

**APPENDIX I**

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**TRANSPORTATION AND TRAFFIC**



# **Traffic Impact Analysis for the Harbor-UCLA Medical Center Master Plan Project**

Prepared for:  
ESA PCR

August 2016

LA13-2610

FEHR  PEERS

Prepared by:

Fehr & Peers  
600 Wilshire Blvd, Suite 1050  
Los Angeles, CA 90017  
(213) 261-3050  
[www.fehrandpeers.com](http://www.fehrandpeers.com)



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## 1. INTRODUCTION

This technical report summarizes the results of a traffic study conducted by Fehr & Peers to evaluate the potential traffic impacts of the proposed Harbor-UCLA Medical Center Project, which is proposed on the site of the existing Harbor-UCLA Medical Center in unincorporated Los Angeles County, California. The location of the project can be seen in Figure 1.

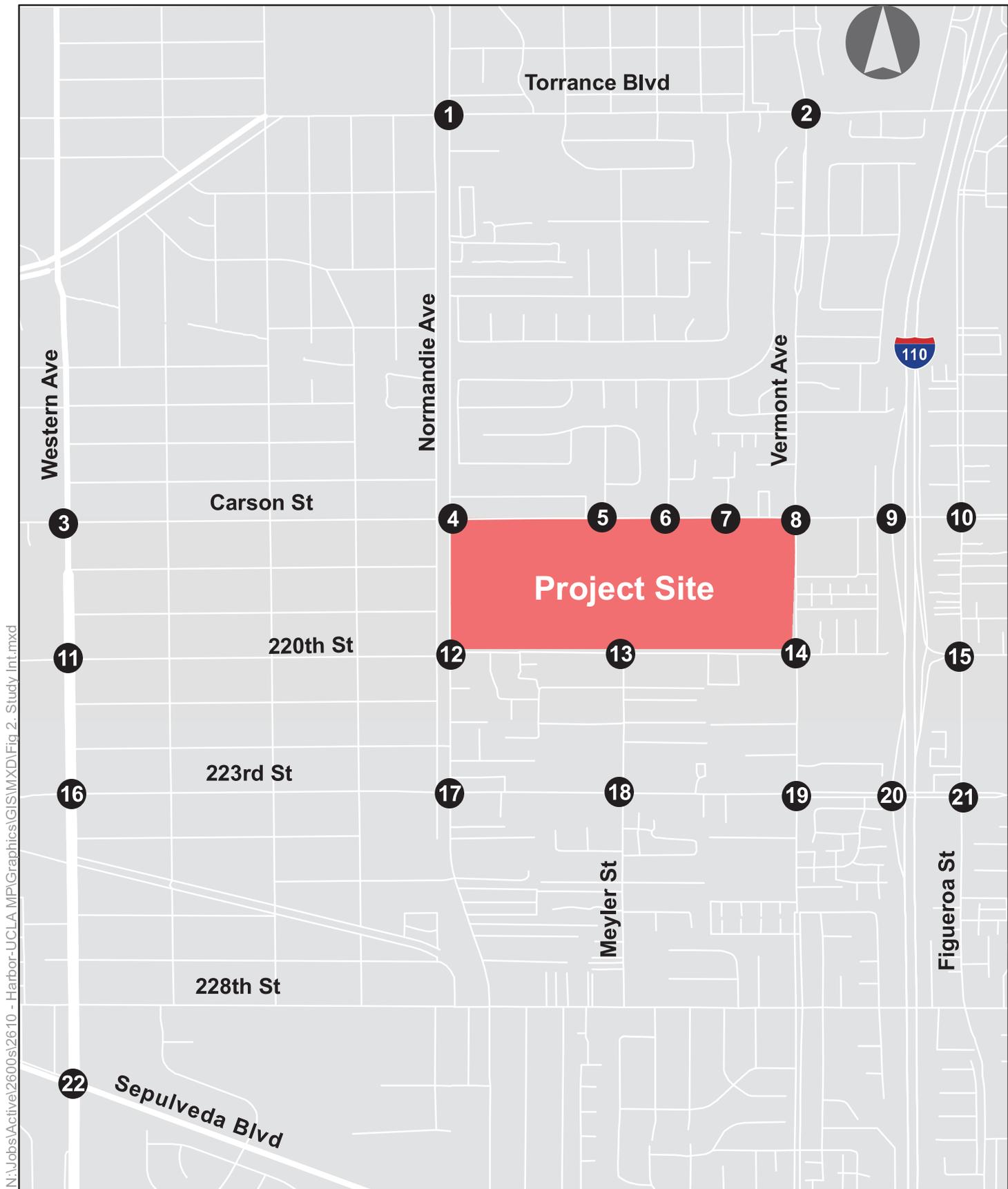
## PROJECT DESCRIPTION

The proposed project is an update to the Harbor-UCLA Medical Center Master Plan in two phases. The first phase will be completed in the year 2023 (henceforth referred to as 2023 Project), and the second phase will be completed in the year 2030 (henceforth referred to as 2030 Project). The project includes both the redevelopment of existing land uses and the construction of new related land uses. The existing site serves as primary healthcare facility for County residents, a training center for medical students and a research facility with a partnership with Los Angeles Biomedical Research Institute (LA Biomed), which is also located on the site. The purpose of this project is to enhance the unique, and highly interactive, relationship between the clinical, educational, and research components of the Harbor-UCLA Medical Center Campus as well as to meet state requirements for seismic safety. The proposed campus site plan is shown in Figure 2 and includes the following changes to the site:

- Construction of a new Hospital Tower
- Consolidation and expansion of outpatient facilities into a sub-campus area
- Expanded space for LA Biomed and for an additional research and development tenant

As stated, the project will be completed in two phases. The 2023 Project will include the following net changes:

- Addition of 29,200 square feet (sf) of administrative office space
- Addition of 16,486 sf of new utility plant and maintenance facilities
- Addition of six staffed hospital beds
- Addition of 11,396 sf of medical office/outpatient facilities
- Addition of 125,000 sf of research & development space for Bioscience campus
- Addition of 17,746 sf of research & development space for LA Biomed



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1 Study Intersection

0 0.2 0.4 Miles



Figure 1  
Project Site and Study Intersections



Figure 2  
 Harbor-UCLA Medical Center  
 Proposed Campus Site Plan

The full project buildout in 2030 will include the following net changes:

- Addition of 107,200 sf of administrative office space
- Addition of 16,486 sf of new utility plant and maintenance facilities
- Addition of six staffed hospital beds
- Addition of 85,294 sf of medical office/outpatient facilities
- Addition of 35,000 sf of wellness-oriented meeting space and retail space
- Addition of 250,000 sf of research & development space for Bioscience campus
- Addition of 130,246 sf of research & development space for LA Biomed

In addition, the project will provide additional open space and beautification of the campus. The campus will be realigned to engage Carson Street and the surrounding community by positioning services utilized by the community towards this major thoroughfare. Site access and internal circulation will be reconfigured, with patient and visitor access concentrated along Carson Street and Normandie Avenue and staff access provided off of 220<sup>th</sup> Street and Vermont Avenue. A new driveway will be located along Carson Street between Normandie Avenue and Budlong Avenue. The exact location of this driveway will be determined after consultation with Los Angeles County staff. The new proposed Bioscience campus will occupy 11 of the 70 acres on the project site.

## STUDY SCOPE

This study evaluates the potential for project-related traffic impacts on the street system surrounding the project site. Peak hour traffic impacts for the project were evaluated for the peak hour during typical weekday morning (7:00 to 9:00 AM) and afternoon (4:00 to 6:00 PM) peak periods. The following traffic scenarios were analyzed in the study using Los Angeles County's methodology:

- Existing Conditions – The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study. The existing conditions analysis includes a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Existing plus 2023 Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of project-generated traffic from the 2023 Project. The impacts of the proposed project on existing traffic operating conditions were then identified.

- Existing plus 2030 Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of project-generated traffic from the 2030 Project scenario. The impacts of the proposed project on existing traffic operating conditions were then identified.
- Existing plus 2023 Project plus Cumulative Conditions –Traffic conditions were developed for 2023 by adding the project trips and cumulative trips near the site. The objective of this analysis is to project future traffic growth and operating conditions that could be expected to result from related projects in the vicinity of the project site and project generated trips by 2023.
- Existing plus 2030 Project plus Cumulative Conditions – Traffic conditions were developed for 2030 by adding the project trips and cumulative trips near the site. The objective of this analysis is to project future traffic growth and operating conditions that could be expected to result from related projects in the vicinity of the project site and project generated trips by 2030.

The following traffic scenarios were analyzed in the study using methodology from the Cities of Los Angeles, Carson and Torrance:

- Existing Conditions – The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study. The existing conditions analysis includes a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations.
- Existing plus 2023 Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of project-generated traffic from the 2023 Project. The impacts of the proposed project on existing traffic operating conditions were then identified.
- Existing plus 2030 Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of project-generated traffic from the 2030 Project scenario. The impacts of the proposed project on existing traffic operating conditions were then identified.
- Interim Conditions – Interim traffic conditions without the proposed project were developed for 2023. The objective of this analysis is to project future traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by 2023.
- Cumulative Conditions – Future traffic conditions without the proposed project were developed for 2030. The objective of this analysis is to project future traffic growth and operating conditions that could be expected to result from regional growth and related projects in the vicinity of the project site by 2030.

- Interim plus 2023 Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under interim conditions with the addition of project-generated traffic from partial completion. The impacts of the proposed project on interim traffic operating conditions were then identified.
- Cumulative plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under future conditions with the addition of project-generated traffic. The impacts of the proposed project on future traffic operating conditions were then identified.

Following extensive coordination with staff from Los Angeles County, Caltrans, City of Los Angeles, City of Carson and City of Torrance, 22 intersections were selected to be studied as part of the traffic impact analysis for the proposed project. All intersections are signal controlled, with the exception of Meyler Street & 220<sup>th</sup> Street, which is all-way stop-controlled:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
5. Budlong Avenue & Carson Street
6. Berendo Avenue & Carson Street
7. Medical Center Drive & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound On-/Off-Ramps & Carson Street
10. Figueroa Street & Carson Street
11. Western Avenue & 220<sup>th</sup> Street
12. Normandie Avenue & 220<sup>th</sup> Street
13. Meyler Street & 220<sup>th</sup> Street
14. Vermont Avenue & 220<sup>th</sup> Street
15. Figueroa Street & 220<sup>th</sup> Street/I-110 Northbound On-/Off-Ramp
16. Western Avenue & 223<sup>rd</sup> Street
17. Normandie Avenue & 223<sup>rd</sup> Street
18. Meyler Street & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
20. I-110 Southbound On-/Off-Ramps & 223<sup>rd</sup> Street

21. Figueroa Street & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

Figure 1 shows the location of the project site and the 22 study intersections. Lane configurations of the study intersections can be seen in Appendix A.

## ORGANIZATION OF REPORT

This report is divided into six chapters, including this introduction. Chapter 2 describes the existing transportation conditions including an inventory of the streets, highways, and transit service in the study area, a summary of traffic volumes, and an assessment of operating conditions. The methodologies used to develop traffic forecasts for the scenarios described above and the forecasts themselves are included in Chapter 3. Chapter 4 presents an assessment of potential intersection traffic impacts of the proposed project under the scenarios described above. The results of the regional transportation system analysis are provided in Chapter 5. Chapter 6 contains the study conclusions. Appendices to this report include details of the technical analysis.

## 2. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the study area. The assessment of conditions relevant to this study includes a description of the study area, an inventory of the local street system in the vicinity of the project site, a review of traffic volumes on these facilities, an assessment of the resultant operating conditions, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

### STUDY AREA

The proposed project is located at 1000 West Carson Street in the unincorporated community of West Carson, California. The study area includes intersections located in or bordering Los Angeles County, City of Los Angeles, City of Carson and City of Torrance. Carson Street, Vermont Avenue, Normandie Avenue and 220<sup>th</sup> Street currently provide access to the site via 11 driveways. In addition, a parking lot for staff is located on the southeast corner of Vermont Avenue & 220<sup>th</sup> Street, with access provided by four driveways on 220<sup>th</sup> Street. The study area for this analysis is bounded by Torrance Boulevard on the north, 223<sup>rd</sup> Street on the south, Figueroa Street on the east, and Western Avenue on the west.

### EXISTING STREET SYSTEM

As indicated, Carson Street, Vermont Avenue, Normandie Avenue and 220<sup>th</sup> Street provide direct access to the site. Primary regional access to the site is provided by Carson Street, I-110, I-405 and State Route 91. Following is a brief description of the streets that serve the site.

#### Freeways

- San Diego Freeway (I-405) – The San Diego Freeway runs east/west approximately two miles north of the project site and southeast/northwest approximately two miles east of the project site. Access from the project site to the San Diego Freeway is provided by interchanges at Western Avenue, Normandie Avenue, Vermont Avenue (westbound vehicles only), Carson Street, and Wilmington Avenue.
- Harbor Freeway (I-110) – The Harbor Freeway runs north/south approximately ¼ mile east of the project site. Access from the project site to the Harbor Freeway is provided by via interchanges at Carson Street and 223<sup>rd</sup> Street for southbound vehicles and at 220<sup>th</sup> Street for northbound vehicles.

- Gardena Freeway/Artesia Freeway (State Route 91) – State Route 91 (SR 91) runs east/west approximately three miles north of the project site. East of the Harbor Freeway, SR 91 is known as the Gardena Freeway. West of the Harbor Freeway, SR 91 is known as the Artesia Freeway. Access from the project site to SR 91 is provided by the 110 Freeway and Vermont Avenue.

### North/South Roadways

- Vermont Avenue – Vermont Avenue is designated as a Major Highway in the Los Angeles County General Plan that runs north/south on the east side of the project site and provides two travel lanes and a bicycle lane in each direction. The street also has a center turn lane. Parallel parking is available on both sides of the street. The posted speed limit is 40 miles per hour (mph).
- Normandie Avenue – Normandie Avenue is designated as a Secondary Highway in the Los Angeles County General Plan that runs north/south on the west side of the project site and provides two travel lanes in each direction. This roadway is part of the City of Los Angeles Bicycle Lane Network in the City of Los Angeles Mobility Plan. Restricted and unrestricted parking is available on both sides of the street. The posted speed limit is 35 mph. Within the study area, Normandie Avenue forms the boundary between the City of Los Angeles and the unincorporated community of West Carson.
- Western Avenue (State Route 213) – Western Avenue is designated as a Major Highway in the Los Angeles County General Plan that runs north/south to the west of the project site. The roadway provides two travel lanes in each direction and contains a raised median with intersection turn lanes on portions of the roadway. Western Avenue is part of the City of Los Angeles Mobility Plan's Bicycle Enhanced Network. Restricted and unrestricted parking is available on both sides of the street near the project site. The posted speed limit is 40 mph. Within the study area, Normandie Avenue forms the boundary between the City of Los Angeles and the City of Torrance.
- Figueroa Street – Figueroa Street is designated as a Major Highway in the City of Carson General Plan that runs north/south to the east of the project site. The roadway provides two travel lanes in each direction and contains a raised median with intersection turn lanes on portions of the roadway. Restricted and unrestricted parking is available on both sides of the street near the project site. The posted speed limit is 40 mph.
- Meyler Street – Meyler Street is a local street that runs north/south south of the project site. Unrestricted parking is available on both sides of the street near the project site.
- Berendo Avenue – Berendo Street is a local street that runs north/south north of the project site. Restricted and unrestricted parking is available on both sides of the street near the project site.
- Budlong Avenue – Budlong Street is a local street that runs north/south north of the project site. Restricted and unrestricted parking is available on both sides of the street near the project site.

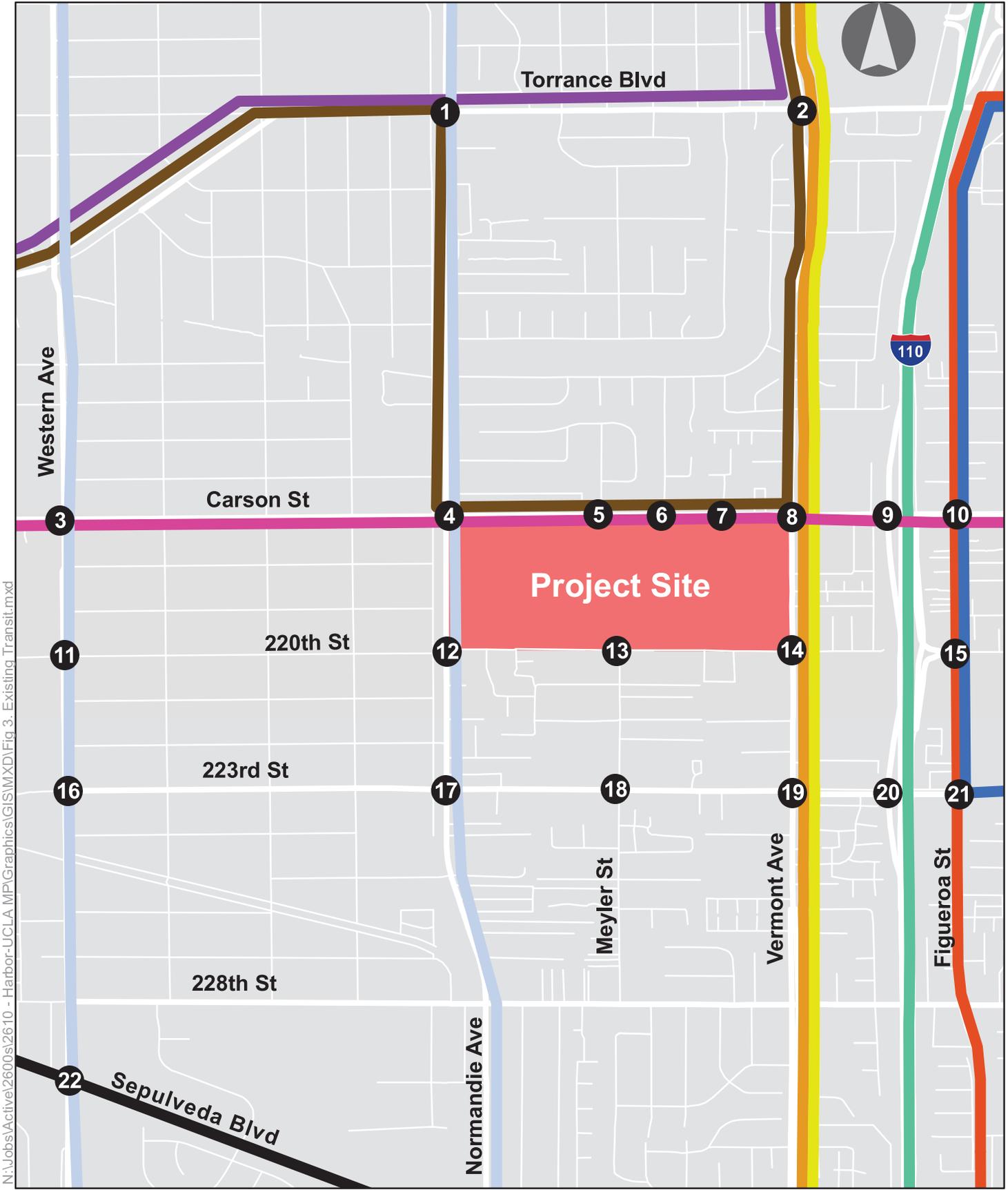
## East/West Roadways

- Carson Street – Carson Street is designated as a Major Highway in the Los Angeles County General Plan that runs east/west on the north side of the project site and provides two travel lanes in each direction. The portions of the roadway within the City of Los Angeles are part of the City of Los Angeles Bicycle Lane Network. Restricted and unrestricted parking is available on either side of the street on portions of the roadway. The posted speed limit is 35 mph.
- 220<sup>th</sup> Street – 220<sup>th</sup> Street is a local street that runs east/west on the south side of the project site and provides four vehicle travel lanes, two in each direction. This roadway is part of the County of Los Angeles proposed Bicycle Network. Restricted and unrestricted parking is available on either side of the street on portions of the roadway near the project site. The posted speed limit is 30 mph.
- 223<sup>rd</sup> Street – 223<sup>rd</sup> Street is designated as a Secondary Highway in the Los Angeles County General Plan that runs east/west to the south of the project site and provides two travel lanes in each direction. This roadway is part of the County of Los Angeles proposed Bicycle Network. The majority of parking is unrestricted on either side of the street. The posted speed limit is between 35 and 40 mph.
- Torrance Boulevard – Torrance Boulevard is designated as a Secondary Highway in the Los Angeles County General Plan that runs east/west north of the project site and provides two travel lanes in each direction. Parking is available on most blocks within the study area for passenger vehicles. Commercial vehicles are not allowed to park on the roadway. The posted speed limit is 35 mph.
- Sepulveda Boulevard – Sepulveda Boulevard is designated as a Major Highway in the Los Angeles County General Plan that runs east/west south of the project site and provides three travel lanes in each direction, with a raised median on portions of the roadway. Parking is not available on either side of the street. The posted speed limit is 40 mph.

## EXISTING TRANSIT SERVICE

Eleven bus lines currently serve the study area. These transit lines are operated by Metro, Torrance Transit, Carson Circuit and Gardena Municipal Bus. Transit lines are described below and illustrated in Figure 3.

- Metro Line 205 – Line 205 is a north/south line that runs from the Willowbrook/Rosa Parks Station to San Pedro. The line has 30- to 35-minute headways during AM/PM peak hours and runs on Vermont Avenue within the study area, with stops every few blocks. Project site access is provided via stops at the intersections of Vermont Avenue & Carson Street and Vermont Avenue & 220<sup>th</sup> Street.



N:\Jobs\Active\2600s\2610 - Harbor-UCLA MP\Graphics\GIS\MXD\Fig 3 - Existing Transit.mxd

- Metro 205
- Torrance 1
- Torrance 7
- Metro 950X
- Torrance 3 & Rapid 3
- Gardena 2
- Metro 550
- Torrance 4
- Carson Line F
- Carson Line S

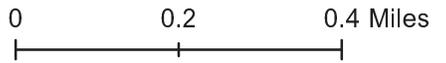


Figure 3  
Existing Transit Lines

- Metro Line 950X – Line 950X is a north/south line that runs from downtown Los Angeles to San Pedro via the Harbor Freeway and provides limited service. The line has 12- to 30-minute headways during AM/PM peak periods and runs on the Harbor Freeway within the study area. Project site access is provided via a stop at Carson Street.
- Metro Line 550 – Line 550 is a north/south line that runs from the University of Southern California to San Pedro. The line has 30- to 35-minute headways during AM/PM peak hours and runs on Vermont Avenue within the study area, with stops at Torrance Boulevard and Carson Street. Project site access is provided via a stop at the intersection of Vermont Avenue & Carson Street.
- Carson Circuit Line F – Line F travels on a loop route that runs primarily along 223<sup>rd</sup> Street, Figueroa Street, 213<sup>th</sup> Street and Martin Street. The line has 40-minute headways during AM and PM peak periods and runs on 223<sup>rd</sup> Street and Figueroa Street within the study area, with stops at Figueroa Street & 223<sup>rd</sup> Street, Figueroa Street & 220<sup>th</sup> Street, Figueroa Street & Carson Street, Carson Town Center, and Figueroa Street & Torrance Boulevard.
- Carson North/South Shuttle Line S – Line S is a north/south line that runs from Wilmington to the Harbor Gateway Transit Center and provides morning and afternoon peak period service only. The line has 50-minute headways and runs on Figueroa Street within the study area, with stops at Figueroa Street & 223<sup>rd</sup> Street, Figueroa Street & 220<sup>th</sup> Street, Figueroa Street & Carson Street, Carson Town Center, and Figueroa Street & Torrance Boulevard.
- Torrance Transit Line 1 – Line 1 runs from Del Amo Fashion Center to the Harbor Gateway Center. The line runs east/west along Torrance Boulevard, north/south along Normandie Avenue and Vermont Avenue and east/west along Carson Street within the study area, with stops at every few blocks. The project site is served by two stops along Carson Street with 40- to 45-minute headways during the AM and PM peak periods.
- Torrance Transit Line 3 – Line 3 is an east/west line that runs from the Redondo Beach Pier to downtown Long Beach. The line runs along Carson Street within the study area with 20- to 25-minute headways during the AM and PM peak periods and stops at every few of blocks.
- Torrance Transit Line Rapid 3 – Line Rapid 3 is an east/west line that runs from the South Bay Galleria to downtown Long Beach and travels much of the same route as Line 3 adding frequent service to the study area between 6:30 and 8:30 AM and between 2:30 and 6:00 PM. The line runs along Carson Street within the study area and provides service with headways between 10 and 20 minutes during the AM and PM peak periods. Stops are provided at Carson Street & Western Avenue, Carson Street & Normandie Avenue, and Carson Street & Vermont Avenue within the study area.
- Torrance Transit Line 4 – Line 4 is a north/south express line that runs from the intersection of Hawthorne Boulevard and the Pacific Coast Highway to downtown Los Angeles. The line travels east/west on Torrance Boulevard and north/south on Vermont Boulevard within the study area with stops located at Torrance Boulevard & Western Avenue, Torrance Boulevard & Normandie

Avenue, and Torrance Boulevard & Vermont Avenue. The line operates between 5:30 and 8:50 AM and between 3:30 and 7:00 PM with 40-minute headways.

- Torrance Transit Line 7 – Line 7 is an east/west line that runs from the intersection of Catalina Street & Torrance Boulevard to the intersection of Sepulveda Boulevard & Avalon Boulevard. The line runs along Sepulveda Boulevard within the study area with 60-minute AM and PM peak period headways and provides a stop at Western Avenue & Sepulveda Boulevard.
- Gardena Municipal Bus Lines 2 – Line 2 is a north/south line that runs from the Metro Green Line Vermont Station to the intersection of the Pacific Coast Highway & Normandie Avenue. The line runs along Western Avenue and Normandie Avenue within the study area and provides stops every few blocks. The line provides service with headways of 15 minutes during AM and PM peak periods.

## EXISTING BICYCLE AND PEDESTRIAN FACILITIES

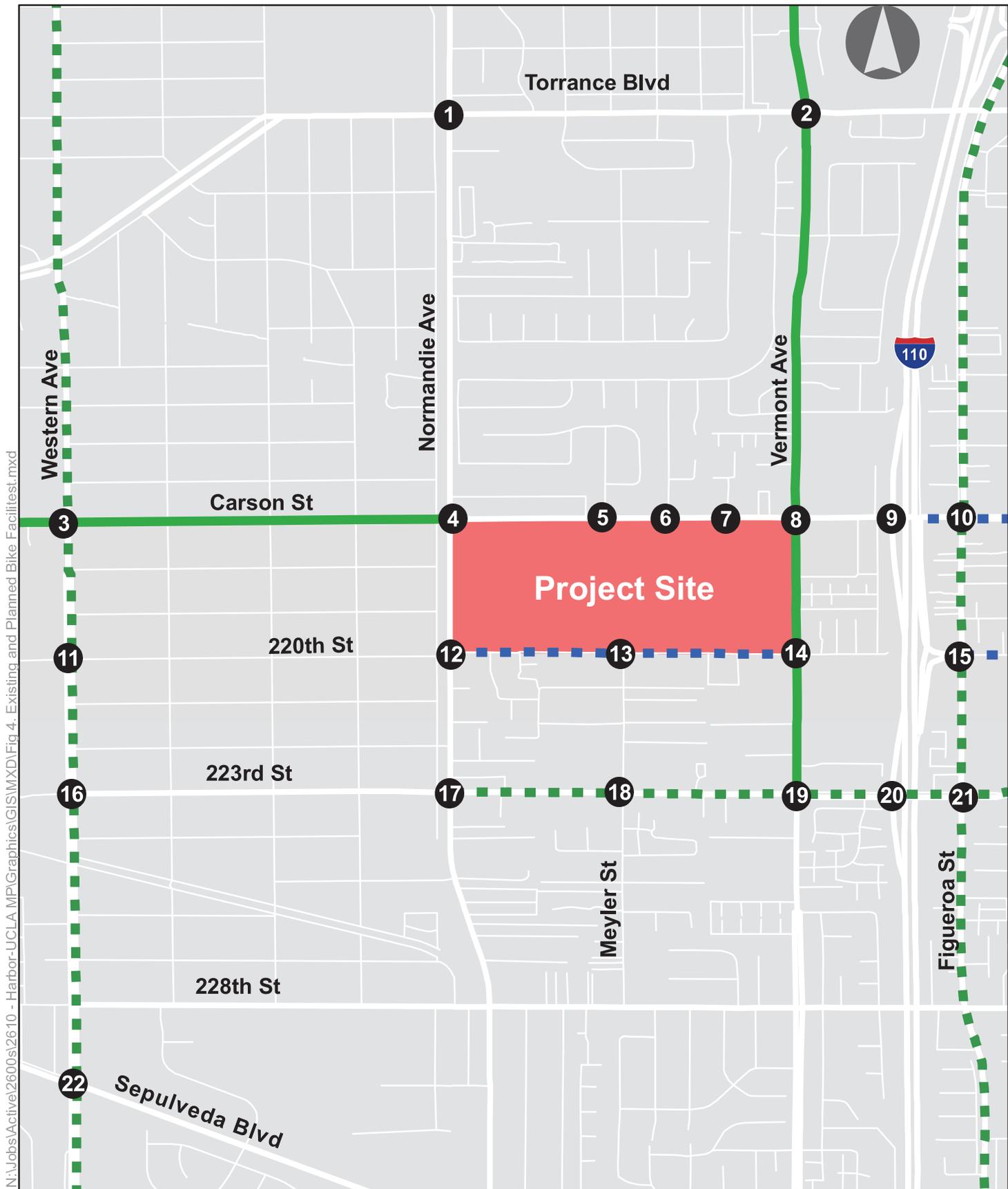
Currently, there is limited dedicated bicycle infrastructure in the study area. East of the site, bicycle lanes (Class II facilities) extend north/south on Vermont Avenue from 223<sup>rd</sup> Street through the northern edge of the study area. An east/west Class II facility exists on Carson Street between Normandie Avenue and Western Avenue. The City of Los Angeles Mobility Plan<sup>1</sup> includes a proposed protected bicycle lane on Western Avenue within the study area. The Los Angeles County Bicycle Master Plan<sup>2</sup> includes a proposed Class II bicycle lane on 223<sup>rd</sup> Street between Normandie Avenue and the Harbor Freeway and a Class III bicycle route on 220<sup>th</sup> Street between Normandie Avenue and Vermont Avenue. The City of Carson Master Plan of Bikeways includes proposed buffered bicycle lanes on Figueroa Street south of 223<sup>rd</sup> Street and bicycle lanes north of 223<sup>rd</sup> Street within the study area. The plan also calls for buffered bike lanes on 223<sup>rd</sup> Street, sharrows on Carson Street and bicycle lanes on 220<sup>th</sup> Street in the City of Carson portion of the study area. Existing and planned bicycle facilities are illustrated in Figure 4.

Pedestrian traffic typically enters the campus from one of the parking structures, parking lots or from the nearby transit stops. The medical center is located in an established neighborhood with a moderate population density. All of the streets immediately bordering the medical center and nearly all of the other streets in the vicinity include sidewalks, facilitating pedestrian movement. Marked crosswalks are present at most intersections in the study area. Pedestrian walk phases are either automatically provided at the intersections or are actuated by pedestrian push-buttons.

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<sup>1</sup> City of Los Angeles Mobility Plan: <https://la2b.org/documents/>

<sup>2</sup> Los Angeles County Bicycle Master Plan: <https://dpw.lacounty.gov/pdd/bike/masterplan.cfm>



N:\Jobs\Active\2600s\2610 - Harbor-UCLA MP\Graphics\GIS\MXD\Fig 4 - Existing and Planned Bike Facilities.mxd

- Existing Bike Lane
- Proposed Bike Lane
- Proposed Bike Route or Sharrow

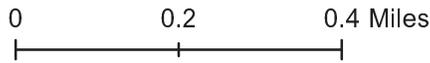


Figure 4  
Existing and Planned Bicycle Facilities



## EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

This section presents the existing peak hour turning movement traffic volumes for each of the intersections analyzed in the study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each, indicating volume/capacity ratios and levels of service. Traffic counts are provided in Appendix B.

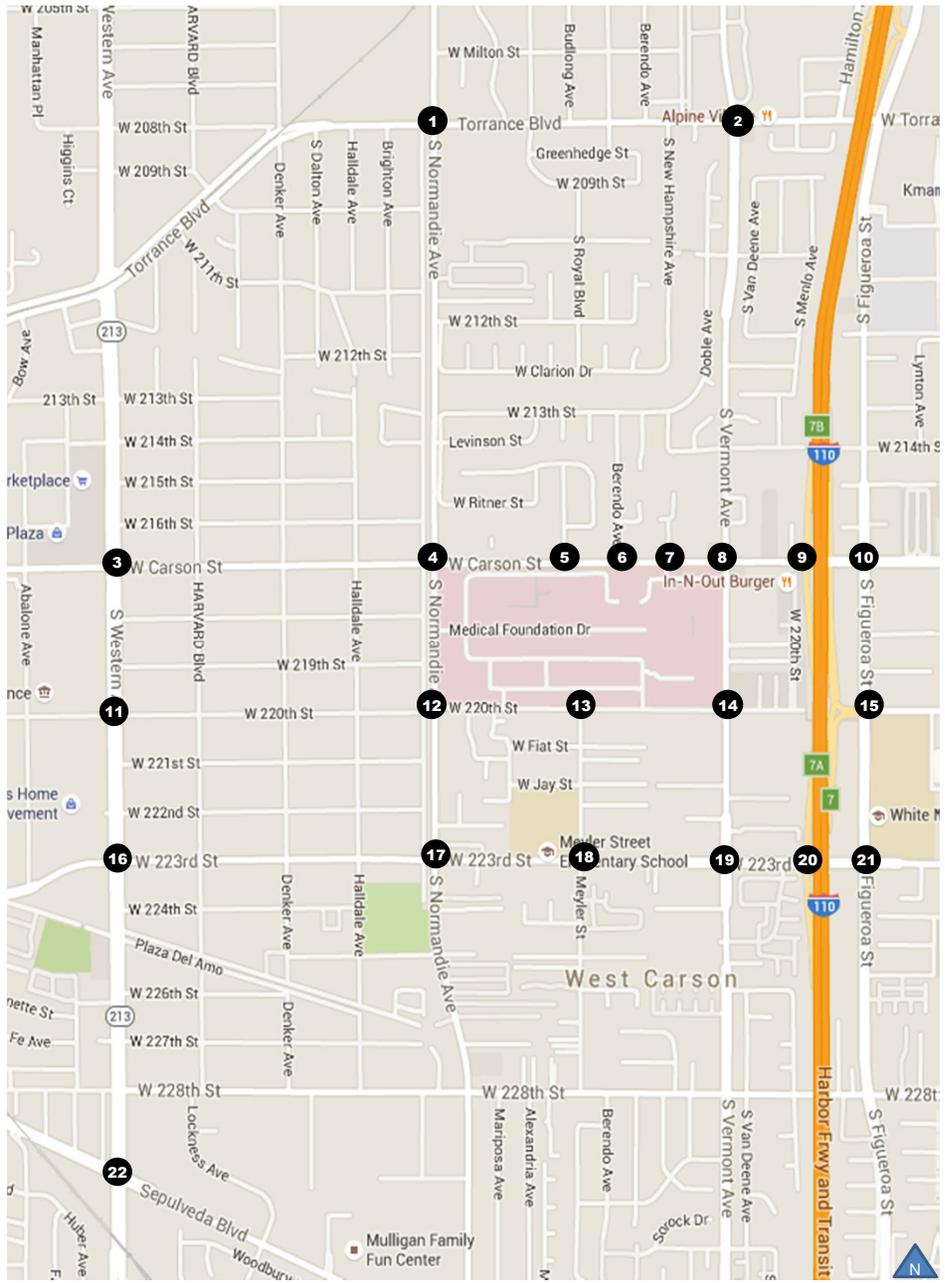
### EXISTING TRAFFIC VOLUMES

Weekday morning and evening peak hour traffic counts were conducted at the 22 analyzed intersections in October 2014, May 2015, November 2015 and December 2015. Existing peak hour weekday traffic volumes are illustrated in Figure 5.

### LEVEL OF SERVICE METHODOLOGY

Level of service (LOS) is a qualitative measure used to describe the condition of traffic flow on the street system, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS D is typically recognized as the minimum desirable level of service in urban areas. Levels of service definitions are provided in Table 1.

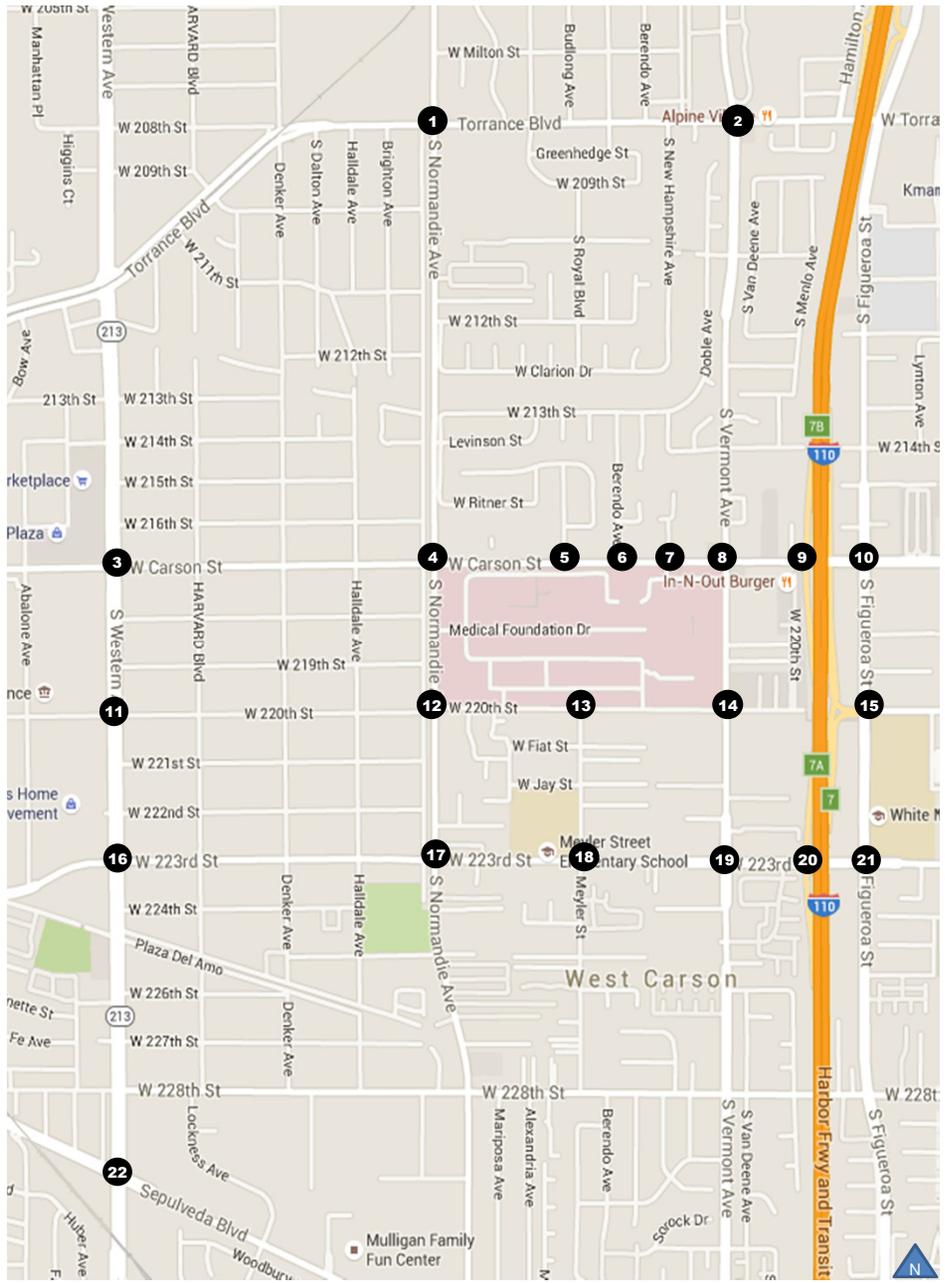
Per the requirements of Los Angeles County, City of Torrance and City of Carson, Intersection Capacity Utilization (ICU) methodology was used to determine the intersection volume-to-capacity (V/C) ratio and corresponding LOS for the 21 signalized study intersections wholly or partly in these jurisdictions. The ICU method of intersection capacity analysis determines the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at signalized intersections. "Capacity" represents the maximum volume of vehicles in the critical lanes that have a reasonable expectation of passing through an intersection in one hour under prevailing roadway and traffic conditions. The ICU ratios used in this study were calculated by dividing critical traffic movement volumes at an intersection by the capacity per number of lanes for the movement.



