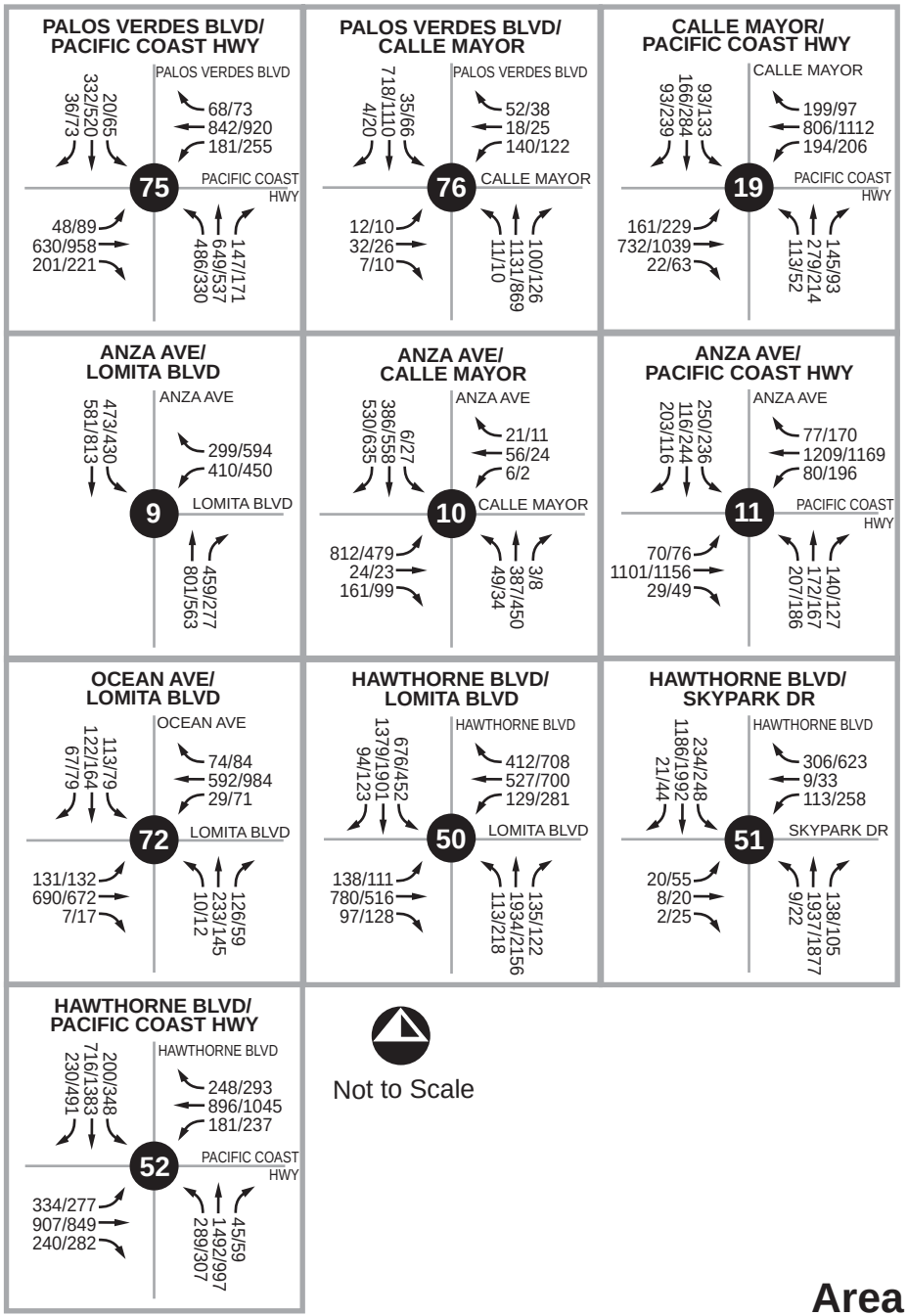
Not to Scale

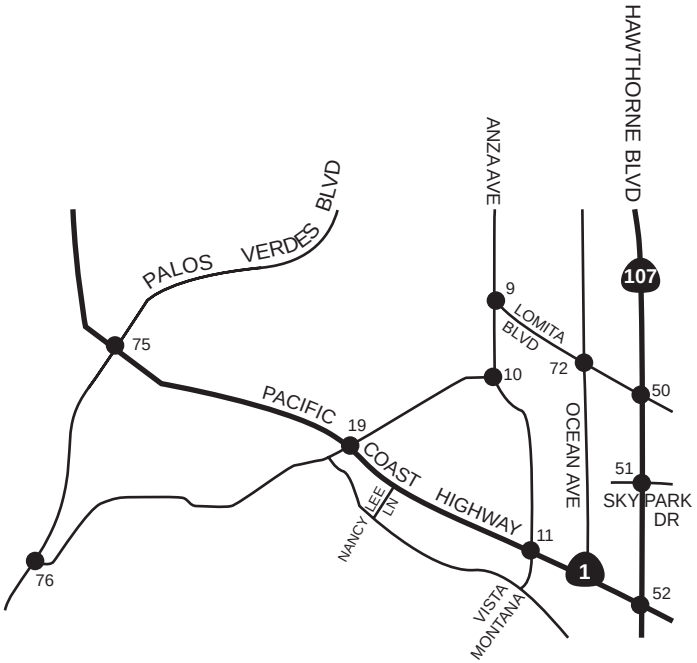


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 8 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