<p><b>1. Normandie Avenue/Torrance Boulevard</b></p> <p>101 (152) 382 (729) 32 (130)</p> <p>74 (43) 1,461 (963) 103 (58)</p> <p>95 (106) 915 (1,373) 77 (111)</p> <p>154 (98) 736 (530) 147 (149)</p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p> <p>185 (229) 566 (863) 37 (112)</p> <p>111 (89) 1,303 (689) 89 (60)</p> <p>172 (166) 866 (1,259) 147 (96)</p> <p>122 (78) 813 (484) 182 (120)</p>	<p><b>3. Western Avenue/Carson Street</b></p> <p>133 (220) 710 (1,285) 93 (154)</p> <p>153 (122) 1,121 (910) 66 (70)</p> <p>58 (84) 745 (980) 103 (183)</p> <p>150 (151) 1,123 (793) 83 (116)</p>
<p><b>4. Normandie Avenue/Carson Street</b></p> <p>147 (162) 358 (517) 33 (92)</p> <p>75 (76) 1,186 (1,019) 161 (153)</p> <p>194 (199) 887 (1,168) 187 (163)</p> <p>209 (170) 660 (489) 71 (104)</p>	<p><b>5. Budlong Avenue/Carson Street</b></p> <p>34 (35) 17 (20)</p> <p>16 (27) 1,356 (1,219)</p> <p>15 (25) 957 (1,287)</p>	<p><b>6. Berendo Avenue/Carson Street</b></p> <p>36 (34) 1 (4) 13 (24)</p> <p>33 (45) 1,341 (1,200) 107 (28)</p> <p>17 (27) 893 (1,248) 43 (23)</p> <p>19 (12) 2 (2) 44 (77)</p>
<p><b>7. Medical Center Drive/Carson Street</b></p> <p>34 (17) 1 (0) 45 (12)</p> <p>10 (25) 1,436 (1,242) 182 (86)</p> <p>13 (24) 928 (1,302) 16 (14)</p> <p>28 (25) 1 (0) 114 (104)</p>	<p><b>8. Vermont Avenue/Carson Street</b></p> <p>210 (179) 487 (740) 124 (272)</p> <p>132 (163) 1,250 (1,022) 256 (152)</p> <p>124 (113) 881 (1,230) 81 (109)</p> <p>155 (133) 824 (415) 222 (345)</p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p> <p>538 (400) 132 (263)</p> <p>1,211 (984) 174 (178)</p> <p>1,074 (1,600) 131 (261)</p>
<p><b>10. Figueroa Street/Carson Street</b></p> <p>148 (161) 258 (468) 38 (131)</p> <p>98 (70) 961 (797) 95 (103)</p> <p>112 (100) 645 (1,188) 449 (565)</p> <p>282 (207) 488 (231) 171 (138)</p>	<p><b>11. Western Avenue/220th Street</b></p> <p>68 (17) 876 (1,446) 11 (30)</p> <p>36 (19) 77 (39) 104 (47)</p> <p>18 (56) 23 (97) 55 (162)</p> <p>116 (68) 1,348 (921) 31 (23)</p>	<p><b>12. Normandie Avenue/220th Street</b></p> <p>26 (36) 394 (758) 65 (74)</p> <p>100 (84) 76 (35) 46 (44)</p> <p>29 (20) 99 (61) 42 (50)</p> <p>25 (23) 834 (468) 117 (41)</p>
<p><b>13. Meyler Street/220th Street</b></p> <p>1 (5) 0 (4) 9 (31)</p> <p>21 (3) 143 (96) 61 (21)</p> <p>3 (5) 141 (246) 51 (33)</p> <p>96 (13) 4 (0) 66 (65)</p>	<p><b>14. Vermont Avenue/220th Street</b></p> <p>252 (64) 498 (906) 56 (22)</p> <p>37 (43) 27 (12) 17 (31)</p> <p>149 (235) 32 (13) 88 (156)</p> <p>194 (34) 1,019 (544) 40 (14)</p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p> <p>379 (475) 366 (545) 128 (75)</p> <p>89 (52) 207 (104) 87 (56)</p> <p>233 (242) 37 (95) 47 (103)</p> <p>473 (406) 615 (287) 145 (60)</p>

Figure 5  
Existing Peak Hour Traffic Volumes





<p><b>16. Western Avenue/223rd Street</b></p> <p>Western Avenue 223rd Street</p> <p>53 (42) 898 (1,357) 74 (203)</p> <p>181 (87) 853 (586) 244 (74)</p> <p>47 (54) 383 (923) 109 (189)</p> <p>188 (98) 1,265 (863) 166 (164)</p>	<p><b>17. Normandie Avenue/223rd Street</b></p> <p>Normandie Avenue 223rd Street</p> <p>64 (75) 359 (684) 49 (65)</p> <p>75 (84) 1,018 (696) 114 (93)</p> <p>82 (71) 600 (1,137) 64 (105)</p> <p>123 (63) 789 (414) 105 (123)</p>	<p><b>18. Meyler Street/223rd Street</b></p> <p>Meyler Street 223rd Street</p> <p>54 (34) 44 (15) 55 (19)</p> <p>65 (44) 1,112 (813) 46 (59)</p> <p>52 (58) 666 (1,130) 24 (89)</p> <p>74 (27) 39 (15) 68 (35)</p>
<p><b>19. Vermont Avenue/223rd Street</b></p> <p>Vermont Avenue 223rd Street</p> <p>89 (110) 385 (741) 143 (271)</p> <p>300 (125) 979 (732) 247 (253)</p> <p>111 (60) 593 (1,062) 72 (117)</p> <p>138 (75) 829 (398) 130 (190)</p>	<p><b>20. I-110 SB Ramps/223rd Street</b></p> <p>I-110 SB Ramps 223rd Street</p> <p>477 (388) 1 (2) 304 (426)</p> <p>1,045 (742) 172 (120)</p> <p>796 (1,285) 120 (204)</p>	<p><b>21. Figueroa Street/223rd Street</b></p> <p>Figueroa Street 223rd Street</p> <p>177 (158) 260 (405) 66 (147)</p> <p>256 (130) 925 (616) 72 (74)</p> <p>293 (285) 584 (1,195) 178 (208)</p> <p>102 (71) 685 (343) 148 (110)</p>
<p><b>22. Western Avenue/Sepulveda Blvd</b></p> <p>Western Avenue Sepulveda Blvd</p> <p>267 (133) 874 (961) 76 (174)</p> <p>96 (139) 1,602 (1,380) 304 (309)</p> <p>229 (210) 1,261 (1,338) 72 (120)</p> <p>139 (182) 973 (796) 297 (321)</p>		

Figure 5  
Existing Peak Hour Traffic Volumes



**TABLE 1**  
**LEVEL OF SERVICE DEFINITIONS**  
**FOR SIGNALIZED INTERSECTIONS**

Level of Service	Intersection Capacity Utilization	Definition
A	0.000-0.600	EXCELLENT. No Vehicle waits longer than one red light and no approach phase is fully used.
B	0.601-0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701-0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801-0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901-1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: *Transportation Research Circular No. 212, Interim Materials on Highway Capacity*, Transportation Research Board, 1980.

The one unsignalized study intersection, Meyler Street & 220<sup>th</sup> Street, is located in unincorporated Los Angeles County. The County's *Impact Analysis Report Guidelines*<sup>3</sup> do not specify a specific methodology or thresholds of significance when analyzing unsignalized intersections. Consistent with County practices, this intersections will be evaluated as if it were signalized, using the ICU methodology. The County of Los Angeles thresholds of significance for a signalized intersection will be applied.

The City of Los Angeles requires the use of Critical Movement Analysis (CMA) methodology<sup>4</sup> to evaluate the operations of intersections and this methodology was used to analyze the study locations in the City of Los Angeles. The CMA method of intersection capacity analysis determines the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at signalized intersections. The CALCADB software package developed by Los Angeles Department of Transportation (LADOT) was used to implement the CMA methodology at the eight study intersections wholly or partly under City of Los Angeles jurisdiction.

The City of Los Angeles' Automated Traffic Surveillance and Control (ATSAC) system is a computer-based traffic signal control system that monitors traffic conditions and system performance to allow ATSAC-operations to manage signal timing to improve traffic flow conditions. All eight signalized study intersections under City of Los Angeles jurisdiction are currently operating under the City's ATSAC system. In accordance with established City of Los Angeles procedures, a 0.07 V/C reduction was applied at each intersection where ATSAC is implemented. Per direction from LADOT, the benefits of the Adaptive Traffic Control System (ATCS) in place at these intersections (normally estimated at 0.03 V/C) are not reflected in this analysis due to the limited area of the City's system.

## EXISTING LEVELS OF SERVICE

The existing traffic volumes were analyzed using the methodologies described above to determine the current operating conditions at the 22 LOS analyzed intersections. Table 2 summarizes the Existing LOS analysis results. As shown in the table, the following nine intersections are currently operating at poor levels of service, i.e., LOS E or F, during one or both of the analyzed peak hours:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard

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<sup>3</sup> *Impact Analysis Report Guidelines* (Los Angeles County Public Works, January 1997).

<sup>4</sup> *Transportation Research Circular No. 212, Interim Materials on Highway Capacity* (Transportation Research Board, 1980).

**TABLE 2  
EXISTING  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing	
						V/C or Delay	LOS
1	Normandie Avenue	Torrance Boulevard	City of Los Angeles	CMA	AM PM	0.902 0.904	E E
			Los Angeles County	ICU	AM PM	0.935 0.936	E E
2	Vermont Avenue	Torrance Boulevard	Los Angeles County	ICU	AM PM	0.927 0.880	E D
3	Western Avenue	Carson Street	City of Los Angeles	CMA	AM PM	0.877 0.948	D E
			City of Torrance	ICU	AM PM	0.943 1.006	E F
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM PM	0.763 0.837	C D
			Los Angeles County	ICU	AM PM	0.904 0.930	E E
5	Budlong Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.570 0.539	A A
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.575 0.561	A A
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM PM	0.632 0.602	B B
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.905 0.893	E D
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM PM	0.814 0.849	D D
10	Figueroa Street	Carson Street	City of Carson	ICU	AM PM	0.661 0.762	B C
11	Western Avenue	220th Street	City of Los Angeles	CMA	AM PM	0.554 0.698	A B
			City of Torrance	ICU	AM PM	0.685 0.819	B D
12	Normandie Avenue	220th Street	City of Los Angeles	CMA	AM PM	0.409 0.293	A A
			Los Angeles County	ICU	AM PM	0.602 0.481	B A
13	Meyler Street	220th Street	Los Angeles County	ICU	AM PM	0.382 0.365	A A
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM PM	0.656 0.714	B C
15	Figueroa Street	220th Street/I-110 NB Ramps	City of Carson	ICU	AM PM	0.913 0.886	E D
16	Western Avenue	223rd Street	City of Los Angeles	CMA	AM PM	0.822 0.851	D D
			City of Torrance	ICU	AM PM	0.893 0.919	D E
17	Normandie Avenue	223rd Street	City of Los Angeles	CMA	AM PM	0.623 0.701	B C
			Los Angeles County	ICU	AM PM	0.807 0.822	D D
18	Meyler Street	223rd Street	Los Angeles County	ICU	AM PM	0.658 0.581	B A
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM PM	0.917 0.833	E D
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM	0.755	C
					PM	0.843	D
21	Figueroa Street	223rd Street	City of Carson	ICU	AM	0.827	D
					PM	0.718	C
22	Western Avenue	Sepulveda Blvd	City of Los Angeles	CMA	AM PM	0.927 0.990	E E
			City of Torrance	ICU	AM PM	0.957 1.011	E F

Note:

[a] All Intersections are signaled except for #13, Meyler Street and 220th Street, which is all way-stop controlled.

3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
8. Vermont Avenue & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

Detailed LOS calculation worksheets are presented in Appendix C.

## 3. TRAFFIC PROJECTIONS

### PROJECT TRAFFIC

The development of trip generation estimates for the proposed project is a 3-step process: trip generation, trip distribution, and traffic assignment.

#### PROJECT TRAFFIC GENERATION

As indicated in Chapter 1, the 2023 Project phase of the proposed project would involve the net new construction of:

- Addition of 29,200 sf of administrative office space
- Addition of 16,486 sf of new utility plant and maintenance facilities
- Addition of six staffed hospital beds
- Addition of 11,396 sf of medical office/outpatient facilities
- Addition of 125,000 sf of research & development space for Bioscience campus
- Addition of 17,746 sf of research & development space for LA Biomed

The 2030 Project phase of the proposed project would include the following net new construction:

- Addition of 107,200 sf of administrative office space
- Addition of 16,486 sf of new utility plant and maintenance facilities
- Addition of six staffed hospital beds
- Addition of 85,294 sf of medical office/outpatient facilities
- Addition of 35,000 sf of wellness-oriented meeting space and retail space
- Addition of 250,000 sf of research & development space for Bioscience campus
- Addition of 130,246 sf of research & development space for LA Biomed

Vehicle trip generation for the project was estimated using a combination of: standard rates developed by the ITE and published in *Trip Generation, 9<sup>th</sup> Edition*<sup>5</sup> and trip generation reduction rates for similar sites. For the Hospital's inpatient facilities (ITE Code 610), the analysis used the number of beds to estimate trip generation. The proposed new hospital tower will provide more spacious facilities consistent with current best practices, meaning that the new facility will require more floor area per bed.

As this site is located adjacent to transit, mixed uses, and falls within the Los Angeles County West Carson Transit Oriented District Specific Plan area, its trip generation pattern is likely to deviate from the data collection sites where rates from ITE were drawn. Internal trip credits, defined as a reduction that can be applied to the trip generation estimates due to trips made within the site between land uses, are also applied at a rate of 20% of the daily and peak hour trips to all land uses on the site. Many of the buildings and activities on the Harbor-UCLA Medical Center campus are related to one another, and this will continue as the site continues to add complementary uses. The internal trip credits were estimated based on the recommended factors provided in *Trip Generation, 9<sup>th</sup> Edition*; review of traffic studies for projects located in the region; and consultation with county staff as part of the Memorandum of Understanding (MOU) process.

A 7% transit credit and a 2% walk credit were applied to the all land uses on the site. These credits account for trips to and from the project site using modes other than automobiles. These include trips on transit, bicycle, walk, etc. The site is located within walking distance to the several Metro and municipal bus lines including two express lines, and is in close proximity to a wide diversity of land uses within reasonable walking distance.

Table 3A estimates the trip generation for the 2023 Project scenario and Table 3B estimates the trip generation for 2030 Project scenario. In the 2023 Project scenario, the project is estimated to generate a net increase of 1,620 daily trips, including 200 trips (166 inbound/34 outbound) during the AM peak hour and 197 trips (33 inbound/164 outbound) during the PM peak hour. For the 2030 Project scenario, the project is estimated to generate a net increase of 6,598 daily trips, including 637 trips (523 inbound/114 outbound) during the AM peak hour and 732 trips (169 inbound/563 outbound) during the PM peak hour.

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<sup>5</sup> *Trip Generation, 9<sup>th</sup> Edition* (Institute of Transportation Engineers [ITE], 2012).

**TABLE 3A - 2023 PROJECT SCENARIO  
PROJECT TRIP GENERATION ESTIMATES**

	Land Use	ITE Land Use Code	Size [a]	Trip Generation Rates [b]						Estimated Trip Generation							
				Daily		AM Peak Hour		PM Peak Hour		Daily			PM Peak Hour				
				Rate	% In % Out	Rate	% In % Out	Rate	% In % Out	Trips	In	Out	Total	In	Out	Total	
Existing	<b>EXISTING USE</b>																
	Administrative Office	710	23.435 ksf	[c]	[c] 88% 12%	[c] 17% 83%	436	53	7	60	18	87	105				
	Central Utilities/Industrial [d]	120	112.719 ksf	1.5	0.51 88% 12%	0.68 12% 88%	169	50	7	57	9	68	77				
	Hospital/Inpatient	610	373 Beds	12.94	1.32 72% 28%	1.42 33% 67%	4,827	354	138	492	175	355	530				
	Library	590	22.500 ksf	56.24	1.04 71% 29%	7.3 48% 52%	1,265	16	7	23	79	85	164				
	Medical Office/Outpatient	720	327.304 ksf	36.13	2.39 79% 21%	3.57 28% 72%	11,825	618	164	782	327	841	1,168				
	Warehouse/Storage	150	45.402 ksf	3.56	0.3 79% 21%	0.32 25% 75%	162	11	3	14	4	11	15				
	LA BioMed	760	94.754 ksf	[e]	[e] 83% 17%	[e] 15% 85%	961	103	21	124	19	107	126				
	<b>Project Site Subtotal</b>						<b>19,644</b>	<b>1,206</b>	<b>347</b>	<b>1,553</b>	<b>630</b>	<b>1,554</b>	<b>2,184</b>				
	Internal Capture [f]						-3,737	-221	-65	-286	-122	-290	-412				
	Transit Credit [g]						-1,375	-84	-25	-109	-44	-109	-153				
	Walk/Bike Credit [h]						-393	-24	-7	-31	-13	-31	-44				
	<b>Total Existing Trips</b>						<b>14,139</b>	<b>877</b>	<b>250</b>	<b>1,127</b>	<b>451</b>	<b>1,124</b>	<b>1,575</b>				
Proposed	<b>PROPOSED PROJECT</b>																
	Administrative Office	710	52.635 ksf	[c]	[c] 88% 12%	[c] 17% 83%	806	101	14	115	23	114	137				
	Central Utilities/Industrial [d]	120	129.205 ksf	1.5	0.51 88% 12%	0.68 12% 88%	194	58	8	66	10	78	88				
	Hospital/Inpatient	610	379 Beds	12.94	1.32 72% 28%	1.42 33% 67%	4,904	360	140	500	177	361	538				
	Library	590	22.500 ksf	56.24	1.04 71% 29%	7.3 48% 52%	1,265	16	7	23	79	85	164				
	Medical Office/Outpatient	720	338.700 ksf	36.13	2.39 79% 21%	3.57 28% 72%	12,237	639	170	809	338	871	1,209				
	Warehouse/Storage	150	45.402 ksf	3.56	0.3 79% 21%	0.32 25% 75%	162	11	3	14	4	11	15				
	BioSciences	760	125.000 ksf	[e]	[e] 83% 17%	[e] 15% 85%	1,209	131	27	158	24	135	159				
	LA BioMed	760	112.500 ksf	[e]	[e] 83% 17%	[e] 15% 85%	1,108	120	24	144	21	124	145				
	<b>Project Site Subtotal</b>						<b>21,885</b>	<b>1,436</b>	<b>393</b>	<b>1,829</b>	<b>677</b>	<b>1,779</b>	<b>2,456</b>				
	Internal Capture [f]						-4,155	-263	-74	-337	-131	-331	-462				
	Transit Credit [g]						-1,532	-101	-27	-128	-47	-125	-172				
	Walk/Bike Credit [h]						-438	-29	-8	-37	-14	-35	-49				
<b>Total Proposed Trips</b>						<b>15,760</b>	<b>1,043</b>	<b>284</b>	<b>1,327</b>	<b>485</b>	<b>1,288</b>	<b>1,773</b>					
Net Change	<b>Total Net Trips</b>						<b>1,620</b>	<b>166</b>	<b>34</b>	<b>200</b>	<b>33</b>	<b>164</b>	<b>197</b>				

- a. Size in thousand square feet (ksf) unless otherwise noted.
- b. Source: Institute of Transportation Engineers (ITE), *Trip Generation, 9th Edition*, 2012.
- c. ITE administrative office trip generation equations used rather than linear trip generation rate:  
 Daily:  $\ln(T) = 0.76 * \ln(A) + 3.68$ , where T = trips, A = area in ksf  
 AM Peak Hour:  $\ln(T) = 0.8 * \ln(A) + 1.57$ , where T = trips, A = area in ksf  
 PM Peak Hour:  $T = 1.12 * \ln(A) + 78.45$ , where T = trips, A = area in ksf
- d. Peak hour direction distribution not provided by ITE for code 120. Directional distribution taken from ITE code 110, General Light Industrial.
- e. ITE research and development trip generation equations used rather than linear trip generation rate:  
 Daily:  $\ln(T) = 0.83 * \ln(A) + 3.09$ , where T = trips, A = area in ksf  
 AM Peak Hour:  $\ln(T) = 0.87 * \ln(A) + 0.86$ , where T = trips, A = area in ksf  
 PM Peak Hour:  $\ln(T) = 0.83 * \ln(A) + 1.06$ , where T = trips, A = area in ksf
- f. Internal capture represents the percentage of trips between land uses that occur within the site. Internal capture was used for all land uses within the site with the exception of LA BioMed. This percentage (20%) is informed by MXD 2.0 Mixed Use Trip Generation Methodology, which incorporated the findings of NCHRP Project 8-51 as described in "Improved Estimation for Internal Trip Capture for Mixed-use Developments," ITE Journal, August 2010. Internal capture is taken for all land uses except LA Biomed.
- g. Transit credit of 7% informed by MXD 2.0 Mixed Use Trip Generation Methodology.
- h. Walk/Bike credit of 2% informed by MXD 2.0 Mixed Use Trip Generation Methodology.

**TABLE 3B - 2030 PROJECT SCENARIO  
PROJECT TRIP GENERATION ESTIMATES**

	Land Use	ITE Land Use Code	Size [a]	Trip Generation Rates [b]						Estimated Trip Generation								
				Daily			PM Peak Hour			Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips				
				Rate	Rate	% In % Out	Rate	% In % Out	In		Out	Total	In	Out	Total			
<b>Existing</b>	<b>EXISTING USE</b>																	
	Administrative Office	710	23.435 ksf	[c]	[c]	88% 12%	[c]	17% 83%	436	53	7	60	18	87	105			
	Central Utilities/Industrial [d]	120	112.719 ksf	1.5	0.51	88% 12%	0.68	12% 88%	169	50	7	57	9	68	77			
	Hospital/Inpatient	610	373 Beds	12.94	1.32	72% 28%	1.42	33% 67%	4,827	354	138	492	175	355	530			
	Library	590	22.500 ksf	56.24	1.04	71% 29%	7.3	48% 52%	1,265	16	7	23	79	85	164			
	Medical Office/Outpatient	720	327.304 ksf	36.13	2.39	79% 21%	3.57	28% 72%	11,825	618	164	782	327	841	1,168			
	Warehouse/Storage	150	45.402 ksf	3.56	0.3	79% 21%	0.32	25% 75%	162	11	3	14	4	11	15			
	LA BioMed	760	94.754 ksf	[e]	[e]	83% 17%	[e]	15% 85%	961	103	21	124	19	107	126			
	<b>Project Site Subtotal</b>		<b>701.114</b>						<b>19,644</b>	<b>1,206</b>	<b>347</b>	<b>1,553</b>	<b>630</b>	<b>1,554</b>	<b>2,184</b>			
	Internal Capture [f]								-3,737	-221	-65	-286	-122	-290	-412			
Transit Credit [g]								-1,375	-84	-25	-109	-44	-109	-153				
Walk/Bike Credit [h]								-393	-24	-7	-31	-13	-31	-44				
<b>Total Existing Trips</b>								<b>14,139</b>	<b>877</b>	<b>250</b>	<b>1,127</b>	<b>451</b>	<b>1,124</b>	<b>1,575</b>				
<b>Proposed</b>	<b>PROPOSED PROJECT</b>																	
	Administrative Office	710	130.635 ksf	[c]	[c]	88% 12%	[c]	17% 83%	1,608	209	28	237	38	187	225			
	Central Utilities/Industrial [d]	120	129.205 ksf	1.5	0.51	88% 12%	0.68	12% 88%	194	58	8	66	10	78	88			
	Hospital/Inpatient	610	379 Beds	12.94	1.32	72% 28%	1.42	33% 67%	4,904	360	140	500	177	361	538			
	Library	590	22.500 ksf	56.24	1.04	71% 29%	7.3	48% 52%	1,265	16	7	23	79	85	164			
	Medical Office/Outpatient	720	412.598 ksf	36.13	2.39	79% 21%	3.57	28% 72%	14,907	779	207	986	412	1,061	1,473			
	Warehouse/Storage	150	45.402 ksf	3.56	0.3	79% 21%	0.32	25% 75%	162	11	3	14	4	11	15			
	Retail	820	35.000 ksf	42.7	0.96	62% 38%	3.71	48% 52%	1,495	21	13	34	62	68	130			
	BioSciences	760	250.000 ksf	[e]	[e]	83% 17%	[e]	15% 85%	2,149	239	49	288	42	240	282			
	LA BioMed	760	225.000 ksf	[e]	[e]	83% 17%	[e]	15% 85%	1,969	218	45	263	39	220	259			
<b>Project Site Subtotal</b>		<b>850.340</b>						<b>28,654</b>	<b>1,911</b>	<b>500</b>	<b>2,411</b>	<b>862</b>	<b>2,311</b>	<b>3,173</b>				
Internal Capture [f]		130.246						-5,337	-339	-91	-430	-165	-418	-583				
Transit Credit [g]								-2,006	-134	-35	-169	-60	-161	-221				
Walk/Bike Credit [h]								-573	-38	-10	-48	-17	-45	-62				
<b>Total Proposed Trips</b>								<b>20,738</b>	<b>1,400</b>	<b>364</b>	<b>1,764</b>	<b>620</b>	<b>1,687</b>	<b>2,307</b>				
<b>Net Change</b>								<b>6,598</b>	<b>523</b>	<b>114</b>	<b>637</b>	<b>169</b>	<b>563</b>	<b>732</b>				

Note:

- Size in thousand square feet (ksf) unless otherwise noted.
- Source: Institute of Transportation Engineers (ITE), *Trip Generation, 9th Edition*, 2012.
- ITE administrative office trip generation equations used rather than linear trip generation rate:  
 Daily:  $\ln(T) = 0.76 * \ln(A) + 3.68$ , where T = trips, A = area in ksf  
 AM Peak Hour:  $\ln(T) = 0.8 * \ln(A) + 1.57$ , where T = trips, A = area in ksf  
 PM Peak Hour:  $T = 1.12 * \ln(A) + 78.45$ , where T = trips, A = area in ksf
- Peak hour direction distribution not provided by ITE for code 120. Directional distribution taken from ITE code 110, General Light Industrial.
- ITE research and development trip generation equations used rather than linear trip generation rate:  
 Daily:  $\ln(T) = 0.83 * \ln(A) + 3.09$ , where T = trips, A = area in ksf  
 AM Peak Hour:  $\ln(T) = 0.87 * \ln(A) + 0.86$ , where T = trips, A = area in ksf  
 PM Peak Hour:  $\ln(T) = 0.83 * \ln(A) + 1.06$ , where T = trips, A = area in ksf
- Internal capture represents the percentage of trips between land uses that occur within the site. Internal capture was used for all land uses within the site with the exception of LA BioMed. This percentage (20%) is informed by MXD 2.0 Mixed Use Trip Generation Methodology, which incorporated the findings of NCHRP Project 8-51 as described in "Improved Estimation for Internal Trip Capture for Mixed-use Developments," ITE Journal, August 2010. Internal capture is taken for all land uses except LA Biomed.
- Transit credit of 7% informed by MXD 2.0 Mixed Use Trip Generation Methodology.
- Walk/Bike credit of 2% informed by MXD 2.0 Mixed Use Trip Generation Methodology.

## PROJECT TRAFFIC DISTRIBUTION

The geographic distribution of the traffic generated by the proposed project depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution from which patients and staff are drawn, and the location of the project in relation to the surrounding street system. The general distribution pattern used in this traffic study was developed in consultation with county staff and is illustrated in Figure 6. Aggregated data on existing staff home zip codes and patient home zip codes was used to determine existing origins for trips coming to and leaving from the project.

## PROJECT TRAFFIC ASSIGNMENT

The traffic expected to be generated by the proposed project was assigned to the street network using the distribution pattern described in Figure 6. Project traffic was assigned based on the vehicle access and circulation diagram from the Harbor-UCLA Master Plan, as seen in Figure 7. Figure 8 illustrates the assignment of project traffic for the 2023 Project scenario at each of the 22 intersections analyzed in this study, and Figure 9 illustrates the assignment of 2030 Project scenario project traffic.

## EXISTING BASELINE PLUS PROJECT TRAFFIC PROJECTIONS

The estimated project traffic was added to the Existing traffic volumes to estimate Existing plus Project traffic volumes. Existing plus 2023 Project traffic volumes, presented in Figure 10, were analyzed to determine the projected V/C ratios and LOS for each intersection. Table 4 summarizes the Existing plus 2023 Project LOS. The following 10 intersections are projected to operate at LOS E or F during one or both peak hours:

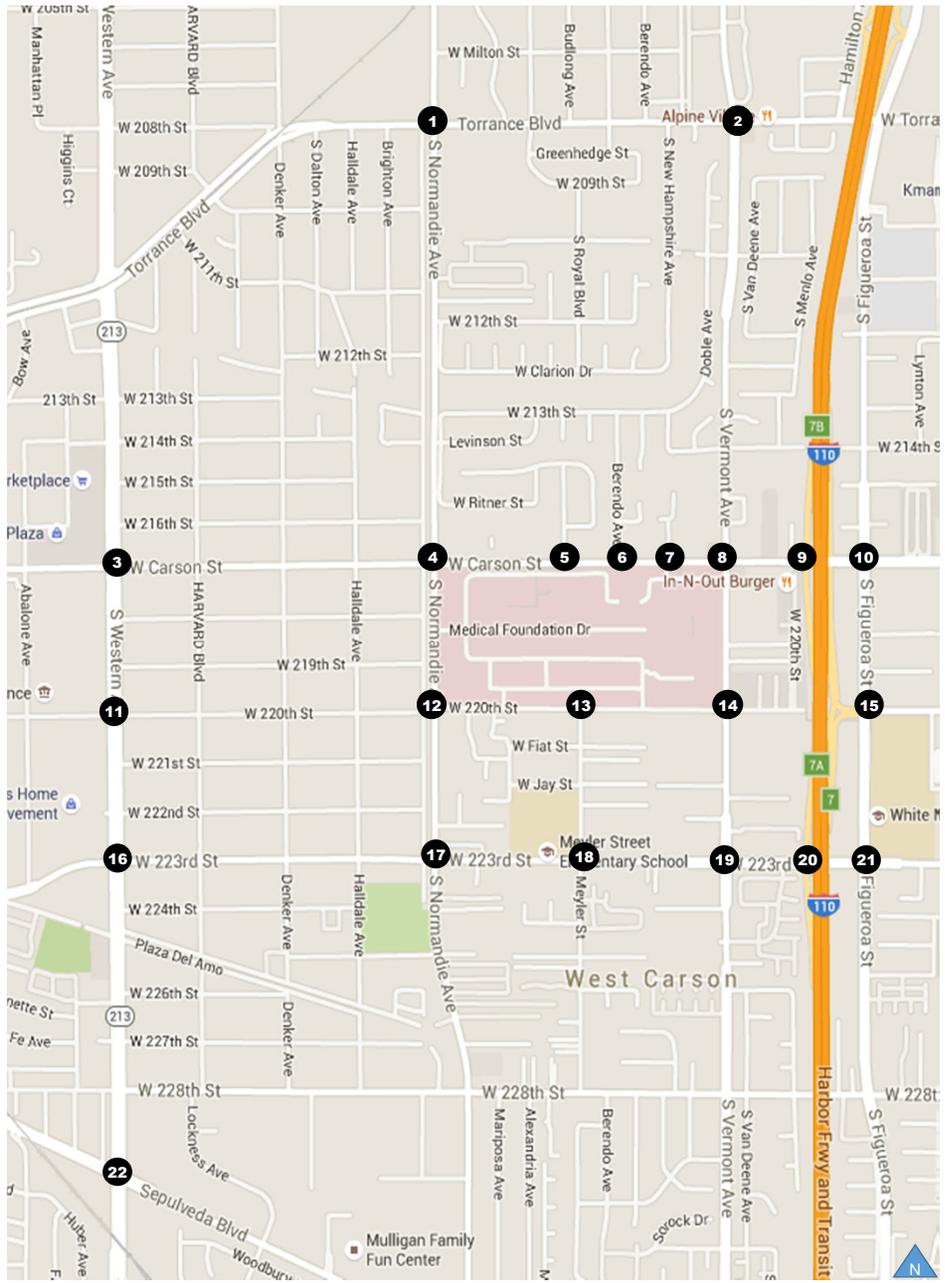
1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

Additionally, Existing plus 2030 Project traffic volumes, presented in Figure 11, were analyzed to determine the projected V/C ratios and LOS for each intersection. Table 5 summarizes the Existing plus 2030 Project LOS. The following 10 intersections are projected to operate at LOS E or F during one or both peak hours:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard



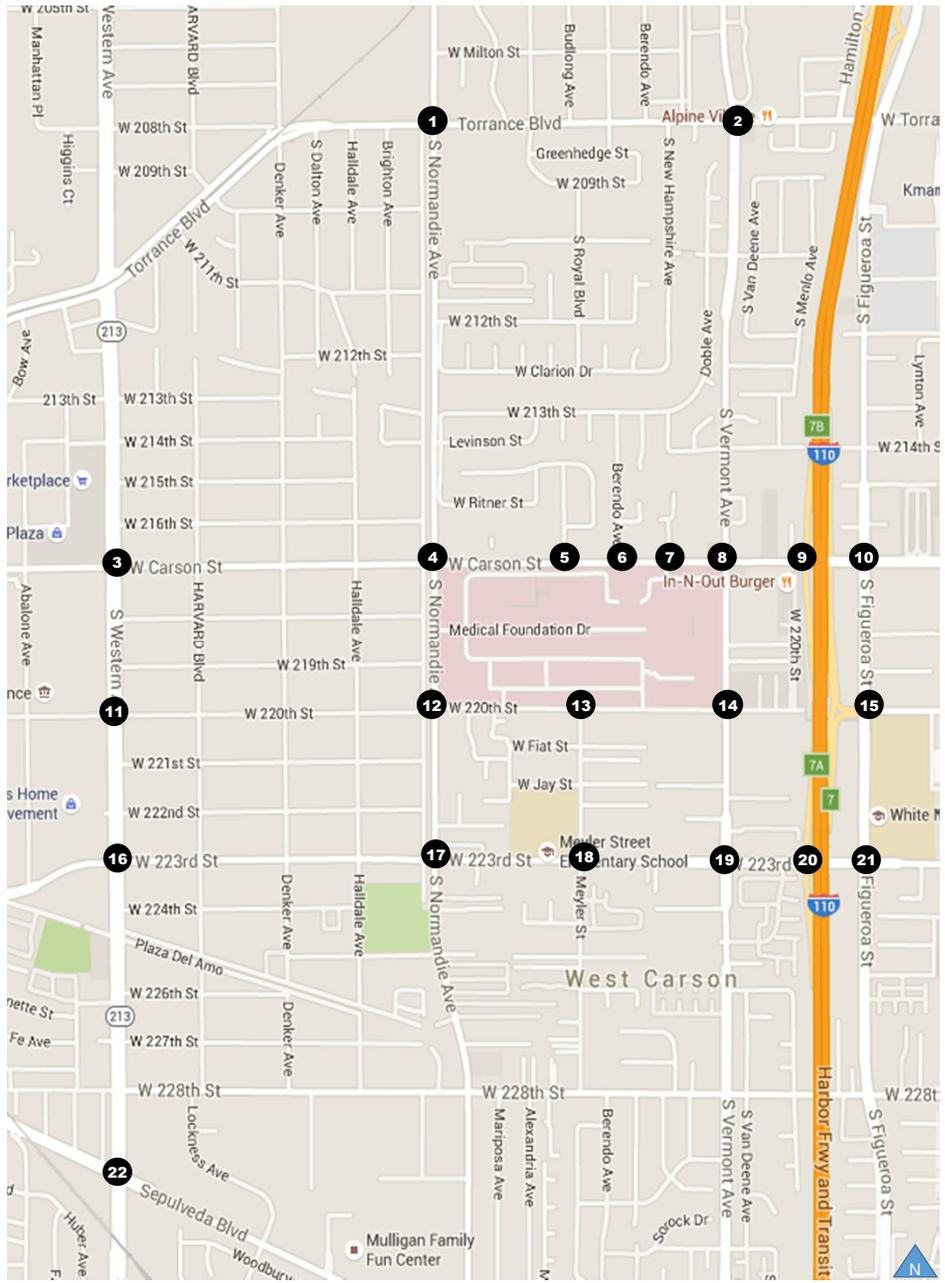




1. Normandie Avenue/Torrance Boulevard	2. Vermont Avenue/Torrance Boulevard	3. Western Avenue/Carson Street
4. Normandie Avenue/Carson Street	5. Budlong Avenue/Carson Street	6. Berendo Avenue/Carson Street
7. Medical Center Drive/Carson Street	8. Vermont Avenue/Carson Street	9. I-110 SB Ramps/Carson Street
10. Figueroa Street/Carson Street	11. Western Avenue/220th Street	12. Normandie Avenue/220th Street
13. Meyler Street/220th Street	14. Vermont Avenue/220th Street	15. Figueroa Street/220th Street/I-110 NB Ramps

Figure 8  
2023 Project Only Traffic Volumes

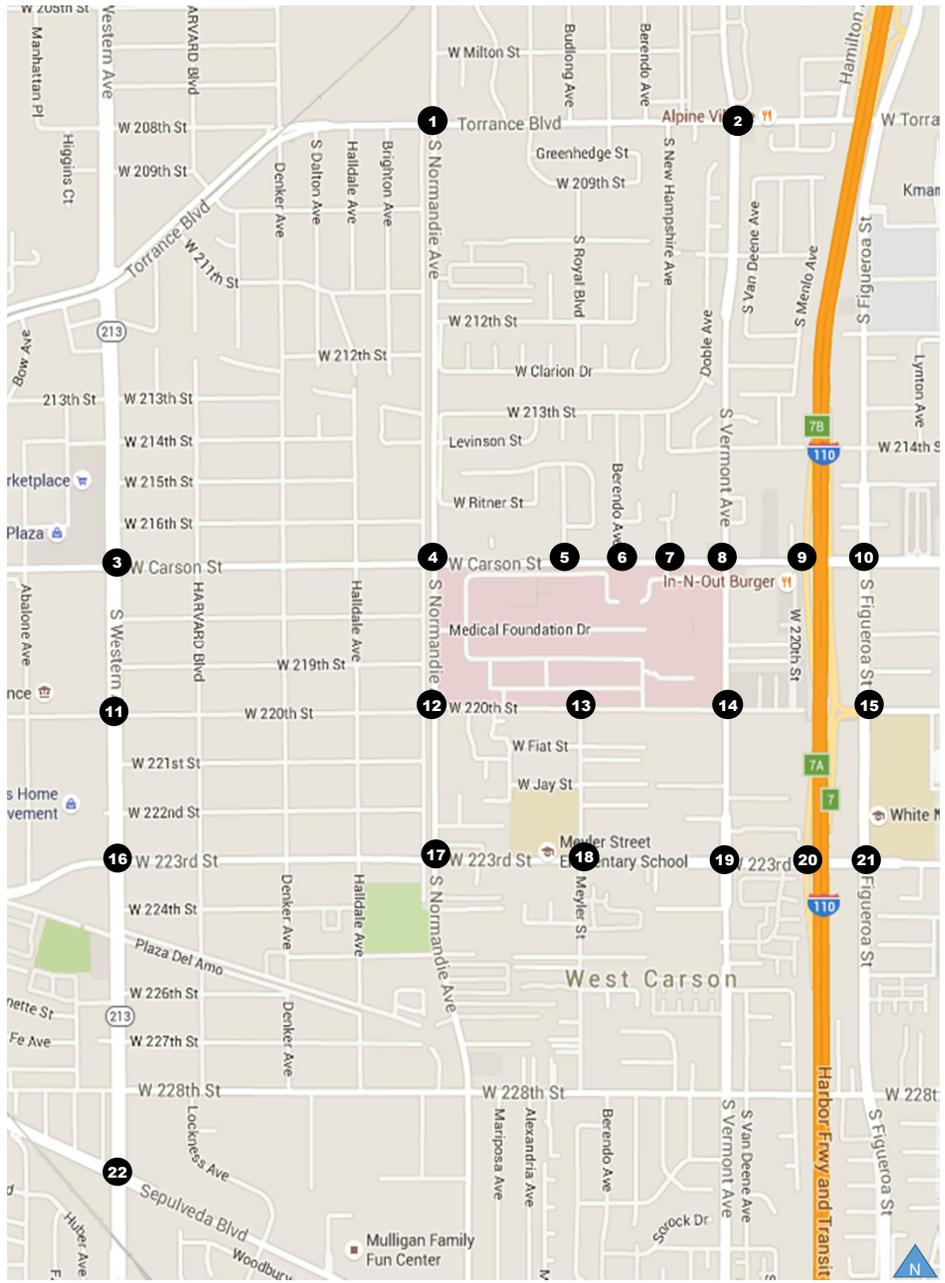




16. Western Avenue/223rd Street	17. Normandie Avenue/223rd Street	18. Meyler Street/223rd Street
19. Vermont Avenue/223rd Street	20. I-110 SB Ramps/223rd Street	21. Figueroa Street/223rd Street
22. Western Avenue/Sepulveda Blvd		

Figure 8  
2023 Project Only Traffic Volumes



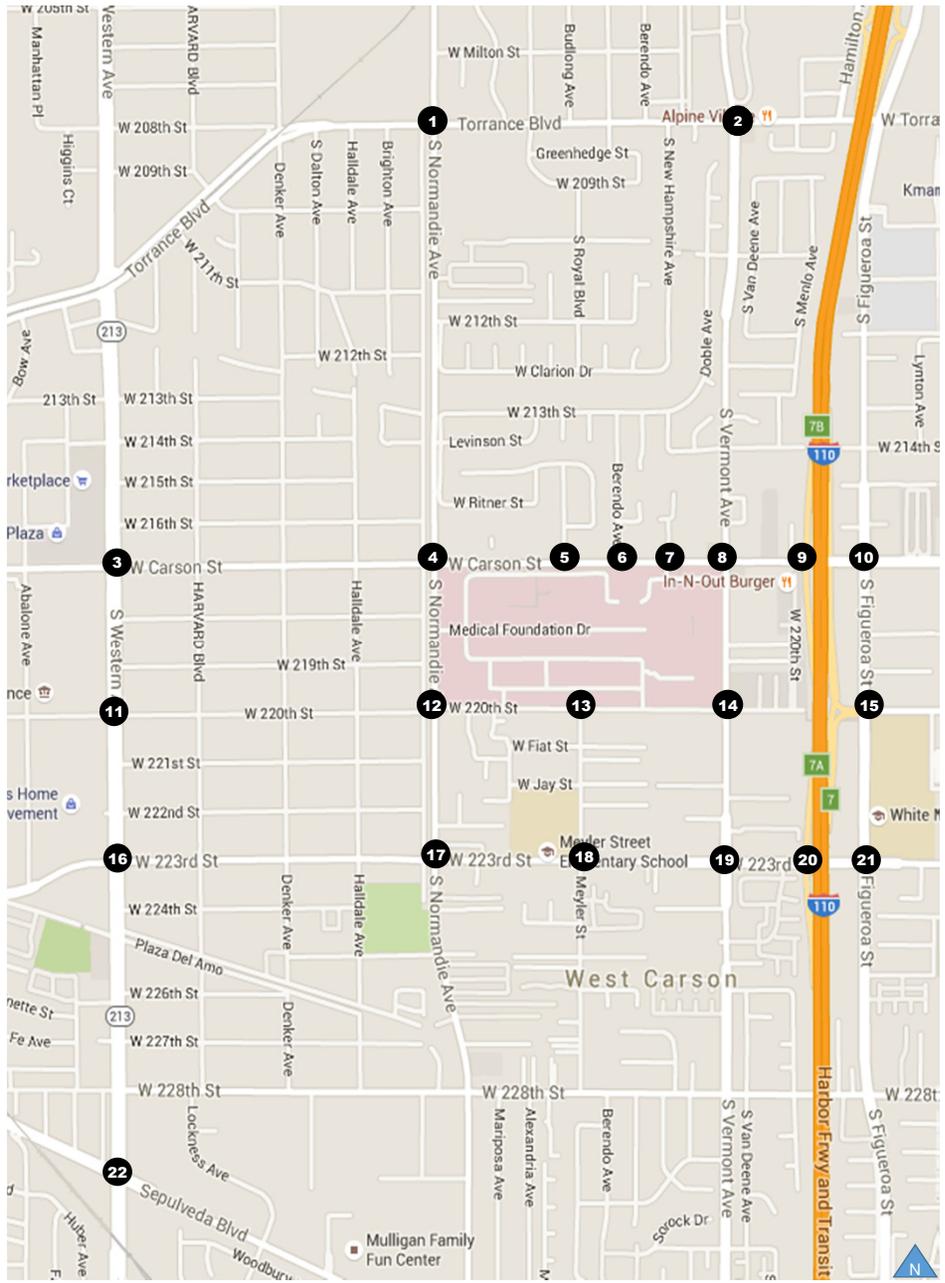


1. Normandie Avenue/Torrance Boulevard	2. Vermont Avenue/Torrance Boulevard	3. Western Avenue/Carson Street
4. Normandie Avenue/Carson Street	5. Budlong Avenue/Carson Street	6. Berendo Avenue/Carson Street
7. Medical Center Drive/Carson Street	8. Vermont Avenue/Carson Street	9. I-110 SB Ramps/Carson Street
10. Figueroa Street/Carson Street	11. Western Avenue/220th Street	12. Normandie Avenue/220th Street
13. Meyler Street/220th Street	14. Vermont Avenue/220th Street	15. Figueroa Street/220th Street/I-110 NB Ramps