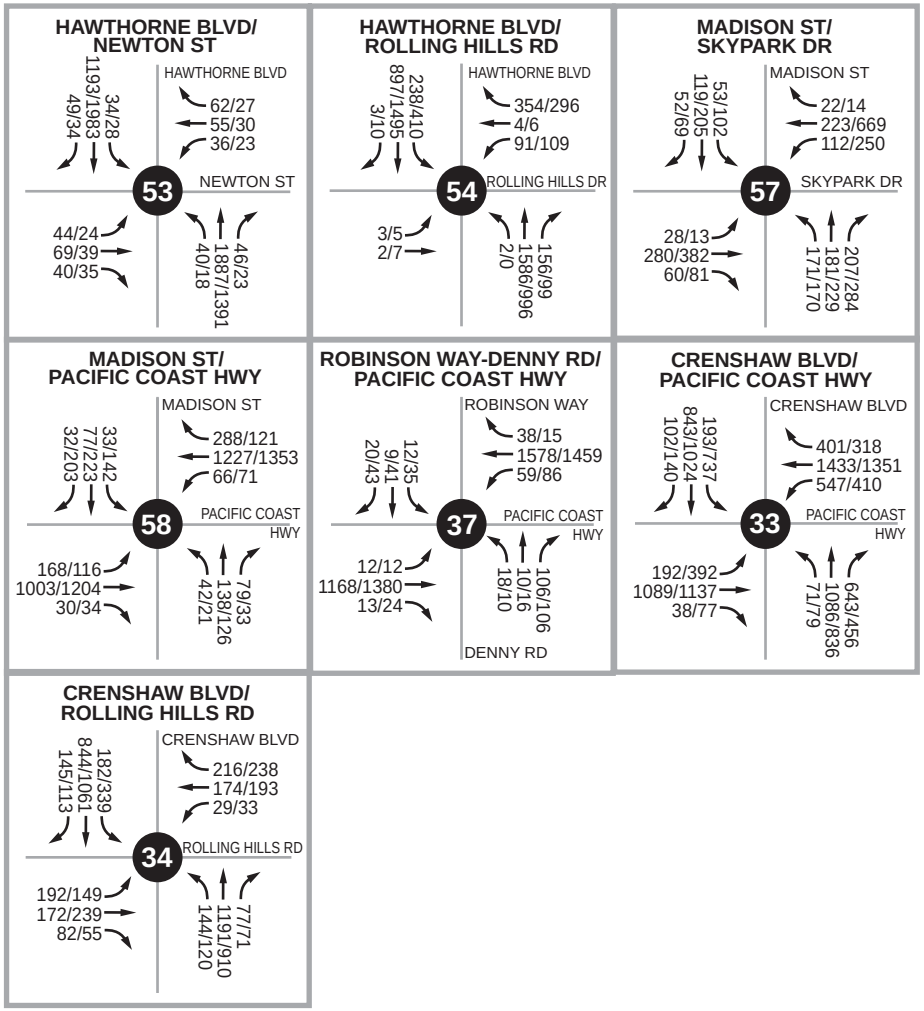


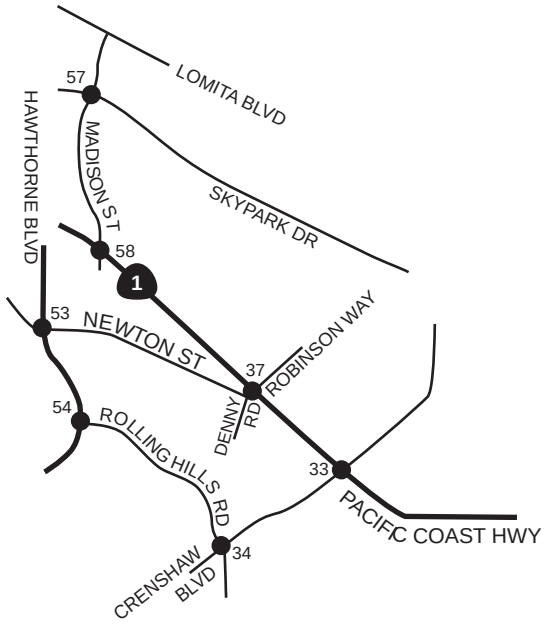


Legend:

XX/XX AM/PM Peak Hour Volumes

Area 9 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes





Legend:

XX/XX AM/PM Peak Hour Volumes

Not to Scale

RBF

Area 10 - Forecast Existing Plus Proposed General Plan Update Conditions AM/PM Peak Hour Intersection Volumes

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Exhibit 42

Forecast Existing Plus Proposed General Plan Update Conditions Intersection LOS – *HCM* Methodology

Table 7 summarizes forecast existing plus proposed General Plan Update conditions a.m. peak hour and p.m. peak hour LOS of the study intersections based on *HCM* methodology; detailed LOS analysis sheets are contained in Appendix B.

Table 7
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions		Significant Impact?
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
		Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
1	Amie Ave/Torrance Blvd (Area 4)	10.0 – B	11.9 – B	9.9 – A	11.7 – B	No
2	Anza Ave/190th St (Area 3)	27.7 – C	26.0 – C	27.7 – C	26.1 – C	No
3	Anza Ave/Del Amo Blvd (Area 3)	37.5 – D	35.4 – D	37.7 – D	35.7 – D	No
4	Anza Ave/Spencer St (Area 3)	7.0 – A	7.7 – A	7.0 – A	7.6 – A	No
5	Anza Ave/Emerald St (Area 3)	8.3 – A	6.7 – A	8.3 – A	6.9 – A	No
6	Anza Ave/Torrance Blvd (Area 6)	36.3 – D	40.4 – D	36.5 – D	41.0 – D	No
7	Anza Ave/Carson St (Area 6)	24.4 – C	28.2 – C	24.4 – C	28.4 – C	No
8	Anza Ave/Sepulveda Blvd (Area 6)	48.7 – D	54.8 – D	49.2 – D	***63.7 – E***	**Yes**
9	Anza Ave/Lomita Blvd (Area 9)	26.2 – C	25.6 – C	26.9 – C	26.1 – C	No
10	Anza Ave/Calle Mayor (Area 9)	20.7 – C	14.8 – B	20.7 – C	14.9 – B	No
11	Anza Ave/Pacific Coast Hwy (SR-1) (Area 9)	27.7 – C	28.1 – C	27.7 – C	28.1 – C	No
12	Arlington Ave/Carson St (Area 5)	10.9 – B	10.0 – A	11.2 – B	9.5 – A	No
13	Arlington Ave/Plaza Del Amo-Washington Ave (Area 8)	39.9 – D	34.1 – C	38.5 – D	35.0 – C	No
14	Arlington Ave/Sepulveda Blvd (Area 8)	31.0 – C	28.5 – C	31.7 – C	28.2 – C	No
15	Arlington Ave/235th St (Area 8)	16.6 – B	15.6 – B	16.8 – B	15.7 – B	No
16	Cabrillo Ave/Carson St (Area 5)	12.6 – B	19.0 – B	12.6 – B	19.0 – B	No
17	Cabrillo Ave/Sepulveda Blvd (Area 8)	21.4 – C	13.8 – C	21.3 – C	13.7 – B	No
18	Cabrillo Ave-Van Ness Ave/Torrance Blvd (Area 5)	22.6 – C	22.6 – C	22.6 – C	22.3 – C	No
19	Calle Mayor/Pacific Coast Hwy (SR-1) (Area 9)	30.1 – C	30.4 – C	30.2 – C	30.9 – C	No
20	Crenshaw Blvd/Redondo Beach Blvd (Area 2)	38.2 – D	38.2 – D	38.2 – C	37.6 – D	No
21	Crenshaw Blvd/Artesia Blvd (Area 2)	40.0 – D	38.0 – D	41.0 – D	38.7 – D	No
22	Crenshaw Blvd/182nd St (Area 2)	33.6 – C	31.7 – C	34.3 – C	32.3 – C	No
23	Crenshaw Blvd/190th St (Area 4)	39.7 – D	49.4 – D	40.2 – D	***56.7 – E***	**Yes**

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***; significant impact shown in **bold**.

Table 7 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions		Significant Impact?
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
		Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
24	Crenshaw Blvd/Del Amo Blvd (Area 4)	9.3 – A	11.3 – B	9.3 – A	11.3 – B	No
25	Crenshaw Blvd/Maricopa St (Area 4)	13.9 – B	15.7 – B	13.8 – B	15.6 – B	No
26	Crenshaw Blvd/Torrance Blvd (Area 4)	33.2 – C	38.0 – D	33.9 – C	40.3 – D	No
27	Crenshaw Blvd/Carson St (Area 7)	33.3 – C	39.3 – D	32.5 – C	41.9 – D	No
28	Crenshaw Blvd/Plaza Del Amo (Area 7)	10.5 – B	10.8 – B	10.0 – B	12.2 – B	No
29	Crenshaw Blvd/Sepulveda Blvd (Area 8)	39.6 – D	39.2 – D	39.7 – D	40.5 – D	No
30	Crenshaw Blvd/235th St (Area 8)	19.5 – B	20.2 – C	21.2 – C	19.2 – B	No
31	Crenshaw Blvd/Lomita Blvd (Area 8)	40.1 – D	***77.1 – E***	41.9 – D	***74.8 – E***	No
32	Crenshaw Blvd/Skypark Drive-Amsler St (Area 8)	22.8 – C	24.9 – C	21.7 – C	24.5 – C	No
33	Crenshaw Blvd/Pacific Coast Hwy (SR-1) (Area 10)	52.0 – D	***104.3 – F***	54.1 – D	***113.4 – F***	**Yes**
34	Crenshaw Blvd/Rolling Hills Rd (Area 10)	23.1 – C	25.0 – C	22.9 – C	24.9 – C	No
35	Del Amo Cir East/Carson St (Area 7)	3.9 – A	9.3 – A	3.9 – A	9.2 – A	No
36	Del Amo Cir East/Sepulveda Blvd (Area 7)	22.5 – C	29.0 – C	22.8 – C	31.7 – C	No
37	Denny Rd-Robinson Ave/Pacific Coast Hwy (SR-1) (Area 10)	7.7 – A	9.3 – A	7.8 – A	9.3 – A	No
38	Hawthorne Blvd (SR-107)/Redondo Beach Blvd (Area 1)	30.6 – C	38.0 – D	3.3 – C	37.5 – D	No
39	Hawthorne Blvd (SR-107)/Artesia Blvd (Area 1)	31.2 – C	33.6 – C	31.3 – C	34.0 – C	No
40	Hawthorne Blvd (SR-107)/182nd St (Area 1)	17.7 – B	28.5 – C	17.6 – B	28.5 – C	No
41	Hawthorne Blvd (SR-107)/190th St (Area 3)	34.4 – C	36.5 – D	34.6 – C	37.4 – D	No
42	Hawthorne Blvd (SR-107)/Del Amo Blvd (Area 3)	33.2 – C	32.6 – C	33.3 – C	33.2 – C	No
43	Hawthorne Blvd (SR-107)/Spencer St (Area 3)	15.4 – B	14.3 – B	15.5 – B	14.5 – B	No
44	Hawthorne Blvd (SR-107)/Emerald St (Area 3)	16.7 – B	15.4 – B	16.7 – B	15.3 – B	No
45	Hawthorne Blvd (SR-107)/Torrance Blvd (Area 6)	37.4 – D	43.7 – D	37.4 – D	44.7 – D	No
46	Hawthorne Blvd (SR-107)/Village Lane-Fashion Way (Area 6)	8.0 – A	14.3 – B	7.9 – A	14.2 – B	No
47	Hawthorne Blvd (SR-107)/Del Amo Cir-Del Amo Cir North (Area 6)	5.6 – A	12.2 – B	5.6 – A	12.0 – B	No
48	Hawthorne Blvd (SR-107)/Carson St (Area 6)	30.3 – C	44.3 – D	30.2 – C	45.9 – D	No
49	Hawthorne Blvd (SR-107)/Sepulveda Blvd (Area 6)	39.4 – D	50.4 – D	39.7 – D	***56.2 – E***	**Yes**
50	Hawthorne Blvd (SR-107)/Lomita Blvd (Area 9)	40.1 – D	48.5 – D	42.0 – D	***59.1 – E***	**Yes**

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***; significant impact shown in **bold**.

Table 7 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions		Significant Impact?
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
		Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
51	Hawthorne Blvd (SR-107)/Skypark Dr (Area 9)	19.3 – B	26.6 – C	19.2 – B	26.7 – C	No
52	Hawthorne Blvd (SR-107)/Pacific Coast Hwy (SR-1) (Area 9)	43.3 – D	44.5 – D	43.8 – D	47.1 – D	No
53	Hawthorne Blvd (SR-107)/Newton St (Area 10)	7.7 – A	4.6 – A	7.7 – A	4.7 – A	No
54	Hawthorne Blvd (SR-107)/Rolling Hills Rd (Area 10)	15.0 – B	15.4 – B	15.0 – B	15.4 – B	No
55	Henrietta St/Del Amo Blvd (Area 3)	11.8 – B	7.8 – A	11.9 – B	8.6 – A	No
56	Henrietta St/Torrance Blvd (Area 6)	7.7 – A	4.6 – A	7.7 – A	4.7 – A	No
57	Madison St/Skypark Dr (Area 10)	14.8 – B	15.5 – B	14.8 – B	15.5 – B	No
58	Madison St/Pacific Coast Hwy (SR-1) (Area 10)	15.8 – B	18.2 – B	15.8 – B	18.1 – B	No
59	Madrona Ave/Spencer St (Area 4)	8.7 – A	6.6 – A	8.7 – A	6.6 – A	No
60	Madrona Ave/Emerald St (Area 4)	10.7 – B	8.9 – A	10.6 – B	8.8 – A	No
61	Madrona Ave/Torrance Blvd (Area 4)	31.5 – C	35.9 – D	31.6 – C	36.4 – D	No
62	Madrona Ave/Fashion Way (Area 7)	7.4 – A	7.4 – A	7.4 – A	7.3 – A	No
63	Madrona Ave/Carson St (Area 7)	25.7 – C	26.9 – C	25.7 – C	27.0 – C	No
64	Madrona Ave/Plaza Del Amo (Area 7)	20.1 – C	14.4 – B	20.0 – C	14.6 – B	No
65	Madrona Ave/Sepulveda Blvd (Area 7)	26.4 – C	30.2 – C	26.7 – C	33.1 – C	No
66	Maple Ave/Maricopa St (Area 4)	18.1 – B	18.5 – B	17.9 – B	18.4 – B	No
67	Maple Ave/Torrance Blvd (Area 4)	17.4 – B	17.1 – B	18.0 – B	17.6 – B	No
68	Maple Ave/Carson St (Area 7)	20.9 – C	20.2 – C	22.0 – C	21.2 – C	No
69	Maple Ave/Plaza Del Amo (Area 7)	10.3 – B	14.1 – B	10.8 – B	13.9 – B	No
70	Maple Ave/Sepulveda Blvd (Area 7)	26.6 – C	27.2 – C	26.7 – B	28.9 – C	No
71	Ocean Ave/Sepulveda Blvd (Area 6)	12.9 – B	13.9 – B	12.7 – B	13.5 – B	No
72	Ocean Ave/Lomita Blvd (Area 9)	14.5 – B	12.3 – B	14.3 – B	12.1 – B	No
73	Palos Verdes Blvd/Torrance Blvd (Area 6)	22.0 – C	22.5 – C	22.0 – C	22.6 – C	No
74	Palos Verdes Blvd/Sepulveda Blvd (Area 6)	22.9 – C	21.7 – C	22.6 – C	21.7 – C	No
75	Palos Verdes Blvd/Pacific Coast Hwy (SR-1) (Area 9)	35.7 – D	39.4 – D	36.2 – D	40.3 – D	No
76	Palos Verdes Blvd/Calle Mayor (Area 9)	7.4 – A	6.4 – A	7.5 – A	6.4 – A	No
77	Plaza Del Amo/Carson St (Area 5)	19.2 – B	12.7 – B	19.3 – B	12.8 – B	No

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***; significant impact shown in **bold**.

Table 7 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *HCM* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions		Significant Impact?
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
		Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
78	Prairie Ave/Redondo Beach Blvd (Area 1)	46.4 – D	***60.0 – E***	48.0 – D	***58.1 – E***	No
79	Prairie Ave/Artesia Blvd (Area 1)	36.4 – D	36.1 – D	36.7 – D	36.5 – D	No
80	Prairie Ave/182nd St (Area 1)	32.7 – C	31.2 – C	32.9 – C	31.5 – C	No
81	Prairie Ave/190th St (Area 4)	38.3 – D	40.2 – D	38.5 – D	41.1 – D	No
82	Prairie Ave/Del Amo Blvd (Area 4)	30.8 – C	35.7 – D	31.0 – C	36.2 – D	No
83	Van Ness Ave/Redondo Beach Blvd (Area 2)	30.2 – C	33.5 – C	30.2 – C	33.4 – C	No
84	Van Ness Ave/Artesia Blvd (Area 2)	24.5 – C	28.6 – C	24.6 – C	28.3 – C	No
85	Van Ness Ave/182nd St (Area 2)	15.6 – B	16.1 – B	15.7 – B	16.1 – B	No
86	Van Ness Ave/190th St (Area 5)	27.8 – C	28.2 – C	27.9 – C	27.7 – C	No
87	Van Ness Ave/Del Amo Blvd (Area 5)	24.3 – C	14.6 – B	24.3 – C	14.9 – B	No
88	Victor St/Del Amo Blvd (Area 3)	11.5 – B	7.7 – A	11.5 – B	7.7 – A	No
89	Victor St/Torrance Blvd (Area 6)	5.2 – A	4.3 – A	5.1 – A	4.2 – A	No
90	Western Ave (SR-213)/Artesia Blvd (Area 2)	38.8 – D	39.9 – D	38.8 – D	39.6 – D	No
91	Western Ave (SR-213)/182nd St (Area 2)	14.6 – B	14.8 – B	14.7 – B	14.7 – B	No
92	Western Ave (SR-213)/190th St (Area 2)	35.0 – D	35.1 – D	34.4 – C	35.3 – D	No
93	Western Ave (SR-213)/Del Amo Blvd (Area 5)	13.2 – B	14.9 – B	13.6 – B	15.5 – B	No
94	Western Ave (SR-213)/Torrance Blvd (Area 5)	19.1 – B	24.7 – C	19.5 – B	25.2 – C	No
95	Western Ave (SR-213)/Carson St (Area 5)	21.3 – C	20.2 – C	21.4 – C	20.8 – C	No
96	Western Ave (SR-213)/223rd St (Area 8)	14.9 – B	17.4 – B	14.9 – B	17.4 – B	No
97	Western Ave (SR-213)/Sepulveda Blvd (Area 8)	45.5 – D	***62.3 – E***	47.0 – D	***62.2 – E***	No
98	Yukon Ave/Redondo Beach Blvd (Area 1)	7.4 – A	5.8 – A	7.5 – A	6.0 – A	No
99	Yukon Ave/Artesia Blvd (Area 1)	18.4 – B	18.4 – B	18.5 – B	18.4 – B	No
100	Yukon Ave/182nd St (Area 1)	12.6 – B	13.1 – B	12.6 – B	13.1 – B	No