Figure 9  
2030 Project Only Traffic Volumes



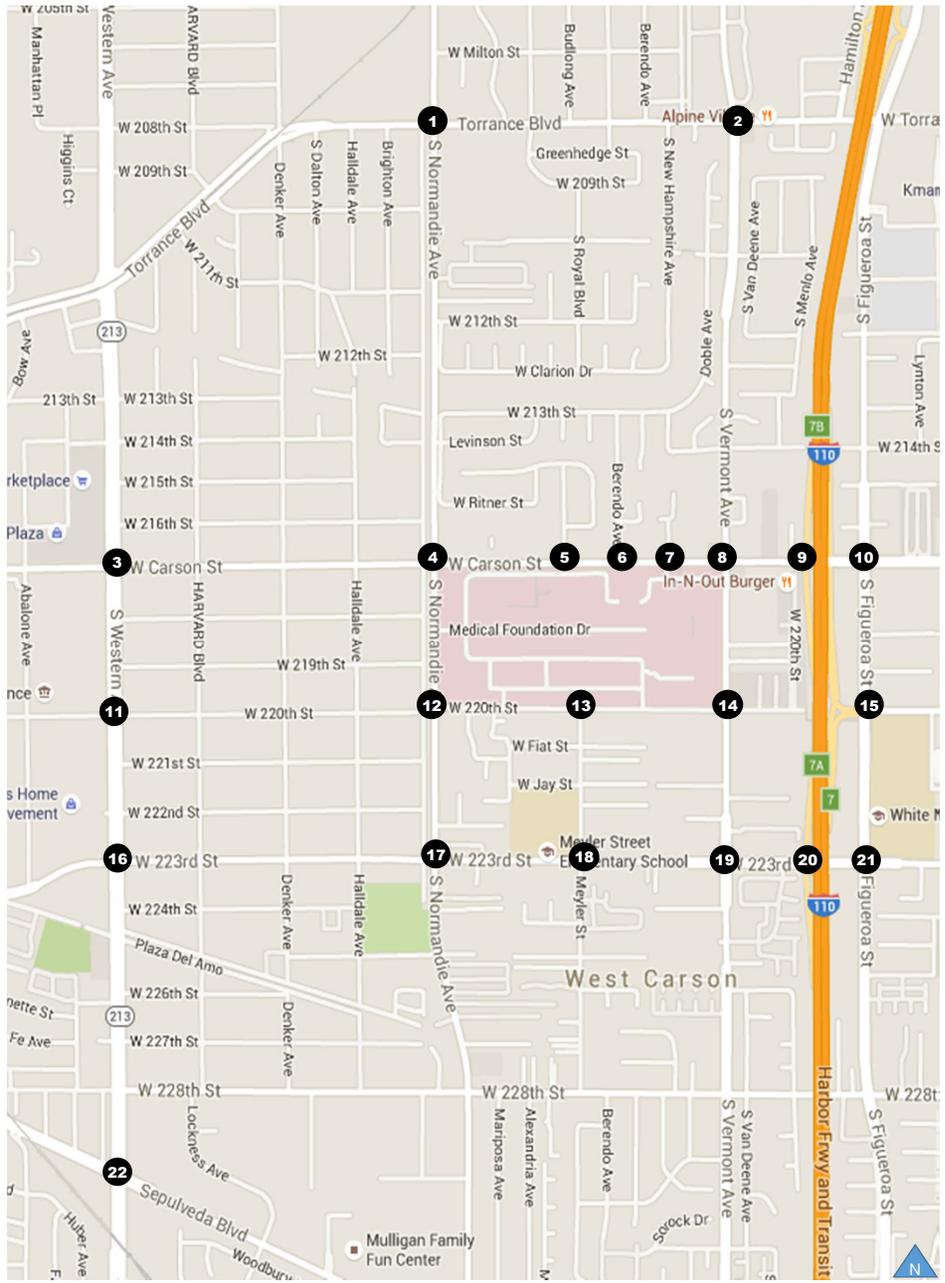




1. Normandie Avenue/Torrance Boulevard	2. Vermont Avenue/Torrance Boulevard	3. Western Avenue/Carson Street
<p>101 (152) 400 (733) 32 (130)</p> <p>74 (43) 1,461 (963) 104 (58)</p> <p>95 (106) 915 (1,373) 80 (112)</p> <p>154 (98) 740 (547) 147 (150)</p>	<p>186 (229) 579 (866) 37 (112)</p> <p>111 (89) 1,303 (689) 91 (60)</p> <p>172 (167) 866 (1,259) 147 (96)</p> <p>122 (78) 816 (487) 182 (120)</p>	<p>133 (220) 715 (1,286) 93 (154)</p> <p>154 (126) 1,122 (918) 66 (70)</p> <p>58 (84) 752 (981) 105 (183)</p> <p>150 (152) 1,124 (798) 83 (116)</p>
4. Normandie Avenue/Carson Street	5. Budlong Avenue/Carson Street	6. Berendo Avenue/Carson Street
<p>147 (162) 375 (520) 39 (93)</p> <p>76 (79) 1,187 (1,023) 167 (156)</p> <p>194 (199) 890 (1,168) 192 (164)</p> <p>210 (178) 663 (504) 76 (117)</p>	<p>34 (35) 17 (20)</p> <p>16 (27) 1,528 (1,286)</p> <p>15 (25) 1,063 (1,402)</p>	<p>36 (34) 13 (24)</p> <p>33 (45) 1,513 (1,265) 142 (35)</p> <p>17 (27) 997 (1,362) 45 (23)</p> <p>19 (14) 2 (2) 52 (112)</p>
7. Medical Center Drive/Carson Street	8. Vermont Avenue/Carson Street	9. I-110 SB Ramps/Carson Street
<p>34 (17) 45 (12)</p> <p>10 (25) 1,670 (1,339)</p> <p>13 (24) 1,056 (1,465)</p>	<p>216 (180) 495 (742) 124 (272)</p> <p>132 (163) 1,290 (1,031) 273 (156)</p> <p>125 (119) 892 (1,278) 83 (115)</p> <p>161 (134) 826 (423) 226 (362)</p>	<p>573 (408) 132 (263)</p> <p>1,234 (988) 174 (178)</p> <p>1,087 (1,656) 133 (270)</p>
10. Figueroa Street/Carson Street	11. Western Avenue/220th Street	12. Normandie Avenue/220th Street
<p>153 (162) 261 (469) 38 (131)</p> <p>98 (70) 973 (799) 95 (103)</p> <p>113 (105) 649 (1,200) 457 (604)</p> <p>288 (208) 489 (234) 171 (138)</p>	<p>68 (17) 876 (1,446) 18 (31)</p> <p>37 (24) 77 (39) 104 (47)</p> <p>18 (56) 23 (97) 55 (162)</p> <p>116 (68) 1,348 (921) 31 (23)</p>	<p>26 (36) 395 (767) 78 (76)</p> <p>102 (93) 77 (40) 46 (44)</p> <p>30 (20) 105 (62) 42 (50)</p> <p>25 (23) 849 (501) 118 (41)</p>
13. Myler Street/220th Street	14. Vermont Avenue/220th Street	15. Figueroa Street/220th Street/I-110 NB Ramps
<p>2 (10) 2 (12) 10 (35)</p> <p>25 (4) 145 (106) 61 (24)</p> <p>8 (6) 152 (248) 51 (33)</p> <p>96 (13) 12 (2) 69 (65)</p>	<p>269 (68) 501 (918) 56 (22)</p> <p>37 (43) 27 (12) 17 (31)</p> <p>153 (251) 32 (13) 93 (176)</p> <p>214 (38) 1,031 (547) 40 (14)</p>	<p>387 (513) 369 (546) 128 (75)</p> <p>89 (52) 207 (104) 87 (56)</p> <p>239 (243) 37 (95) 57 (105)</p> <p>476 (421) 616 (230) 145 (60)</p>



Figure 10  
Existing Plus 2023 Project Traffic Volumes



<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Myler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		



Figure 10  
Existing Plus 2023 Project Traffic Volumes

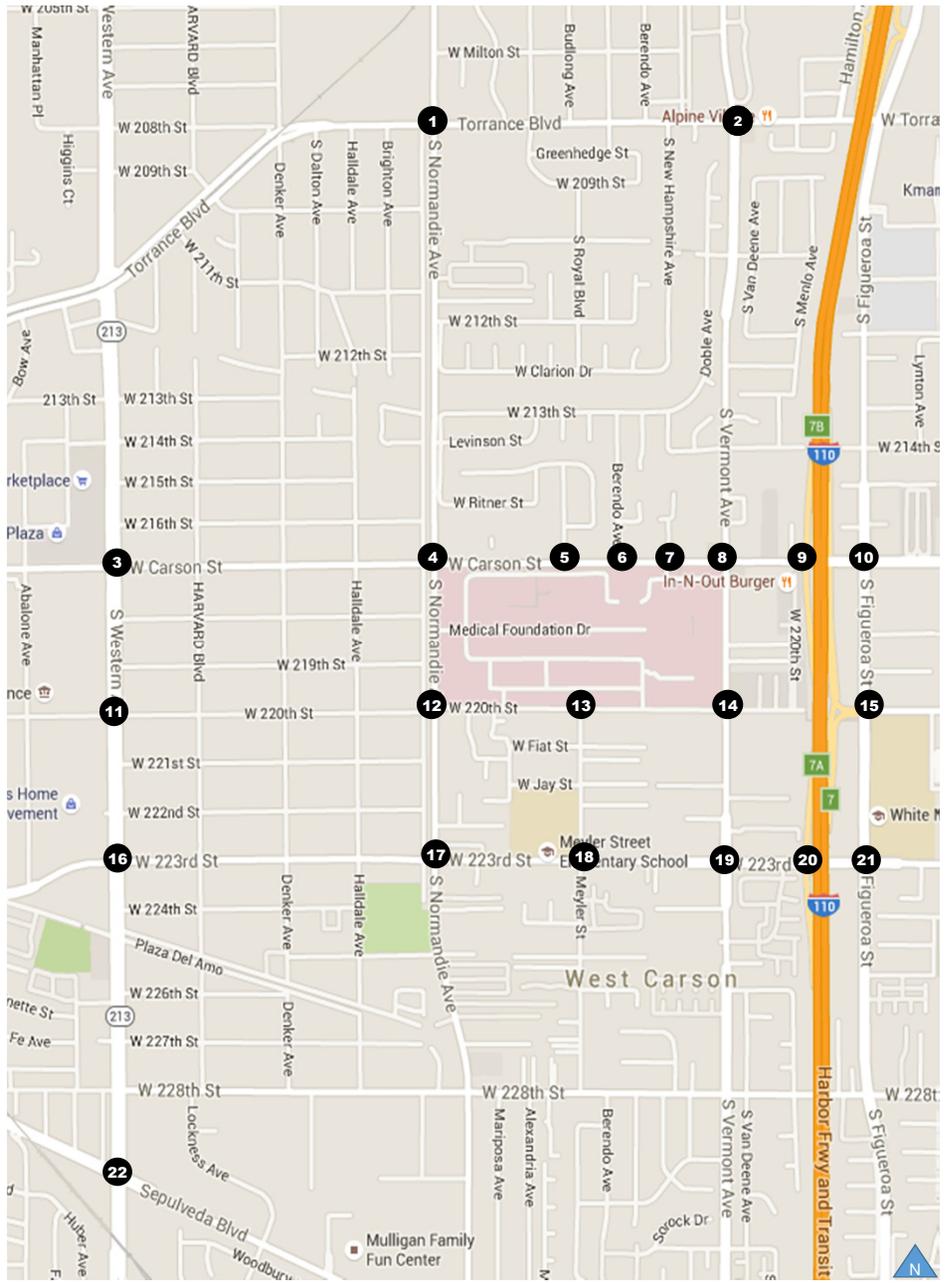
**TABLE 4  
EXISTING PLUS 2023 PROJECT  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing+Project		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	City of Los Angeles	CMA	AM PM	0.902 0.904	E E	0.904 0.906	E E	0.002 0.002	NO NO
			Los Angeles County	ICU	AM PM	0.935 0.936	E E	0.936 0.938	E E	0.001 0.002	NO NO
2	Vermont Avenue	Torrance Boulevard	Los Angeles County	ICU	AM PM	0.927 0.880	E D	0.928 0.881	E D	0.001 0.001	NO NO
3	Western Avenue	Carson Street	City of Los Angeles	CMA	AM PM	0.877 0.948	D E	0.878 0.949	D E	0.001 0.001	NO NO
			City of Torrance	ICU	AM PM	0.943 1.006	E F	0.944 1.008	E F	0.001 0.002	NO NO
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM PM	0.763 0.837	C D	0.769 0.846	C D	0.006 0.009	NO NO
			Los Angeles County	ICU	AM PM	0.904 0.930	E E	0.910 0.938	E F	0.006 0.008	NO NO
5	Budlong Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.570 0.539	A A	0.624 0.572	B B	0.054 0.033	NO NO
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.575 0.561	A A	0.629 0.618	B B	0.054 0.057	NO NO
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM PM	0.632 0.602	B B	0.686 0.577	B B	0.054 -0.025	NO NO
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM PM	0.905 0.893	E D	0.917 0.913	E E	0.012 0.020	YES YES
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM PM	0.814 0.849	D D	0.844 0.867	D E	0.030 0.018	YES NO
10	Figueroa Street	Carson Street	City of Carson	ICU	AM PM	0.661 0.762	B C	0.670 0.767	B D	0.009 0.005	NO NO
11	Western Avenue	220th Street	City of Los Angeles	CMA	AM PM	0.554 0.698	A B	0.559 0.698	A B	0.005 0.000	NO NO
			City of Torrance	ICU	AM PM	0.685 0.819	B D	0.689 0.819	B D	0.004 0.000	NO NO
12	Normandie Avenue	220th Street	City of Los Angeles	CMA	AM PM	0.409 0.293	A A	0.425 0.297	A A	0.016 0.004	NO NO
			Los Angeles County	ICU	AM PM	0.602 0.481	B A	0.616 0.493	B A	0.014 0.012	NO NO
13	Meyler Street	220th Street	Los Angeles County	ICU	AM PM	0.382 0.365	A A	0.433 0.372	A A	0.051 0.007	NO NO
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM PM	0.656 0.714	B C	0.671 0.745	B C	0.015 0.031	NO NO
15	Figueroa Street	220th Street/I-110 NB Ramps	City of Carson	ICU	AM PM	0.913 0.886	E D	0.922 0.919	E E	0.009 0.033	NO YES
16	Western Avenue	223rd Street	City of Los Angeles	CMA	AM PM	0.822 0.851	D D	0.822 0.853	D D	0.000 0.002	NO NO
			City of Torrance	ICU	AM PM	0.893 0.919	D E	0.893 0.921	D E	0.000 0.002	NO NO
17	Normandie Avenue	223rd Street	City of Los Angeles	CMA	AM PM	0.623 0.701	B C	0.627 0.705	B C	0.004 0.004	NO NO
			Los Angeles County	ICU	AM PM	0.807 0.822	D D	0.813 0.826	D D	0.006 0.004	NO NO
18	Meyler Street	223rd Street	Los Angeles County	ICU	AM PM	0.658 0.581	B A	0.666 0.589	B A	0.008 0.008	NO NO
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM PM	0.917 0.833	E D	0.936 0.838	E D	0.019 0.005	YES NO
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM PM	0.755 0.843	C D	0.768 0.852	C D	0.013 0.009	NO NO
21	Figueroa Street	223rd Street	City of Carson	ICU	AM PM	0.827 0.718	D C	0.833 0.722	D C	0.006 0.004	NO NO
22	Western Avenue	Sepulveda Blvd	City of Los Angeles	CMA	AM PM	0.927 0.990	E E	0.927 0.991	E E	0.000 0.001	NO NO
			City of Torrance	ICU	AM PM	0.957 1.011	E F	0.957 1.012	E F	0.000 0.001	NO NO

Note:

[a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all way-stop controlled.

[b] Project results in the closure of the medical center driveway at Intersection 7.



<p><b>1. Normandie Avenue/Torrance Boulevard</b></p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p>	<p><b>3. Western Avenue/Carson Street</b></p>
<p><b>4. Normandie Avenue/Carson Street</b></p>	<p><b>5. Budlong Avenue/Carson Street</b></p>	<p><b>6. Berendo Avenue/Carson Street</b></p>
<p><b>7. Medical Center Drive/Carson Street</b></p>	<p><b>8. Vermont Avenue/Carson Street</b></p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p>
<p><b>10. Figueroa Street/Carson Street</b></p>	<p><b>11. Western Avenue/220th Street</b></p>	<p><b>12. Normandie Avenue/220th Street</b></p>
<p><b>13. Myler Street/220th Street</b></p>	<p><b>14. Vermont Avenue/220th Street</b></p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p>



Figure 11  
Existing Plus 2030 Project Traffic Volumes



**TABLE 5  
EXISTING PLUS 2030 PROJECT  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Control	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing+Project		Project Increase In V/C	Significant Impact?
							V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	Signal	City of Los Angeles	CMA	AM PM	0.902 0.904	E E	0.907 0.913	E E	0.005 0.009	NO NO
				Los Angeles County	ICU	AM PM	0.935 0.936	E E	0.939 0.944	E E	0.004 0.008	NO NO
2	Vermont Avenue	Torrance Boulevard	Signal	Los Angeles County	ICU	AM PM	0.927 0.880	E D	0.930 0.886	E D	0.003 0.006	NO NO
3	Western Avenue	Carson Street	Signal	City of Los Angeles	CMA	AM PM	0.877 0.948	D E	0.882 0.955	D E	0.005 0.007	NO NO
				City of Torrance	ICU	AM PM	0.943 1.006	E F	0.948 1.012	E F	0.005 0.006	NO NO
4	Normandie Avenue	Carson Street	Signal	City of Los Angeles	CMA	AM PM	0.763 0.837	C D	0.785 0.872	C D	0.022 0.035	NO YES
				Los Angeles County	ICU	AM PM	0.904 0.930	E E	0.925 0.962	E E	0.021 0.032	YES YES
5	Budlong Avenue	Carson Street	Signal	Los Angeles County	ICU	AM PM	0.570 0.539	A A	0.636 0.591	B A	0.066 0.052	NO NO
6	Berendo Avenue	Carson Street	Signal	Los Angeles County	ICU	AM PM	0.575 0.561	A A	0.642 0.688	B B	0.067 0.127	NO NO
7	Medical Center Drive	Carson Street	Signal	Los Angeles County	ICU	AM PM	0.632 0.602	B B	0.721 0.621	C B	0.089 0.019	YES NO
8	Vermont Avenue	Carson Street	Signal	Los Angeles County	ICU	AM PM	0.905 0.893	E D	0.946 0.962	E E	0.041 0.069	YES YES
9	I-110 SB Ramps	Carson Street	Signal	Los Angeles County	ICU	AM PM	0.814 0.849	D D	0.907 0.916	E E	0.093 0.067	YES YES
10	Figueroa Street	Carson Street	Signal	City of Carson	ICU	AM PM	0.661 0.762	B C	0.685 0.779	B C	0.024 0.017	NO NO
11	Western Avenue	220th Street	Signal	City of Los Angeles	CMA	AM PM	0.554 0.698	A B	0.570 0.699	A B	0.016 0.001	NO NO
				City of Torrance	ICU	AM PM	0.685 0.819	B D	0.699 0.820	B D	0.014 0.001	NO NO
12	Normandie Avenue	220th Street	Signal	City of Los Angeles	CMA	AM PM	0.409 0.293	A A	0.458 0.308	A A	0.049 0.015	NO NO
				Los Angeles County	ICU	AM PM	0.602 0.481	B A	0.645 0.523	B A	0.043 0.042	NO NO
13	Meyler Street	220th Street	All Way Stop	Los Angeles County	ICU	AM PM	0.382 0.365	A A	0.438 0.397	A A	0.056 0.032	NO NO
14	Vermont Avenue	220th Street	Signal	Los Angeles County	ICU	AM PM	0.656 0.714	B C	0.720 0.827	C D	0.064 0.113	YES YES
15	Figueroa Street	220th Street/I-110 NB Ramps	Signal	City of Carson	ICU	AM PM	0.913 0.886	E D	0.942 1.000	E E	0.029 0.114	YES YES
16	Western Avenue	223rd Street	Signal	City of Los Angeles	CMA	AM PM	0.822 0.851	D D	0.823 0.856	D D	0.001 0.005	NO NO
				City of Torrance	ICU	AM PM	0.893 0.919	D E	0.894 0.923	D E	0.001 0.004	NO NO
17	Normandie Avenue	223rd Street	Signal	City of Los Angeles	CMA	AM PM	0.623 0.701	B C	0.634 0.715	B C	0.011 0.014	NO NO
				Los Angeles County	ICU	AM PM	0.807 0.822	D D	0.828 0.834	D D	0.021 0.012	YES NO
18	Meyler Street	223rd Street	Signal	Los Angeles County	ICU	AM PM	0.658 0.581	B A	0.683 0.609	B B	0.025 0.028	NO NO
19	Vermont Avenue	223rd Street	Signal	Los Angeles County	ICU	AM PM	0.917 0.833	E D	0.975 0.886	E D	0.058 0.053	YES YES
20	I-110 SB Ramps	223rd Street	Signal	Los Angeles County	ICU	AM PM	0.755 0.843	C D	0.796 0.873	C D	0.041 0.030	YES YES
21	Figueroa Street	223rd Street	Signal	City of Carson	ICU	AM PM	0.827 0.718	D C	0.844 0.729	D C	0.017 0.011	NO NO
22	Western Avenue	Sepulveda Blvd	Signal	City of Los Angeles	CMA	AM PM	0.927 0.990	E E	0.928 0.993	E E	0.001 0.003	NO NO
				City of Torrance	ICU	AM PM	0.957 1.011	E F	0.957 1.013	E F	0.000 0.002	NO NO

Note:

- [a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all way-stop controlled.  
[b] Project results in the closure of the medical center driveway at Intersection 7.

## FUTURE STREET NETWORK CHANGES

The existing traffic signal at the intersection of Western Avenue & Carson Street will be modified to include a protected/permitted left turn phase at the east/west approaches. The existing signal is being installed by the City of Los Angeles in consultation with Caltrans and the City of Torrance using funding from the Highway Safety Improvement Program (HSIP). As part of the proposed project, the southern leg of the intersection of Carson Street & Medical Center Drive, which serves as an entrance point to Harbor-UCLA Medical Center, would be closed and a new entrance will be opened on Carson Street between Budlong Avenue and Normandie Avenue.

## INTERIM AND CUMULATIVE BASE TRAFFIC GENERATION

In order to evaluate the potential impact of the proposed project in the future on the surrounding street system, it was necessary to develop estimates of future traffic conditions both with and without the project. Future traffic volumes without the project were first estimated, representing the Interim base conditions and the Cumulative base conditions. The trips generated by the proposed project are then estimated and separately assigned to the surrounding street system.

The Interim and Cumulative base traffic projections reflect growth in traffic from two primary sources: background or ambient growth in the existing traffic volumes to reflect the effects of overall regional growth both in and outside of the study area, and traffic generated by specific projects in, or in the vicinity of, the study area. These factors are described below.

### AREAWIDE TRAFFIC GROWTH

As part of the MOU process with county staff, an areawide traffic growth of 0.73% per year was agreed upon for the study area. Future increases in the background traffic volumes due to regional growth and development are expected to continue at this rate, at least through 2030. For the Interim analysis period, existing baseline traffic volumes were adjusted upward by a factor of 6.8% to reflect areawide regional growth up to 2023. With the projected completion date of 2030 for the Medical Center, the existing baseline traffic volumes were adjusted upward by a factor of 12.3% to reflect areawide regional growth up to the Cumulative period. The methodology prescribed by Los Angeles County does not include adding areawide traffic growth to existing volumes.

## CUMULATIVE PROJECTS TRAFFIC GENERATION

As indicated, the second major source of traffic growth in the study area is from specific cumulative development projects, also called related projects, expected to be built in the vicinity of the proposed project site prior to the proposed buildout. Data describing cumulative projects in the area was developed using information obtained from Los Angeles County Department of Regional Planning, City of Los Angeles Department of Transportation (LADOT), City of Carson Department of Planning and City of Torrance Department of Planning. A total of 26 cumulative projects were identified in the surrounding area and are listed in Table 6. The locations of the related projects are illustrated in Figure 12.

Trip generation estimates for cumulative projects within the City of Los Angeles were obtained from the LADOT. All other trip generation estimates were determined using standard rates developed by the ITE and published in *Trip Generation, 9<sup>th</sup> Edition* or from data in the traffic studies prepared for the projects. Table 6 presents the resulting trip generation estimates for these related projects. These projections are conservative in that they do not in every case account for either the existing uses to be removed or the possible use of non-motorized travel modes (transit, walking, etc.). The cumulative projects are expected to generate approximately 85,391 daily trips, including 3,684 trips during the morning peak hour and 7,316 trips during the evening peak hour.

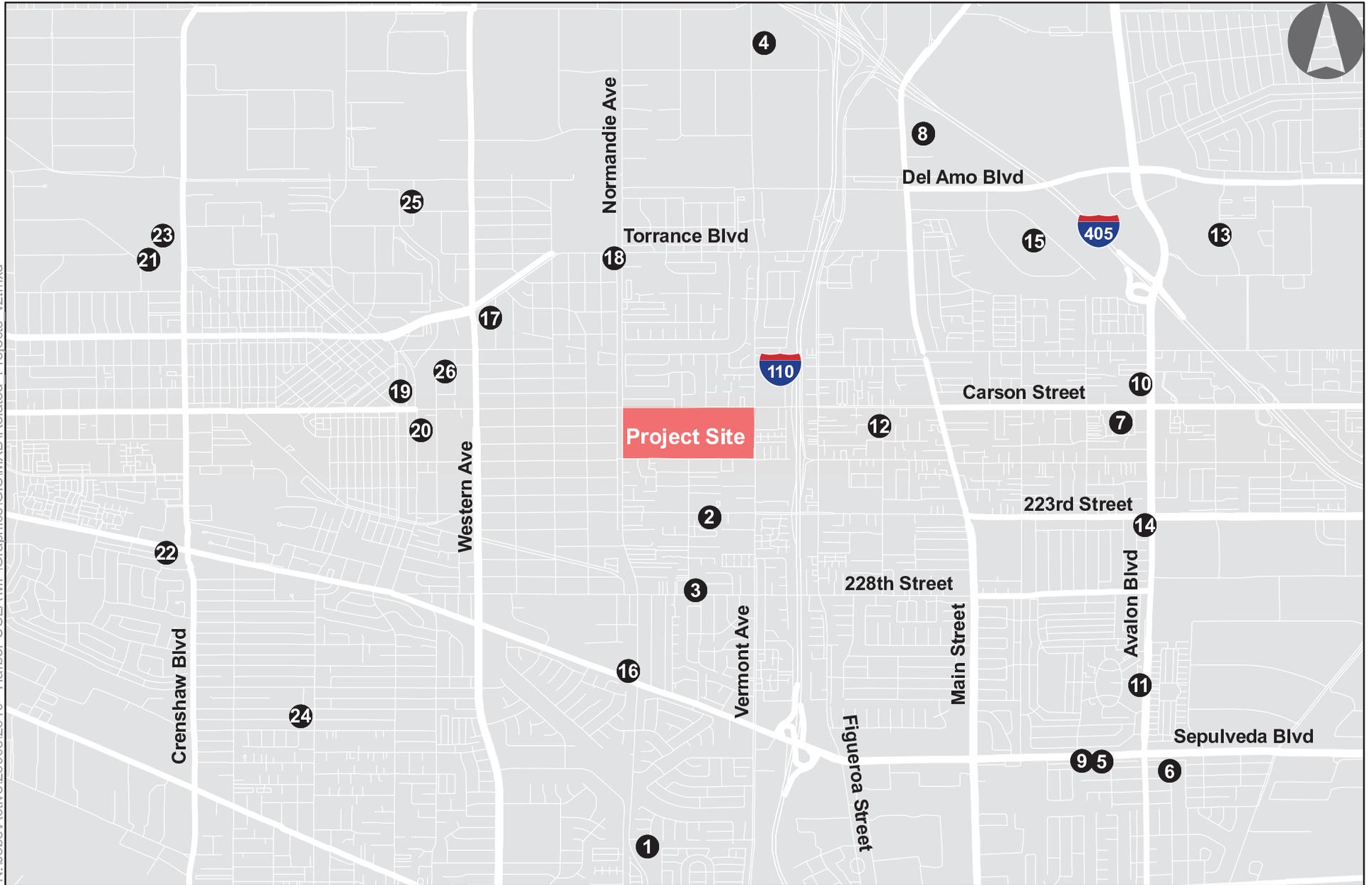
## CUMULATIVE PROJECTS TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The geographic distribution of the traffic generated by the cumulative projects is dependent on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees and potential patrons of the proposed developments are drawn, and the location of the employment and commercial centers to which residents of residential projects would be drawn, and the location of the projects in relation to the surrounding street system. If available, trip distribution from a cumulative project's traffic study was used in this analysis. When trip distribution was not available for a cumulative project, it was estimated based on the factors described above. The trip generation estimates were assigned to the local street system using the trip distribution pattern described above. Figure 13 shows the traffic generated from the cumulative projects at the study intersections.

**TABLE 6  
RELATED PROJECTS TRIP GENERATION ESTIMATES**

Number	Jurisdiction	Project Location	Land Use	ITE Land Use Code	Size	Estimated Trip Generation [a]						
						Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
							In	Out	Total	In	Out	Total
1	County	24500 Normandie Ave	Apartments Retail	220 820	112 Units 3.9 KSF	969	14	49	63	58	35	93
2	County	1028 W 223rd St	Condos	230	19 Units	152	2	12	14	10	5	15
3	County	22700 Meyler St	Condos	230	60 Units	412	6	28	34	27	13	40
4	County	19208 S Vermont Ave	Condos	230	20 Units	159	2	12	14	11	5	16
5	Carson	440 Sepulveda Blvd	Apartments	220	11 Units	190	2	7	9	16	8	24
6	Carson	628 Lincoln St	Single Family	210	3 Units	29	0	2	2	2	1	3
7	Carson	616 E Carson St	Apartments Retail	220 820	152 Units 13 KSF	1600	23	67	90	89	60	149
8	Carson	19220 S Main St	Driver Training Facility	[d]	65.000 KSF	438	91	0	91	12	80	92
9	Carson	402 E Sepulveda	Apartments Retail	220 820	65 Units 3 KSF	645	9	30	39	39	25	64
10	Carson	21521 S Avalon Blvd	Apartments Retail	220 820	357 Units 32.000 KSF	3653	55	155	210	196	137	333
11	Carson	23401 S Avalon Blvd	Retail	820	6.3 KSF	269	4	2	6	11	12	23
12	Carson	21791 Moneta Ave	Apartments	220	13 Units	202	2	8	10	16	9	25
13	Carson	20920 Chico St	Medical	720	11.34 KSF	249	21	6	27	11	30	41
14	Carson	22303 Avalon	Automated Car Wash Office Space	[c] [c]	4.673 KSF 0.48 KSF	923	21	18	39	41	42	83
15	Carson	Carson Marketplace	Regional Retail Neighborhood Retail Residential Hotel Restaurants Commercial Recreational	[g]	1370.000 KSF 130.000 KSF 1550.000 Units 300.000 Rooms 81.125 KSF 214.000 KSF	68951	1269	1244	2513	2956	2806	5762
16	Los Angeles	1311 W Sepulveda Blvd	Apartments Retail	[b] [b]	352 Units 17.904 KSF	1434	5	14	19	34	21	55
17	Los Angeles	21176 S Western Ave	Retail	[b]	0.836 KSF	653	54	33	87	15	17	32
18	Los Angeles	20805-22341 S. Normandie Avenue	Single Family	[b]	63.000 Units	602	12	35	47	40	23	63
19	Torrance	1640 Cabrillo Ave	Apartments Retail	220 820	44.000 Units 3.700 KSF	548	7	22	29	34	22	56
20	Torrance	1752 Border Ave	Warehouse Automobile Care Center [e]	150 942	10 KSF 3 KSF	194	4	3	7	8	9	17
21	Torrance	570 Alaska Ave	Warehouse	150	31.015 KSF	110	7	2	9	2	8	10
22	Torrance	2540 Sepulveda Blvd	Automobile Care Center [e]	942	2.525 KSF	101	4	2	6	4	4	8
23	Torrance	465 Crenshaw Blvd	Transit Center	[f]	17.8 KSF	2426	189	85	274	87	165	252
24	Torrance	23625 Arlington Ave	Apartments	220	14 Units	208	2	9	11	16	9	25
25	Torrance	20405 Gramercy Place	Light Industrial	110	17 KSF	118	14	2	16	2	14	16
26	Torrance	1750 214th Street/1600 Abalone Avenue	Warehouse Manufacturing	150 140	30 KSF 13 KSF	157	14	4	18	5	14	19

- a. Source: Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition, 2012 unless otherwise noted.
- b. Daily Trips, AM Peak Hour Total Trips, and PM Peak Hour Total Trips provided by City of Los Angeles Department of Transportation.  
The directional distribution derived using ITE trip generation directional distribution.
- c. Daily Trips, AM Peak Hour Total Trips, and PM Peak Hour Total Trips taken from City of Carson Planning Commission Report dated October 27, 2015.
- d. Daily Trips, AM Peak Hour Total Trips, and PM Peak Hour Total Trips taken from Porsche Driving Center Experience Project Traffic Impact Analysis.
- e. ITE does not provide weekday trip estimates for Automobile Care Center (ITE Code 942). Weekday trip generation rate from Quick Lubrication Shop (ITE Code 941) was used instead.
- f. Trip Generation taken from Traffic Impact Analysis Report for Torrance Transit Center, dated April 29, 2013.
- g. Trip Generation taken from Traffic Impact Study for Carson Marketplace, dated October 2005.



**1** Related Projects

0 0.75 1.5 Miles



Figure 12  
Location of Related Projects

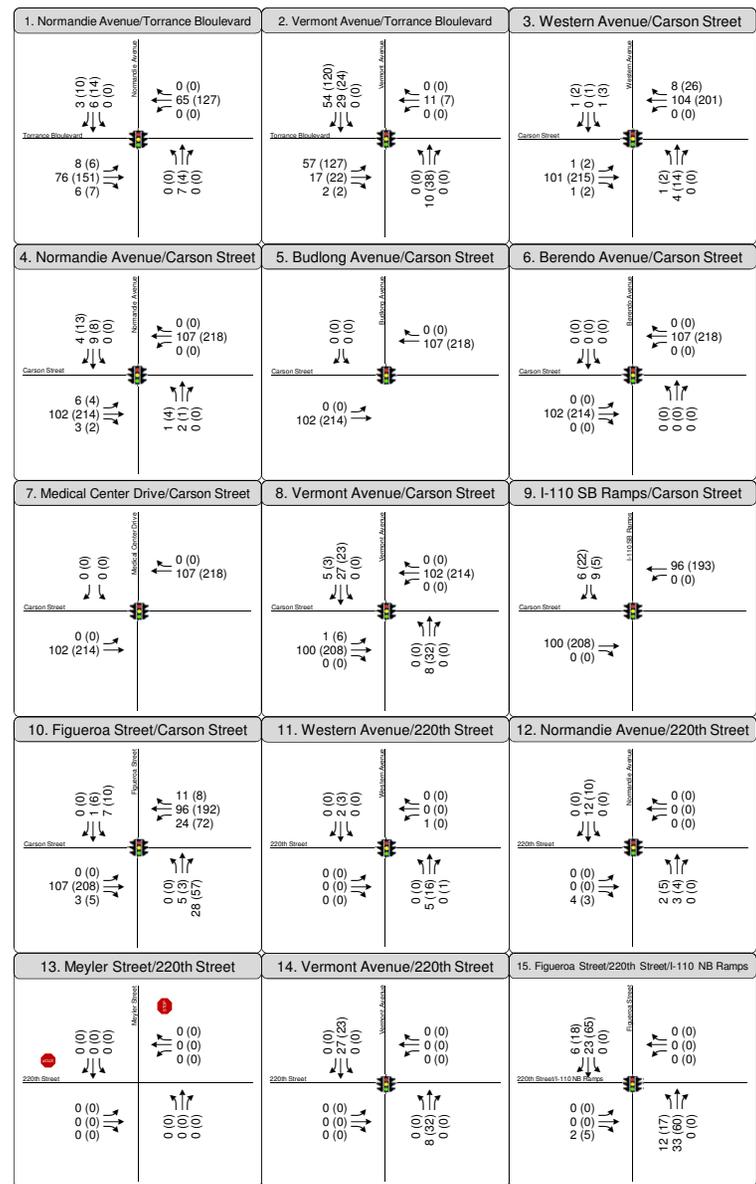
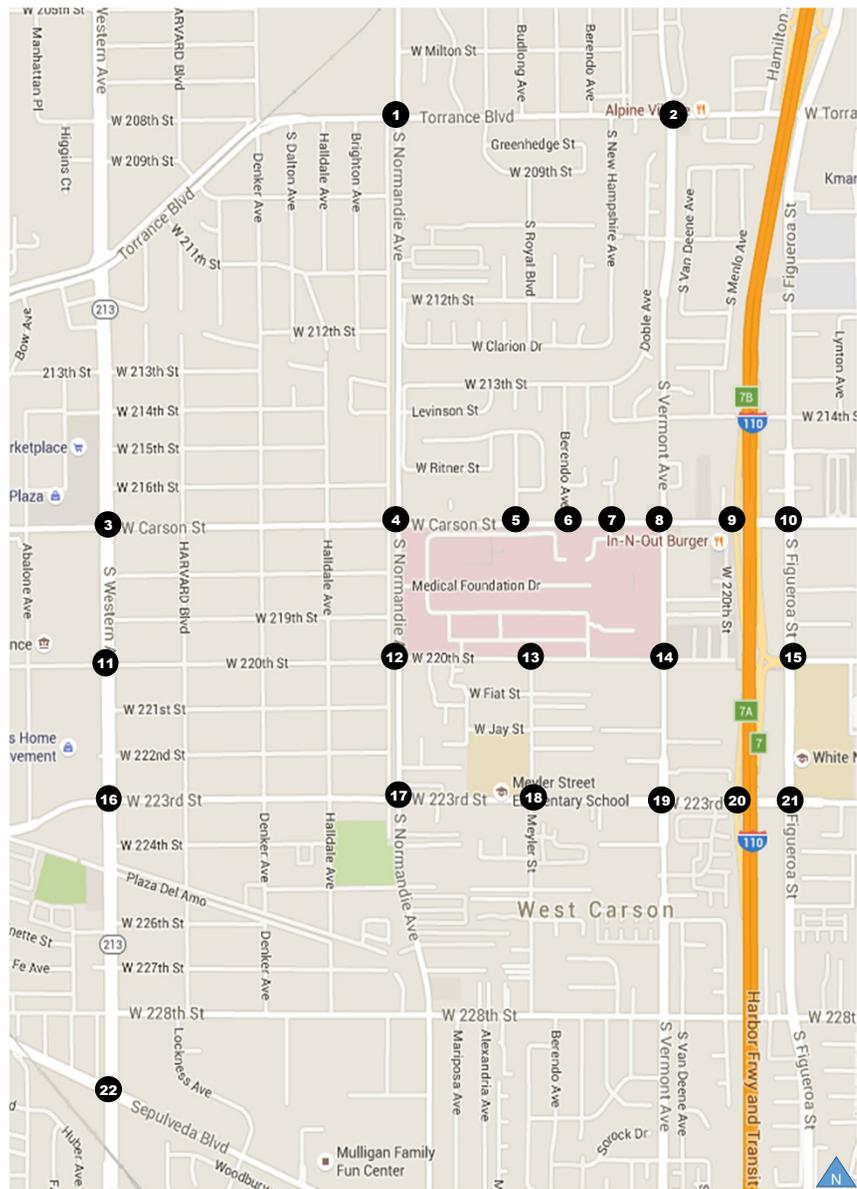
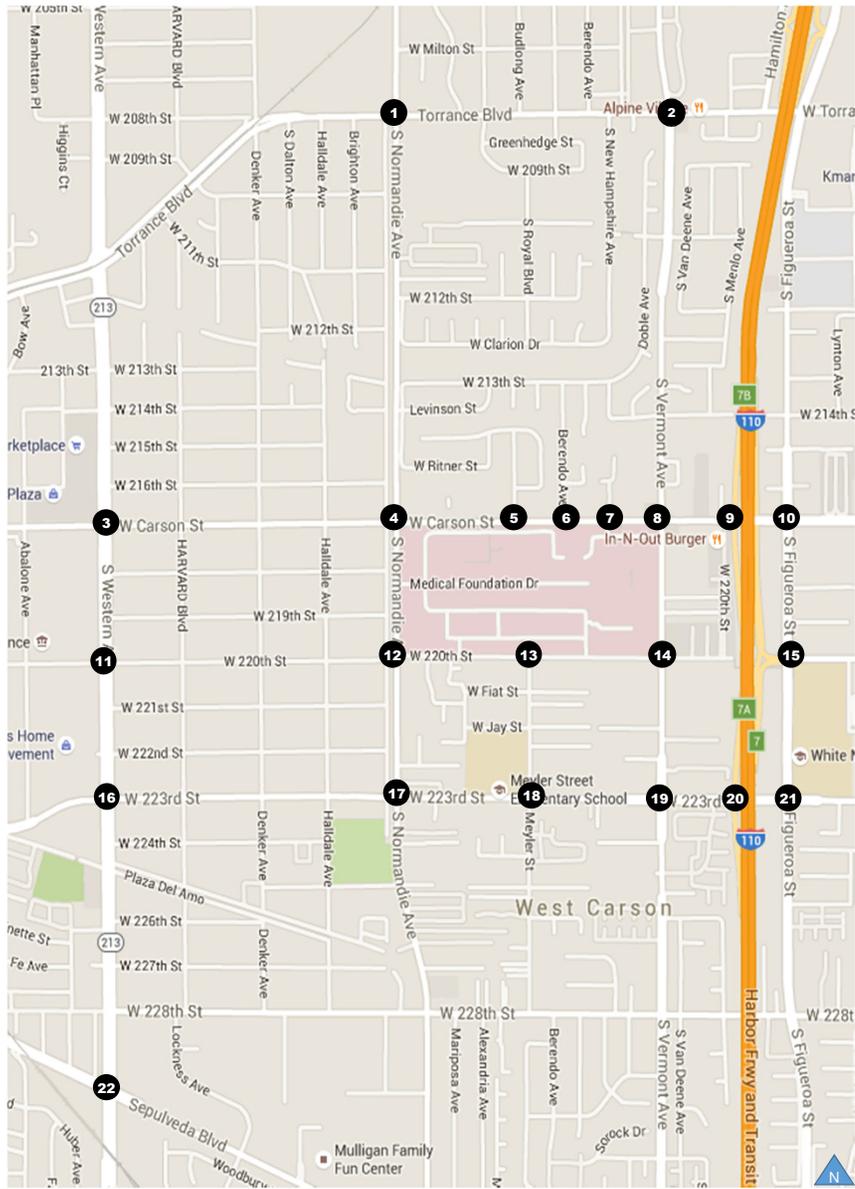