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***; significant impact shown in **bold**.

As shown in Table 7, the following eight study intersections are forecast to operate at a deficient LOS (LOS E or worse) according to agency performance criteria for forecast existing plus proposed General Plan Update conditions during one or both peak hours utilizing *HCM* methodology:

- Anza Avenue/Sepulveda Boulevard (p.m. peak hour only);
- Crenshaw Boulevard/190th Street (p.m. peak hour only);
- Crenshaw Boulevard/Lomita Boulevard (p.m. peak hour only);
- Crenshaw Boulevard/Pacific Coast Highway (SR-1) (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Lomita Boulevard (p.m. peak hour only);
- Prairie Avenue/Redondo Beach Boulevard (p.m. peak hour only); and
- Western Avenue (SR-213)/Sepulveda Boulevard (p.m. peak hour only).

As also shown in Table 7, based on agency-established thresholds of significance, the proposed General Plan Update is forecast to result in a significant impact at the following five study intersections utilizing *HCM* methodology:

- Anza Avenue/Sepulveda Boulevard;
- Crenshaw Boulevard/190th Street;
- Crenshaw Boulevard/Pacific Coast Highway (SR-1);
- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard; and
- Hawthorne Boulevard (SR-107)/Lomita Boulevard.

Forecast Existing Plus Proposed General Plan Update Conditions Recommended Intersection Mitigation Measures

The following mitigation measures are identified to reduce significant traffic impacts at five impacted study intersections for forecast existing plus proposed General Plan Update conditions based on the *HCM* analysis:

Mitigation Measure No. 1 **Anza Avenue/Sepulveda Boulevard** – Widen the eastbound Sepulveda Boulevard approach from one left-turn lane, one through lane, and one shared through/right-turn lane to consist of one left-turn lane, two through lanes, and one right-turn lane. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 2 **Crenshaw Boulevard/190th Street** – Widen the westbound Crenshaw Boulevard approach from two left-turn lanes, two through lanes, and one right-turn lane to consist of two left-turn lanes, three through lanes, and one right-turn lane. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 3 **Crenshaw Boulevard/Pacific Coast Highway (SR-1)** – Modify the northbound Crenshaw Boulevard traffic signal phasing to include a northbound right-turn overlap, which will preclude U-turn movement from westbound to eastbound Pacific Coast Highway (SR-1). *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

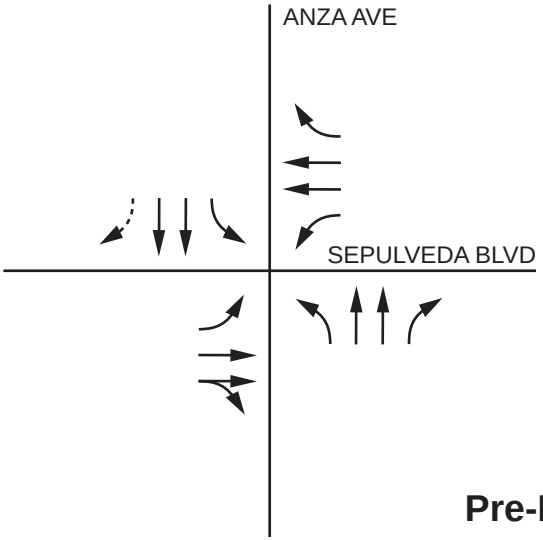
Mitigation Measure No. 4 **Hawthorne Boulevard (SR-107)/Sepulveda Boulevard** – Modify the northbound Hawthorne Boulevard (SR-107) traffic signal phasing to include a northbound right-turn overlap, which will preclude U-turn movement from westbound to eastbound Sepulveda Boulevard. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 5 **Hawthorne Boulevard (SR-107)/Lomita Boulevard** – Modify the westbound Lomita Boulevard traffic signal phasing to include a westbound right-turn overlap, which will preclude U-turn movement from southbound to northbound Hawthorne Boulevard (SR-107). *[This mitigation measure is identical to the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

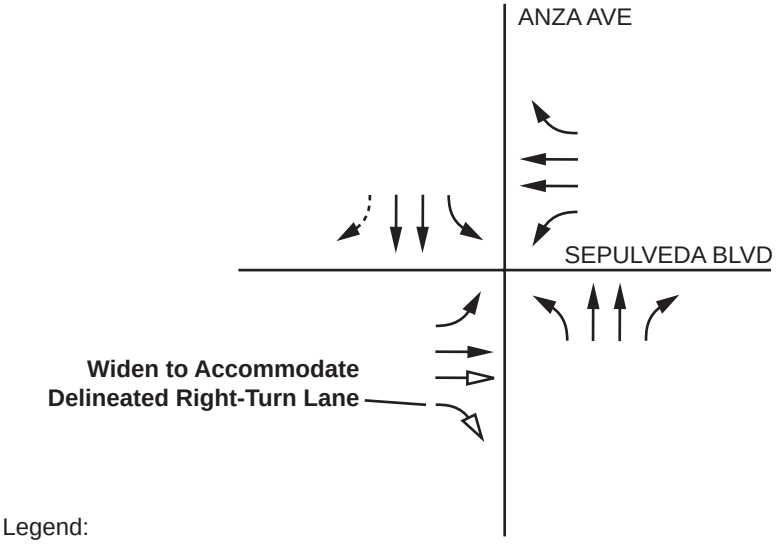
Exhibits 43 through 47 show the mitigated study intersection geometry at the five mitigated study intersections for forecast existing plus proposed General Plan Update conditions.

Mitigated Forecast Existing Plus Proposed General Plan Update Conditions Intersection LOS

Table 8 summarizes mitigated forecast existing plus proposed General Plan Update conditions a.m. peak hour and p.m. peak hour LOS of the impacted study intersections; detailed LOS analysis sheets are contained in Appendix B.