Figure 12  
Related Project Traffic Volumes





<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		

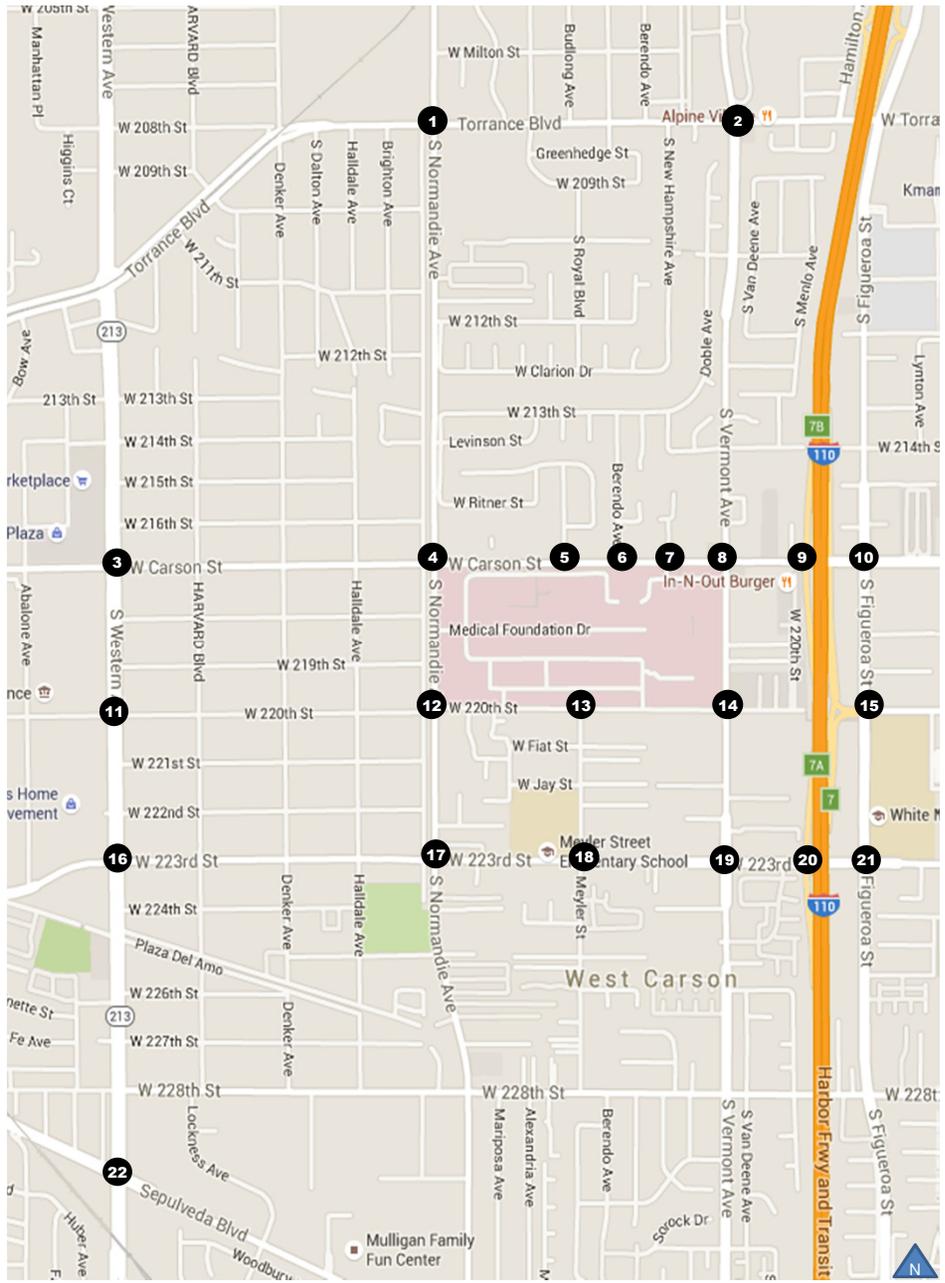
Figure 12  
Related Project Traffic Volumes



## EXISTING PLUS 2023 PROJECT PLUS CUMULATIVE TRAFFIC CONDITIONS

Existing plus 2023 Project plus Cumulative peak hour traffic volumes were developed to determine the projected V/C ratio and LOS for the analyzed intersections within unincorporated Los Angeles County. Figure 14 and Table 7 summarize the levels of service. Poor operating conditions (LOS E or F) are projected at six of the 15 study intersections within Los Angeles County's jurisdiction during at least one of the analyzed peak hours, including:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
4. Normandie Avenue & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
19. Vermont Avenue & 223<sup>rd</sup> Street

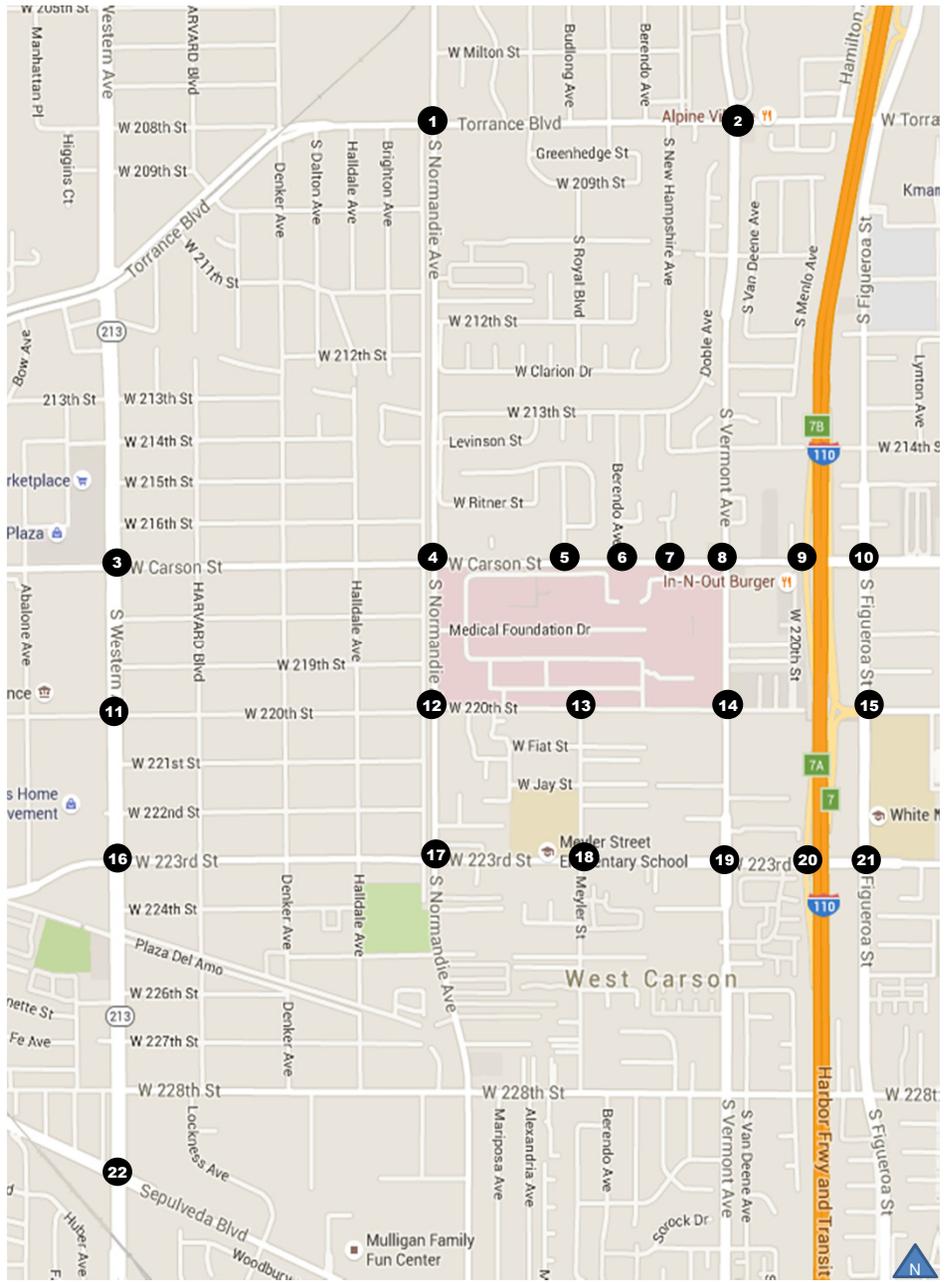


1. Normandie Avenue/Torrance Boulevard	2. Vermont Avenue/Torrance Boulevard	3. Western Avenue/Carson Street
4. Normandie Avenue/Carson Street	5. Budlong Avenue/Carson Street	6. Berendo Avenue/Carson Street
7. Medical Center Drive/Carson Street	8. Vermont Avenue/Carson Street	9. I-110 SB Ramps/Carson Street
10. Figueroa Street/Carson Street	11. Western Avenue/220th Street	12. Normandie Avenue/220th Street
13. Meyler Street/220th Street	14. Vermont Avenue/220th Street	15. Figueroa Street/220th Street/I-110 NB Ramps

Figure 14

Existing plus 2023 Project plus Cumulative Traffic Volumes





<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		

Figure 14  
Existing plus 2023 Project plus Cumulative Traffic Volumes



**TABLE 7  
EXISTING PLUS 2023 PROJECT PLUS CUMULATIVE FOR UNINCORPORATED LOS ANGELES COUNTY  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing plus 2023 Project plus Cumulative		Total Increase in V/C	Cumulative Impact?
						V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.935	E	0.963	E	0.028	YES
					PM	0.936	E	0.994	E	0.058	YES
2	Vermont Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.927	E	0.969	E	0.042	YES
					PM	0.880	D	0.896	D	0.016	NO
4	Normandie Avenue	Carson Street	Los Angeles County	ICU	AM	0.904	E	0.952	E	0.048	YES
					PM	0.930	E	1.016	F	0.086	YES
5	Budlong Avenue	Carson Street	Los Angeles County	ICU	AM	0.570	A	0.657	B	0.087	NO
					PM	0.539	A	0.639	B	0.100	NO
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM	0.575	A	0.663	B	0.088	NO
					PM	0.561	A	0.685	B	0.124	NO
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM	0.632	B	0.719	C	0.087	YES
					PM	0.602	B	0.644	B	0.042	NO
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM	0.905	E	0.953	E	0.048	YES
					PM	0.893	D	0.985	E	0.092	YES
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM	0.814	D	0.878	D	0.064	YES
					PM	0.849	D	0.925	E	0.076	YES
12	Normandie Avenue	220th Street	Los Angeles County	ICU	AM	0.602	B	0.617	B	0.015	NO
					PM	0.481	A	0.500	A	0.019	NO
13	Meyler Street	220th Street	Los Angeles County	ICU	AM	0.382	A	0.433	A	0.051	NO
					PM	0.365	A	0.372	A	0.007	NO
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM	0.656	B	0.679	B	0.023	NO
					PM	0.714	C	0.752	C	0.038	NO
17	Normandie Avenue	223rd Street	Los Angeles County	ICU	AM	0.807	D	0.820	D	0.013	NO
					PM	0.822	D	0.834	D	0.012	NO
18	Meyler Street	223rd Street	Los Angeles County	ICU	AM	0.658	B	0.670	B	0.012	NO
					PM	0.581	A	0.593	A	0.012	NO
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM	0.917	E	0.945	E	0.028	YES
					PM	0.833	D	0.856	D	0.023	YES
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM	0.755	C	0.779	C	0.024	NO
					PM	0.843	D	0.873	D	0.030	YES

Note:

[a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all way-stop controlled.

[b] Project results in the closure of the medical center driveway at Intersection 7.

## INTERIM TRAFFIC CONDITIONS

Interim peak hour traffic volumes were developed to determine the projected V/C ratio and LOS for the analyzed intersections within the Cities of Los Angeles, Carson and Torrance. Figure 15 and Table 8 summarize the levels of service. Poor operating conditions (LOS E or F) are projected at seven of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Normandie Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
10. Figueroa Street & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

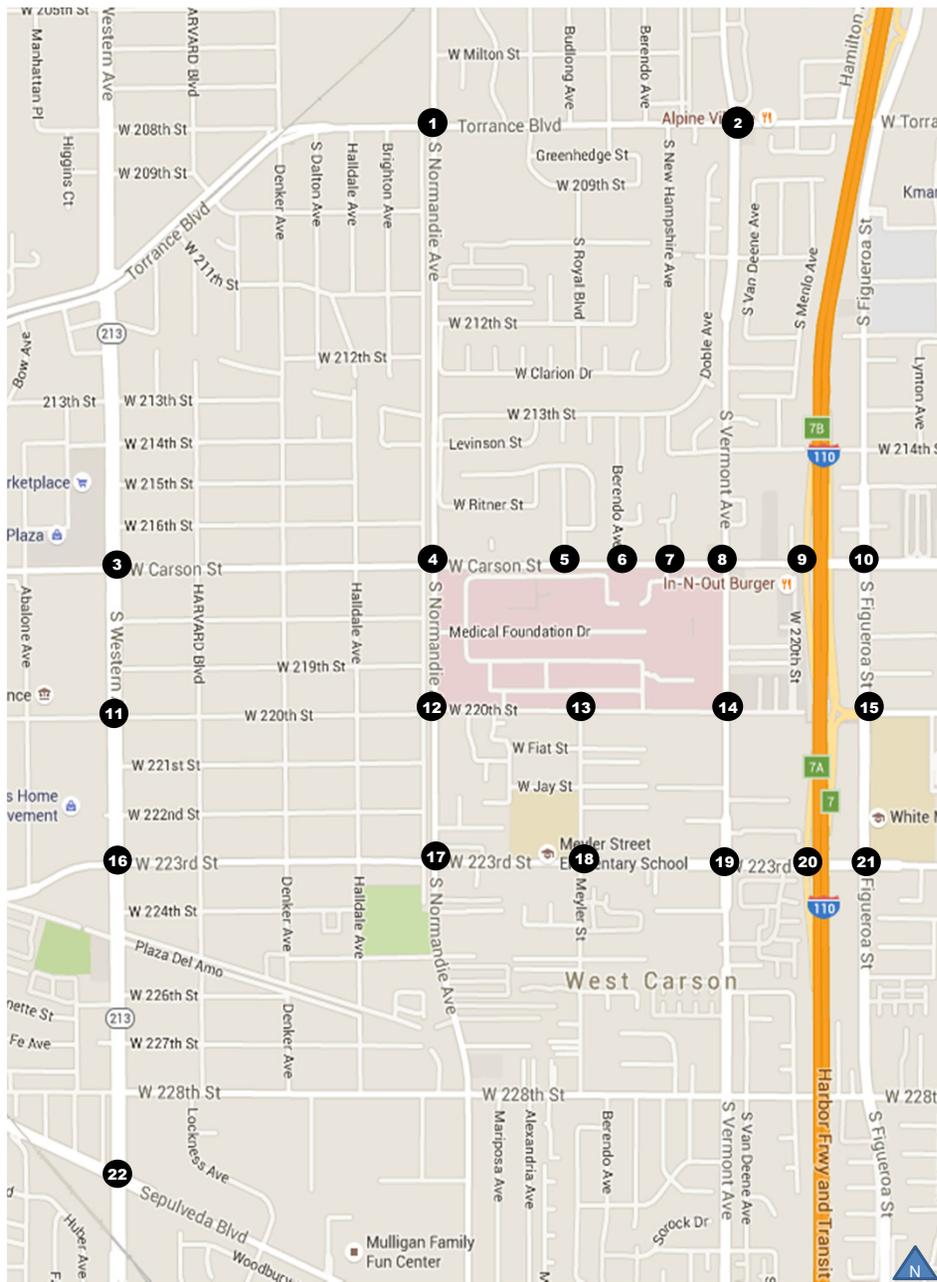
## INTERIM PLUS 2023 PROJECT TRAFFIC CONDITIONS

Interim plus 2023 Project peak hour traffic volumes were developed to determine the projected V/C ratio and LOS for the analyzed intersections within the Cities of Los Angeles, Carson and Torrance. Figure 16 and Table 8 summarize the levels of service. Poor operating conditions (LOS E or F) are projected at eight of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Normandie Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
10. Figueroa Street & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
21. Figueroa Street and 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

**TABLE 8  
INTERIM PLUS 2023 PROJECT FOR INCORPORATED CITIES  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

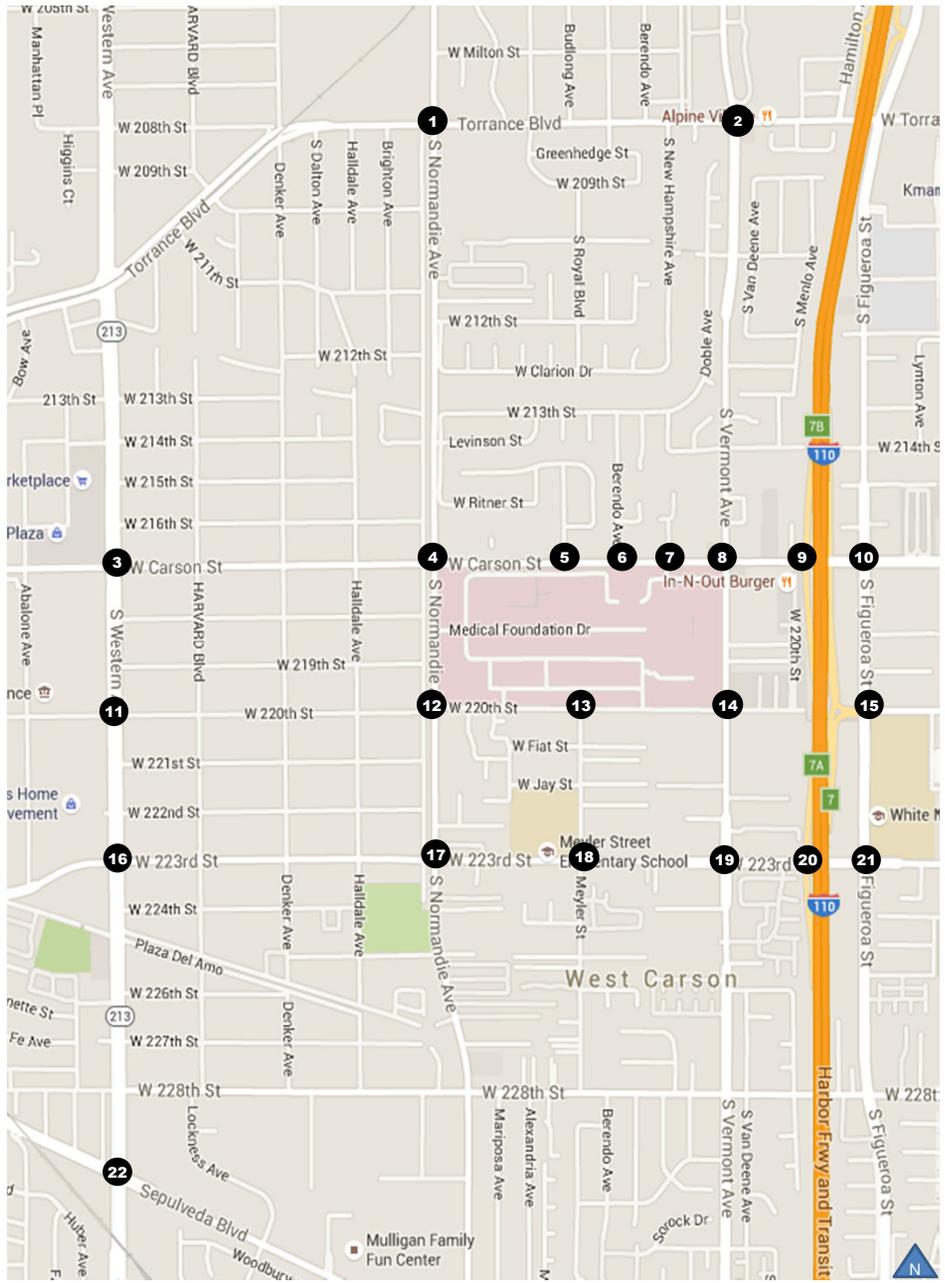
ID	N/S Street Name	E/W Street Name	Jurisdiction	Analysis Methodology	Analyzed Period	Interim		Interim + 2023 Project		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	City of Los Angeles	CMA	AM	0.999	E	1.001	F	0.002	NO
					PM	1.036	F	1.038	F	0.002	NO
3	Western Avenue	Carson Street	City of Los Angeles	CMA	AM	1.022	F	1.022	F	0.000	NO
					PM	1.137	F	1.139	F	0.002	NO
			City of Torrance	ICU	AM	1.038	F	1.039	F	0.001	NO
					PM	1.138	F	1.139	F	0.001	NO
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM	0.863	D	0.870	D	0.007	NO
					PM	0.987	E	0.996	E	0.009	NO
10	Figueroa Street	Carson Street	City of Carson	ICU	AM	0.730	C	0.737	C	0.007	NO
					PM	0.919	E	0.924	E	0.005	NO
11	Western Avenue	220th Street	City of Los Angeles	CMA	AM	0.598	A	0.603	B	0.005	NO
					PM	0.751	C	0.751	C	0.000	NO
			City of Torrance	ICU	AM	0.727	C	0.732	C	0.005	NO
					PM	0.870	D	0.870	D	0.000	NO
12	Normandie Avenue	220th Street	City of Los Angeles	CMA	AM	0.443	A	0.459	A	0.016	NO
					PM	0.325	A	0.328	A	0.003	NO
15	Figueroa Street	220th Street/I-110 NB Ramps	City of Carson	ICU	AM	0.979	E	0.987	E	0.008	NO
					PM	0.960	E	0.994	E	0.034	YES
16	Western Avenue	223rd Street	City of Los Angeles	CMA	AM	0.886	D	0.886	D	0.000	NO
					PM	0.922	E	0.924	E	0.002	NO
			City of Torrance	ICU	AM	0.950	E	0.950	E	0.000	NO
					PM	0.984	E	0.985	E	0.001	NO
17	Normandie Avenue	223rd Street	City of Los Angeles	CMA	AM	0.675	B	0.679	B	0.004	NO
					PM	0.761	C	0.765	C	0.004	NO
21	Figueroa Street	223rd Street	City of Carson	ICU	AM	0.900	D	0.904	E	0.004	NO
					PM	0.786	C	0.788	C	0.002	NO
22	Western Avenue	Sepulveda Blvd	City of Los Angeles	CMA	AM	0.998	E	0.998	E	0.000	NO
					PM	1.063	F	1.064	F	0.001	NO
			City of Torrance	ICU	AM	1.017	F	1.017	F	0.000	NO
					PM	1.074	F	1.074	F	0.000	NO



<p><b>1. Normandie Avenue/Torrance Boulevard</b></p> <p>111 (172) 414 (792) 34 (139)</p> <p>79 (46) 1,625 (1,155) 110 (62)</p> <p>109 (119) 1,053 (1,617) 88 (126)</p> <p>164 (105) 783 (570) 157 (159)</p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p> <p>252 (364) 633 (945) 40 (120)</p> <p>119 (95) 1,402 (743) 95 (64)</p> <p>241 (304) 942 (1,366) 159 (104)</p> <p>130 (63) 878 (555) 194 (128)</p>	<p><b>3. Western Avenue/Carson Street</b></p> <p>143 (237) 758 (1,384) 100 (167)</p> <p>171 (156) 1,301 (1,173) 70 (75)</p> <p>63 (92) 896 (1,261) 111 (197)</p> <p>161 (163) 1,203 (861) 89 (124)</p>
<p><b>4. Normandie Avenue/Carson Street</b></p> <p>161 (186) 391 (560) 35 (98)</p> <p>80 (81) 1,373 (1,306) 172 (163)</p> <p>213 (216) 1,049 (1,461) 203 (176)</p> <p>224 (186) 707 (523) 76 (111)</p>	<p><b>5. Budlong Avenue/Carson Street</b></p> <p>36 (37) 18 (21)</p> <p>17 (29) 1,555 (1,519)</p> <p>16 (27) 1,124 (1,588)</p>	<p><b>6. Berendo Avenue/Carson Street</b></p> <p>38 (36) 1 (4) 14 (26)</p> <p>35 (48) 1,539 (1,499) 114 (30)</p> <p>18 (29) 1,055 (1,546) 46 (25)</p> <p>20 (13) 2 (2) 47 (62)</p>
<p><b>7. Medical Center Drive/Carson Street</b></p> <p>36 (18) 48 (13)</p> <p>11 (27) 1,640 (1,544)</p> <p>14 (26) 1,093 (1,604)</p>	<p><b>8. Vermont Avenue/Carson Street</b></p> <p>229 (194) 547 (813) 132 (290)</p> <p>141 (174) 1,437 (1,305) 273 (162)</p> <p>133 (127) 1,041 (1,521) 86 (116)</p> <p>165 (142) 888 (475) 237 (368)</p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p> <p>580 (449) 150 (286)</p> <p>1,389 (1,244) 186 (190)</p> <p>1,247 (1,916) 140 (279)</p>
<p><b>10. Figueroa Street/Carson Street</b></p> <p>158 (172) 276 (506) 48 (150)</p> <p>116 (83) 1,122 (1,043) 125 (182)</p> <p>120 (107) 796 (1,476) 482 (608)</p> <p>301 (221) 526 (250) 211 (204)</p>	<p><b>11. Western Avenue/220th Street</b></p> <p>73 (18) 937 (1,547) 12 (32)</p> <p>38 (20) 82 (42) 112 (50)</p> <p>19 (60) 25 (104) 59 (173)</p> <p>124 (62) 1,444 (999) 33 (26)</p>	<p><b>12. Normandie Avenue/220th Street</b></p> <p>28 (38) 422 (819) 74 (79)</p> <p>107 (90) 81 (37) 49 (47)</p> <p>31 (21) 106 (65) 49 (56)</p> <p>29 (20) 883 (556) 125 (144)</p>
<p><b>13. Meyler Street/220th Street</b></p> <p>1 (5) 0 (4) 10 (33)</p> <p>22 (3) 153 (102) 65 (22)</p> <p>3 (5) 151 (263) 54 (35)</p> <p>102 (14) 4 (0) 70 (68)</p>	<p><b>14. Vermont Avenue/220th Street</b></p> <p>269 (68) 559 (990) 60 (23)</p> <p>40 (46) 29 (13) 18 (33)</p> <p>159 (251) 34 (14) 94 (167)</p> <p>207 (96) 1,086 (613) 43 (115)</p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p> <p>411 (525) 414 (647) 137 (80)</p> <p>95 (56) 221 (111) 93 (60)</p> <p>249 (258) 40 (101) 52 (115)</p> <p>517 (450) 690 (366) 155 (63)</p>

Figure 15  
Interim Peak Hour Traffic Volumes

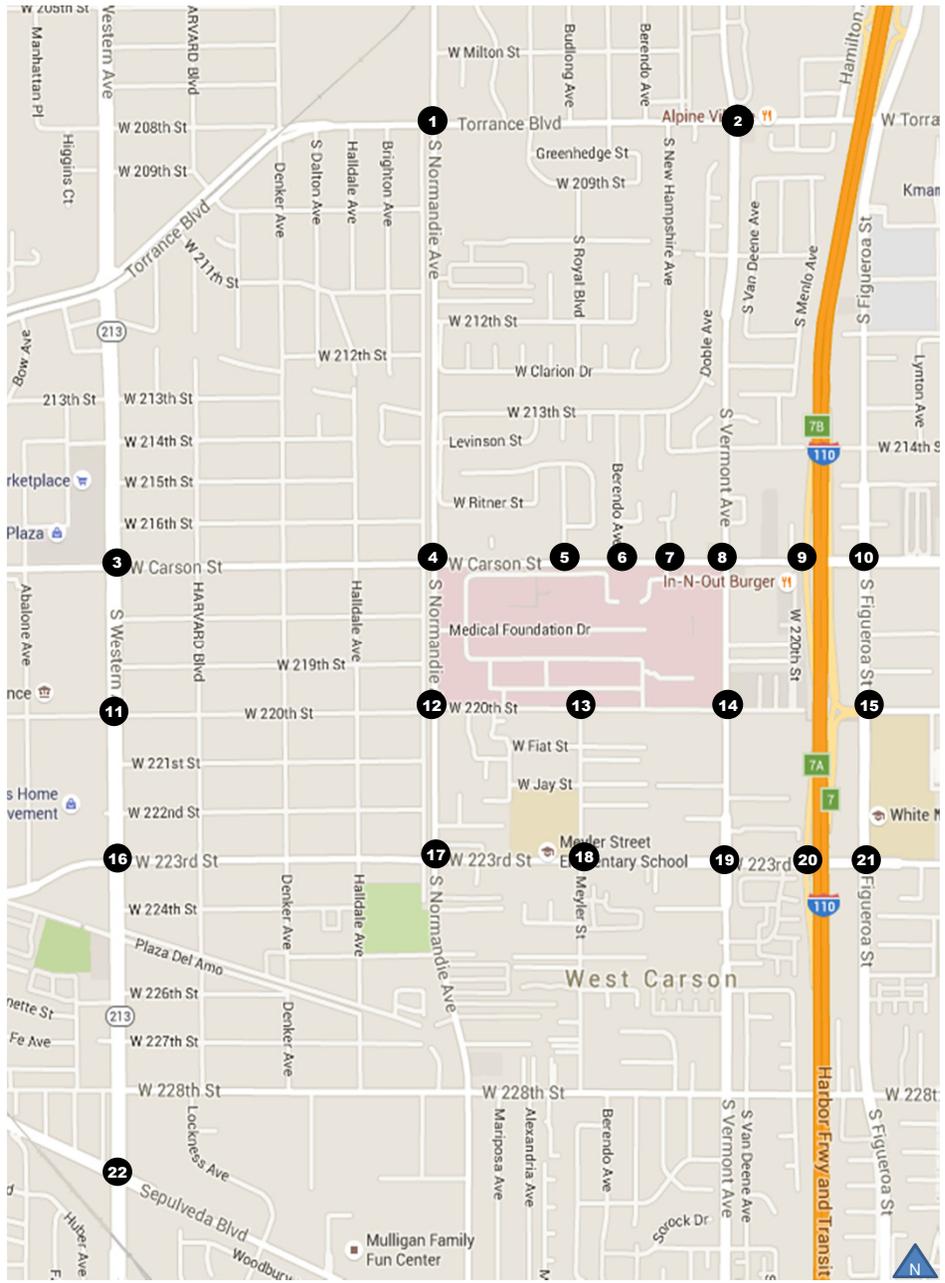




<p>16. Western Avenue/223rd Street</p> <p>Western Avenue 223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p> <p>Normandie Avenue 223rd Street</p>	<p>18. Meyler Street/223rd Street</p> <p>Meyler Street 223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p> <p>Vermont Avenue 223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p> <p>I-110 SB Ramps 223rd Street</p>	<p>21. Figueroa Street/223rd Street</p> <p>Figueroa Street 223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p> <p>Western Avenue Sepulveda Blvd</p>		

Figure 15  
Interim Peak Hour Traffic Volumes

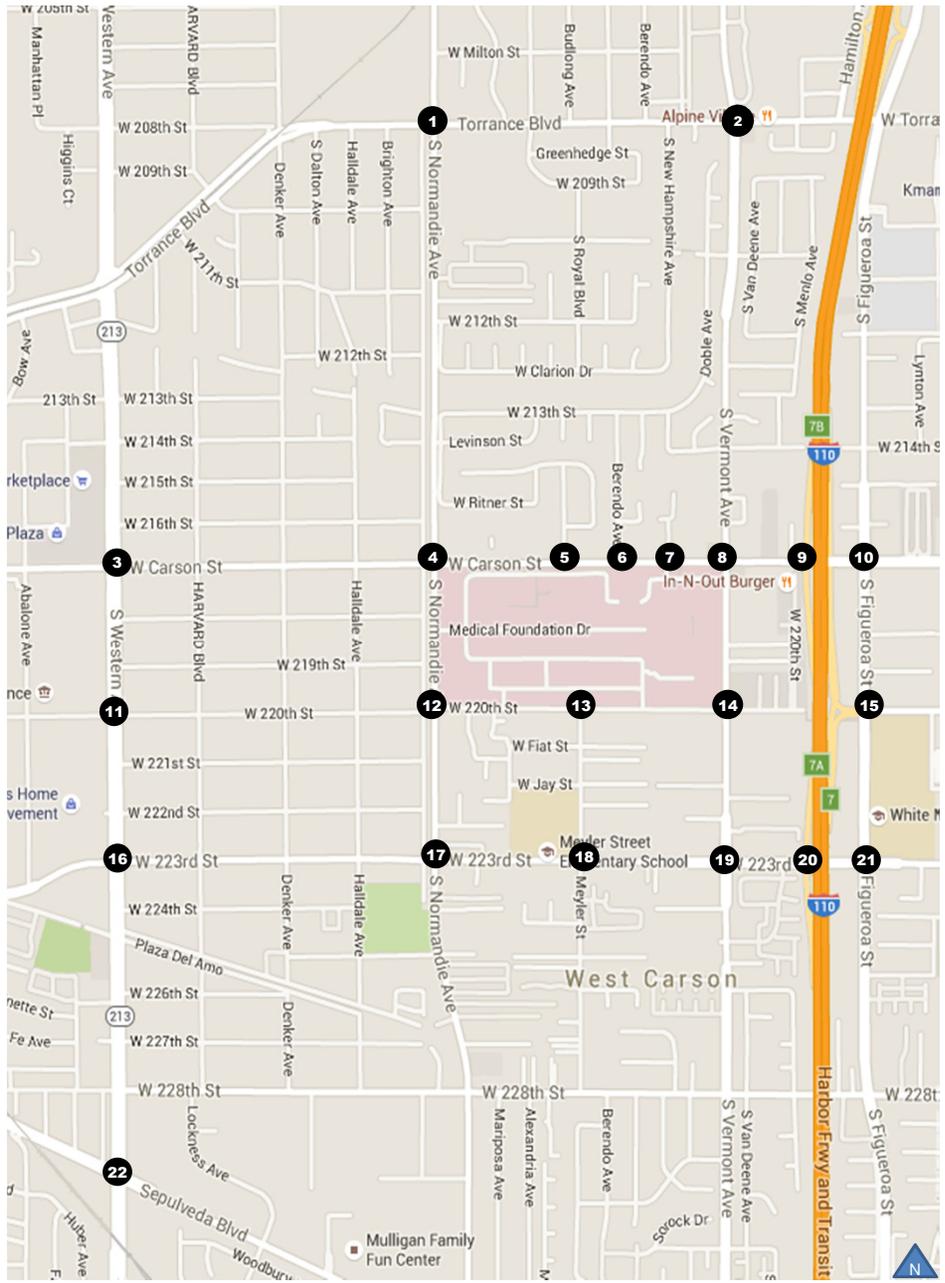




<p><b>1. Normandie Avenue/Torrance Boulevard</b></p> <p>111 (172) 432 (796) 34 (139)</p> <p>79 (46) 1,625 (1,155) 111 (62)</p> <p>109 (119) 1,053 (1,617) 91 (127)</p> <p>164 (105) 797 (587) 157 (160)</p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p> <p>253 (364) 646 (948) 40 (120)</p> <p>119 (95) 1,402 (743) 97 (64)</p> <p>241 (305) 942 (1,366) 159 (104)</p> <p>130 (63) 881 (568) 194 (128)</p>	<p><b>3. Western Avenue/Carson Street</b></p> <p>143 (237) 783 (1,385) 100 (167)</p> <p>172 (160) 1,302 (1,181) 70 (75)</p> <p>63 (92) 903 (1,262) 113 (197)</p> <p>161 (164) 1,204 (866) 89 (124)</p>
<p><b>4. Normandie Avenue/Carson Street</b></p> <p>161 (186) 408 (563) 41 (99)</p> <p>81 (84) 1,374 (1,310) 178 (166)</p> <p>213 (216) 1,052 (1,461) 208 (177)</p> <p>225 (194) 710 (538) 81 (124)</p>	<p><b>5. Budlong Avenue/Carson Street</b></p> <p>36 (37) 18 (21)</p> <p>17 (29) 1,737 (1,590)</p> <p>16 (27) 1,237 (1,709)</p>	<p><b>6. Berendo Avenue/Carson Street</b></p> <p>38 (36) 14 (26)</p> <p>35 (48) 1,721 (1,568) 149 (37)</p> <p>18 (29) 1,166 (1,666) 48 (25)</p> <p>20 (15) 2 (2) 55 (117)</p>
<p><b>7. Medical Center Drive/Carson Street</b></p> <p>36 (18) 48 (13)</p> <p>11 (27) 1,886 (1,647)</p> <p>14 (26) 1,229 (1,774)</p>	<p><b>8. Vermont Avenue/Carson Street</b></p> <p>235 (195) 555 (815) 132 (290)</p> <p>141 (174) 1,477 (1,314) 290 (166)</p> <p>134 (133) 1,052 (1,569) 88 (122)</p> <p>171 (143) 880 (463) 241 (365)</p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p> <p>615 (457) 150 (286)</p> <p>1,412 (1,248) 186 (190)</p> <p>1,260 (1,972) 142 (288)</p>
<p><b>10. Figueroa Street/Carson Street</b></p> <p>163 (173) 279 (507) 48 (150)</p> <p>116 (83) 1,134 (1,045) 125 (182)</p> <p>121 (112) 800 (1,488) 490 (647)</p> <p>307 (222) 527 (253) 211 (204)</p>	<p><b>11. Western Avenue/220th Street</b></p> <p>73 (18) 937 (1,547) 19 (33)</p> <p>39 (25) 82 (42) 112 (50)</p> <p>19 (60) 25 (104) 59 (173)</p> <p>124 (62) 1,444 (999) 33 (26)</p>	<p><b>12. Normandie Avenue/220th Street</b></p> <p>28 (38) 423 (828) 83 (61)</p> <p>109 (99) 82 (42) 49 (47)</p> <p>32 (21) 112 (66) 49 (56)</p> <p>29 (20) 908 (539) 126 (144)</p>
<p><b>13. Meyler Street/220th Street</b></p> <p>2 (10) 2 (12) 11 (37)</p> <p>26 (4) 155 (112) 65 (25)</p> <p>8 (6) 162 (265) 54 (35)</p> <p>102 (14) 12 (2) 73 (68)</p>	<p><b>14. Vermont Avenue/220th Street</b></p> <p>286 (72) 562 (1,002) 60 (23)</p> <p>40 (46) 29 (13) 18 (33)</p> <p>163 (267) 34 (14) 99 (187)</p> <p>227 (40) 1,108 (616) 43 (15)</p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p> <p>419 (563) 417 (648) 137 (80)</p> <p>95 (56) 221 (111) 93 (60)</p> <p>255 (259) 40 (101) 62 (117)</p> <p>520 (465) 691 (369) 155 (63)</p>

Figure 16  
Interim Plus 2023 Project Peak Hour Traffic Volumes





<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		

Figure 16  
Interim Plus 2023 Project Peak Hour Traffic Volumes



## EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE TRAFFIC CONDITIONS

Existing plus 2030 Project plus Cumulative peak hour traffic volumes were developed to determine the projected V/C ratio and LOS for the analyzed intersections within unincorporated Los Angeles County. Figure 17 and Table 9 summarize the levels of service. Poor operating conditions (LOS E or F) are projected at six of the 15 study intersections wholly or partly within Los Angeles County's jurisdiction during at least one of the analyzed peak hours, including:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
4. Normandie Avenue & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
19. Vermont Avenue & 223<sup>rd</sup> Street

## CUMULATIVE TRAFFIC CONDITIONS

Cumulative peak hour traffic volumes were developed with an areawide growth factor to determine the projected V/C ratio and LOS for the analyzed intersections within the Cities of Los Angeles, Carson and Torrance. Figure 18 and Table 10 summarize the levels of service. As indicated in Table 8, poor operating conditions (LOS E or F) are projected at 10 of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Normandie Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
10. Figueroa Street & Carson Street
11. Western Avenue & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
17. Normandie Avenue & 223<sup>rd</sup> Street

21. Figueroa Street & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

## CUMULATIVE PLUS 2030 PROJECT TRAFFIC CONDITIONS

Cumulative plus 2030 Project peak hour traffic volumes were developed to determine the projected V/C ratio and LOS for the analyzed intersections within the Cities of Los Angeles, Carson and Torrance. Figure 19 and Table 10 summarize the levels of service. Poor operating conditions (LOS E or F) are projected at 10 of the 11 study intersections during at least one of the analyzed peak hours, including:

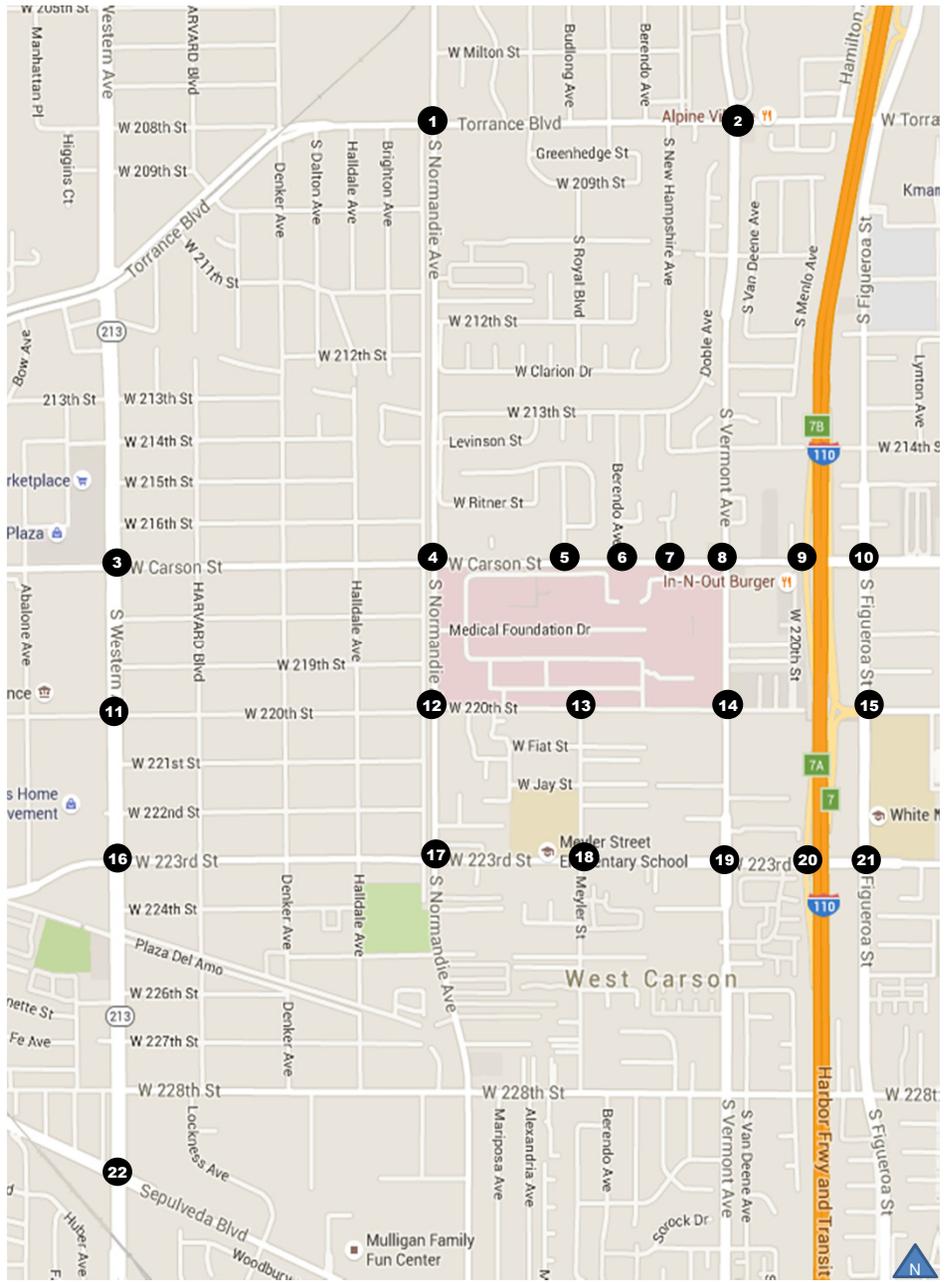
1. Normandie Avenue & Torrance Boulevard
3. Western Avenue & Carson Street
4. Normandie Avenue & Carson Street
10. Figueroa Street & Carson Street
11. Western Avenue & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
16. Western Avenue & 223<sup>rd</sup> Street
17. Normandie Avenue & 223<sup>rd</sup> Street
21. Figueroa Street & 223<sup>rd</sup> Street
22. Western Avenue & Sepulveda Boulevard

**TABLE 9  
EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE FOR UNINCORPORATED LOS ANGELES COUNTY  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing plus 2030 Project plus Cumulative		Total Increase in V/C	Cumulative Impact?
						V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.935	E	0.966	E	0.031	YES
					PM	0.936	E	1.000	E	0.064	YES
2	Vermont Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.927	E	0.972	E	0.045	YES
					PM	0.880	D	0.900	D	0.020	YES
4	Normandie Avenue	Carson Street	Los Angeles County	ICU	AM	0.904	E	0.967	E	0.063	YES
					PM	0.930	E	1.038	F	0.108	YES
5	Budlong Avenue	Carson Street	Los Angeles County	ICU	AM	0.570	A	0.669	B	0.099	NO
					PM	0.539	A	0.658	B	0.119	NO
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM	0.575	A	0.675	B	0.100	NO
					PM	0.561	A	0.755	C	0.194	YES
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM	0.632	B	0.755	C	0.123	YES
					PM	0.602	B	0.688	B	0.086	NO
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM	0.905	E	0.982	E	0.077	YES
					PM	0.893	D	1.034	F	0.141	YES
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM	0.814	D	0.941	E	0.127	YES
					PM	0.849	D	0.974	E	0.125	YES
12	Normandie Avenue	220th Street	Los Angeles County	ICU	AM	0.602	B	0.645	B	0.043	NO
					PM	0.481	A	0.530	A	0.049	NO
13	Meyler Street	220th Street	Los Angeles County	ICU	AM	0.382	A	0.473	A	0.091	NO
					PM	0.365	A	0.397	A	0.032	NO
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM	0.656	B	0.729	C	0.073	YES
					PM	0.714	C	0.834	D	0.120	YES
17	Normandie Avenue	223rd Street	Los Angeles County	ICU	AM	0.807	D	0.833	D	0.026	YES
					PM	0.822	D	0.844	D	0.022	YES
18	Meyler Street	223rd Street	Los Angeles County	ICU	AM	0.658	B	0.687	B	0.029	NO
					PM	0.581	A	0.613	B	0.032	NO
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM	0.917	E	0.983	E	0.066	YES
					PM	0.833	D	0.907	E	0.074	YES
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM	0.755	C	0.806	D	0.051	YES
					PM	0.843	D	0.895	D	0.052	YES

Note:

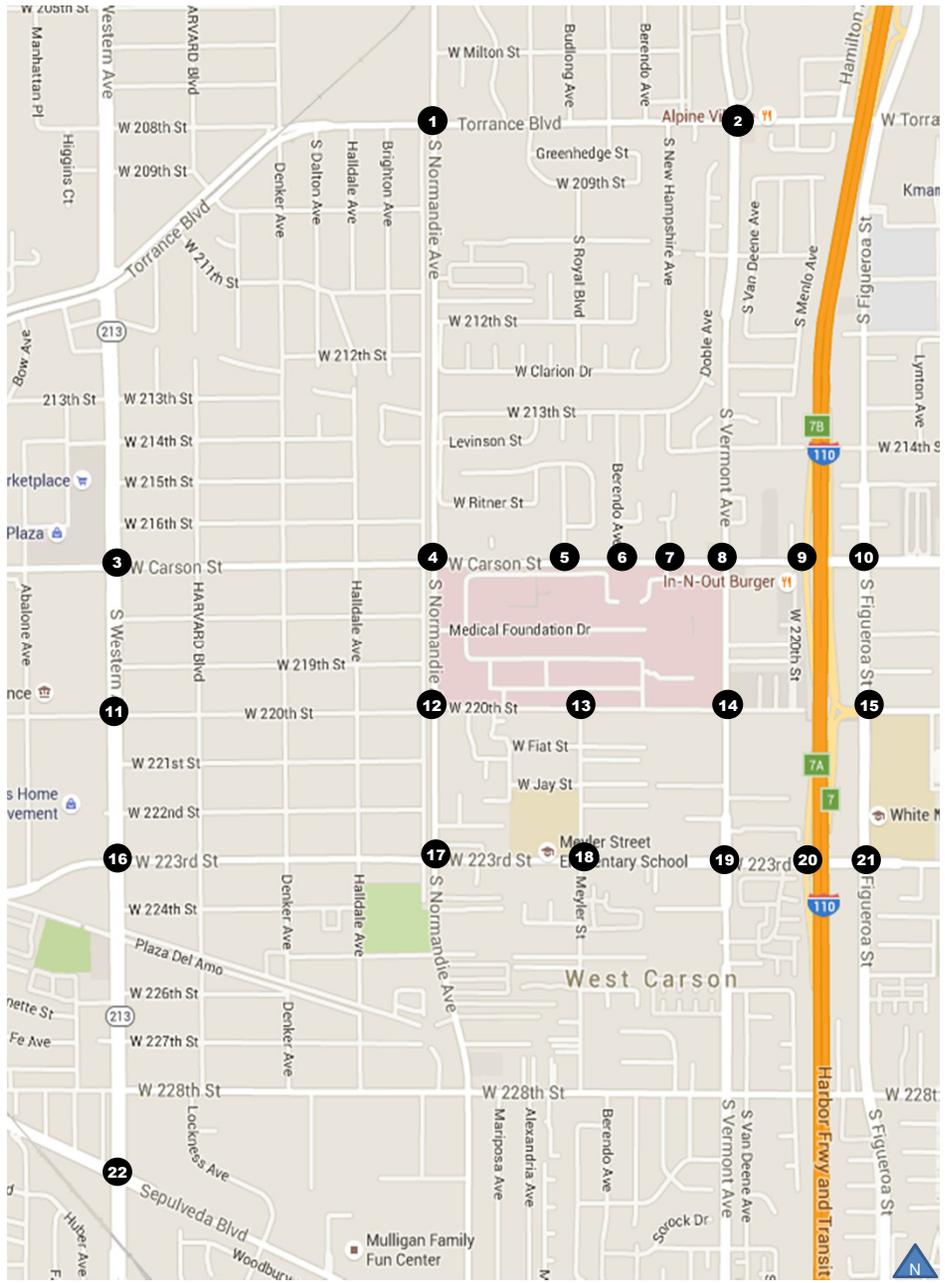
- [a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all-way stop-controlled.
- [b] Project results in the closure of the medical center driveway at Intersection 7.



<p><b>1. Normandie Avenue/Torrance Boulevard</b></p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p>	<p><b>3. Western Avenue/Carson Street</b></p>
<p><b>4. Normandie Avenue/Carson Street</b></p>	<p><b>5. Budlong Avenue/Carson Street</b></p>	<p><b>6. Berendo Avenue/Carson Street</b></p>
<p><b>7. Medical Center Drive/Carson Street</b></p>	<p><b>8. Vermont Avenue/Carson Street</b></p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p>
<p><b>10. Figueroa Street/Carson Street</b></p>	<p><b>11. Western Avenue/220th Street</b></p>	<p><b>12. Normandie Avenue/220th Street</b></p>
<p><b>13. Meyler Street/220th Street</b></p>	<p><b>14. Vermont Avenue/220th Street</b></p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p>

Figure 17  
Existing plus 2030 Project plus Cumulative Peak Hour Traffic Volumes





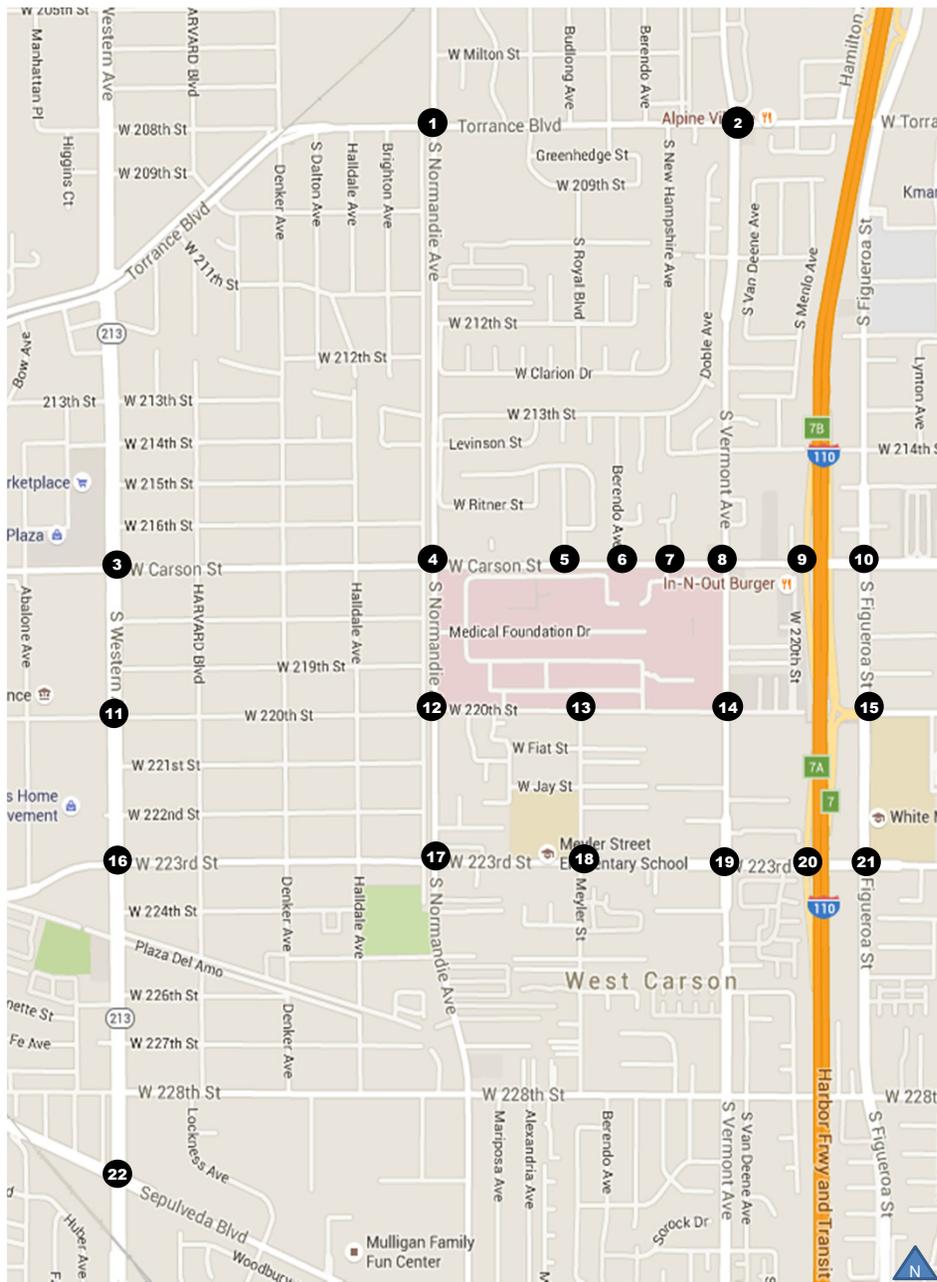
<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		

Figure 17  
Existing plus 2030 Project plus Cumulative Peak Hour Traffic Volumes



**TABLE 10  
CUMULATIVE PLUS 2030 PROJECT FOR INCORPORATED CITIES  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name	Jurisdiction	Analysis Methodology	Analyzed Period	Cumulative		Cumulative + 2030 Project		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	City of Los Angeles	CMA	AM	1.054	F	1.059	F	0.005	NO
					PM	1.090	F	1.098	F	0.008	NO
3	Western Avenue	Carson Street	City of Los Angeles	CMA	AM	1.076	F	1.081	F	0.005	NO
					PM	1.196	F	1.204	F	0.008	NO
			City of Torrance	ICU	AM	1.085	F	1.089	F	0.004	NO
					PM	1.188	F	1.194	F	0.006	NO
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM	0.910	E	0.933	E	0.023	YES
					PM	1.037	F	1.073	F	0.036	YES
10	Figueroa Street	Carson Street	City of Carson	ICU	AM	0.762	C	0.786	C	0.024	NO
					PM	0.957	E	0.974	E	0.017	NO
11	Western Avenue	220th Street	City of Los Angeles	CMA	AM	0.633	B	0.649	B	0.016	NO
					PM	0.793	C	0.794	C	0.001	NO
			City of Torrance	ICU	AM	0.760	C	0.775	C	0.015	NO
					PM	0.909	E	0.910	E	0.001	NO
12	Normandie Avenue	220th Street	City of Los Angeles	CMA	AM	0.470	A	0.519	A	0.049	NO
					PM	0.345	A	0.359	A	0.014	NO
15	Figueroa Street	220th Street/I-110 NB Ramps	City of Carson	ICU	AM	1.024	F	1.054	F	0.030	YES
					PM	1.006	F	1.121	F	0.115	YES
16	Western Avenue	223rd Street	City of Los Angeles	CMA	AM	0.935	E	0.936	E	0.001	NO
					PM	0.974	E	0.978	E	0.004	NO
			City of Torrance	ICU	AM	0.994	E	0.996	E	0.002	NO
					PM	1.029	F	1.034	F	0.005	NO
17	Normandie Avenue	223rd Street	City of Los Angeles	CMA	AM	0.713	C	0.724	C	0.011	NO
					PM	0.805	D	0.817	D	0.012	NO
21	Figueroa Street	223rd Street	City of Carson	ICU	AM	0.939	E	0.956	E	0.017	NO
					PM	0.820	D	0.831	D	0.011	NO
22	Western Avenue	Sepulveda Blvd	City of Los Angeles	CMA	AM	1.054	F	1.054	F	0.000	NO
					PM	1.122	F	1.124	F	0.002	NO
			City of Torrance	ICU	AM	1.067	F	1.067	F	0.000	NO
					PM	1.124	F	1.126	F	0.002	NO

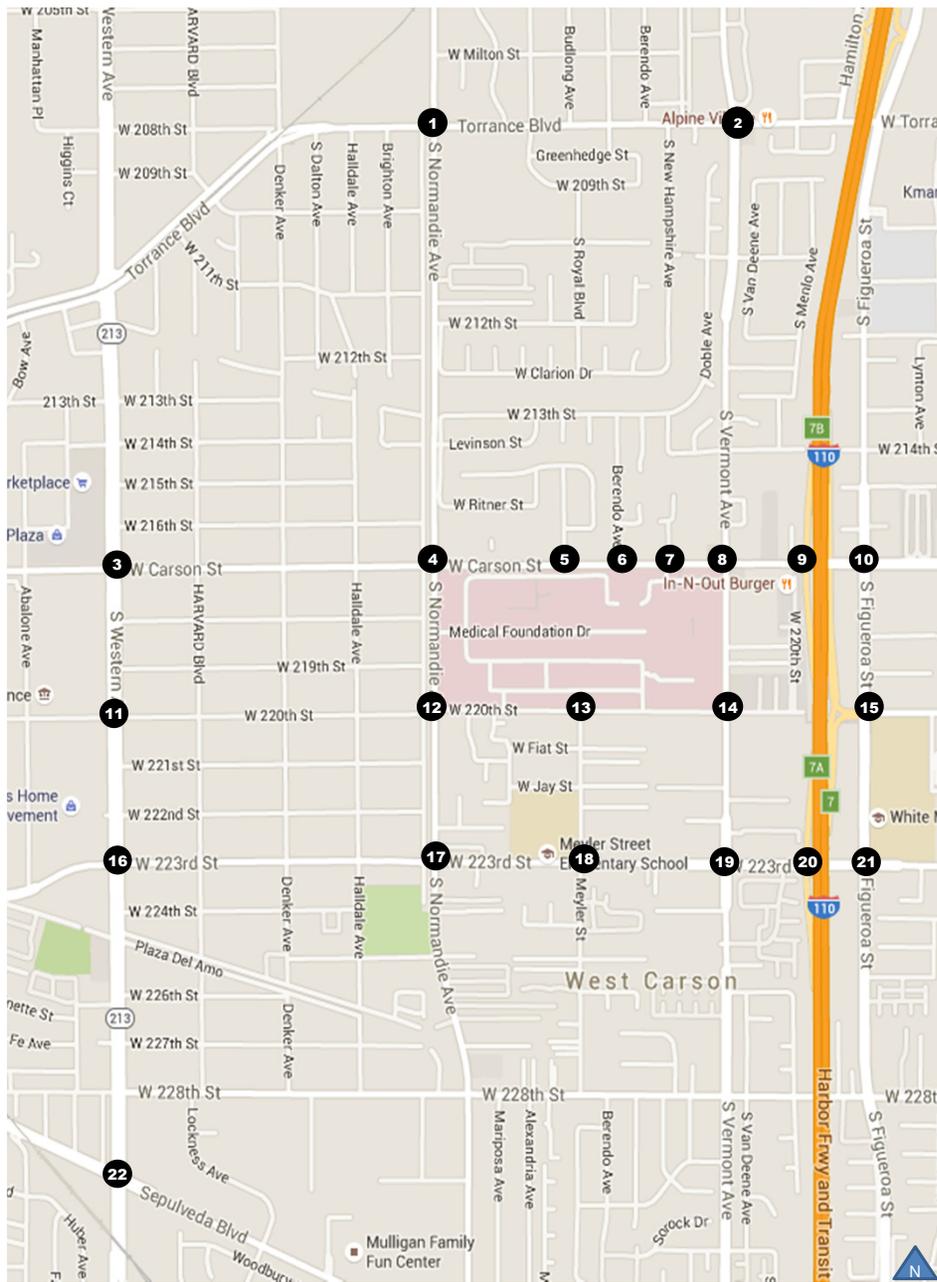


<b>1. Normandie Avenue/Torrance Boulevard</b> 	<b>2. Vermont Avenue/Torrance Boulevard</b> 	<b>3. Western Avenue/Carson Street</b> 
<b>4. Normandie Avenue/Carson Street</b> 	<b>5. Budlong Avenue/Carson Street</b> 	<b>6. Berendo Avenue/Carson Street</b> 
<b>7. Medical Center Drive/Carson Street</b> 	<b>8. Vermont Avenue/Carson Street</b> 	<b>9. I-110 SB Ramps/Carson Street</b> 
<b>10. Figueroa Street/Carson Street</b> 	<b>11. Western Avenue/220th Street</b> 	<b>12. Normandie Avenue/220th Street</b> 
<b>13. Meyler Street/220th Street</b> 	<b>14. Vermont Avenue/220th Street</b> 	<b>15. Figueroa Street/220th Street/I-110 NB Ramps</b> 

Figure 18  
Cumulative Peak Hour Traffic Volumes



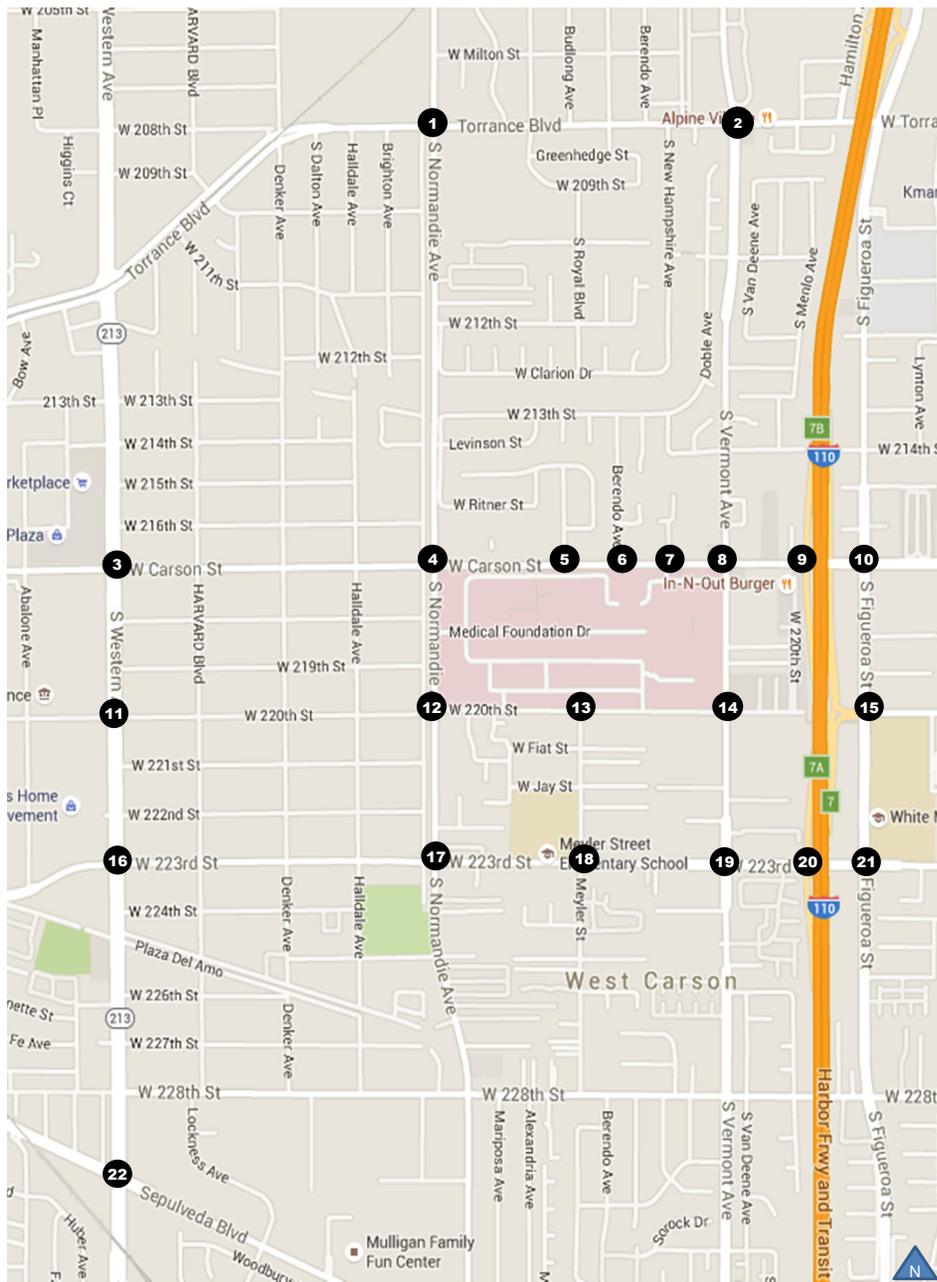




<p><b>1. Normandie Avenue/Torrance Boulevard</b></p> <p>116 (181) 494 (851) 36 (146)</p> <p>83 (48) 1,706 (1,209) 119 (66)</p> <p>115 (125) 1,104 (1,693) 102 (135)</p> <p>173 (110) 845 (657) 166 (170)</p>	<p><b>2. Vermont Avenue/Torrance Boulevard</b></p> <p>264 (378) 707 (1,007) 42 (126)</p> <p>125 (100) 1,476 (781) 104 (69)</p> <p>250 (315) 990 (1,437) 167 (110)</p> <p>137 (68) 931 (626) 204 (138)</p>	<p><b>3. Western Avenue/Carson Street</b></p> <p>150 (249) 813 (1,461) 106 (176)</p> <p>183 (177) 1,369 (1,249) 74 (79)</p> <p>66 (96) 959 (1,323) 122 (210)</p> <p>171 (175) 1,269 (921) 83 (150)</p>
<p><b>4. Normandie Avenue/Carson Street</b></p> <p>169 (195) 464 (606) 55 (109)</p> <p>86 (96) 1,442 (1,378) 202 (184)</p> <p>224 (228) 1,106 (1,529) 227 (190)</p> <p>242 (221) 752 (601) 94 (163)</p>	<p><b>5. Budlong Avenue/Carson Street</b></p> <p>38 (39) 19 (22)</p> <p>18 (30) 1,860 (1,680)</p> <p>17 (28) 1,311 (1,846)</p>	<p><b>6. Berendo Avenue/Carson Street</b></p> <p>40 (38) 1 (4) 15 (27)</p> <p>37 (51) 1,843 (1,653) 229 (66)</p> <p>19 (30) 1,233 (1,800) 54 (28)</p> <p>22 (20) 2 (2) 73 (204)</p>
<p><b>7. Medical Center Drive/Carson Street</b></p> <p>38 (19) 51 (13)</p> <p>11 (28) 2,089 (1,763)</p> <p>15 (27) 1,297 (1,978)</p>	<p><b>8. Vermont Avenue/Carson Street</b></p> <p>261 (210) 600 (862) 139 (306)</p> <p>148 (183) 1,633 (1,403) 344 (189)</p> <p>143 (152) 1,123 (1,752) 97 (141)</p> <p>191 (155) 939 (526) 261 (446)</p>	<p><b>9. I-110 SB Ramps/Carson Street</b></p> <p>722 (506) 157 (300)</p> <p>1,527 (1,321) 195 (200)</p> <p>1,346 (2,195) 153 (322)</p>
<p><b>10. Figueroa Street/Carson Street</b></p> <p>181 (186) 300 (535) 50 (157)</p> <p>121 (87) 1,212 (1,099) 131 (188)</p> <p>129 (130) 841 (1,583) 534 (773)</p> <p>337 (240) 555 (273) 220 (212)</p>	<p><b>11. Western Avenue/220th Street</b></p> <p>76 (19) 986 (1,627) 32 (41)</p> <p>44 (40) 87 (44) 118 (54)</p> <p>20 (63) 26 (109) 62 (182)</p> <p>130 (65) 1,519 (1,051) 36 (27)</p>	<p><b>12. Normandie Avenue/220th Street</b></p> <p>29 (41) 449 (869) 106 (92)</p> <p>118 (125) 89 (58) 52 (50)</p> <p>37 (23) 128 (75) 51 (59)</p> <p>30 (31) 986 (578) 134 (47)</p>
<p><b>13. Meyler Street/220th Street</b></p> <p>4 (23) 6 (32) 13 (47)</p> <p>35 (7) 168 (142) 71 (34)</p> <p>19 (11) 191 (287) 57 (37)</p> <p>108 (15) 30 (8) 82 (76)</p>	<p><b>14. Vermont Avenue/220th Street</b></p> <p>338 (91) 595 (1,082) 63 (25)</p> <p>42 (48) 30 (13) 19 (35)</p> <p>179 (320) 36 (15) 113 (244)</p> <p>279 (68) 1,189 (655) 45 (16)</p>	<p><b>15. Figueroa Street/220th Street/I-110 NB Ramps</b></p> <p>459 (683) 443 (681) 144 (84)</p> <p>100 (58) 233 (117) 98 (63)</p> <p>281 (278) 42 (107) 88 (132)</p> <p>563 (523) 727 (393) 163 (66)</p>

Figure 19  
Cumulative Plus Project Peak Hour Traffic Volumes





<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		

Figure 19  
Cumulative Plus Project Peak Hour Traffic Volumes



## 4. TRAFFIC IMPACT ANALYSIS

This section presents an analysis of the information in the previous chapter to determine the potential traffic impacts of the proposed project on the operating conditions of the surrounding street system. The traffic impact analysis compares the projected LOS at each study intersection under future plus project conditions to the future base conditions to estimate the incremental increase in the V/C ratio caused by the proposed project. This provides the information needed to assess the potential impact of the project using significance criteria established by local jurisdictions.

### SIGNIFICANT TRAFFIC IMPACT CRITERIA

The following chapter provides a description of the transportation performance measures and methodologies used for their calculation by each respective jurisdiction.

#### COUNTY OF LOS ANGELES

In accordance with Los Angeles County criteria defined in their Traffic Impact Analysis Report Guidelines<sup>6</sup>, an impact is considered to be significant if one of the following thresholds is exceeded:

LOS	Final V/C Ratio	Relative Baseline Increase in V/C
C	0.71 - 0.80	equal to or greater than 0.040
D	0.81 - 0.90	equal to or greater than 0.020
E or F	> 0.91	equal to or greater than 0.010

#### CITY OF CARSON

The City of Carson has created threshold criteria to determine whether the addition of project-generated trips results in a significant impact at a study intersection, and thus requires mitigation. The thresholds of significance have to satisfy the following two criteria:

- The addition of project-generated trips causes an intersection V/C ratio increase of 0.020 or more; and

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<sup>6</sup>Draft Traffic Impact Analysis Report Guidelines (Los Angeles County Department of Public Works, December 2013).

- Under future plus project conditions, the intersection is projected to operate at LOS E or F (represented by a V/C ratio of 0.901 or greater).

## CITY OF LOS ANGELES

The City of Los Angeles has established threshold criteria to determine significant traffic impacts of a project in its jurisdiction<sup>7</sup>. Under the LADOT guidelines, an intersection would be significantly impacted if it experienced an increase in V/C ratio equal to or greater than 0.04 for intersections operating at LOS C, equal to or greater than 0.02 for intersections operating at LOS D, and equal to or greater than 0.01 for intersections operating at LOS E or F after the addition of project traffic. Intersections operating at LOS A or B after the addition of the project traffic are not considered significantly impacted regardless of the increase in V/C ratio. The following summarizes the impact criteria:

LOS	Final V/C Ratio	Project-Related Increase in V/C
C	0.701 - 0.800	equal to or greater than 0.040
D	0.801 - 0.900	equal to or greater than 0.020
E or F	> 0.901	equal to or greater than 0.010

## CITY OF TORRANCE

The City of Torrance uses the following thresholds of significance to assess project impacts based on the ICU analysis methodology<sup>8</sup>:

- The project causes a change from LOS D or better to LOS E or F; or
- The project causes a change from LOS E to LOS F; or
- The project increases traffic at the intersection by 2% of capacity (ICU increase  $\geq$  0.020), causing or worsening LOS E or F (ICU > 0.901).

<sup>7</sup> *Traffic Study Policies and Procedures* (City of Los Angeles Department of Transportation, August 2014). [http://ladot.lacity.org/stellent/groups/departments/@ladot\\_contributor/documents/contributor\\_web\\_content/lacityp\\_029521.pdf](http://ladot.lacity.org/stellent/groups/departments/@ladot_contributor/documents/contributor_web_content/lacityp_029521.pdf)

<sup>8</sup> *Traffic Impact Analysis Report Torrance Transit Center* (LLG, 2013). [http://www.torranceca.gov/PDF/Attachment\\_5-Traffic\\_Impact\\_Analysis.pdf](http://www.torranceca.gov/PDF/Attachment_5-Traffic_Impact_Analysis.pdf)

## EXISTING PLUS PROJECT IMPACT ANALYSIS

The Existing plus Project volumes as estimated in the previous chapter were analyzed to determine potential operating conditions and traffic impacts with the addition of incremental project-generated traffic associated with the 2023 Project and 2030 Project scenarios of the Harbor-UCLA Medical Center Master Plan on the existing baseline conditions. Table 4 shows the results of the analysis with 2023 Project trips. After applying the aforementioned significant impact criteria, it was determined that the proposed project would result in significant impacts to the following four study intersections under Existing plus 2023 Project conditions:

8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
19. Vermont Avenue & 223<sup>rd</sup> Street

Table 5 shows the results of the analysis for Existing plus 2030 Project trips. When examining Existing plus 2030 Project conditions using the aforementioned significant impact criteria, significant impacts would result at the following nine intersections:

4. Normandie Avenue & Carson Street
7. Medical Center Drive & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
14. Vermont Avenue & 220<sup>th</sup> Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps
17. Normandie Avenue & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
20. I-110 Southbound Ramps & 223<sup>rd</sup> Street

Detailed level of service worksheets for all scenarios are provided in Appendix C.

## EXISTING PLUS 2023 PROJECT PLUS CUMULATIVE PROJECT IMPACT ANALYSIS

The Existing plus 2023 Project plus Cumulative peak hour traffic volumes were analyzed to determine the projected V/C ratio and LOS for each of the analyzed intersections. Table 7 summarizes the Existing plus 2023 Project plus Cumulative. As shown in Table 7, using the criteria for determination of significant impacts, the proposed project would create significant traffic impacts at the following eight analyzed intersections under Existing plus 2023 Project plus Cumulative conditions:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
4. Normandie Avenue & Carson Street
7. Medical Center Drive & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
19. Vermont Avenue & 223<sup>rd</sup> Street
20. I-110 Southbound Ramps & 223<sup>rd</sup> Street

## INTERIM PLUS 2023 PROJECT IMPACT ANALYSIS

The Interim peak hour traffic volumes were analyzed to determine the projected V/C ratio and LOS for each of the analyzed intersections during the projected operating conditions with the addition of the proposed project traffic. Table 8 summarizes the Interim and Interim plus 2023 Project LOS using the appropriate methodology as prescribed by the local city. As shown in Table 8, using the criteria for determination of significant impacts, the proposed project would create a significant traffic impacts at the following analyzed intersection under Interim plus 2023 Project conditions:

15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps

## EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE PROJECT IMPACT ANALYSIS

The Existing plus 2030 Project plus Cumulative peak hour traffic volumes were analyzed to determine the projected V/C ratio and LOS for each of the analyzed intersections. Table 9 summarizes the Existing plus 2030 Project plus Cumulative. As shown in Table 9, using the criteria for determination of significant impacts, the proposed project would create significant traffic impacts at the following 11 analyzed intersections under Existing plus 2030 Project plus Cumulative conditions:

1. Normandie Avenue & Torrance Boulevard
2. Vermont Avenue & Torrance Boulevard
4. Normandie Avenue & Carson Street
6. Berendo Avenue & Carson Street
7. Medical Center Drive & Carson Street
8. Vermont Avenue & Carson Street
9. I-110 Southbound Ramps & Carson Street
14. Vermont Avenue & 220<sup>th</sup> Street
17. Normandie Avenue & 223<sup>rd</sup> Street
19. Vermont Avenue & 223<sup>rd</sup> Street
20. I-110 Southbound Ramps & 223<sup>rd</sup> Street

## CUMULATIVE PLUS 2030 PROJECT IMPACT ANALYSIS

The Cumulative peak hour traffic volumes were analyzed to determine the projected V/C ratio and LOS for each of the analyzed intersections during the projected operating conditions with the addition of the proposed project traffic. Table 10 summarizes the Cumulative and Cumulative plus 2030 Project LOS using the appropriate methodology as prescribed by the local city. As shown in Table 10, using the criteria for determination of significant impacts, the proposed project would create significant traffic impacts at the following two analyzed intersections under Cumulative plus 2030 Project conditions:

4. Normandie Avenue & Carson Street
15. Figueroa Street and 220<sup>th</sup> Street/I-110 Northbound Ramps



## SUMMARY OF PROJECT IMPACT ANALYSIS

Table 11 depicts the impacts at all intersections within unincorporated Los Angeles County using the impact criteria from Los Angeles County. Table 12 depicts the impacts at all intersections within the jurisdictions of incorporated cities (City of Los Angeles, City of Torrance, and City of Carson) using the impact criteria from the relevant city. Impacts were found at 12 of the 22 study intersections during either the AM or PM peak hour analysis period of at least one scenario.

**TABLE 11  
SIGNIFICANT IMPACTS AT UNINCORPORATED LOS ANGELES COUNTY INTERSECTIONS**

<b>ID</b>	<b>Intersection</b>	<b>Period</b>	<b>Existing + 2023 Project</b>	<b>Existing plus 2023 Project plus Cumulative</b>	<b>Existing + 2030 Project</b>	<b>Existing plus 2030 Project plus Cumulative</b>
1	Normandie Avenue & Torrance Boulevard	AM	NO	<b>YES</b>	NO	<b>YES</b>
		PM	NO	<b>YES</b>	NO	<b>YES</b>
2	Vermont Avenue & Torrance Boulevard	AM	NO	<b>YES</b>	NO	<b>YES</b>
		PM	NO	NO	NO	<b>YES</b>
4	Normandie Avenue & Carson Street	AM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>
		PM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>
5	Budlong Avenue & Carson Street	AM	NO	NO	NO	NO
		PM	NO	NO	NO	NO
6	Berendo Avenue & Carson Street	AM	NO	NO	NO	NO
		PM	NO	NO	NO	<b>YES</b>
7	Medical Center Drive & Carson Street	AM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>
		PM	NO	NO	NO	NO
8	Vermont Avenue & Carson Street	AM	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
		PM	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
9	I-110 SB Ramps & Carson Street	AM	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
		PM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>
12	Normandie Avenue & 220th Street	AM	NO	NO	NO	NO
		PM	NO	NO	NO	NO
13	Meyler Street & 220th Street	AM	NO	NO	NO	NO
		PM	NO	NO	NO	NO
14	Vermont Avenue & 220th Street	AM	NO	NO	<b>YES</b>	<b>YES</b>
		PM	NO	NO	<b>YES</b>	<b>YES</b>
17	Normandie Avenue & 223rd Street	AM	NO	NO	<b>YES</b>	<b>YES</b>
		PM	NO	NO	NO	<b>YES</b>
18	Meyler Street & 223rd Street	AM	NO	NO	NO	NO
		PM	NO	NO	NO	NO
19	Vermont Avenue & 223rd Street	AM	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
		PM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>
20	I-110 SB Ramps & 223rd Street	AM	NO	NO	<b>YES</b>	<b>YES</b>
		PM	NO	<b>YES</b>	<b>YES</b>	<b>YES</b>

**TABLE 12  
SIGNIFICANT IMPACTS AT INCORPORATED CITY INTERSECTIONS**

<b>ID</b>	<b>Intersection</b>	<b>Jurisdiction</b>	<b>Period</b>	<b>Existing + 2023 Project</b>	<b>Interim + 2023 Project</b>	<b>Existing + 2030 Project</b>	<b>Cumulative + 2030 Project</b>
1	Normandie Avenue & Torrance Boulevard	City of Los Angeles	AM PM	NO NO	NO NO	NO NO	NO NO
3	Western Avenue & Carson Street	City of Los Angeles & City of Torrance	AM PM	NO NO	NO NO	NO NO	NO NO
4	Normandie Avenue & Carson Street	City of Los Angeles	AM PM	NO NO	NO NO	NO YES	YES YES
10	Figueroa Street & Carson Street	City of Carson	AM PM	NO NO	NO NO	NO NO	NO NO
11	Western Avenue & 220th Street	City of Los Angeles & City of Torrance	AM PM	NO NO	NO NO	NO NO	NO NO
12	Normandie Avenue & 220th Street	City of Los Angeles	AM PM	NO NO	NO NO	NO NO	NO NO
15	Figueroa Street & 220th Street/I-110 NB Ramps	City of Carson	AM PM	NO YES	NO YES	YES YES	YES YES
16	Western Avenue & 223rd Street	City of Los Angeles & City of Torrance	AM PM	NO NO	NO NO	NO NO	NO NO
17	Normandie Avenue & 223rd Street	City of Los Angeles	AM PM	NO NO	NO NO	NO NO	NO NO
21	Figueroa Street & 223rd Street	City of Carson	AM PM	NO NO	NO NO	NO NO	NO NO
22	Western Avenue & Sepulveda Blvd	City of Los Angeles & City of Torrance	AM PM	NO NO	NO NO	NO NO	NO NO

## MITIGATION MEASURES

The traffic impact analysis determined that the proposed development would generate significant traffic impacts at 12 of the analyzed intersections under future plus project conditions. Tables 13 and 14 summarize mitigation measures at intersections with significant impacts using Los Angeles County's impact criteria at intersections located within unincorporated Los Angeles County. Tables 15 and 16 summarize mitigation measures at intersections with significant impacts located in incorporated cities using the impact criteria from the respective city. As part of the mitigation process, local planning documents were reviewed from the County and adjacent jurisdictions, including the County's *Bicycle Master Plan*<sup>9</sup>, Los Angeles County Municipal Code Guidance on Right-of-Way and Roadway Width Requirements<sup>10</sup>, City of Carson General Plan<sup>11</sup> and the City of Los Angeles' *Mobility Plan 2035*<sup>12</sup>. Preliminary concepts from the *West Carson Transit Oriented Development Specific Plan* were also considered. The following is a summary of proposed mitigations.

### NORMANDIE AVENUE & TORRANCE BOULEVARD

The proposed project would result in a significant impact at the intersection of Normandie Avenue & Torrance Boulevard (Intersection #1) in the Existing plus 2023 Project plus Cumulative and Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as the addition of separate right-turn lanes at the eastbound or westbound approaches, but were deemed infeasible due to insufficient street right-of-way. Thus, this impact would remain significant and unavoidable.

### VERMONT AVENUE & TORRANCE BOULEVARD

The proposed project would result in a significant impact at the intersection of Vermont Avenue & Torrance Boulevard (Intersection #2) in the Existing plus 2023 Project plus Cumulative and Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as additional northbound or southbound through lanes, but were deemed infeasible due to insufficient street right-of-way. Thus, this impact would remain significant and unavoidable.

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<sup>9</sup> *Bicycle Master Plan* (County of Los Angeles, 2012); <http://dpw.lacounty.gov/pdd/bike/masterplan.cfm>

<sup>10</sup> Los Angeles County Municipal Code (Los Angeles County, updated 2016)

<sup>11</sup> Carson General Plan; <http://ci.carson.ca.us/departments/communitydevelopment/generalplan.asp>

<sup>12</sup> *Mobility Plan 2035* (City of Los Angeles, 2015); <https://la2b.org/participate-2/documents/>

**TABLE 13  
EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE WITH MITIGATION FOR UNINCORPORATED LOS ANGELES COUNTY  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing+ 2030 Project		Total Increase in V/C	Project Impact?	E+P plus Mitigation		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS			V/C or Delay	LOS		
4	Normandie Avenue	Carson Street	Los Angeles County	ICU	AM	0.904	E	0.925	E	0.021	YES	<b>No Feasible Mitigation</b>			
					PM	0.93	E	0.962	E	0.032	YES				
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM	0.575	A	0.642	B	0.067	NO	<b>No Feasible Mitigation</b>			
					PM	0.561	A	0.688	B	0.127	NO				
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM	0.632	B	0.721	C	0.089	YES	<b>No Feasible Mitigation</b>			
					PM	0.602	B	0.621	B	0.019	NO				
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM	0.905	E	0.946	E	0.041	YES	<b>No Feasible Mitigation</b>			
					PM	0.893	D	0.962	E	0.069	YES				
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM	0.814	D	0.907	E	0.093	YES	0.745	C	-0.069	NO
					PM	0.849	D	0.916	E	0.067	YES	0.862	F	0.013	NO
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM	0.656	B	0.720	C	0.064	YES	<b>No Feasible Mitigation</b>			
					PM	0.714	C	0.827	D	0.113	YES				
17	Normandie Avenue	223rd Street	Los Angeles County	ICU	AM	0.807	D	0.828	D	0.021	YES	<b>No Feasible Mitigation</b>			
					PM	0.822	D	0.834	D	0.012	NO				
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM	0.917	E	0.975	E	0.058	YES	<b>No Feasible Mitigation</b>			
					PM	0.833	D	0.886	D	0.053	YES				
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM	0.755	C	0.796	C	0.041	YES	0.713	C	-0.042	NO
					PM	0.843	D	0.873	D	0.03	YES	0.779	E	-0.064	NO

Note:

[a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all-way stop-controlled.