Pre-Mitigated Geometry



Legend:

- Existing Lane
- Defacto Right-Turn
- Modified Lane

Mitigated Geometry

Not to Scale

Anza Avenue/Sepulveda Boulevard - Mitigated Forecast Existing Plus General Plan Update Conditions Intersection Geometry

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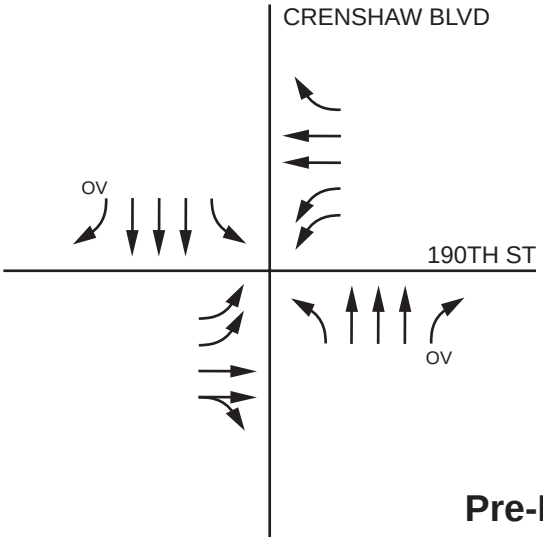
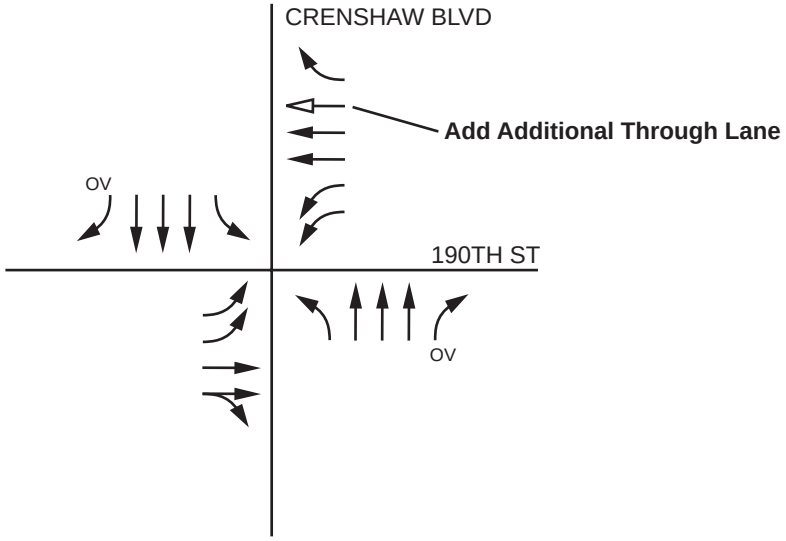
Exhibit 43



Pre-Mitigated Geometry



Legend:

- Existing Lane
- OV Right-Turn Overlap
- Modified Lane

Mitigated Geometry

Not to Scale

RBF

Crenshaw Boulevard/190th Street - Mitigated Forecast Existing Plus General Plan Update Conditions Intersection Geometry

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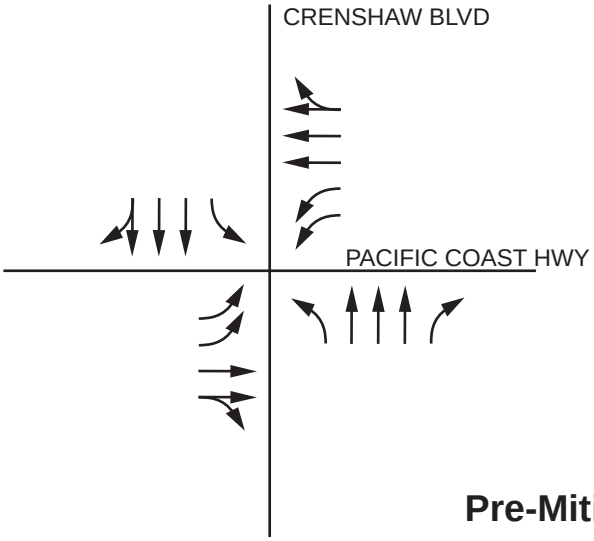
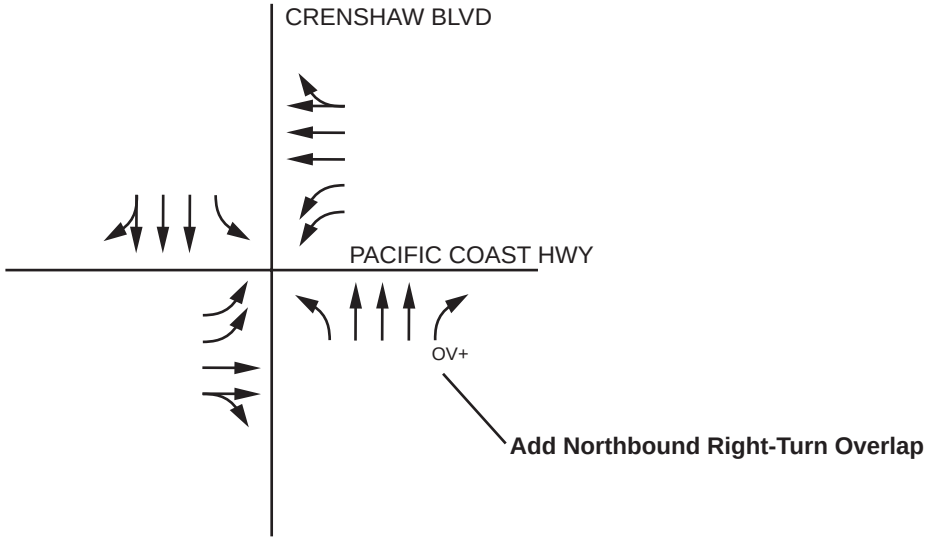
Exhibit 44



Pre-Mitigated Geometry



Legend:

Existing Lane

OV+ Add Right-Turn Overlap

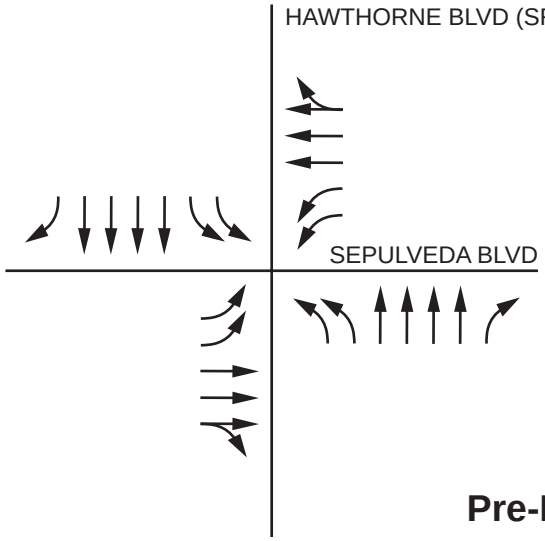
Mitigated Geometry

Not to Scale

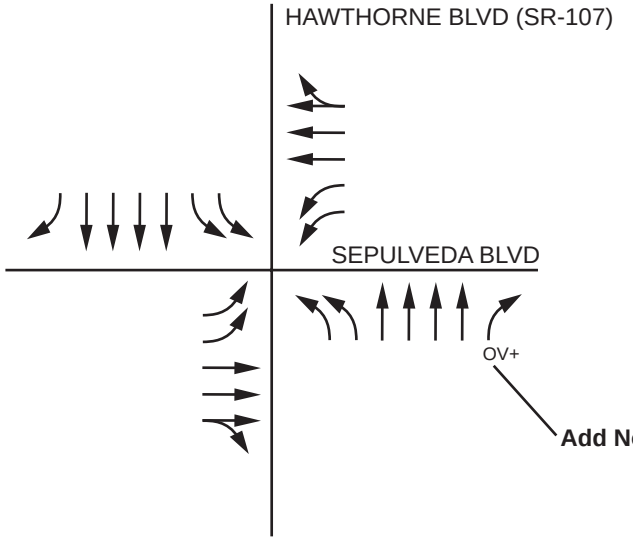
RBF

Crenshaw Boulevard/Pacific Coast Highway (SR-1) - Mitigated Forecast
Existing Plus General Plan Update Conditions Intersection Geometry

H:\pdata\10106570\Traffic\Exhibits\Exh45.ai APR/2009 Exhibit 45



Pre-Mitigated Geometry



Legend:

Existing Lane

OV+ Add Right-Turn Overlap

Mitigated Geometry

Not to Scale

RBF

Hawthorne Boulevard (SR-107)/Sepulveda Boulevard - Mitigated Forecast
Existing Plus General Plan Update Conditions Intersection Geometry

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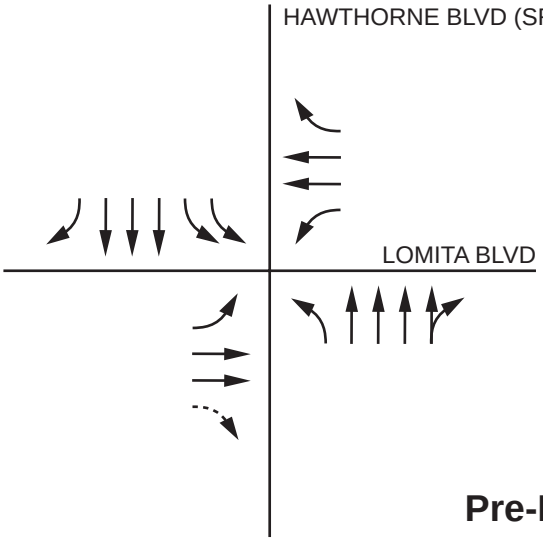
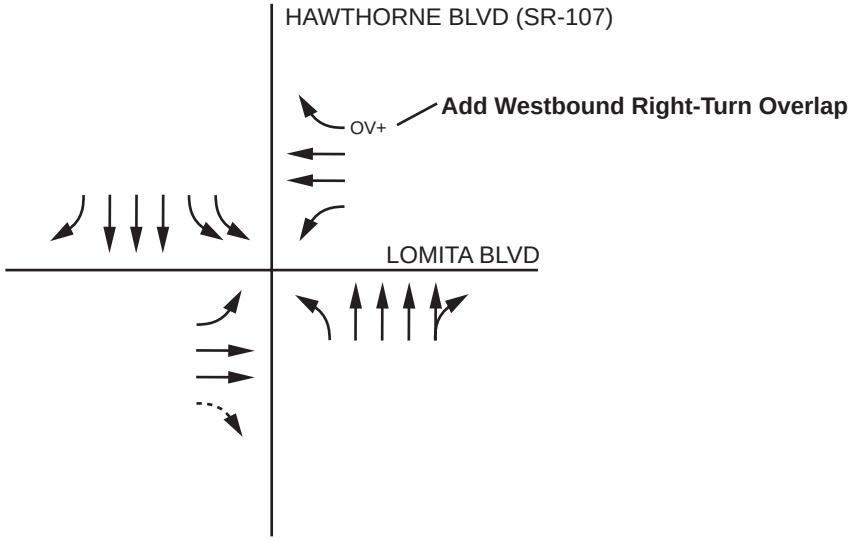
Exhibit 46



Pre-Mitigated Geometry



Legend:

- Existing Lane
- Defacto Right-Turn Lane
- OV+ Add Right-Turn Overlap

Mitigated Geometry

Not to Scale

Hawthorne Boulevard (SR-107)/Lomita Boulevard - Mitigated Forecast
Existing Plus General Plan Update Conditions Intersection Geometry

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Exhibit 47

Table 8
Mitigated Forecast Existing Plus Proposed General Plan Update Conditions AM & PM Peak Hour Intersection LOS

Study Intersection	Existing Without Project Conditions		Mitigated Forecast Existing Plus Proposed General Plan Update Conditions		Significant Impact?
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	
	Delay – LOS	Delay – LOS	Delay – LOS	Delay – LOS	
8 – Anza Ave/Sepulveda Blvd (Area 6)	48.7 – D	54.8 – D	45.3 – D	53.6 – D	No
23 – Crenshaw Blvd/190th St (Area 4)	39.7 – D	49.4 – D	37.3 – D	44.7 – D	No
33 – Crenshaw Blvd/Pacific Coast Hwy (SR-1) (Area 10)	52.0 – D	***104.3 – F***	40.3 – D	***92.4 – F***	No
49 – Hawthorne Blvd (SR-107)/Sepulveda Blvd (Area 6)	39.4 – D	50.4 – D	38.6 – D	41.5 – D	No
50 – Hawthorne Blvd (SR-107)/Lomita Blvd (Area 9)	40.1 – D	48.5 – D	39.1 – D	41.9 – D	No

Note: Delay shown in seconds per vehicle; deficient intersection operation shown in ***bold italics***.

As shown in Table 8, assuming implementation of the identified mitigation measures, the project traffic impacts at the mitigated study intersections are reduced to a level considered less than significant during the a.m. peak hour and p.m. peak hour for forecast existing plus proposed General Plan Update conditions.

Forecast Existing Plus Proposed General Plan Update Conditions Intersection LOS – *ICU* Methodology

As noted earlier, this *ICU* analysis is provided for informational purposes only and is not utilized to identify potential significant impacts in accordance with City of Torrance analysis methodology. Table 9 summarizes forecast existing plus proposed General Plan Update conditions a.m. peak hour and p.m. peak hour LOS of the study intersections based on *ICU* methodology; detailed LOS analysis sheets are contained in Appendix B.

Table 9
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS
1	Amie Ave/Torrance Blvd (Area 4)	0.39 – A	0.52 – A	0.39 – A	0.52 – A
2	Anza Ave/190th St (Area 3)	0.84 – D	0.79 – C	0.85 – D	0.81 – D
3	Anza Ave/Del Amo Blvd (Area 3)	0.70 – B	0.66 – B	0.71 – C	0.67 – B
4	Anza Ave/Spencer St (Area 3)	0.45 – A	0.55 – A	0.45 – A	0.55 – A
5	Anza Ave/Emerald St (Area 3)	0.46 – A	0.53 – A	0.46 – A	0.54 – A
6	Anza Ave/Torrance Blvd (Area 6)	0.72 – C	0.82 – D	0.73 – C	0.84 – D
7	Anza Ave/Carson St (Area 6)	0.66 – B	0.78 – C	0.65 – B	0.77 – C
8	Anza Ave/Sepulveda Blvd (Area 6)	***0.99 – E***	***1.05 – F***	***1.00 – E***	***1.12 – F***
9	Anza Ave/Lomita Blvd (Area 9)	0.77 – C	0.70 – B	0.79 – C	0.72 – C
10	Anza Ave/Calle Mayor (Area 9)	0.71 – C	0.64 – B	0.72 – C	0.65 – B
11	Anza Ave/Pacific Coast Hwy (SR-1) (Area 9)	0.77 – C	0.78 – C	0.78 – C	0.80 – C
12	Arlington Ave/Carson St (Area 5)	0.63 – B	0.70 – B	0.63 – B	0.71 – C
13	Arlington Ave/Plaza Del Amo-Washington Ave (Area 8)	***0.96 – E***	0.84 – D	***0.91 – E***	0.81 – D
14	Arlington Ave/Sepulveda Blvd (Area 8)	0.86 – D	0.83 – D	0.88 – D	0.83 – D
15	Arlington Ave/235th St (Area 8)	0.74 – C	0.70 – B	0.75 – C	0.70 – B
16	Cabrillo Ave/Carson St (Area 5)	0.47 – A	0.69 – B	0.47 – A	0.69 – B
17	Cabrillo Ave/Sepulveda Blvd (Area 8)	0.78 – C	0.58 – A	0.79 – C	0.60 – A
18	Cabrillo Ave-Van Ness Ave/Torrance Blvd (Area 5)	0.77 – C	0.78 – C	0.77 – C	0.79 – C
19	Calle Mayor/Pacific Coast Hwy (SR-1) (Area 9)	0.73 – C	0.82 – D	0.75 – C	0.84 – D
20	Crenshaw Blvd/Redondo Beach Blvd (Area 2)	0.79 – C	0.78 – C	0.81 – D	0.78 – C
21	Crenshaw Blvd/Artesia Blvd (Area 2)	0.90 – D	0.86 – D	0.91 – E	0.88 – D
22	Crenshaw Blvd/182nd St (Area 2)	***0.93 – E***	***0.92 – E***	***0.97 – E***	***0.95 – E***
23	Crenshaw Blvd/190th St (Area 4)	***0.98 – E***	***1.07 – F***	***0.98 – E***	***1.09 – F***

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics***.