**TABLE 14  
EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE WITH MITIGATION FOR UNINCORPORATED LOS ANGELES COUNTY  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name [a]	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing plus 2030 Project plus Cumulative		Total Increase in V/C	Cumulative Impact?	E+P+C plus Mitigation		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS			V/C or Delay	LOS		
1	Normandie Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.935	E	0.966	E	0.031	YES	<b>No Feasible Mitigation</b>			
					PM	0.936	E	1.000	E	0.064	YES				
2	Vermont Avenue	Torrance Boulevard	Los Angeles County	ICU	AM	0.927	E	0.972	E	0.045	YES	<b>No Feasible Mitigation</b>			
					PM	0.88	D	0.900	D	0.020	YES				
4	Normandie Avenue	Carson Street	Los Angeles County	ICU	AM	0.904	E	0.967	E	0.063	YES	<b>No Feasible Mitigation</b>			
					PM	0.93	E	1.038	F	0.108	YES				
6	Berendo Avenue	Carson Street	Los Angeles County	ICU	AM	0.575	A	0.675	B	0.100	NO	<b>No Feasible Mitigation</b>			
					PM	0.561	A	0.755	C	0.194	YES				
7	Medical Center Drive	Carson Street	Los Angeles County	ICU	AM	0.632	B	0.755	C	0.123	YES	<b>No Feasible Mitigation</b>			
					PM	0.602	B	0.688	B	0.086	NO				
8	Vermont Avenue	Carson Street	Los Angeles County	ICU	AM	0.905	E	0.982	E	0.077	YES	<b>No Feasible Mitigation</b>			
					PM	0.893	D	1.034	F	0.141	YES				
9	I-110 SB Ramps	Carson Street	Los Angeles County	ICU	AM	0.814	D	0.941	E	0.127	YES	0.780	C	-0.034	NO
					PM	0.849	D	0.974	E	0.125	YES	0.915	E	0.066	YES
14	Vermont Avenue	220th Street	Los Angeles County	ICU	AM	0.656	B	0.729	C	0.073	YES	<b>No Feasible Mitigation</b>			
					PM	0.714	C	0.834	D	0.12	YES				
17	Normandie Avenue	223rd Street	Los Angeles County	ICU	AM	0.807	D	0.833	D	0.026	YES	<b>No Feasible Mitigation</b>			
					PM	0.822	D	0.844	D	0.022	YES				
19	Vermont Avenue	223rd Street	Los Angeles County	ICU	AM	0.917	E	0.983	E	0.066	YES	<b>No Feasible Mitigation</b>			
					PM	0.833	D	0.907	E	0.074	YES				
20	I-110 SB Ramps	223rd Street	Los Angeles County	ICU	AM	0.755	C	0.806	D	0.051	YES	0.719	C	-0.036	NO
					PM	0.843	D	0.895	D	0.052	YES	0.797	C	-0.046	NO

Note:

[a] All Intersections are signalized except for #13, Meyler Street and 220th Street, which is all-way stop-controlled.

[b]

**TABLE 15  
EXISTING PLUS 2030 PROJECT WITH MITIGATION FOR INCORPORATED CITIES  
INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name	Jurisdiction	Analysis Methodology	Analyzed Period	Existing		Existing+Project [a]		Project Increase In V/C	Significant Impact?	C+P plus Mitigation		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS			V/C or Delay	LOS		
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM	0.763	C	0.785	C	0.022	NO	<b>No Feasible Mitigation</b>			
					PM	0.837	D	0.872	D	0.035	YES				
15	Figueroa Street	220th Street/1-110 NB Ramps	City of Carson	ICU	AM	0.913	E	0.942	E	0.029	YES	0.907	E	-0.006	NO
					PM	0.886	D	1.000	E	0.114	YES	0.881	D	-0.005	NO

Note:

[a] Project trips are for full build out scenario.

**TABLE 16  
 CUMULATIVE PLUS 2030 PROJECT WITH MITIGATION FOR INCORPORATED CITIES  
 INTERSECTION LEVEL OF SERVICE ANALYSIS**

ID	N/S Street Name	E/W Street Name	Jurisdiction	Analysis Methodology	Analyzed Period	Cumulative (2030)		Cumulative (2030)+Project		Project Increase In V/C	Significant Impact?	C+P plus Mitigation		Project Increase In V/C	Significant Impact?
						V/C or Delay	LOS	V/C or Delay	LOS			V/C or Delay	LOS		
4	Normandie Avenue	Carson Street	City of Los Angeles	CMA	AM	0.910	E	0.933	E	0.023	YES	<b>No Feasible Mitigation</b>			
					PM	1.037	F	1.073	F	0.036	YES				
15	Figueroa Street	220th Street/1-110 NB Ramps	City of Carson	ICU	AM	1.024	F	1.054	F	0.030	YES	1.017	F	-0.007	NO
					PM	1.006	F	1.121	F	0.115	YES	0.998	E	-0.008	NO

## NORMANDIE AVENUE & CARSON STREET

The proposed project would result in a significant impact at the intersection of Normandie Avenue & Carson Street (Intersection #4) in the Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative, Cumulative plus 2030 Project scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

## BERENDO AVENUE & CARSON STREET

The proposed project would result in a significant impact at the intersection of Berendo Avenue & Carson Street (Intersection #6) in the Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

## MEDICAL CENTER DRIVE & CARSON STREET

The proposed project would result in a significant impact at the intersection of Medical Center Drive & Carson Street (Intersection #7) in the Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

## VERMONT AVENUE & CARSON STREET

The proposed project would result in a significant impact at the intersection of Vermont Avenue & Carson Street (Intersection #8) in the Existing plus 2023 Project, Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

## I-110 SOUTHBOUND RAMPS & CARSON STREET

The proposed project would result in a significant impact at the intersection of Interstate 110 Southbound Ramps & Carson Street (Intersection #9) in the Existing plus 2023 Project, Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios. This improvement would require coordination with and approval by Caltrans. Because implementation of this improvement is not entirely within the control of the lead agency, and because the improvement would not fully mitigate the identified impacts in all scenarios, this impact would be considered significant and unavoidable.

### **Proposed Mitigation**

The mitigation would involve restriping the southbound approach on the Interstate I-110 off-ramp to convert the left-turn lane to a left-/right-turn lane. As shown in Tables 13 and 14, the implementation of this mitigation measure would reduce the project-related impact to a less than significant level and would reduce the cumulative impact to a less than significant level in the AM peak hour. The impact during the PM peak hour would also be reduced, but not below a significant level.

## VERMONT AVENUE & 220<sup>TH</sup> STREET

The proposed project would result in a significant impact at the intersection of Vermont Avenue & 220<sup>th</sup> Street (Intersection #14) in the Existing plus 2023 Project, Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as

reconfiguring the eastbound approaches to provide a dedicated left turn-lane but were deemed to conflict with the Los Angeles County *Transit Oriented Districts Access Study*. The study calls for curb extensions at all four crossings to shorten the pedestrian crossing distance. The intersection approaches do not have sufficient space to accommodate both curb extensions and additional lanes. Thus, this impact would remain significant and unavoidable.

## 220<sup>TH</sup> STREET/I-110 NORTHBOUND RAMPS & FIGUEROA STREET

The proposed project would result in a significant impact at the intersection of 220<sup>th</sup> Street/I-110 Northbound Ramps & Figueroa Street (Intersection #15) in the Existing plus 2023 Project, Existing plus 2030 Project, Interim plus 2023 Project, Cumulative plus 2030 Project scenarios using its current lane configuration.

### **Proposed Mitigation**

As stated in the Transportation and Infrastructure Element of the Carson General Plan, Figueroa Street between 223<sup>rd</sup> Street and Carson Street is planned to be widened to three lanes in each direction. The mitigation would involve striping an additional northbound through lane and restriping of the existing through lane as a through/right-turn lane. The eastbound approach would be restriped from the existing through/left-turn lane and right to a left-turn lane and through/right-turn lane. This improvement would require coordination with and approval by Caltrans and the City of Carson.

As shown in Tables 15 and 16, the implementation of this mitigation measure would reduce the project-related impact and cumulative impact at this intersection to a less than significant level. Because implementation of this improvement is not entirely within the control of the lead agency, this impact would be considered significant and unavoidable.

A mitigation involving modifying the existing raised median and restriping the northbound approach to accommodate a second left-turn lane was also considered. However, this mitigation was deemed to be inconsistent with the existing on-ramp configuration, which provides one general lane and one HOV lane.

## NORMANDIE AVENUE & 223<sup>RD</sup> STREET

The proposed project would result in a significant impact at the intersection of Normandie Avenue & 223<sup>rd</sup> Street (Intersection #17) in the Existing plus 2030 Project and Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to

provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

### VERMONT AVENUE & 223<sup>RD</sup> STREET

The proposed project would result in a significant impact at the intersection of Vermont Avenue & 223<sup>rd</sup> Street (Intersection #19) in the Existing plus 2023 Project, Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration. Intersection improvements to increase the capacity and/or efficiency of the roadway system and to reduce impacts at this intersection to a level below significance were investigated, such as reconfiguring the eastbound and westbound approaches to provide an additional through lane, but were deemed to conflict with preliminary concepts from the *West Carson Transit Oriented Development Specific Plan*. Preliminary concepts call for the addition of bike lanes in each direction. The street does not have sufficient right-of-way to accommodate both new bike lanes and an additional through lanes. Thus, this impact would remain significant and unavoidable.

### I-110 SOUTHBOUND RAMPS & 223<sup>RD</sup> STREET

The proposed project would result in a significant impact at the intersection of Interstate 110 Southbound Ramps & 223<sup>rd</sup> Street (Intersection #20) in the Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative, Existing plus 2030 Project plus Cumulative scenarios using its current lane configuration.

#### **Proposed Mitigation**

The mitigation would involve restriping the eastbound and southbound approaches. The southbound approach would be modified from the existing left-turn/through and right-turn/through lanes to a right-turn lane and left-turn/through/right-turn lane. The eastbound approach would be restriped to change the existing right-turn lane to a through/right-turn lane. Under this mitigation, parking would be removed on 223<sup>rd</sup> between the Interstate I-110 bridge and Figueroa Street and converted to a dedicated right-turn lane. This improvement would require coordination with and approval by Caltrans.

As shown in Tables 13 and 14, the implementation of this mitigation measure would reduce the project-related impact at this intersection to a less than significant level. Because implementation of this improvement is not entirely within the control of the lead agency, this impact would be considered significant and unavoidable.

## EFFECTIVENESS OF PROPOSED MITIGATION MEASURES

A detailed summary of the mitigation measure effectiveness is presented in Tables 13, 14, 15 and 16. The tables identify intersection impacts according to the relevant designated impact criteria and indicate whether each impact can be mitigated.

Implementation of the mitigation measures for the proposed project would be required at the time that the project is implemented.

## MITIGATION FUNDING

Fair-share calculations for developer contributions were made for the intersections impacted by project generated traffic where mitigations have been proposed. The calculations were developed by calculating the increase in projected traffic volumes from the existing condition to the cumulative plus project condition; the increase establishes the total amount of projected growth at each location. Next, the project only volumes are divided by the total volume increase at each impacted intersection. This step determines the amount of traffic the project is contributing to the intersection and the approximate proportional contribution towards funding the proposed mitigation measure. The fair share calculations were performed for both the AM and PM peak hours and are shown in Table 17.

**TABLE 17  
FAIR SHARE INTERSECTION TRAFFIC CONTRIBUTION**

ID	Intersection	A.M. Peak Hour					P.M. Peak Hour					Fair Share Contribution
		Existing Traffic	2030 Projected Traffic [a]	Project Only Traffic	Total New Traffic	Project % of New Traffic	Existing Traffic	2030 Projected Traffic [a]	Project Only Traffic	Total New Traffic	Project % of New Traffic	
9	I-110 SB Ramps & Carson Street	3,260	3,699	228	439	51.9%	3,686	4,391	277	705	39.3%	51.9%
15	Figueroa Street & 220th Street/I-110 NB Ramps	2,806	3,331	101	525	19.2%	2,490	3,175	213	685	31.1%	31.1%
20	I-110 SB Ramps & 223rd Street	2,915	3,125	159	210	75.7%	3,167	3,430	168	263	63.9%	75.7%

[a] Intersections within County of Los Angeles jurisdiction include 2030 traffic projections without an areawide growth rate. Intersections wholly outside of County of Los Angeles jurisdiction include 2030 projected traffic with an areawide growth rate.

## TRANSPORTATION DEMAND MANAGEMENT

The existing Harbor-UCLA Medical Center, like other large employment sites, maintains a program of employee travel behavior monitoring and incentives to reduce single-occupant vehicle commute trips. Collectively known as Travel Demand Management (TDM), these programs aim to reduce traffic congestion and the impacts associated with heavy traffic by providing incentives and other measures to encourage alternative travel arrangements between work and home. Among the measures now in place at the site are:

- Transit information center
- Rideshare matching services
- Guaranteed ride home/Guaranteed return trip
- Commuter choice program
- Bi-monthly newsletters, flyers or announcements to employees
- New hire orientation and periodic events
- Compressed work week and flex time schedules
- Off-peak rideshare program
- Bicycle racks, lockers and showers
- Telecommuting
- Vanpool program
- Preferential parking for those who rideshare
- Expanding the current menu of incentives and disincentives could reduce vehicle trips during the peak hours and thus reduce the severity of the impacts identified. The County-owned medical facility is somewhat different from many other land uses in that it operates on a 24-hour schedule and employees have shifts that begin and end throughout the day, including many that are outside of the typical peak periods when transit service is most extensive. Because the effectiveness of these measures cannot be guaranteed, however, TDM cannot reduce impacts below the significant and unavoidable threshold. Among the additional TDM measures that could be considered for implementation as development of the master plan project proceeds are:
  - Parking pricing
  - Transit pass subsidy
  - On-site sales of transit passes and tokens
  - Direct financial awards for ridesharing

## DRIVEWAY QUEUEING ANALYSIS

A queueing analysis was conducted to assess the adequacy of the available storage space for westbound left-turns approaching the proposed new driveway on Carson Street west of Budlong Avenue. Figure 2 and Figure 7 show the approximate location of the driveway. Existing eastbound left-turn volumes from Carson Street onto Budlong Avenue are approximately 25 vehicles in the AM peak hour and 15 vehicles in the PM peak hour. The proposed westbound left-turn lane could occupy space now occupied by a center two-way left-turn lane and by the transitional taper to the existing eastbound left-turn lane onto Budlong Street, which could be shortened to accommodate projected westbound left vehicles at the project driveway. Exact location of the driveway will be determined in consultation with Los Angeles County staff. For the analysis, a protected/permitted phase was assumed for westbound left vehicles at the driveway.

The Synchro traffic analysis software was used to implement the HCM methodology to calculate the 95th percentile queues and compare them with the available vehicle storage for westbound left turns into the project site. Traffic signal-related information such as phasing and timing plans (minimum green, maximum green, etc.) were developed for each scenario in Synchro and informed by volumes for each scenario and existing signal timing information for other intersections on Carson Street in this area.

Table 18 presents a summary of the queuing analysis for Existing plus 2030 Project and Cumulative plus 2030 Project conditions at build-out for the AM and PM peak hours. The longest westbound 95<sup>th</sup> percentile queue is estimated to be six vehicles, requiring approximately 150 feet of storage. Providing a westbound left-turn lane of sufficient length would require shortening the eastbound left-turn lane onto Budlong Avenue, which appears feasible due to the modest left-turn volumes that it serves. Detailed queue calculations are provided in Appendix D.

**TABLE 18**  
**PEAK HOUR WESTBOUND LEFT TURN 95TH PERCENTILE QUEUES**  
**AT PROPOSED NEW CARSON STREET DRIVEWAY**

	Analyzed Period	WBL Queue (ft)	WBL Queue (vehicles) [a]
Existing + Project	AM	119	5
	PM	45	2
Cumulative Without Ambient + Project	AM	133	6
	PM	72	3

[a] Each car is assumed to use 25 feet when in queue.

## 5. REGIONAL TRANSPORTATION IMPACT ANALYSIS

This chapter presents an analysis of potential project impacts on the regional transportation system in terms of vehicular and transit service impacts. This analysis was conducted in accordance with the transportation impact analysis (TIA) procedures outlined in *2010 Congestion Management Program for Los Angeles County* (Los Angeles County Metropolitan Transportation Authority, October 2010). The Congestion Management Program (CMP) requires that, when an environmental impact report (EIR) is prepared for a project, traffic and transit impact analyses be conducted for select regional facilities based on the quantity of project traffic expected to use these facilities.

In addition, after extensive coordination with Caltrans, further analyses of state facilities were conducted to determine the potential project impacts. An analysis was conducted for freeway mainline segments, freeway ramp queueing and a signalized intersection involving Caltrans-controlled facilities.

### REGIONAL TRAFFIC IMPACT ANALYSIS

#### CRITERIA FOR ANALYSIS

The CMP guidelines state that the first issue addressed be the determination of the geographic scope of the study area. The criteria for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the proposed project will add 50 or more trips during either the AM or PM weekday peak hours of adjacent street traffic.
- All CMP mainline freeway monitoring locations where the proposed project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

The CMP traffic impact analysis guidelines establish that a significant project impact occurs when the proposed project increases traffic demand on a CMP facility by 2% or more of capacity (V/C 0.02), causing or worsening LOS F (V/C > 1.00).

## ARTERIAL MONITORING STATION ANALYSIS

The CMP arterial monitoring stations nearest to the project study area are:

- Western Avenue & Carson Street (City of Torrance)
- Western Avenue & 190<sup>th</sup> Street (City of Torrance)
- Western Avenue & Sepulveda Boulevard (City of Torrance)
- Pacific Coast Highway & Western Avenue (City of Los Angeles)
- Pacific Coast Highway & Figueroa Street (City of Los Angeles)
- Artesia Boulevard & Vermont Avenue (City of Gardena)

Based on the project trip generation estimates and a review of the net project-generated AM and PM peak hour traffic volumes shown in Figures 8 and 9, the proposed project would add 50 or more vehicle trips through one of the CMP arterial monitoring stations, Western Avenue & Carson Street. Fewer than 50 trips will be added to all other arterial monitoring stations during the AM or PM analysis periods. Therefore, no further analysis of is required for the CMP arterial intersections with the exception of Western Avenue & Carson Street. Per CMP Impact Analysis guidelines, intersection LOS calculations can be completed using either ICU or CMA methodology. Table 10 depicts the results of both CMA and ICU methodologies for Western Avenue & Carson Street in the Full Buildout plus Project scenario. Because the incremental change in V/C at this location would not increase by 2%, CMP arterial intersection impacts are considered to be less than significant for the project. Because no impact would occur under the longest-term Cumulative plus 2030 Project scenario, it is concluded that no impact would occur under the any other scenarios.

## FREEWAY MAINLINE MONITORING STATION ANALYSIS

This section presents an analysis of potential project impacts on the regional transportation system. This analysis was conducted in accordance with the transportation impact analysis procedures outlined in the CMP. The nearest CMP mainline freeway monitoring locations nearest to the project site are:

- I-110 at Wilmington, south of "C" Street (Station 1045)
- I-110 at Manchester Boulevard (Station 1046)
- I-405 at Santa Fe Avenue (Station 1066)
- I-405 south of I-110 (Station 1067)

- I-405 north of Inglewood Avenue (Station 1068)
- SR 91 east of Alameda Street/Santa Fe Avenue (Station 1033)

Results are depicted in Table 19 and Table 20 for the AM and PM peak hours, respectively, under Existing, Cumulative and Cumulative plus 2030 Project conditions. The project does not add more than 150 trips at any station location, and the V/C does not increase by 2% or more. Therefore, CMP freeway impacts are considered to be less than significant.

## REGIONAL TRANSIT IMPACT ANALYSIS

Potential increases in transit person trips generated by the proposed project were estimated as follows. Section D.8.4 of the CMP provides a methodology for estimating the number of transit trips expected to result from a proposed project based on the number of vehicle trips. This methodology assumes an average vehicle ridership (AVR) factor of 1.4 in order to estimate the number of person trips to and from the project and then provides guidelines regarding the percentage of person trips assigned to public transit depending on the type of use (commercial versus residential) and the proximity to transit services. Since the project site is located within ¼ mile of a designated CMP transit corridor, the CMP guidelines provide that approximately 7% of total person trips generated might use public transit to travel to and from the site.

Based on the trip generation for the 2023 Project shown in Table 3A, the proposed project is estimated to generate 1,822 daily net trips, 225 net AM peak hour tips, and 221 net PM peak hour trips before transit credits and bike/walk credits are applied. Applying the CMP guidelines by converting the vehicle trips to person trips by multiplying by a 1.4 AVR ( $225 \text{ net AM peak hour trips} \times 1.4 = 315$  and  $221 \text{ net PM peak hour trips} \times 1.4 = 310$ ) and applying a 7% transit use ( $315 \text{ net AM peak hour person trips} \times 7\% = 22$  and  $310 \text{ net PM peak hour person trips} \times 7\% = 22$ ), would result in approximately 22 new transit person trips during the weekday AM peak hour and 22 new transit person trips during the weekday PM peak hour in the 2023 Project scenario.

**TABLE 19  
CMP AM PEAK HOUR EXISTING AND CUMULATIVE FREEWAY ANALYSIS**

Freeway Segments	Direction	# of Lanes	Capacity [a]	Existing			Cumulative			2030 Project Trips	Cumulative plus 2030 Project				
				Peak Hour Volume [b]	D/C Ratio	LOS [c]	Peak Hour Volume	D/C Ratio	LOS [c]		Peak Hour Volume	D/C Ratio	LOS [c]	Project-related D/C change	Significant Impact [d]
<b>Harbor Freeway (I-110)</b>															
Harbor Freeway (I-110) at Wilmington, south of "C" Street - CMP Station 1045	NB	4	8,000	3,025	0.378	B	3,088	0.386	B	52	3,141	0.393	B	0.007	NO
	SB	4	8,000	4,235	0.529	B	4,323	0.54	B	11	4,334	0.542	C	0.002	NO
Harbor Freeway (I-110) at Manchester Bl - CMP Station 1046	NB	6	12,000	11,794	0.983	E	12,652	1.054	F(0)	12	12,664	1.055	F(0)	0.001	NO
	SB	6	12,000	11,115	0.926	D	11,924	0.994	E	78	12,002	1	E	0.006	NO
<b>San Diego Freeway (I-405)</b>															
San Diego Freeway (I-405) Santa Fe Ave -CMP Station 1066	NB	5	10,000	12,549	1.255	F(1)	15,171	1.517	F(3)	52	15,223	1.522	F(3)	0.005	NO
	SB	5	10,000	9,384	0.938	E	11,345	1.135	F(0)	8	11,353	1.135	F(0)	0.000	NO
San Diego Freeway (I-405) s/o RTE 110; Carson Scales -CMP Station 1067	NB	5	10,000	11,227	1.123	F(0)	12,045	1.205	F(0)	0	12,045	1.205	F(0)	0.000	NO
	SB	5	10,000	9,682	0.968	E	10,387	1.039	F(0)	0	10,387	1.039	F(0)	0.000	NO
San Diego Freeway (I-405) n/o Inglewood Ave -CMP Station 1068	NB	5	10,000	11,476	1.148	F(0)	11,917	1.192	F(0)	15	11,932	1.193	F(0)	0.001	NO
	SB	5	10,000	8,551	0.855	D	8,880	0.888	D	78	8,958	0.896	D	0.008	NO
<b>Artesia Freeway (SR 91)</b>															
Artesia Freeway (SR 91) e/o Alameda St/Santa Fe Ave -CMP Station 1033	EB	6	12,000	8,048	0.671	C	9,669	0.806	D	13	9,682	0.807	D	0.001	NO
	WB	6	12,000	10,767	0.897	D	12,935	1.078	F(0)	80	13,014	1.085	F(0)	0.007	NO

**Note:**

- [a] Capacity assumes 2,000 vehicles/hour/lane based on analysis contained in 2010 Congestion Management Program, Metro, 2010.
- [b] 2015 Volume obtained from CMP 2009 Data, factored to 2015 conditions using CMP growth rate for the RSA that contains freeway census station.
- [c] Freeway Segment LOS methodology taken from 2010 CMP, Metro, 2010.
- [d] CMP defines significant freeway impact as change in D/C ratio of 0.02 or more when a freeway segment is at LOS F (D/C ratio > 1.00).

**TABLE 20  
CMP PM PEAK HOUR EXISTING AND CUMULATIVE FREEWAY ANALYSIS**

Freeway Segments	Direction	# of Lanes	Capacity [a]	Existing			Cumulative			2030 Project Trips	Cumulative plus 2030 Project				
				Peak Hour Volume [b]	D/C Ratio	LOS [c]	Peak Hour Volume	D/C Ratio	LOS [c]		Peak Hour Volume	D/C Ratio	LOS [c]	Project-related D/C change	Significant Impact [d]
<b>Harbor Freeway (I-110)</b>															
Harbor Freeway (I-110) at Wilmington, south of "C" Street - CMP Station 1045	NB	4	8,000	3,090	0.386	B	3,587	0.448	B	17	3,604	0.451	B	0.003	NO
	SB	4	8,000	4,223	0.528	B	4,799	0.600	C	56	4,855	0.607	C	0.007	NO
Harbor Freeway (I-110) at Manchester Bl - CMP Station 1046	NB	6	12,000	11,781	0.982	E	12,827	1.069	F(0)	62	12,889	1.074	F(0)	0.005	NO
	SB	6	12,000	11,954	0.996	E	13,036	1.086	F(0)	26	13,062	1.089	F(0)	0.003	NO
<b>San Diego Freeway (I-405)</b>															
San Diego Freeway (I-405) Santa Fe Ave -CMP Station 1066	NB	5	10,000	9,167	0.917	D	10,393	1.039	F(0)	16	10,409	1.041	F(0)	0.002	NO
	SB	5	10,000	11,021	1.102	F(0)	12,367	1.237	F(0)	41	12,408	1.241	F(0)	0.004	NO
San Diego Freeway (I-405) s/o RTE 110; Carson Scales -CMP Station 1067	NB	5	10,000	9,682	0.968	E	10,921	1.092	F(0)	0	10,921	1.092	F(0)	0.000	NO
	SB	5	10,000	11,639	1.164	F(0)	13,006	1.301	F(1)	0	13,006	1.301	F(1)	0.000	NO
San Diego Freeway (I-405) n/o Inglewood Ave -CMP Station 1068	NB	5	10,000	8,734	0.873	D	9,518	0.952	E	78	9,596	0.96	E	0.008	NO
	SB	5	10,000	10,562	1.056	F(0)	11,476	1.148	F(0)	24	11,500	1.15	F(0)	0.002	NO
<b>Artesia Freeway (SR 91)</b>															
Artesia Freeway (SR 91) e/o Alameda St/Santa Fe Ave -CMP Station 1033	EB	6	12,000	16,532	1.378	F(2)	19,893	1.658	F(3)	65	19,958	1.663	F(3)	0.005	NO
	WB	6	12,000	6,526	0.544	C	7,887	0.657	C	25	7,912	0.659	C	0.002	NO

Note:

- [a] Capacity assumes 2,000 vehicles/hour/lane based on analysis contained in 2010 Congestion Management Program, Metro, 2010.
- [b] 2015 Volume obtained from CMP 2009 Data, factored to 2015 conditions using CMP growth rate for the RSA that contains freeway census station.
- [c] Freeway Segment LOS methodology taken from 2010 CMP, Metro, 2010.
- [d] CMP defines significant freeway impact as change in D/C ratio of 0.02 or more when a freeway segment is at LOS F (D/C ratio > 1.00).

Based on the trip generation for the 2030 Project shown in Table 3B, the proposed project is expected to generate 7,409 daily net trips, 714 net AM peak hour trips, and 818 net PM peak hour trips before internal capture, transit credits and bike/walk credits are applied. Applying the CMP guidelines by converting the vehicle trips to person trips by multiplying by a 1.4 AVR (714 net AM peak hour trips x 1.4 = 1,000 and 818 net PM peak hour trips x 1.4 = 1,145) and applying a 7% transit use (1,000 net AM peak hour person trips x 7% = 70 and 1,145 net PM peak hour person trips x 7% = 80), would result in approximately 70 new transit person trips during the weekday AM peak hour and 80 new transit person trips during the weekday PM peak hour in the 2030 Project scenario.

Within  $\frac{1}{4}$  mile of the project site, Metro operates one local line and two express lines; Carson Circuit operates two local lines; Torrance Transit operates two local lines and one rapid line; and Gardena Municipal Bus operates one local line.

The project location is served by numerous established local and regional transit routes with peak period headways of between 10 and 40 minutes. The bus services have an approximate capacity of approximately 1,840 persons during the peak hours based on a seating capacity of 40 persons for a standard bus and 30 persons for a shuttle bus and a policy load factor of 1.0. The proposed project would utilize less than 5% of available transit capacity during the peak hours.

## ANALYSIS OF STATE HIGHWAY SYSTEM

### RAMP QUEUEING ANALYSIS

A freeway ramp queuing analysis was conducted at six freeway ramp terminal intersections in the project vicinity in response to a request from Caltrans:

- I-110 Northbound Off-Ramp at 220<sup>th</sup> Street/Figueroa Street (Exit 7)
- I-110 Southbound Off-Ramp at Carson Street (Exit 7B)
- I-110 Southbound Off-Ramp at 223<sup>rd</sup> Street (Exit 7B)
- I-405 Northbound Off-Ramp at Carson Street (Exit 34)
- I-405 Northbound Off-Ramp at Wilmington Avenue (Exit 33B)
- I-405 Southbound Off-Ramp at East Carson Street (Exit 34)

The Synchro traffic analysis software was used to implement the HCM methodology to calculate the 95<sup>th</sup> percentile queues at and compare them with the available vehicle storage on these ramps. Traffic signal-related information such as phasing and timing plans (minimum green, maximum green, gap, etc.) were obtained for each location and the morning and evening peak hour traffic volumes from this study were used. Additional detail such as turn pocket lengths and ramp lengths was coded based on scaled distances from on-line aerial photographs. Following consultation between county staff and Caltrans staff, it was agreed that for the purposes of this study of this project, an impact would be considered adverse if the off-ramp queue extends beyond the length of the ramp itself onto the mainline of the freeway during the peak arrival period. Detailed queue calculations are provided in Appendix D.

Table 20 presents a summary of the ramp queuing analysis for Existing, Cumulative and Cumulative plus 2030 Project conditions. The queue does not exceed the ramp length in any of the scenarios; therefore, no adverse impacts are identified.

## FREEWAY MAINLINE ANALYSIS

Morning and afternoon peak hour analysis of six selected freeway mainline segments in the project vicinity was conducted in response to a request from Caltrans:

- I-110 at 228<sup>th</sup> Street
- I-110 at El Segundo Boulevard
- I-405 at I-710
- I-405 south of I-110
- I-405 north of Western Avenue
- SR-91 at Avalon Boulevard

Because PeMS data was not available for some nearby segments, existing traffic volume data was obtained from the 2013 Caltrans Traffic Census Program, the most recent year when data was available for all relevant segments (<http://traffic-counts.dot.ca.gov/>), and increased by 0.73%/year to represent future conditions. Project-generated trips were assigned to the regional freeway system as described in Chapter 3. The freeway level of service methodology described in the *Highway Capacity Manual* was used to determine the vehicle density on each analyzed segment (passenger cars per mile per lane) by direction and the corresponding level of service. The level of service definitions used for freeway mainline segments are shown in Table 21.

**TABLE 21  
PEAK HOUR OFF-RAMP INTERSECTION 95TH PERCENTILE QUEUES**

Ramp	Cross Street	Ramp Length	Ramp Turn Lanes at Intersection			Existing				Cumulative				Cumulative plus 2030 Project				Queue Exceeds Storage?
			# of Lanes	Move	Length	AM Queue		PM Queue		AM Queue		PM Queue		AM Queue		PM Queue		
						Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	Lane (ft)	Max (ft)	
I-110 SB Ramps	Carson Street	980	2	Left Right	980 380	130 640	640 [a]	250 350	350	150 770	770 [a]	280 520	520 [a]	150 970	970 [a]	280 580	580 [a]	NO
220th Street/I-110 NB Ramps	Figueroa Street	1,150	2	Through/Left Right	1,150 525	570 0	570 [a]	710 30	710 [a]	640 0	640 [a]	790 50	790 [a]	680 20	680 [a]	810 60	810 [a]	NO
I-110 SB Ramps	223rd Street	930	2	Through/Left Through/Right	930 390	360 [b]	360	340 [b]	340	440 [b]	440 [a]	440 [b]	440	530 [b]	530 [a]	480 [b]	480 [a]	NO
I-405 SB Ramps	Carson Street	1,120	2	Left Right	1,120 660	40 50	50	40 40	40	50 60	60	40 50	50	50 60	60	40 50	50	NO
I-405 NB Ramps	Carson Street	1,200	2	Through/Left Right	630 1,200	30 0	30	40 0	40	30 0	30	40 0	40	30 0	30	40 0	40	NO
I-405 NB Ramps	Wilmington Avenue	1,350	3	Left Left Right	900 1,350 450	440 [b] 360	440	400 [b] 60	400	530 [b] 490	530	480 [b] 120	480	550 [b] 490	550	490 [b] 120	490	NO

Notes:

[a]: 95th percentile volume exceeds capacity, queue may be longer.

[b] Queue same as in adjacent lane.

**TABLE 22**  
**LEVEL OF SERVICE DEFINITIONS FOR**  
**FREEWAY MAINLINE AND**  
**MULTILANE HIGHWAY SEGMENT ANALYSES**

**LOS Criteria for Freeway Segments [1]**

Level of Service	Density Range (pc/mi/ln)*
A	0-11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45

Note:

\* pc/mi/ln denotes passenger cars per mile per lane

Source: Highway Capacity Manual, Exh. 23-3, Transportation Research Board, 2010.

*Guide for the Preparation of Traffic Impact Studies* (Caltrans, December 2002) states that

The level of service (LOS) for operating State highway facilities is based upon measures of effectiveness (MOEs). Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' on State highway facilities. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.

The surrounding freeways (I-405, I-710, SR-91, and I-110) are operating at or near capacity during the peak period. When additional traffic trips are assigned to those freeways, existing LOS should be maintained.

Following consultation between county staff and Caltrans staff, it was agreed that for the purposes of this study of this project, an impact would be considered adverse if the analyzed freeway segment were found to operate at LOS F with the addition of project-related traffic and if the increase were equal to or greater than 50 trips.

Existing and Existing plus 2030 Project freeway segment analysis is presented in Table 23, and Cumulative and Cumulative plus 2030 Project freeway segment analysis is presented in Table 24. As shown, using this methodology, adverse impacts are identified on the following three freeway segments:

Existing plus 2030 Project:

- I-405 at I-710 – northbound in the AM peak hour (52 project-added trips)

Cumulative plus 2030 Project:

- I-110 at 228<sup>th</sup> Street – northbound in the AM peak hour (52 project-added trips)
- I-110 at El Segundo Boulevard – southbound in the AM peak hour (78 project-added trips)
- I-405 at I-710 – northbound in the AM peak hour (52 project-added trips)

To address these adverse impacts three potential measures were investigated:

- Reduce project-generated traffic by reducing the building program or by implementing a more effective TDM program sufficient to reduce estimated trips by 1% to avoid two of the adverse impacts identified or 6% to avoid all three of the adverse impacts identified. The effectiveness of the ongoing programs varies from year to year, however, and it is not possible to guarantee that specific measures would be effective in perpetuity.
- Add mainline freeway capacity to address existing and cumulative conditions. This would be beyond the ability of any individual project to implement, due to the potential need to acquire right-of-way and the magnitude of the cost.

**TABLE 23  
EXISTING PEAK HOUR FREEWAY SEGMENT ANALYSIS**

Name [a]	Peak Hour	Existing				2030 Project Trips		Existing plus Project				Change in Density		Project Impact? [b]	
		Northbound		Southbound		Northbound	Southbound	Northbound		Southbound		Northbound	Southbound	Northbound	Southbound
		Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS			Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS				
I-110 at 228th Street	AM	37.0	E	22.9	C	52	11	37.5	E	22.9	C	0.5	0.0	NO	NO
	PM	23.1	C	33.7	D	17	56	23.2	C	34.1	D	0.1	0.4	NO	NO
I-110 at El Segundo Blvd	AM	27.0	D	36.9	E	12	78	27.0	D	37.5	E	0.0	0.6	NO	NO
	PM	26.1	D	37.4	E	62	26	26.4	D	37.6	E	0.3	0.2	NO	NO
I-405 JCT. RTE 710	AM	47.5	F	27.4	D	52	8	48.0	F	27.4	D	0.5	0.0	YES	NO
	PM	28.5	D	43.8	E	16	41	28.5	D	44.2	E	0.0	0.4	NO	NO
I-405 S/O JCT RTE 110, Carson Scales	AM	33.9	D	28.2	D	0	0	33.9	D	28.2	D	0.0	0.0	NO	NO
	PM	26.0	C	37.9	E	0	0	26.0	C	37.9	E	0.0	0.0	NO	NO
I-405 N/O Western Avenue; Van Ness Avenue	AM	30.8	D	29.0	D	15	78	30.8	D	29.3	D	0.0	0.3	NO	NO
	PM	27.5	D	31.8	D	78	24	27.9	D	31.9	D	0.4	0.1	NO	NO

Name [a]	Peak Hour	Existing				2030 Project Trips		Existing plus Project				Change in Density		Project Impact? [b]	
		Eastbound		Westbound		Eastbound	Westbound	Eastbound		Westbound		Eastbound	Westbound	Northbound	Westbound
		Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS			Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS				
SR 91 at Avalon Boulevard Interchange	AM	21.9	C	28.7	D	13	80	21.9	C	29.1	D	0.0	0.4	NO	NO
	PM	26.1	D	19.9	C	65	25	26.4	D	20.0	C	0.3	0.1	NO	NO

Notes:

\* pc/mi/ln denotes passenger cars per mile per lane

[a] Analyzed using Freeway methodology from *Highway Capacity Manual*, Transportation Research Board, 2010.

[b] After discussion with Caltrans staff, Impact Criteria was defined as mainline LOS F and more than 50 project trips.

**TABLE 24  
CUMULATIVE PEAK HOUR FREEWAY SEGMENT ANALYSIS**

Name [a]	Peak Hour	Cumulative				2030 Project Trips		Cumulative plus Project				Change in Density		Project Impact? [b]	
		Northbound		Southbound		Northbound	Southbound	Northbound		Southbound		Northbound	Southbound	Northbound	Southbound
		Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS			Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS				
I-110 at 228th Street	AM	45.4	F	25.6	C	52	11	46.0	F	25.7	C	0.6	0.1	YES	NO
	PM	24.6	C	37.0	E	17	56	24.7	C	37.5	E	0.1	0.5	NO	NO
I-110 at El Segundo Blvd	AM	31.3	D	45.5	F	12	78	31.4	D	46.3	F	0.1	0.8	NO	YES
	PM	28.2	D	41.8	E	62	26	28.5	D	42.0	E	0.3	0.2	NO	NO
I-405 JCT. RTE 710	AM	63.0	F	31.8	D	52	8	63.9	F	31.9	D	0.9	0.1	YES	NO
	PM	30.9	D	50.0	F	16	41	31.0	D	50.4	F	0.1	0.4	NO	NO
I-405 S/O JCT RTE 110, Carson Scales	AM	40.9	E	32.6	D	0	0	40.9	E	32.6	D	0.0	0.0	NO	NO
	PM	26.0	C	42.2	E	0	0	26.0	C	42.2	E	0.0	0.0	NO	NO
I-405 N/O Western Avenue; Van Ness Avenue	AM	36.1	E	33.6	D	15	78	36.2	E	34.1	D	0.1	0.5	NO	NO
	PM	29.7	D	34.7	D	78	24	30.0	D	34.9	D	0.3	0.2	NO	NO

Name [a]	Peak Hour	Cumulative				2030 Project Trips		Cumulative plus Project				Change in Density		Project Impact? [b]	
		Eastbound		Westbound		Eastbound	Westbound	Eastbound		Westbound		Eastbound	Westbound	Northbound	Westbound
		Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS			Density (pc/mi/ln)*	LOS	Density (pc/mi/ln)*	LOS				
SR 91 at Avalon Boulevard Interchange	AM	24.4	C	33.2	D	13	80	24.4	C	33.7	D	0.0	0.5	NO	NO
	PM	28.0	D	21.1	C	65	25	28.3	D	21.2	C	0.3	0.1	NO	NO

Notes:

\* pc/mi/ln denotes passenger cars per mile per lane

[a] Analyzed using Freeway methodology from *Highway Capacity Manual*, Transportation Research Board, 2010.

[b] After discussion with Caltrans staff, Impact Criteria was defined as mainline LOS F and more than 50 project trips.

- Contribute to implementation of Caltrans' projects to address congestion in the study area, which would contribute to minimizing the impact associated with the proposed development. However, there are no specific improvements identified for implementation. Thus, no fair-share contribution can be calculated or made.

Because the potential measures described above were each found to be infeasible, the project's incremental impacts on poor cumulative conditions on identified segments would be considered unavoidable.

## STATE ARTERIAL ANALYSIS

Analysis of the arterial intersection of Western Avenue (State Route 213) & Carson Street was conducted using the HCM methodology in response to a request from Caltrans. The traffic signal timing plan provided by LADOT was used in this analysis. Caltrans, LADOT and the City of Torrance have jointly agreed to modify the signal in the near term at this location by implementing protected left-turn phasing on the eastbound and westbound approaches.

The discussion above regarding Caltrans' MOEs for freeway mainline segments also applies to arterial intersections. However, following consultation between county staff and Caltrans staff, it was agreed that for the purposes of this study of this project, an impact would be considered adverse if the analyzed intersection were found to operate at LOS F with the addition of project-related traffic and if the increase were equal to or greater than 50 trips. The results of this analysis under Existing conditions without and with the project, Interim without and with the project, and Cumulative without and with the project are presented in Table 25. Detailed level of service worksheets are provided in Appendix E.

The intersection is operating at LOS E under Existing and Existing plus 2030 Project conditions. Under Interim and Cumulative conditions in both the AM and PM peak hours the intersection is projected to decline to LOS F without or with the addition of project traffic.

**TABLE 25  
PEAK HOUR HIGHWAY CAPACITY MANUAL INTERSECTION ANALYSIS**

Scenario	Time Period	Without Project		Plus 2030 Project [b]		Project Trips	Project Delay	Adverse Impact [c]
		Delay	LOS	Delay	LOS			
Existing	AM	66.4	E	67.8	E	55	1.4	NO
	PM	65.8	E	69.9	E	73	4.1	NO
Interim [d]	AM	93.6	F	93.7	F	17	0.1	NO
	PM	116.4	F	117.5	F	20	1.1	NO
Cumulative [d]	AM	105.7	F	106.9	F	55	1.2	YES
	PM	133.6	F	138.2	F	73	4.6	YES

[a] Analyzed using Freeway methodology from *Highway Capacity Manual*, Transportation Research Board, 2010.

[b] Project trips for Existing and Cumulative (2030) with areawide growth are for 2030 Project.

Project Trips for Interim (2023) with areawide growth are for 2023 Project.

[c] After discussion with Caltrans staff, Impact Criteria was defined as intersection operating at LOS F and more than 50 project trips.

[d] Includes protected left-turn phases for eastbound and westbound approaches.