Table 9 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS
24	Crenshaw Blvd/Del Amo Blvd (Area 4)	0.66 – B	0.67 – B	0.68 – B	0.69 – B
25	Crenshaw Blvd/Maricopa St (Area 4)	0.70 – B	0.72 – C	0.71 – C	0.76 – C
26	Crenshaw Blvd/Torrance Blvd (Area 4)	0.82 – D	***0.95 – E***	0.84 – D	***0.97 – E***
27	Crenshaw Blvd/Carson St (Area 7)	***0.92 – E***	***0.94 – E***	0.90 – D	***0.96 – E***
28	Crenshaw Blvd/Plaza Del Amo (Area 7)	0.53 – A	0.65 – B	0.53 – A	0.68 – B
29	Crenshaw Blvd/Sepulveda Blvd (Area 8)	0.83 – D	0.88 – D	0.81 – D	0.87 – D
30	Crenshaw Blvd/235th St (Area 8)	0.80 – C	0.81 – D	0.83 – D	0.80 – C
31	Crenshaw Blvd/Lomita Blvd (Area 8)	***0.95 – E***	***1.23 – F***	***0.96 – E***	***1.22 – F***
32	Crenshaw Blvd/Skypark Drive-Amsler St (Area 8)	0.49 – A	0.76 – C	0.51 – A	0.75 – C
33	Crenshaw Blvd/Pacific Coast Hwy (SR-1) (Area 10)	***1.12 – F***	***1.31 – F***	***1.11 – F***	***1.32 – F***
34	Crenshaw Blvd/Rolling Hills Rd (Area 10)	0.69 – B	0.69 – B	0.69 – B	0.72 – C
35	Del Amo Cir East/Carson St (Area 7)	0.34 – A	0.59 – A	0.34 – A	0.59 – A
36	Del Amo Cir East/Sepulveda Blvd (Area 7)	0.74 – C	0.90 – D	0.76 – C	0.94 – E
37	Denny Rd-Robinson Ave/Pacific Coast Hwy (SR-1) (Area 10)	0.47 – A	0.49 – A	0.48 – A	0.49 – A
38	Hawthorne Blvd (SR-107)/Redondo Beach Blvd (Area 1)	0.89 – D	0.87 – D	0.89 – D	0.87 – D
39	Hawthorne Blvd (SR-107)/Artesia Blvd (Area 1)	0.84 – D	0.80 – C	0.84 – D	0.80 – C
40	Hawthorne Blvd (SR-107)/182nd St (Area 1)	0.66 – B	0.82 – D	0.67 – B	0.83 – D
41	Hawthorne Blvd (SR-107)/190th St (Area 3)	0.88 – D	***0.91 – E***	0.88 – D	0.89 – D
42	Hawthorne Blvd (SR-107)/Del Amo Blvd (Area 3)	0.77 – C	0.80 – C	0.76 – C	0.81 – D
43	Hawthorne Blvd (SR-107)/Spencer St (Area 3)	0.63 – B	0.74 – C	0.64 – B	0.76 – C
44	Hawthorne Blvd (SR-107)/Emerald St (Area 3)	0.70 – B	0.69 – B	0.70 – B	0.70 – B
45	Hawthorne Blvd (SR-107)/Torrance Blvd (Area 6)	0.77 – C	**0.97 – E**	0.75 – C	***0.94 – E***
46	Hawthorne Blvd (SR-107)/Village Lane-Fashion Way (Area 6)	0.52 – A	0.71 – C	0.52 – A	0.72 – C
47	Hawthorne Blvd (SR-107)/Del Amo Cir-Del Amo Cir North (Area 6)	0.51 – A	0.71 – C	0.51 – A	0.72 – C
48	Hawthorne Blvd (SR-107)/Carson St (Area 6)	0.70 – B	***1.02 – F***	0.69 – B	***0.97 – E***
49	Hawthorne Blvd (SR-107)/Sepulveda Blvd (Area 6)	0.88 – D	***1.13 – F***	0.85 – D	***1.14 – F***
50	Hawthorne Blvd (SR-107)/Lomita Blvd (Area 9)	***0.94 – E***	***1.05 – F***	***0.95 – E***	***1.11 – F***

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics***.

Table 9 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS
51	Hawthorne Blvd (SR-107)/Skypark Dr (Area 9)	0.66 – B	0.77 – C	0.67 – B	0.79 – C
52	Hawthorne Blvd (SR-107)/Pacific Coast Hwy (SR-1) (Area 9)	***0.92 – E***	***0.92 – E***	***0.93 – E***	***0.96 – E***
53	Hawthorne Blvd (SR-107)/Newton St (Area 10)	0.54 – A	0.51 – A	0.55 – A	0.53 – A
54	Hawthorne Blvd (SR-107)/Rolling Hills Rd (Area 10)	0.74 – C	0.61 – B	0.74 – C	0.63 – B
55	Henrietta St/Del Amo Blvd (Area 3)	0.51 – A	0.36 – A	0.52 – A	0.38 – A
56	Henrietta St/Torrance Blvd (Area 6)	0.47 – A	0.46 – A	0.47 – A	0.47 – A
57	Madison St/Skypark Dr (Area 10)	0.39 – A	0.58 – A	0.38 – A	0.58 – A
58	Madison St/Pacific Coast Hwy (SR-1) (Area 10)	0.58 – A	0.59 – A	0.58 – A	0.59 – A
59	Madrona Ave/Spencer St (Area 4)	0.40 – A	0.45 – A	0.40 – A	0.46 – A
60	Madrona Ave/Emerald St (Area 4)	0.42 – A	0.48 – A	0.42 – A	0.49 – A
61	Madrona Ave/Torrance Blvd (Area 4)	0.68 – B	0.85 – D	0.68 – B	0.85 – D
62	Madrona Ave/Fashion Way (Area 7)	0.33 – A	0.40 – A	0.32 – A	0.40 – A
63	Madrona Ave/Carson St (Area 7)	0.57 – A	0.62 – B	0.55 – A	0.61 – B
64	Madrona Ave/Plaza Del Amo (Area 7)	0.54 – A	0.44 – A	0.54 – A	0.44 – A
65	Madrona Ave/Sepulveda Blvd (Area 7)	0.77 – C	***0.93 – E***	0.77 – C	***0.95 – E***
66	Maple Ave/Maricopa St (Area 4)	0.49 – A	0.44 – A	0.50 – A	0.45 – A
67	Maple Ave/Torrance Blvd (Area 4)	0.70 – B	0.81 – D	0.72 – C	0.82 – D
68	Maple Ave/Carson St (Area 7)	0.67 – B	0.78 – C	0.71 – C	0.81 – D
69	Maple Ave/Plaza Del Amo (Area 7)	0.31 – A	0.35 – A	0.32 – A	0.36 – A
70	Maple Ave/Sepulveda Blvd (Area 7)	0.64 – B	0.80 – C	0.64 – B	0.82 – D
71	Ocean Ave/Sepulveda Blvd (Area 6)	0.54 – A	0.53 – A	0.54 – A	0.55 – A
72	Ocean Ave/Lomita Blvd (Area 9)	0.53 – A	0.58 – A	0.53 – A	0.59 – A
73	Palos Verdes Blvd/Torrance Blvd (Area 6)	0.56 – A	0.59 – A	0.57 – A	0.60 – A
74	Palos Verdes Blvd/Sepulveda Blvd (Area 6)	0.65 – B	0.62 – B	0.65 – B	0.65 – B
75	Palos Verdes Blvd/Pacific Coast Hwy (SR-1) (Area 9)	0.77 – C	0.86 – D	0.78 – C	0.89 – D
76	Palos Verdes Blvd/Calle Mayor (Area 9)	0.53 – A	0.50 – A	0.53 – A	0.50 – A
77	Plaza Del Amo/Carson St (Area 5)	0.83 – D	0.75 – C	0.85 – D	0.76 – C

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics***.