## 6. CONCLUSIONS

This study was undertaken to evaluate the potential traffic impacts of the proposed Harbor-UCLA Medical Center Project. The following summarizes the results of this analysis:

- The proposed project would be built in two phases, a 2023 Project phase and a 2030 Project phase. The project would include increases in administrative office space, retail, central utilities and outpatient facilities for the hospital. It would also include an expanding LA Biomed campus and a new Bioscience campus.
- The 2023 Project phase would include the net addition of six hospital beds and 57,082 sf of new hospital-related structures. It would also include 17,746 sf of new space for LA Biomed and 112,500 sf of new space for the Bioscience campus.
- The 2030 Project phase would include the net addition of six hospital beds and 149,226 sf of new hospital related structures. It would also include 130,246 sf of new space for LA Biomed and 250,000 sf of new space for the Bioscience campus.
- The study analyzed 22 intersections and five directional freeway segments in the vicinity of the project.
- The project would generate an estimated net external 1,620 daily trips, including 200 trips (166 inbound/34 outbound) during the AM peak hour and 197 trips (33 inbound/164 outbound) during the PM peak hour in the 2023 Project phase. During the 2030 Project phase, the project would generate an estimated net external 6,598 daily trips, including 637 trips (523 inbound/114 outbound) during the AM peak hour and 732 trips (169 inbound/563 outbound).
- The project analyzed five scenarios using the County's methodology: Existing, Existing plus 2023 Project, Existing plus 2030 Project, Existing plus 2023 Project plus Cumulative and Existing plus 2023 Project plus Cumulative.
- The project analyzed seven scenarios using the local municipal methodology: Existing, Existing plus 2023 Project, Existing plus 2030 Project, Interim, Cumulative, Interim plus 2023 Project, Cumulative plus 2030 Project.
- The LOS analysis determined that the proposed project would significantly impact traffic at 12 intersections. Mitigation measures were identified for three intersections but because these locations are partially or wholly controlled by Caltrans, implementation is not entirely within the County's control. These impacts are considered significant and unavoidable.
- Analyses of potential impacts on the regional transportation system conducted in accordance with CMP requirements determined that the project would not have a significant impact on CMP monitoring intersections, freeway mainline segments or transit.

- Analyses of potential impacts on the regional transportation in accordance with Caltrans found a project impact on Interstate 405 northbound in the AM peak hour, and cumulative impacts on Interstate 110 northbound and southbound in the AM peak hour. Options for addressing the impacts were identified, but the impact will be unmitigated because there are no existing projects that identified by Caltrans that would lower the impact below the significance threshold.
- No queueing impacts were found at freeway off-ramps.

## REFERENCES

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*Draft Traffic Impact Analysis Report Guidelines* (Los Angeles County Department of Public Works, December 2013)

*Carson General Plan Update* (City of Carson, amended August 2013);  
<http://ci.carson.ca.us/departments/communitydevelopment/generalplan.asp>

*Impact Analysis Report Guidelines* (Los Angeles County Public Works, January 1997)

*Los Angeles County Municipal Code* (Los Angeles County, updated 2016)

*Los Angeles County Transit Oriented Districts Access Study*;  
[http://planning.lacounty.gov/assets/upl/project/tod\\_Access-Study.pdf](http://planning.lacounty.gov/assets/upl/project/tod_Access-Study.pdf)

*Mobility Plan 2035* (City of Los Angeles, 2015); <https://la2b.org/documents/>

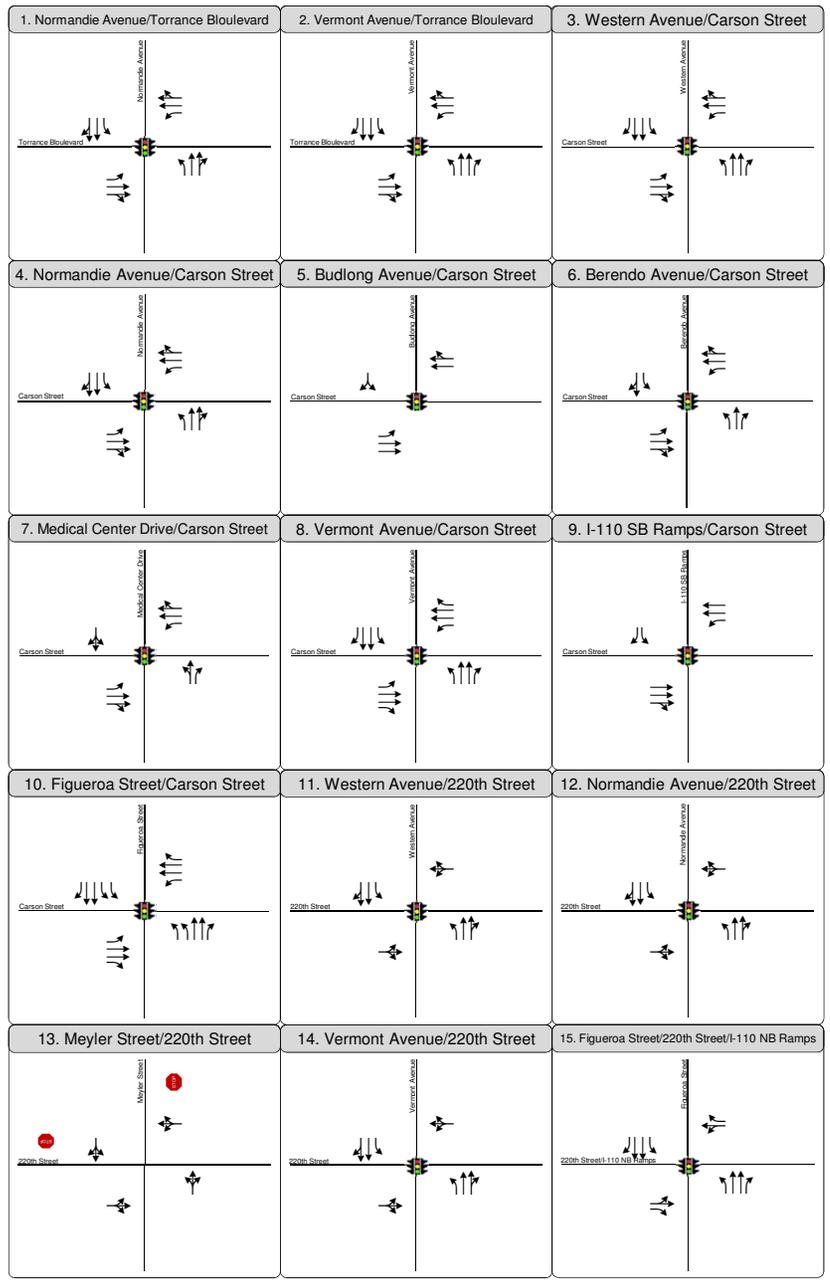
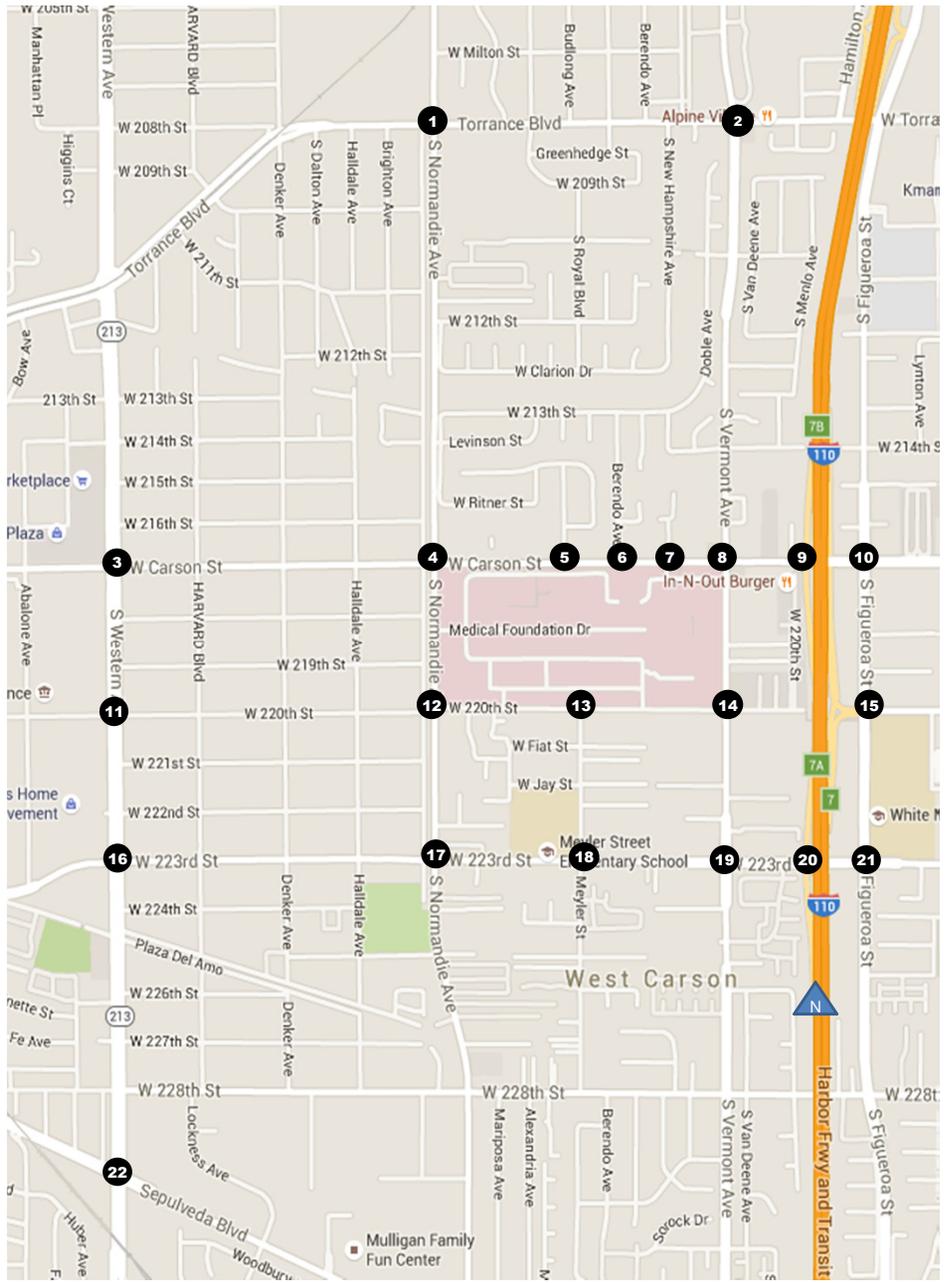
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*Traffic Study Policies and Procedures* (City of Los Angeles Department of Transportation, August 2014);  
[http://ladot.lacity.org/stellent/groups/departments/@ladot\\_contributor/documents/contributor\\_web\\_content/lacityp\\_029521.pdf](http://ladot.lacity.org/stellent/groups/departments/@ladot_contributor/documents/contributor_web_content/lacityp_029521.pdf)

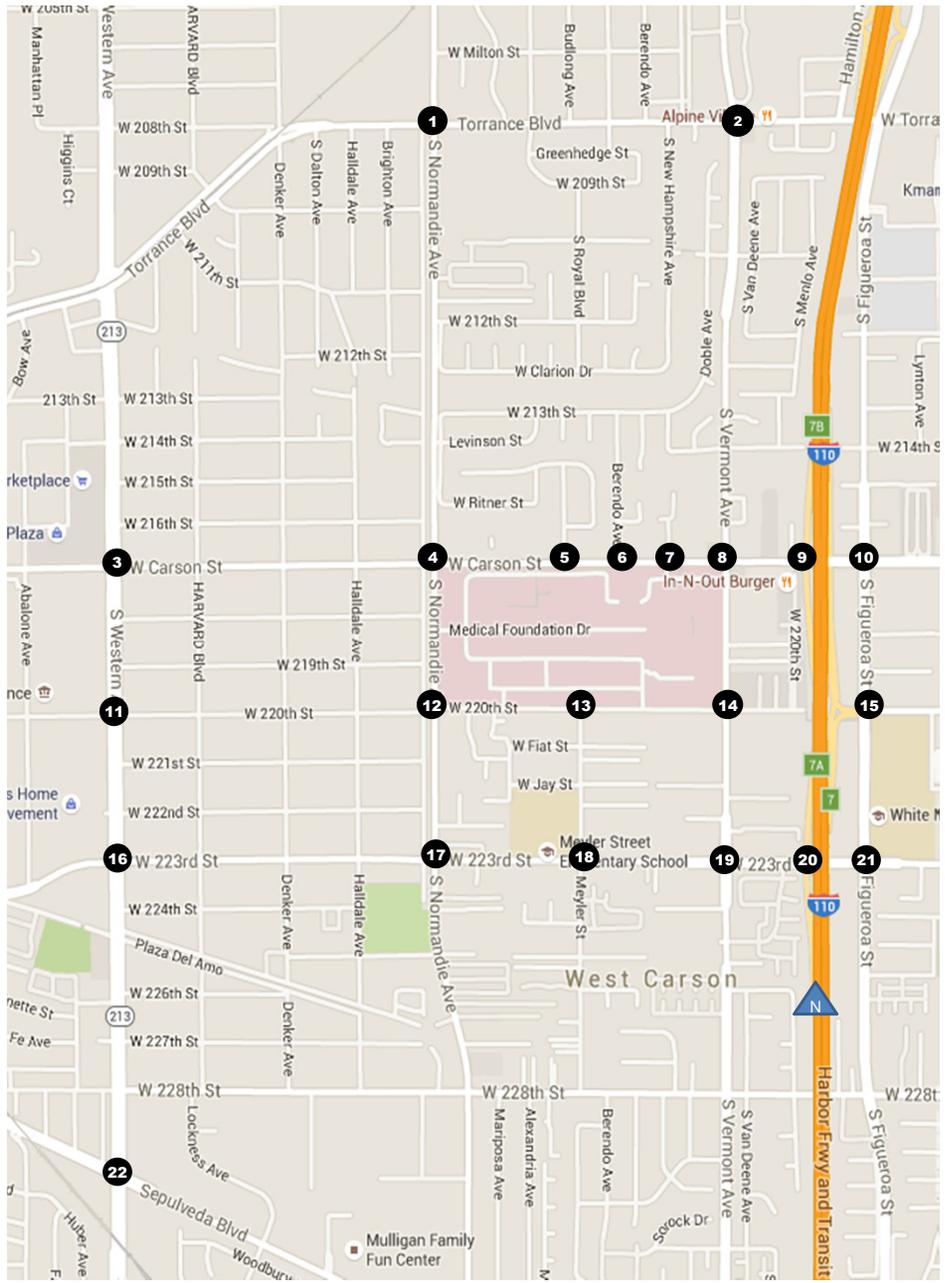
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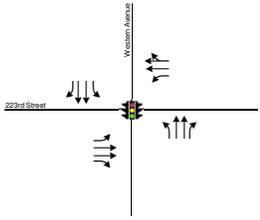
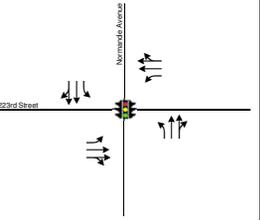
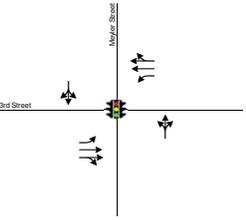
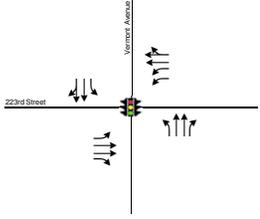
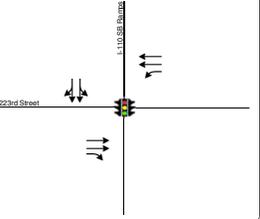
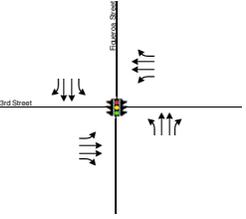
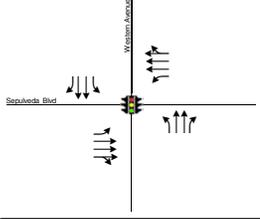
*Trip Generation, 9<sup>th</sup> Edition* (ITE, 2012)

## **APPENDIX A: INTERSECTION LANE CONFIGURATIONS**



Existing Lane Configurations Used for City Analysis (No De-Facto Right Turns)

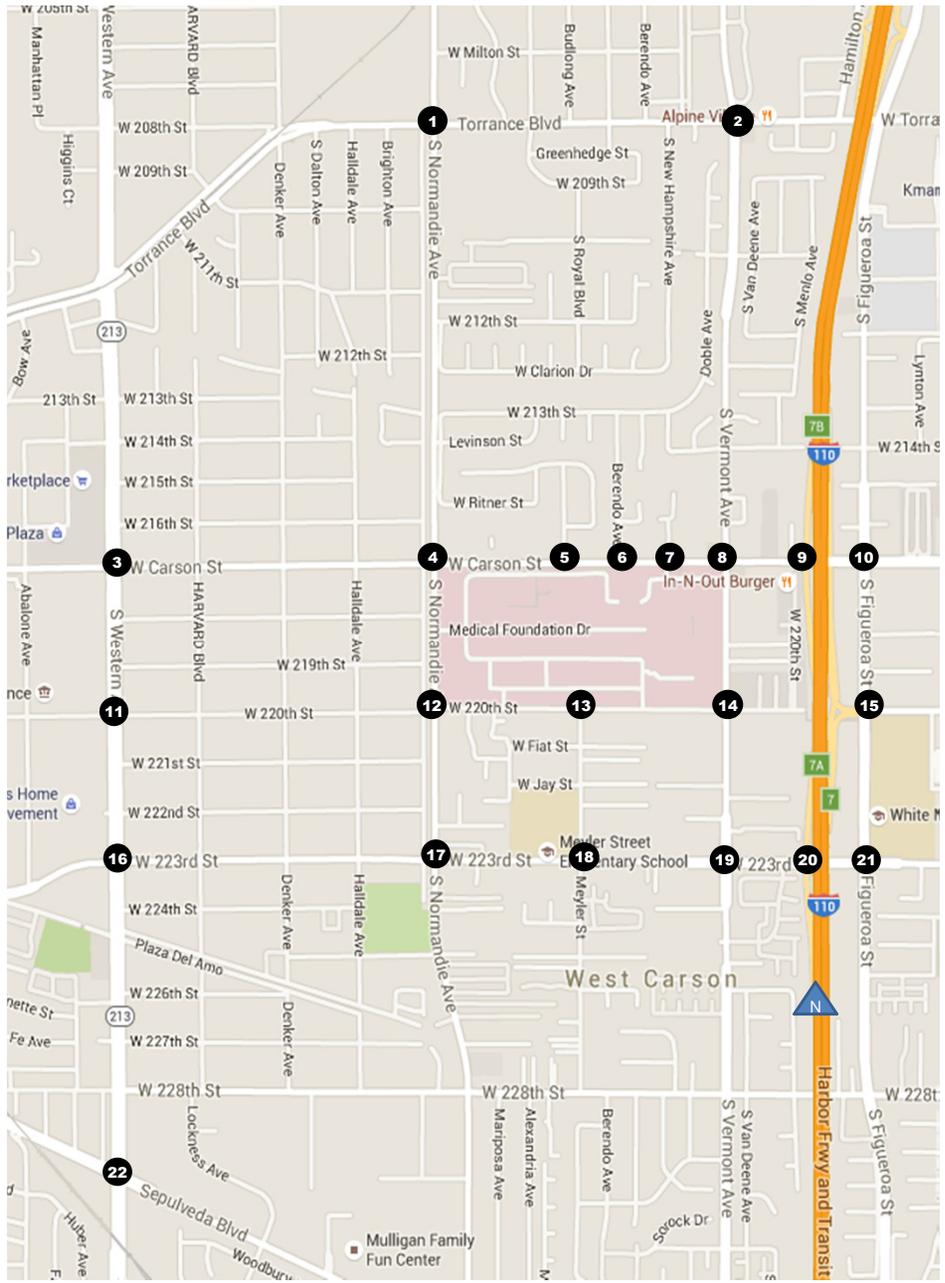


16. Western Avenue/223rd Street	17. Normandie Avenue/223rd Street	18. Meyler Street/223rd Street
		
19. Vermont Avenue/223rd Street	20. I-110 SB Ramps/223rd Street	21. Figueroa Street/223rd Street
		
22. Western Avenue/Sepulveda Blvd		
		



Existing Lane Configurations Used for City Analysis (No De-Facto Right Turns)

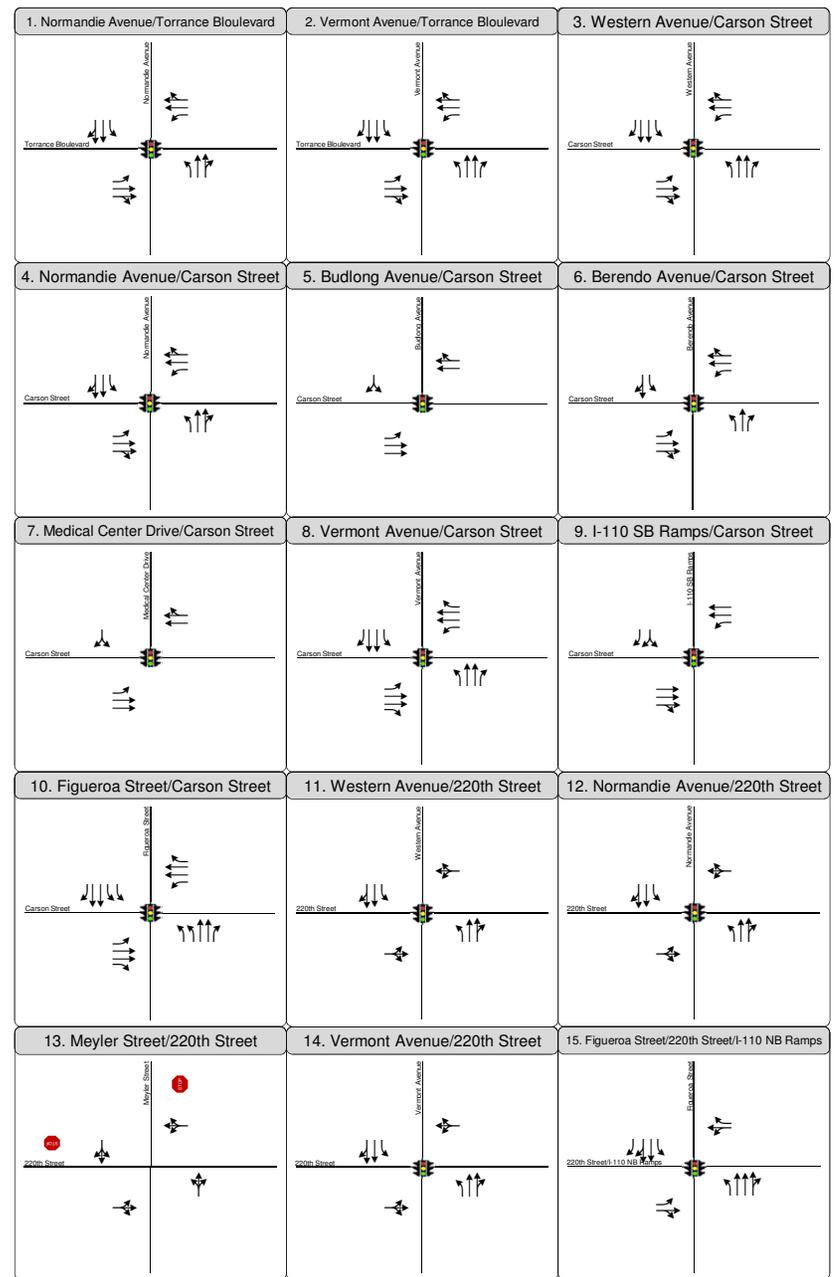
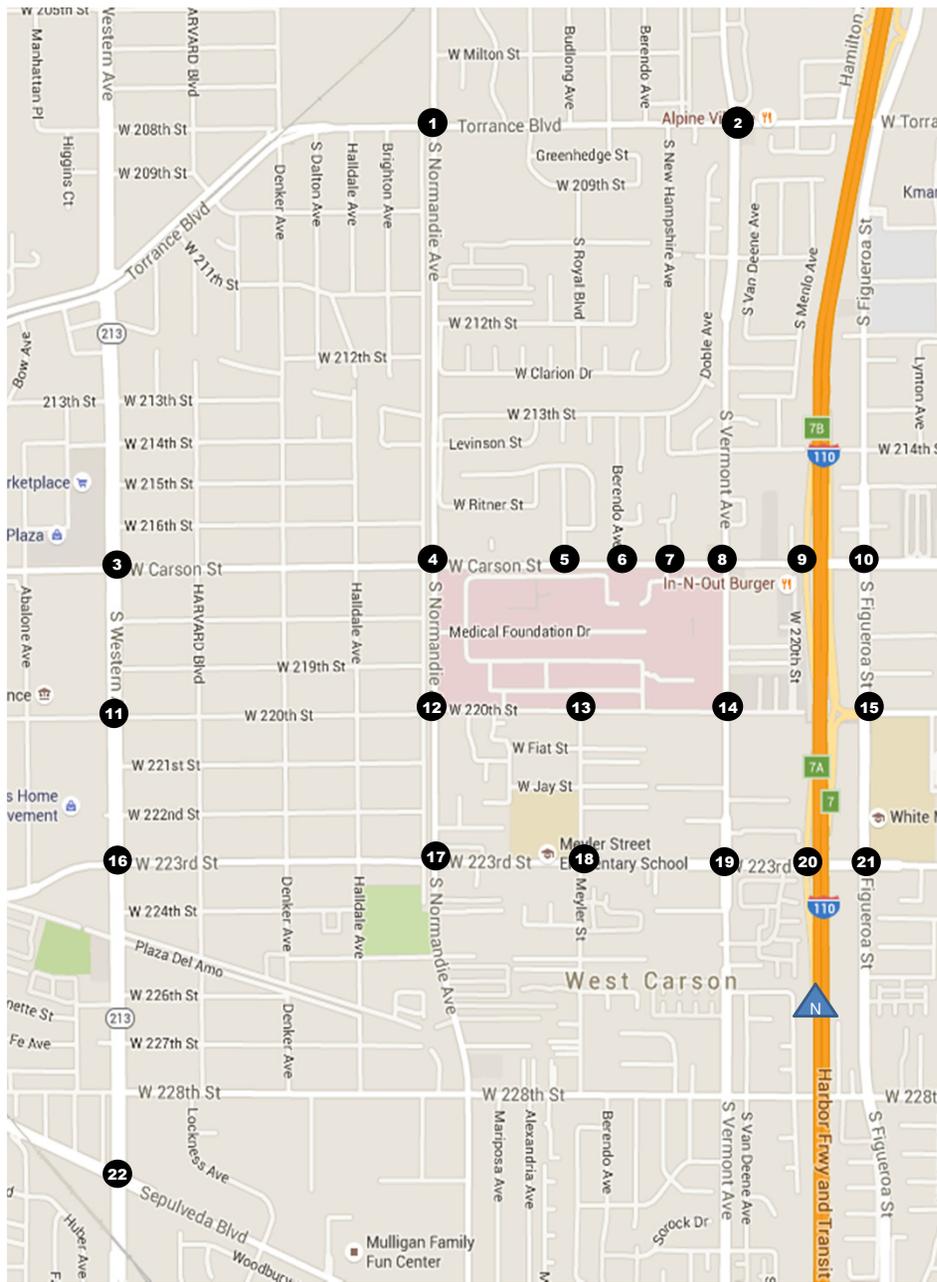




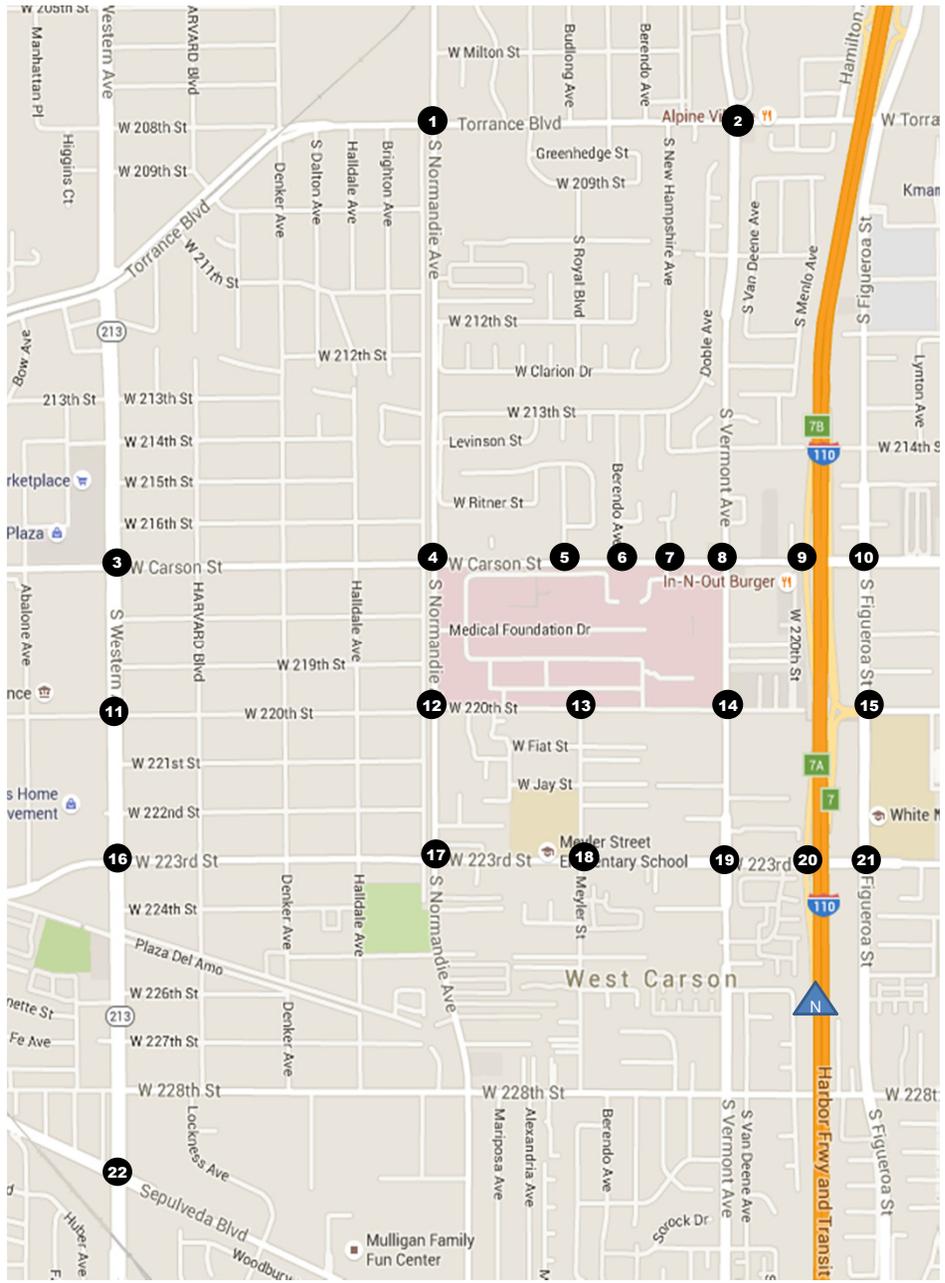
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<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		



Existing Lane Configurations Used for City Analysis (With De-Facto Right Turns)



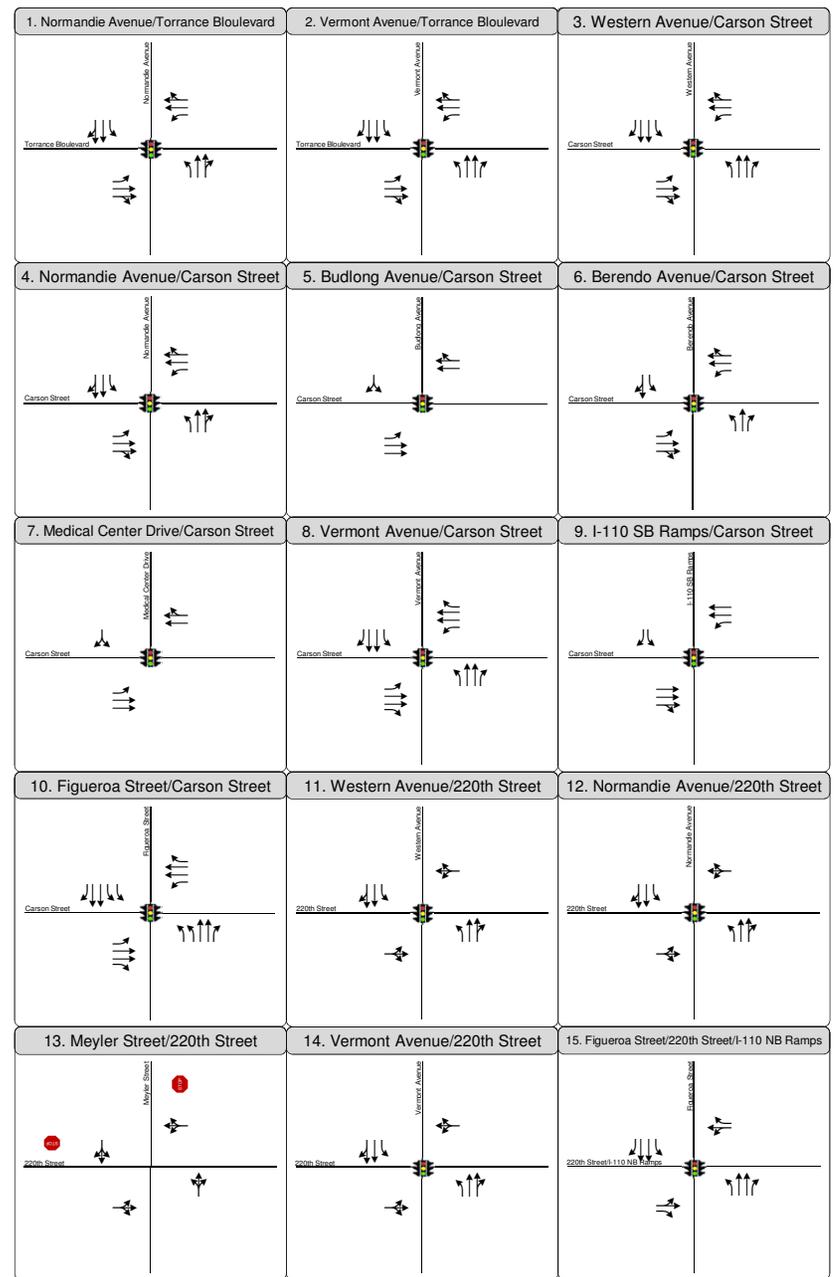
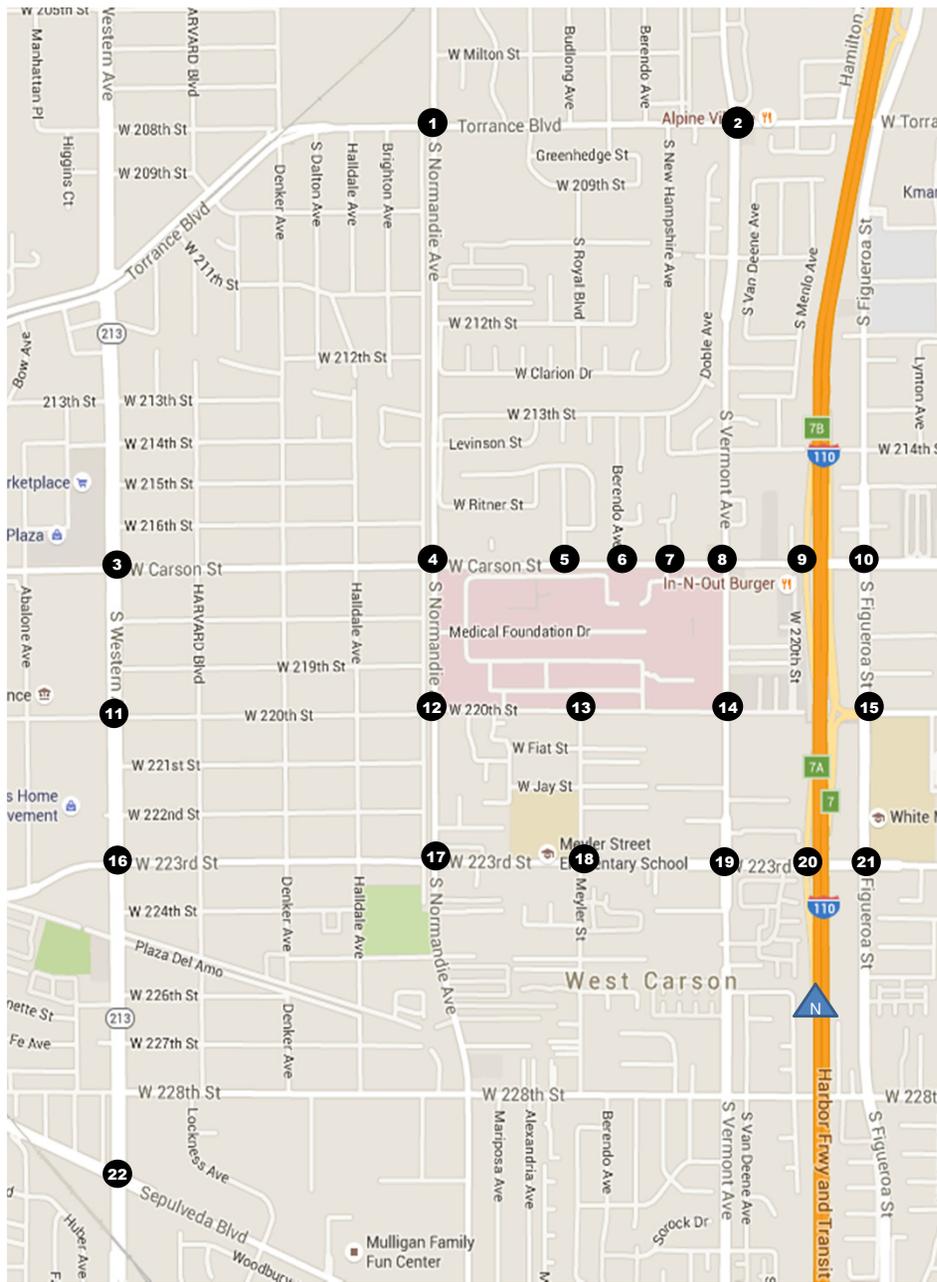
Future Lane Configurations Used for City Analysis (No De-Facto Right Turns)



16. Western Avenue/223rd Street	17. Normandie Avenue/223rd Street	18. Meyler Street/223rd Street
19. Vermont Avenue/223rd Street	20. I-110 SB Ramps/223rd Street	21. Figueroa Street/223rd Street
22. Western Avenue/Sepulveda Blvd		

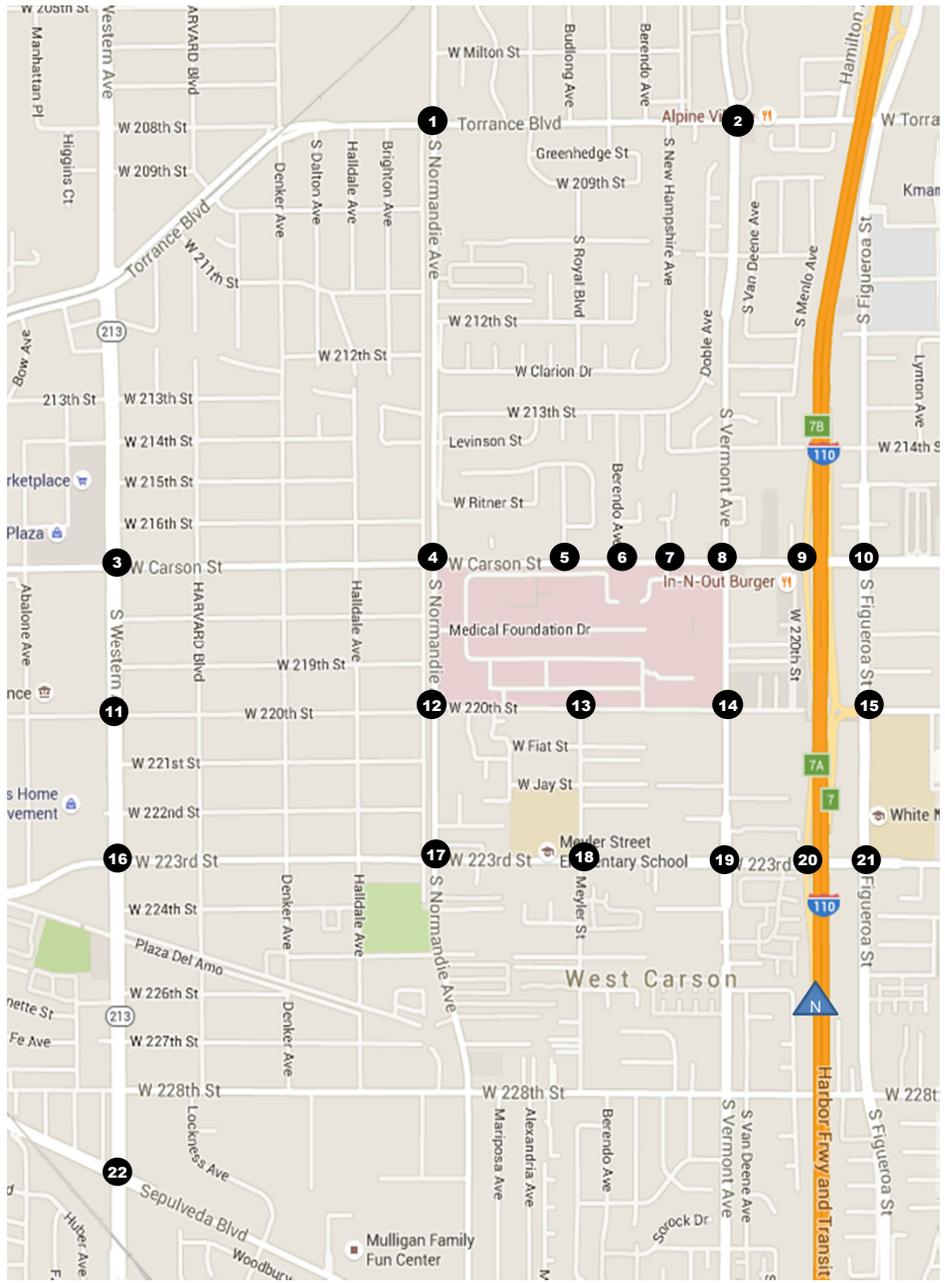


Future Lane Configurations Used for City Analysis (No De-Facto Right Turns)



Future Lane Configurations Used for City Analysis (With De-Facto Right Turns)





<p>16. Western Avenue/223rd Street</p>	<p>17. Normandie Avenue/223rd Street</p>	<p>18. Meyler Street/223rd Street</p>
<p>19. Vermont Avenue/223rd Street</p>	<p>20. I-110 SB Ramps/223rd Street</p>	<p>21. Figueroa Street/223rd Street</p>
<p>22. Western Avenue/Sepulveda Blvd</p>		



Future Lane Configurations Used for City Analysis (With De-Facto Right Turns)