Table 9 (Continued)
Forecast Existing Plus Proposed General Plan Update Conditions
AM & PM Peak Hour Intersection LOS – *ICU* Methodology

Int. #	Study Intersection	Existing Conditions		Forecast Existing Plus Proposed General Plan Update Conditions	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
		V/C – LOS	V/C – LOS	V/C – LOS	V/C – LOS
78	Prairie Ave/Redondo Beach Blvd (Area 1)	***0.94 – E***	***1.07 – F***	***0.96 – E***	***1.05 – F***
79	Prairie Ave/Artesia Blvd (Area 1)	0.83 – D	0.83 – D	0.84 – D	0.84 – D
80	Prairie Ave/182nd St (Area 1)	0.89 – D	0.88 – D	0.90 – D	0.89 – D
81	Prairie Ave/190th St (Area 4)	***0.91 – E***	***0.96 – E***	0.89 – D	***0.98 – E***
82	Prairie Ave/Del Amo Blvd (Area 4)	0.63 – B	0.89 – D	0.60 – A	0.86 – D
83	Van Ness Ave/Redondo Beach Blvd (Area 2)	0.66 – B	0.81 – D	0.66 – B	0.81 – D
84	Van Ness Ave/Artesia Blvd (Area 2)	0.53 – A	0.76 – C	0.53 – A	0.75 – C
85	Van Ness Ave/182nd St (Area 2)	0.52 – A	0.59 – A	0.53 – A	0.58 – A
86	Van Ness Ave/190th St (Area 5)	0.76 – C	0.78 – C	0.76 – C	0.78 – C
87	Van Ness Ave/Del Amo Blvd (Area 5)	0.68 – B	0.47 – A	0.67 – B	0.47 – A
88	Victor St/Del Amo Blvd (Area 3)	0.51 – A	0.35 – A	0.51 – A	0.36 – A
89	Victor St/Torrance Blvd (Area 6)	0.45 – A	0.51 – A	0.45 – A	0.52 – A
90	Western Ave (SR-213)/Artesia Blvd (Area 2)	0.84 – D	0.87 – D	0.83 – D	0.86 – D
91	Western Ave (SR-213)/182nd St (Area 2)	0.51 – A	0.67 – B	0.52 – A	0.67 – B
92	Western Ave (SR-213)/190th St (Area 2)	0.90 – D	0.80 – C	0.86 – D	0.78 – C
93	Western Ave (SR-213)/Del Amo Blvd (Area 5)	0.73 – C	0.67 – B	0.73 – C	0.69 – B
94	Western Ave (SR-213)/Torrance Blvd (Area 5)	0.60 – A	0.71 – C	0.61 – B	0.71 – C
95	Western Ave (SR-213)/Carson St (Area 5)	0.82 – D	0.87 – D	0.82 – D	0.90 – D
96	Western Ave (SR-213)/223rd St (Area 8)	0.76 – C	***0.98 – E***	0.77 – C	***0.99 – E***
97	Western Ave (SR-213)/Sepulveda Blvd (Area 8)	***0.97 – E***	***1.09 – F***	***0.99 – E***	***1.10 – F***
98	Yukon Ave/Redondo Beach Blvd (Area 1)	0.57 – A	0.55 – A	0.57 – A	0.54 – A
99	Yukon Ave/Artesia Blvd (Area 1)	0.70 – B	0.69 – B	0.71 – C	0.69 – B
100	Yukon Ave/182nd St (Area 1)	0.45 – A	0.58 – A	0.46 – A	0.59 – A

Note: V/C = volume to capacity ratio; deficient intersection operation shown in ***bold italics*****.**

As shown in Table 9, the following 18 study intersections are forecast to operate at a deficient LOS (LOS E or worse) according to agency performance criteria for forecast existing plus proposed General Plan Update conditions during one or both peak hours utilizing *ICU* methodology:

- Anza Avenue/Sepulveda Boulevard (both a.m. and p.m. peak hours);
- Arlington Avenue/Plaza Del Amo-Washington Avenue (a.m. peak hour only);
- Crenshaw Boulevard/182nd Street (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/190th Street (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/Torrance Boulevard (p.m. peak hour only);
- Crenshaw Boulevard/Carson Street (p.m. peak hour only);
- Crenshaw Boulevard/Lomita Boulevard (both a.m. and p.m. peak hours);
- Crenshaw Boulevard/Pacific Coast Highway (SR-1) (both a.m. and p.m. peak hours);
- Hawthorne Boulevard (SR-107)/Torrance Boulevard (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Carson Street (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard (p.m. peak hour only);
- Hawthorne Boulevard (SR-107)/Lomita Boulevard (both a.m. and p.m. peak hours);
- Hawthorne Boulevard (SR-107)/Pacific Coast Highway (SR-1) (both a.m. and p.m. peak hours);
- Madrona Avenue/Sepulveda Boulevard (p.m. peak hour only);
- Prairie Avenue/Redondo Beach Boulevard (both a.m. and p.m. peak hours);
- Prairie Avenue/190th Street (p.m. peak hour only);
- Western Avenue (SR-213)/223rd Street (p.m. peak hour only); and
- Western Avenue (SR-213)/Sepulveda Boulevard (both a.m. and p.m. peak hours).

MITIGATION MEASURES

The following mitigation measures are identified to reduce significant traffic impacts at five impacted study intersections for forecast existing plus proposed General Plan Update conditions based on the *HCM* analysis:

Mitigation Measure No. 1 **Anza Avenue/Sepulveda Boulevard** – Widen the eastbound Sepulveda Boulevard approach from one left-turn lane, one through lane, and one shared through/right-turn lane to consist of one left-turn lane, two through lanes, and one right-turn lane. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 2 **Crenshaw Boulevard/190th Street** – Widen the westbound Crenshaw Boulevard approach from two left-turn lanes, two through lanes, and one right-turn lane to consist of two left-turn lanes, three through lanes, and one right-turn lane. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 3 **Crenshaw Boulevard/Pacific Coast Highway (SR-1)** – Modify the northbound Crenshaw Boulevard traffic signal phasing to include a northbound right-turn overlap, which will preclude U-turn movement from westbound to eastbound Pacific Coast Highway (SR-1). *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 4 **Hawthorne Boulevard (SR-107)/Sepulveda Boulevard** – Modify the northbound Hawthorne Boulevard (SR-107) traffic signal phasing to include a northbound right-turn overlap, which will preclude U-turn movement from westbound to eastbound Sepulveda Boulevard. *[This mitigation measure is consistent with the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

Mitigation Measure No. 5 **Hawthorne Boulevard (SR-107)/Lomita Boulevard** – Modify the westbound Lomita Boulevard traffic signal phasing to include a westbound right-turn overlap, which will preclude U-turn movement from southbound to northbound Hawthorne Boulevard (SR-107). *[This mitigation measure is identical to the improvement identified in the City of Torrance Citywide Traffic Analysis (RBF Consulting, June 3, 2008).]*

CONCLUSIONS

Mitigation measures are identified at the following five impacted study intersections to reduce traffic impacts to a level considered less than significant for forecast existing plus proposed General Plan Update conditions based on the *HCM* analysis:

- Anza Avenue/Sepulveda Boulevard;
- Crenshaw Boulevard/190th Street;
- Crenshaw Boulevard/Pacific Coast Highway (SR-1);
- Hawthorne Boulevard (SR-107)/Sepulveda Boulevard; and
- Hawthorne Boulevard (SR-107)/Lomita Boulevard.

It should be noted, identification of project-related significant traffic impacts utilizing the *ICU* methodology at the study intersections is for informational purposes only. As such, mitigation measures are not identified to reduce significant project-related traffic impacts to a level considered less than significant for forecast existing plus proposed General Plan Update conditions.

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