## **APPENDIX B: INTERSECTION TRAFFIC COUNTS**

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5726-003

Day: Wednesday

City: Torrance

Date: 11/4/2015

AM

NS/EW Streets:	Normandie Ave			Normandie Ave			Torrance Blvd			Torrance Blvd			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
7:00 AM	17	123	22	4	43	10	15	154	8	26	288	23	733
7:15 AM	34	154	35	12	81	10	28	204	17	28	329	15	947
7:30 AM	37	197	40	5	100	21	21	243	20	21	380	21	1106
7:45 AM	42	193	36	6	124	26	22	233	23	31	351	17	1104
8:00 AM	29	176	35	13	82	27	22	246	21	28	383	23	1085
8:15 AM	46	170	36	8	76	27	30	193	13	23	347	13	982
8:30 AM	26	135	21	9	81	13	26	191	12	25	366	22	927
8:45 AM	36	162	47	9	85	26	17	169	16	18	304	11	900
<b>TOTAL VOLUMES :</b>	267	1310	272	66	672	160	181	1633	130	200	2748	145	7784
<b>APPROACH %'s :</b>	14.44%	70.85%	14.71%	7.35%	74.83%	17.82%	9.31%	84.00%	6.69%	6.47%	88.85%	4.69%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	154	736	147	32	382	101	95	915	77	103	1461	74	4277
<b>PEAK HR FACTOR :</b>	0.946												0.967
	0.946												0.944

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5726-003

Day: Wednesday

City: Torrance

Date: 11/4/2015

**PM**

NS/EW Streets:	Normandie Ave			Normandie Ave			Torrance Blvd			Torrance Blvd			TOTAL			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND						
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0				
4:00 PM	26	127	30	34	120	20	21	298	24	16	203	8	927			
4:15 PM	16	90	34	23	116	25	29	322	31	18	231	14	949			
4:30 PM	28	162	37	34	155	29	18	318	33	12	212	16	1054			
4:45 PM	26	123	43	32	157	39	25	374	22	14	223	9	1087			
5:00 PM	19	146	35	29	170	46	24	346	26	12	233	9	1095			
5:15 PM	29	131	42	34	196	41	27	323	26	19	261	8	1137			
5:30 PM	24	130	29	35	206	26	30	330	37	13	246	17	1123			
5:45 PM	26	138	35	33	175	39	37	316	45	14	207	18	1083			
<b>TOTAL VOLUMES :</b>	194	1047	285	254	1295	265	211	2627	244	118	1816	99	8455			
<b>APPROACH %'s :</b>	12.71%	68.61%	18.68%	14.00%	71.39%	14.61%	6.85%	85.24%	7.92%	5.80%	89.33%	4.87%				
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>			
<b>PEAK HR VOL :</b>	98	530	149	130	729	152	106	1373	111	58	963	43	4442			
<b>PEAK HR FACTOR :</b>	0.962												0.933	0.944	0.924	0.977

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized





City of Torrance  
 N/S: Western Avenue  
 E/W: Carson Street  
 Weather: Clear

File Name : TORWECAAM  
 Site Code : 01415295  
 Start Date : 5/27/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Dual Wheel - Buses

Start Time	Western Avenue Southbound				Carson Street Westbound				Western Avenue Northbound				Carson Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
07:00 AM	12	120	11	143	23	185	31	239	27	271	13	311	12	118	6	136	829
07:15 AM	18	141	18	177	29	232	39	300	35	274	26	335	9	128	17	154	966
07:30 AM	18	196	29	243	23	311	36	370	38	261	15	314	12	152	13	177	1104
07:45 AM	23	196	49	268	11	290	37	338	40	271	25	336	14	232	39	285	1227
Total	71	653	107	831	86	1018	143	1247	140	1077	79	1296	47	630	75	752	4126
08:00 AM	29	164	29	222	17	249	27	293	40	283	16	339	16	190	28	234	1088
08:15 AM	23	154	26	203	15	271	53	339	32	308	27	367	16	171	23	210	1119
08:30 AM	34	135	30	199	20	258	41	319	51	283	26	360	13	145	9	167	1045
08:45 AM	22	149	24	195	17	260	47	324	45	265	16	326	11	197	37	245	1090
Total	108	602	109	819	69	1038	168	1275	168	1139	85	1392	56	703	97	856	4342
09:00 AM	23	129	16	168	20	202	33	255	37	226	22	285	16	150	32	198	906
09:15 AM	20	160	26	206	19	202	31	252	30	198	20	248	11	157	21	189	895
09:30 AM	23	157	25	205	18	190	32	240	44	201	27	272	20	125	27	172	889
09:45 AM	20	137	36	193	21	186	25	232	42	170	20	232	16	142	24	182	839
Total	86	583	103	772	78	780	121	979	153	795	89	1037	63	574	104	741	3529
Grand Total	265	1838	319	2422	233	2836	432	3501	461	3011	253	3725	166	1907	276	2349	11997
Apprch %	10.9	75.9	13.2		6.7	81	12.3		12.4	80.8	6.8		7.1	81.2	11.7		
Total %	2.2	15.3	2.7	20.2	1.9	23.6	3.6	29.2	3.8	25.1	2.1	31	1.4	15.9	2.3	19.6	
Passenger Vehicles	256	1760	314	2330	219	2742	423	3384	454	2950	246	3650	160	1858	266	2284	11648
% Passenger Vehicles	96.6	95.8	98.4	96.2	94	96.7	97.9	96.7	98.5	98	97.2	98	96.4	97.4	96.4	97.2	97.1
Dual Wheel	5	76	5	86	14	61	7	82	7	58	7	72	6	31	10	47	287
% Dual Wheel	1.9	4.1	1.6	3.6	6	2.2	1.6	2.3	1.5	1.9	2.8	1.9	3.6	1.6	3.6	2	2.4
Buses	4	2	0	6	0	33	2	35	0	3	0	3	0	18	0	18	62
% Buses	1.5	0.1	0	0.2	0	1.2	0.5	1	0	0.1	0	0.1	0	0.9	0	0.8	0.5

Start Time	Western Avenue Southbound				Carson Street Westbound				Western Avenue Northbound				Carson Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	18	196	29	243	23	311	36	370	38	261	15	314	12	152	13	177	1104
07:45 AM	23	196	49	268	11	290	37	338	40	271	25	336	14	232	39	285	1227
08:00 AM	29	164	29	222	17	249	27	293	40	283	16	339	16	190	28	234	1088
08:15 AM	23	154	26	203	15	271	53	339	32	308	27	367	16	171	23	210	1119
Total Volume	93	710	133	936	66	1121	153	1340	150	1123	83	1356	58	745	103	906	4538
% App. Total	9.9	75.9	14.2		4.9	83.7	11.4		11.1	82.8	6.1		6.4	82.2	11.4		
PHF	.802	.906	.679	.873	.717	.901	.722	.905	.938	.912	.769	.924	.906	.803	.660	.795	.925

City of Torrance  
 N/S: Western Avenue  
 E/W: Carson Street  
 Weather: Clear

File Name : TORWECAPM  
 Site Code : 01415295  
 Start Date : 5/27/2015  
 Page No : 1

Groups Printed- Passenger Vehicles - Dual Wheel - Buses

Start Time	Western Avenue Southbound				Carson Street Westbound				Western Avenue Northbound				Carson Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	43	226	43	312	15	195	33	243	32	178	33	243	28	224	42	294	1092
03:15 PM	29	222	40	291	19	206	32	257	25	162	37	224	19	243	47	309	1081
03:30 PM	36	264	33	333	13	214	33	260	35	233	36	304	19	206	42	267	1164
03:45 PM	33	228	43	304	19	238	39	296	30	210	37	277	22	229	46	297	1174
Total	141	940	159	1240	66	853	137	1056	122	783	143	1048	88	902	177	1167	4511
04:00 PM	35	312	35	382	16	153	29	198	40	215	34	289	20	194	37	251	1120
04:15 PM	32	267	39	338	37	198	27	262	34	186	23	243	22	211	46	279	1122
04:30 PM	28	342	46	416	13	180	28	221	39	219	38	296	14	206	44	264	1197
04:45 PM	34	279	47	360	20	212	39	271	38	181	28	247	24	261	44	329	1207
Total	129	1200	167	1496	86	743	123	952	151	801	123	1075	80	872	171	1123	4646
05:00 PM	39	325	51	415	16	223	26	265	49	216	31	296	18	239	46	303	1279
05:15 PM	41	338	67	446	16	252	31	299	28	182	21	231	21	251	51	323	1299
05:30 PM	40	353	55	448	18	223	26	267	36	214	36	286	21	229	42	292	1293
05:45 PM	33	289	62	384	14	243	32	289	35	185	32	252	12	217	36	265	1190
Total	153	1305	235	1693	64	941	115	1120	148	797	120	1065	72	936	175	1183	5061
Grand Total	423	3445	561	4429	216	2537	375	3128	421	2381	386	3188	240	2710	523	3473	14218
Apprch %	9.6	77.8	12.7		6.9	81.1	12		13.2	74.7	12.1		6.9	78	15.1		
Total %	3	24.2	3.9	31.2	1.5	17.8	2.6	22	3	16.7	2.7	22.4	1.7	19.1	3.7	24.4	
Passenger Vehicles	414	3393	553	4360	212	2501	370	3083	417	2317	385	3119	229	2655	519	3403	13965
% Passenger Vehicles	97.9	98.5	98.6	98.4	98.1	98.6	98.7	98.6	99	97.3	99.7	97.8	95.4	98	99.2	98	98.2
Dual Wheel	8	36	8	52	4	20	3	27	4	35	1	40	10	38	4	52	171
% Dual Wheel	1.9	1	1.4	1.2	1.9	0.8	0.8	0.9	1	1.5	0.3	1.3	4.2	1.4	0.8	1.5	1.2
Buses	1	16	0	17	0	16	2	18	0	29	0	29	1	17	0	18	82
% Buses	0.2	0.5	0	0.4	0	0.6	0.5	0.6	0	1.2	0	0.9	0.4	0.6	0	0.5	0.6

Start Time	Western Avenue Southbound				Carson Street Westbound				Western Avenue Northbound				Carson Street Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	34	279	47	360	20	212	39	271	38	181	28	247	24	261	44	329	1207
05:00 PM	39	325	51	415	16	223	26	265	49	216	31	296	18	239	46	303	1279
05:15 PM	41	338	67	446	16	252	31	299	28	182	21	231	21	251	51	323	1299
05:30 PM	40	353	55	448	18	223	26	267	36	214	36	286	21	229	42	292	1293
Total Volume	154	1295	220	1669	70	910	122	1102	151	793	116	1060	84	980	183	1247	5078
% App. Total	9.2	77.6	13.2		6.4	82.6	11.1		14.2	74.8	10.9		6.7	78.6	14.7		
PHF	.939	.917	.821	.931	.875	.903	.782	.921	.770	.918	.806	.895	.875	.939	.897	.948	.977

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-001

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Normandie Ave			Normandie Ave			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	2	0	0.5	3.5	0	1	2	0	
7:00 AM	22	73	6	6	45	22	44	178	29	20	234	12	691
7:15 AM	27	135	15	9	73	27	34	157	41	40	272	14	844
7:30 AM	48	144	18	5	92	38	48	226	46	32	309	11	1017
7:45 AM	66	185	15	10	130	42	37	209	53	44	295	21	1107
8:00 AM	52	182	27	10	67	41	73	264	49	51	283	21	1120
8:15 AM	43	149	11	8	69	26	36	188	39	34	299	22	924
8:30 AM	25	110	24	12	69	31	40	216	33	40	321	23	944
8:45 AM	37	90	18	21	60	25	49	170	29	43	242	12	796
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	320	1068	134	81	605	252	361	1608	319	304	2255	136	7443
	21.02%	70.17%	8.80%	8.64%	64.50%	26.87%	15.78%	70.28%	13.94%	11.28%	83.67%	5.05%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	209	660	71	33	358	147	194	887	187	161	1186	75	4168
<b>PEAK HR FACTOR :</b>	0.883			0.739			0.821			0.988			0.930

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	1
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
0	0	0	2

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-001

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Normandie Ave			Normandie Ave			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0.5	ET 3.5	ER 0	WL 1	WT 2	WR 0	
4:00 PM	42	151	38	25	130	29	33	263	29	27	215	18	1000
4:15 PM	30	96	26	22	100	26	53	303	33	49	244	12	994
4:30 PM	43	142	33	20	124	24	34	251	31	35	189	10	936
4:45 PM	37	118	28	19	106	34	40	251	43	38	223	17	954
5:00 PM	49	149	38	23	119	34	45	259	46	33	225	21	1041
5:15 PM	44	100	23	23	125	48	42	283	29	46	264	18	1045
5:30 PM	39	124	31	28	127	40	44	279	32	40	245	17	1046
5:45 PM	38	116	12	18	146	40	68	347	56	34	285	20	1180

<b>TOTAL VOLUMES :</b>	NL 322	NT 996	NR 229	SL 178	ST 977	SR 275	EL 359	ET 2236	ER 299	WL 302	WT 1890	WR 133	TOTAL 8196
<b>APPROACH %'s :</b>	20.81%	64.38%	14.80%	12.45%	68.32%	19.23%	12.40%	77.26%	10.33%	12.99%	81.29%	5.72%	

<b>PEAK HR START TIME :</b>	500 PM												TOTAL
<b>PEAK HR VOL :</b>	170	489	104	92	517	162	199	1168	163	153	1019	76	4312
<b>PEAK HR FACTOR :</b>	0.808			0.945			0.812			0.920			0.914

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	1
0	0	0	0
0	0	1	1

NB	SB	EB	WB
0	1	1	3

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-002

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Budlong Ave			Budlong Ave			Carson St			Carson St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	9	0	1	0	173	0	0	252	1	436
7:15 AM	0	0	0	2	0	7	3	191	0	0	360	2	565
7:30 AM	0	0	0	6	0	7	4	225	0	0	326	1	569
7:45 AM	0	0	0	6	0	14	3	245	0	0	350	2	620
8:00 AM	0	0	0	0	0	5	4	256	0	0	326	4	595
8:15 AM	0	0	0	5	0	8	4	231	0	0	354	9	611
8:30 AM	0	0	0	3	0	5	1	207	0	0	343	0	559
8:45 AM	0	0	0	5	0	1	3	224	0	0	309	3	545
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	42.86%	0.00%	57.14%	1.24%	98.76%	0.00%	0.00%	99.17%	0.83%	4500
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	17	0	34	15	957	0	0	1356	16	2395
<b>PEAK HR FACTOR :</b>	0.000			0.638			0.935			0.945			0.966

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-002

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Budlong Ave			Budlong Ave			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	7	0	6	5	339	0	0	269	6	632
4:15 PM	0	0	0	2	0	4	6	319	0	0	281	6	618
4:30 PM	0	0	0	4	0	3	5	314	0	0	257	9	592
4:45 PM	0	0	0	7	0	9	7	287	0	0	299	4	613
5:00 PM	0	0	0	6	0	9	2	321	0	0	306	6	650
5:15 PM	0	0	0	2	0	9	8	305	0	0	301	6	631
5:30 PM	0	0	0	8	0	7	6	312	0	0	308	8	649
5:45 PM	0	0	0	4	0	10	9	349	0	0	304	7	683
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	41.24%	0.00%	58.76%	1.85%	98.15%	0.00%	0.00%	97.81%	2.19%	5068
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	20	0	35	25	1287	0	0	1219	27	2613
<b>PEAK HR FACTOR :</b>	0.000			0.917			0.916			0.986			0.956

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-003

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Berendo Ave			Berendo Ave			Carson St			Carson St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	1	1	1	1	0	1	2	0	1	2	0	
7:00 AM	0	0	4	2	1	8	1	168	10	33	249	3	479
7:15 AM	5	0	4	4	1	7	1	184	8	31	344	5	594
7:30 AM	4	1	6	2	0	13	3	210	14	29	308	4	594
7:45 AM	7	0	10	3	0	10	4	235	11	33	339	4	656
8:00 AM	4	0	8	2	0	7	6	243	8	35	323	4	640
8:15 AM	4	1	15	4	0	7	3	217	13	26	344	10	644
8:30 AM	4	1	11	4	1	12	4	198	11	13	335	15	609
8:45 AM	3	5	17	4	0	7	5	215	8	15	293	9	581
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	31	8	75	25	3	71	27	1670	83	215	2535	54	4797
	27.19%	7.02%	65.79%	25.25%	3.03%	71.72%	1.52%	93.82%	4.66%	7.67%	90.41%	1.93%	
<b>PEAK HR START TIME :</b>	745 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	19	2	44	13	1	36	17	893	43	107	1341	33	2549
<b>PEAK HR FACTOR :</b>	0.813			0.735			0.927			0.974			0.971

UTURNS			
NB	SB	EB	WB
0	0	0	2
0	0	0	1
0	0	0	0
0	0	0	3
0	0	1	4
0	0	0	4
0	0	0	0
0	0	1	4
NB	SB	EB	WB
0	0	2	18

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-003

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Berendo Ave		Berendo Ave			Carson St			Carson St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	4	1	19	7	1	12	4	332	10	7	258	9	664
4:15 PM	1	2	24	2	1	12	8	309	6	5	271	13	654
4:30 PM	5	1	20	13	0	11	6	302	7	7	257	18	647
4:45 PM	10	1	23	12	0	8	7	271	6	8	283	8	637
5:00 PM	0	1	32	4	0	10	8	328	3	6	308	9	709
5:15 PM	3	0	16	10	2	8	6	283	3	7	296	15	649
5:30 PM	2	1	13	6	1	9	4	322	7	9	305	14	693
5:45 PM	7	0	16	4	1	7	9	315	10	6	291	7	673
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	15.84%	3.47%	80.69%	41.13%	4.26%	54.61%	2.03%	95.95%	2.03%	2.28%	93.88%	3.85%	5326

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	12	2	77	24	4	34	27	1248	23	28	1200	45	2724
PEAK HR FACTOR :	0.689			0.775			0.957			0.970			0.961

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
0	0	0	2
0	0	1	2
0	0	0	0
0	0	0	3
0	0	0	0
0	0	0	1

NB	SB	EB	WB
0	0	1	9

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-004

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Medical Center Dwy			Medical Center Dwy			Carson St			Carson St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	6	0	25	6	0	3	0	167	5	41	285	1	539
7:15 AM	12	1	22	12	0	9	1	183	9	36	350	2	637
7:30 AM	13	0	47	16	0	7	4	210	6	46	339	1	689
7:45 AM	5	1	20	10	1	9	1	257	2	43	375	4	728
8:00 AM	4	0	27	9	0	9	7	226	7	56	359	1	705
8:15 AM	6	0	20	10	0	9	1	235	1	37	363	4	686
8:30 AM	13	0	19	10	0	7	1	212	8	47	349	4	670
8:45 AM	7	1	23	9	2	11	4	218	11	54	298	3	641
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	24.26%	1.10%	74.63%	55.03%	2.01%	42.95%	1.07%	96.17%	2.76%	11.62%	87.73%	0.65%	5295
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	28	1	114	45	1	34	13	928	16	182	1436	10	2808
<b>PEAK HR FACTOR :</b>	0.596			0.870			0.920			0.964			0.964

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-005

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM

NS/EW Streets:	Vermont Ave			Vermont Ave			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	
7:00 AM	23	121	37	23	74	38	24	167	15	79	277	35	913
7:15 AM	23	210	43	22	89	46	24	159	20	75	322	30	1063
7:30 AM	30	204	71	34	124	53	31	225	24	81	304	29	1210
7:45 AM	43	263	74	34	163	53	22	236	19	54	317	40	1318
8:00 AM	37	181	42	27	108	52	36	228	17	61	325	39	1153
8:15 AM	45	176	35	29	92	52	35	192	21	60	304	24	1065
8:30 AM	27	111	43	22	84	44	32	215	9	45	333	34	999
8:45 AM	24	136	42	22	87	48	43	173	17	52	293	31	968
<b>TOTAL VOLUMES :</b>	NL 252	NT 1402	NR 387	SL 213	ST 821	SR 386	EL 247	ET 1595	ER 142	WL 507	WT 2475	WR 262	TOTAL 8689
<b>APPROACH %'s :</b>	12.35%	68.69%	18.96%	15.00%	57.82%	27.18%	12.45%	80.39%	7.16%	15.63%	76.29%	8.08%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	155	824	222	124	487	210	124	881	81	256	1250	132	4746
<b>PEAK HR FACTOR :</b>	0.790			0.821			0.966			0.964			0.900

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	1	0	0
NB 0	SB 1	EB 0	WB 1

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-006

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM

NS/EW Streets:	I-110 SB Ramps			I-110 SB Ramps			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	18	0	164	0	195	26	23	233	0	659
7:15 AM	0	0	0	30	0	184	0	190	24	37	251	0	716
7:30 AM	0	0	0	37	0	137	0	287	30	69	310	0	870
7:45 AM	0	0	0	39	0	134	0	305	40	42	320	0	880
8:00 AM	0	0	0	29	0	121	0	266	34	32	300	0	782
8:15 AM	0	0	0	27	0	146	0	216	27	31	281	0	728
8:30 AM	0	0	0	30	0	162	0	272	29	31	236	0	760
8:45 AM	0	0	0	30	0	161	0	201	21	20	231	0	664
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	16.56%	0.00%	83.44%	0.00%	89.32%	10.68%	11.65%	88.35%	0.00%	6059
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	132	0	538	0	1074	131	174	1211	0	3260
<b>PEAK HR FACTOR :</b>	0.000			0.963			0.873			0.914			0.926

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-006

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	I-110 SB Ramps			I-110 SB Ramps			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	53	0	117	0	422	51	30	213	0	886
4:15 PM	0	0	0	59	0	94	0	369	50	31	209	0	812
4:30 PM	0	0	0	52	0	102	0	421	66	40	236	0	917
4:45 PM	0	0	0	67	0	110	0	388	67	42	221	0	895
5:00 PM	0	0	0	52	0	93	0	449	68	34	238	0	934
5:15 PM	0	0	0	67	0	107	0	356	58	53	225	0	866
5:30 PM	0	0	0	62	0	95	0	391	68	49	261	0	926
5:45 PM	0	0	0	82	1	105	0	404	67	42	260	0	961
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	37.48%	0.08%	62.44%	0.00%	86.60%	13.40%	14.70%	85.30%	0.00%	7197
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	263	1	400	0	1600	261	178	984	0	3687
<b>PEAK HR FACTOR :</b>	0.000			0.883			0.900			0.937			0.959

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-007

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Figueroa St			Figueroa St			Carson St			Carson St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	39	96	25	9	35	20	9	127	78	11	209	18	676
7:15 AM	46	118	22	14	64	35	25	99	91	8	206	23	751
7:30 AM	59	137	48	6	83	33	15	158	138	25	286	22	1010
7:45 AM	104	135	60	10	97	53	42	182	137	31	209	36	1096
8:00 AM	69	125	38	12	40	35	23	167	82	25	244	22	882
8:15 AM	50	91	25	10	38	27	32	138	92	14	222	18	757
8:30 AM	41	60	21	11	54	29	27	148	94	10	170	9	674
8:45 AM	37	65	18	11	50	25	21	136	90	12	185	15	665
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	445	827	257	83	461	257	194	1155	802	136	1731	163	6511
	29.10%	54.09%	16.81%	10.36%	57.55%	32.08%	9.02%	53.70%	37.28%	6.70%	85.27%	8.03%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	282	488	171	38	258	148	112	645	449	95	961	98	3745
<b>PEAK HR FACTOR :</b>	0.787			0.694			0.835			0.866			0.854

UTURNS			
NB	SB	EB	WB
0	2	0	0
0	4	0	0
0	0	0	0
0	0	2	0
0	4	0	6
0	4	0	0
0	4	2	0

NB	SB	EB	WB
0	18	4	6

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-007

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Figuroa St			Figuroa St			Carson St			Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	48	56	31	26	74	24	27	265	165	28	177	15	936
4:15 PM	44	66	45	30	64	36	38	248	153	19	169	16	928
4:30 PM	42	57	37	26	91	40	29	279	150	21	190	10	972
4:45 PM	60	56	33	39	77	40	28	293	143	27	165	12	973
5:00 PM	52	56	35	30	110	39	17	309	156	25	191	16	1036
5:15 PM	54	51	23	30	126	43	33	270	128	23	181	19	981
5:30 PM	49	57	39	39	105	38	24	287	136	31	212	18	1035
5:45 PM	52	67	41	32	127	41	26	322	145	24	213	17	1107

TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	401	466	284	252	774	301	222	2273	1176	198	1498	123	7968
	34.84%	40.49%	24.67%	18.99%	58.33%	22.68%	6.05%	61.92%	32.03%	10.89%	82.35%	6.76%	

PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	207	231	138	131	468	161	100	1188	565	103	797	70	4159
PEAK HR FACTOR :	0.900			0.950			0.940			0.929			0.939

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
0	2	0	0
0	4	0	0
0	4	0	2
0	6	0	0
0	2	2	0
0	2	6	2
0	6	0	0
0	6	2	2

# Intersection Turning Movement

Prepared by:  
National Data & Surveying Services

Project ID: 15-5805-001

Day: Wednesday

City: Carson

Date: 12/2/2015

NS/EW Streets:	AM												TOTAL
	Western Ave			Western Ave			220th St			220th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
7:00 AM	12	319	6	5	135	5	3	2	5	11	7	7	517
7:15 AM	24	344	6	1	196	12	5	3	10	15	6	7	629
7:30 AM	30	322	4	4	251	15	3	5	12	45	26	5	722
7:45 AM	38	363	11	2	223	24	5	6	23	29	27	14	765
8:00 AM	24	319	10	4	206	17	5	9	10	15	18	10	647
8:15 AM	18	360	4	1	164	11	7	3	9	11	12	8	608
8:30 AM	27	364	2	2	172	29	4	2	9	5	12	7	635
8:45 AM	33	351	6	1	159	14	8	4	13	17	15	2	623
9:00 AM	13	243	6	1	178	10	11	7	13	6	6	8	502
9:15 AM	19	263	2	4	178	19	12	4	17	5	11	9	543
9:30 AM	15	213	0	3	165	15	11	3	16	8	7	8	464
9:45 AM	16	246	3	2	184	18	8	3	19	6	8	4	517
<b>TOTAL VOLUMES :</b>	269	3707	60	30	2211	189	82	51	156	173	155	89	7172
<b>APPROACH %'s :</b>	6.67%	91.85%	1.49%	1.23%	90.99%	7.78%	28.37%	17.65%	53.98%	41.49%	37.17%	21.34%	
<b>PEAK HR START TIME :</b>	715 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	116	1348	31	11	876	68	18	23	55	104	77	36	2763
<b>PEAK HR FACTOR :</b>	0.907												0.903

UTURNS			
NB	SB	EB	WB
0	0		
0	0		
1	1		
1	0		
1	1		
0	0		
0	0		
0	1		
1	0		
0	1		
1	0		
1	0		
1	0		

NB	SB	EB	WB
6	4	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:  
National Data & Surveying Services

Project ID: 15-5805-001

Day: Wednesday

City: Carson

Date: 12/2/2015

NS/EW Streets:	PM												TOTAL
	Western Ave			Western Ave			220th St			220th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	0	0	1	0	0	1	0	
3:00 PM	18	233	1	6	296	11	13	17	38	11	7	4	655
3:15 PM	13	243	7	3	304	20	17	25	37	9	9	4	691
3:30 PM	20	237	5	2	272	16	17	23	44	12	8	2	658
3:45 PM	22	252	7	6	334	12	10	12	37	8	11	3	714
4:00 PM	9	236	11	3	339	12	18	22	37	5	12	3	707
4:15 PM	20	242	4	8	324	13	16	7	48	7	9	3	701
4:30 PM	12	238	5	5	331	12	17	21	35	10	9	2	697
4:45 PM	22	252	6	11	323	5	13	14	39	13	6	1	705
5:00 PM	13	232	6	7	343	7	17	33	42	15	17	8	740
5:15 PM	14	243	6	8	377	5	14	20	34	13	5	3	742
5:30 PM	11	212	6	6	356	2	17	31	40	10	7	4	702
5:45 PM	20	234	5	9	370	3	8	13	46	9	10	4	731
<b>TOTAL VOLUMES :</b>	194	2854	69	74	3969	118	177	238	477	122	110	41	8443
<b>APPROACH %'s :</b>	6.22%	91.56%	2.21%	1.78%	95.39%	2.84%	19.84%	26.68%	53.48%	44.69%	40.29%	15.02%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	58	921	23	30	1446	17	56	97	162	47	39	19	2915
<b>PEAK HR FACTOR :</b>	0.952												0.982

UTURNS			
NB	SB	EB	WB
1	0		
1	0		
0	0		
1	1		
1	0		
0	1		
0	0		
0	1		
1	1		
1	1		
0	1		
0	1		
0	1		

NB	SB	EB	WB
6	7	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-008

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Normandie Ave			Normandie Ave			220th St			220th St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	2	103	13	9	56	2	3	10	4	3	6	15	226
7:15 AM	1	157	23	11	77	2	5	4	11	2	3	14	310
7:30 AM	5	184	22	14	98	12	9	27	13	8	22	24	438
7:45 AM	13	238	58	28	111	9	6	46	11	10	27	34	591
8:00 AM	5	222	27	19	87	5	10	20	8	21	20	26	470
8:15 AM	2	190	10	8	88	0	4	6	10	7	7	16	348
8:30 AM	2	151	6	9	87	0	8	9	5	5	6	15	303
8:45 AM	5	112	10	10	77	3	1	5	10	2	10	10	255
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	35	1357	169	108	681	33	46	127	72	58	101	154	2941
	2.24%	86.93%	10.83%	13.14%	82.85%	4.01%	18.78%	51.84%	29.39%	18.53%	32.27%	49.20%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	25	834	117	69	384	26	29	99	42	46	76	100	1847
<b>PEAK HR FACTOR :</b>	0.790			0.809			0.675			0.782			0.781

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-008

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Normandie Ave			Normandie Ave			220th St			220th St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	7	129	11	12	153	6	5	13	8	12	10	19	385
4:15 PM	3	118	5	10	157	11	2	11	12	11	11	13	364
4:30 PM	7	118	6	10	171	8	1	16	10	16	11	20	394
4:45 PM	5	122	4	14	179	7	7	12	12	8	8	19	397
5:00 PM	5	114	5	19	186	11	2	11	9	13	6	22	403
5:15 PM	3	131	9	16	190	11	2	13	10	9	11	19	424
5:30 PM	6	120	14	17	171	8	8	22	13	9	10	26	424
5:45 PM	9	133	13	22	211	6	8	15	18	13	8	17	473
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	45	985	67	120	1418	68	35	113	92	91	75	155	3264
	4.10%	89.79%	6.11%	7.47%	88.29%	4.23%	14.58%	47.08%	38.33%	28.35%	23.36%	48.29%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	23	498	41	74	758	36	20	61	50	44	35	84	1724
<b>PEAK HR FACTOR :</b>	0.906			0.908			0.762			0.906			0.911

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5726-001

Day: Wednesday

City: Torrance

Date: 11/4/2015

NS/EW Streets:	PM												TOTAL
	Meyler St			Meyler St			220th St			220th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	2	0	17	15	3	1	1	35	11	7	23	1	116
4:15 PM	4	1	27	10	1	1	0	34	6	4	16	1	105
4:30 PM	3	0	10	21	9	2	2	41	4	9	26	1	128
4:45 PM	6	0	13	10	1	2	0	33	6	9	24	0	104
5:00 PM	4	0	11	16	2	1	2	49	10	2	27	1	125
5:15 PM	3	0	14	7	0	4	2	43	6	5	36	0	120
5:30 PM	1	0	19	4	1	0	1	91	11	3	21	0	152
5:45 PM	5	0	21	4	1	0	0	63	6	11	12	2	125
<b>TOTAL VOLUMES :</b>	28	1	132	87	18	11	8	389	60	50	185	6	975
<b>APPROACH %'s :</b>	17.39%	0.62%	81.99%	75.00%	15.52%	9.48%	1.75%	85.12%	13.13%	20.75%	76.76%	2.49%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	13	0	65	31	4	5	5	246	33	21	96	3	522
<b>PEAK HR FACTOR :</b>	0.750			0.526			0.689			0.732			0.859

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
1	0	0	1
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
1	0	1	1

CONTROL : 4-Way Stop

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-009

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Vermont Ave			Vermont Ave			220th St			220th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	58	156	8	11	76	61	20	1	10	2	1	9	413
7:15 AM	30	233	6	15	91	70	30	5	9	2	4	8	503
7:30 AM	49	246	9	16	141	57	45	8	25	6	10	14	626
7:45 AM	67	322	12	10	137	78	38	8	28	4	13	12	729
8:00 AM	48	218	13	15	129	47	36	11	26	5	0	3	551
8:15 AM	34	212	18	11	113	42	18	8	10	1	2	10	479
8:30 AM	28	148	13	20	93	27	28	3	13	0	3	4	380
8:45 AM	19	162	6	11	99	33	20	7	14	1	3	6	381
<b>TOTAL VOLUMES :</b>	NL 333	NT 1697	NR 85	SL 109	ST 879	SR 415	EL 235	ET 51	ER 135	WL 21	WT 36	WR 66	TOTAL 4062
<b>APPROACH %'s :</b>	15.74%	80.24%	4.02%	7.77%	62.65%	29.58%	55.82%	12.11%	32.07%	17.07%	29.27%	53.66%	
<b>PEAK HR START TIME :</b>	7:15 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	194	1019	40	56	498	252	149	32	88	17	27	37	2409
<b>PEAK HR FACTOR :</b>	0.781			0.896			0.862			0.675			0.826

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
2	0	0	0
2	0	0	0
0	2	0	0
0	4	0	0
0	0	0	0
0	2	0	0
<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>
4	8	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-009

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Vermont Ave			Vermont Ave			220th St			220th St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	14	130	5	7	153	22	60	4	30	13	4	11	453
4:15 PM	8	126	9	9	182	21	41	1	20	7	4	9	437
4:30 PM	9	102	4	3	173	22	70	2	31	1	4	16	437
4:45 PM	8	154	2	5	217	20	60	4	36	4	4	9	523
5:00 PM	5	126	2	8	211	10	63	2	37	12	4	11	491
5:15 PM	14	135	5	5	236	14	48	3	43	9	1	14	527
5:30 PM	7	129	5	4	242	20	64	4	40	6	3	9	533
5:45 PM	8	125	3	5	223	10	44	4	31	3	5	10	471
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	73	1027	35	46	1637	139	450	24	268	55	29	89	3872
	6.43%	90.48%	3.08%	2.52%	89.85%	7.63%	60.65%	3.23%	36.12%	31.79%	16.76%	51.45%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	34	544	14	22	906	64	235	13	156	31	12	43	2074
<b>PEAK HR FACTOR :</b>	0.902			0.932			0.935			0.796			0.973

UTURNS			
NB	SB	EB	WB
0	2	0	0
0	0	0	0
0	0	0	0
0	4	0	0
0	0	0	0
2	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
2	6	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-010

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Figueroa St			Figueroa St			220th St			220th St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	0	0.5	0.5	1	0.5	0.5	1	
7:00 AM	116	100	8	10	38	72	40	3	18	13	65	11	494
7:15 AM	125	106	26	28	60	86	53	6	5	22	61	12	590
7:30 AM	97	172	40	47	106	102	45	14	11	19	52	30	735
7:45 AM	117	195	53	52	130	101	74	6	18	23	48	28	845
8:00 AM	134	142	26	1	70	90	61	11	13	23	46	19	636
8:15 AM	110	92	2	5	41	98	67	4	24	4	46	8	501
8:30 AM	110	64	7	5	64	101	70	6	23	12	38	9	509
8:45 AM	94	46	3	3	43	103	56	9	26	11	33	12	439
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	903	917	165	151	552	753	466	59	138	127	389	129	4749
	45.49%	46.20%	8.31%	10.37%	37.91%	51.72%	70.29%	8.90%	20.81%	19.69%	60.31%	20.00%	
<b>PEAK HR START TIME :</b>	7:15 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	473	615	145	128	366	379	233	37	47	87	207	89	2806
<b>PEAK HR FACTOR :</b>	0.845			0.771			0.809			0.948			0.830

UTURNS			
NB	SB	EB	WB
0	2	0	0
2	4	0	0
6	4	0	0
20	2	0	0
4	0	0	0
0	2	0	0
2	2	0	0
2	2	0	0
36	18	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-010

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Figuroa St			Figuroa St			220th St			220th St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0.5	ET 0.5	ER 1	WL 0.5	WT 0.5	WR 1	
4:00 PM	102	77	13	11	108	167	59	15	22	7	26	11	618
4:15 PM	104	67	23	12	88	132	78	24	27	10	17	10	592
4:30 PM	103	76	5	17	90	147	49	23	21	12	28	13	584
4:45 PM	100	69	20	17	115	130	69	19	16	7	15	14	591
5:00 PM	112	72	15	20	128	141	60	20	25	11	22	14	640
5:15 PM	88	64	10	5	131	113	54	31	21	10	27	10	564
5:30 PM	95	73	13	15	125	103	59	23	29	17	27	16	595
5:45 PM	111	78	12	35	161	118	69	21	28	18	28	12	691

<b>TOTAL VOLUMES :</b>	NL 815	NT 576	NR 111	SL 132	ST 946	SR 1051	EL 497	ET 176	ER 189	WL 92	WT 190	WR 100	TOTAL 4875
<b>APPROACH %'s :</b>	54.26%	38.35%	7.39%	6.20%	44.43%	49.37%	57.66%	20.42%	21.93%	24.08%	49.74%	26.18%	

<b>PEAK HR START TIME :</b>	500 PM												TOTAL
<b>PEAK HR VOL :</b>	406	287	50	75	545	475	242	95	103	56	104	52	2490
<b>PEAK HR FACTOR :</b>	0.924			0.872			0.932			0.883			0.901

CONTROL : Signalized

UTURNS			
NB	SB	EB	WB
2	2	0	0
2	2	0	0
2	0	0	0
2	4	0	0
4	6	0	0
0	0	0	0
2	8	0	0
0	6	0	0

NB	SB	EB	WB
14	28	0	0

# Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5805-002

Day: Wednesday

City: Carson

Date: 12/2/2015

NS/EW Streets:	AM												TOTAL
	Western Ave			Western Ave			223rd St			223rd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	TOTAL
7:00 AM	23	266	31	6	120	8	9	60	12	51	127	52	765
7:15 AM	32	330	43	15	194	7	5	73	18	57	166	46	986
7:30 AM	50	290	49	20	271	12	11	76	27	79	238	44	1167
7:45 AM	49	352	54	16	262	15	12	87	25	50	199	49	1170
8:00 AM	49	282	38	28	189	10	8	127	34	67	225	54	1111
8:15 AM	40	341	25	10	176	16	16	93	23	48	191	34	1013
8:30 AM	37	317	25	20	152	5	16	86	23	74	233	43	1031
8:45 AM	28	316	26	12	185	9	11	102	27	39	149	48	952
9:00 AM	24	224	15	18	167	6	18	90	28	41	124	22	777
9:15 AM	23	228	18	17	165	10	11	51	26	32	99	38	718
9:30 AM	24	198	21	20	165	6	11	47	22	32	102	34	682
9:45 AM	20	199	21	19	167	5	18	61	23	33	105	38	709
<b>TOTAL VOLUMES :</b>	399	3343	366	201	2213	109	146	953	288	603	1958	502	11081
<b>APPROACH %'s :</b>	9.71%	81.38%	8.91%	7.97%	87.71%	4.32%	10.53%	68.71%	20.76%	19.69%	63.92%	16.39%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	188	1265	166	74	898	53	47	383	109	244	853	181	4461
<b>PEAK HR FACTOR :</b>	0.890												0.953

UTURNS			
NB	SB	EB	WB
0	0		0
0	0		0
0	0		0
0	0		0
0	0		0
0	1		0
0	1		1
0	1		0
0	0		0
1	0		0
1	0		0
0	1		0

NB	SB	EB	WB
2	4	0	1

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:  
National Data & Surveying Services

Project ID: 15-5805-002

Day: Wednesday

City: Carson

Date: 12/2/2015

PM

NS/EW Streets:	Western Ave		Western Ave			223rd St			223rd St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 0	
3:00 PM	21	222	33	56	273	11	10	166	35	24	115	20	986
3:15 PM	26	223	55	36	297	10	22	191	43	17	126	25	1071
3:30 PM	17	215	50	49	254	11	18	198	43	24	117	20	1016
3:45 PM	22	248	42	43	320	10	18	181	44	22	140	25	1115
4:00 PM	21	203	54	49	321	8	17	212	55	28	116	25	1109
4:15 PM	34	228	53	50	312	7	11	179	44	24	129	20	1091
4:30 PM	30	210	53	44	305	11	17	243	51	23	125	30	1142
4:45 PM	39	255	49	44	340	6	14	177	44	17	131	22	1138
5:00 PM	31	209	40	52	290	6	17	249	57	18	144	24	1137
5:15 PM	21	233	35	58	390	12	14	203	44	15	149	17	1191
5:30 PM	23	198	47	44	323	15	11	257	38	22	171	19	1168
5:45 PM	23	223	42	49	354	9	12	214	50	19	122	27	1144
<b>TOTAL VOLUMES :</b>	308	2667	553	574	3779	116	181	2470	548	253	1585	274	13308
<b>APPROACH %'s :</b>	8.73%	75.60%	15.67%	12.84%	84.56%	2.60%	5.66%	77.21%	17.13%	11.98%	75.05%	12.97%	
<b>PEAK HR START TIME :</b>	500 PM												
<b>PEAK HR VOL :</b>	98	863	164	203	1357	42	54	923	189	74	586	87	4640
<b>PEAK HR FACTOR :</b>	0.973												

UTURNS			
NB	SB	EB	WB
0	1		
0	1		
0	0		
0	0		
0	0		
1	0		
0	0		
0	0		
0	0		
0	0		
0	0		
0	0		
0	2		
NB	SB	EB	WB
1	4	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-011

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM

NS/EW Streets:	Normandie Ave		Normandie Ave			223rd St			223rd St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 0.5	ET 2.5	ER 0	WL 1	WT 2	WR 0	
7:00 AM	18	96	17	3	59	9	12	100	6	22	140	13	495
7:15 AM	36	142	15	9	72	8	20	110	10	28	240	10	700
7:30 AM	32	198	30	15	92	16	23	156	12	15	264	16	869
7:45 AM	31	229	39	15	93	22	18	181	13	30	238	23	932
8:00 AM	35	220	19	9	98	12	21	132	31	42	246	20	885
8:15 AM	25	152	17	10	76	14	20	131	8	27	270	16	766
8:30 AM	30	126	15	8	90	13	15	95	14	27	252	18	703
8:45 AM	17	95	6	13	58	14	9	110	13	29	247	16	627
<b>TOTAL VOLUMES :</b>	NL 224	NT 1258	NR 158	SL 82	ST 638	SR 108	EL 138	ET 1015	ER 107	WL 220	WT 1897	WR 132	TOTAL 5977
<b>APPROACH %'s :</b>	13.66%	76.71%	9.63%	9.90%	77.05%	13.04%	10.95%	80.56%	8.49%	9.78%	84.35%	5.87%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	123	799	105	49	359	64	82	600	64	114	1018	75	3452
<b>PEAK HR FACTOR :</b>	0.859		0.908			0.880			0.964			0.926	

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:  
National Data & Surveying Services

Project ID: 15-5726-002

Day: Wednesday

City: Torrance

Date: 11/4/2015

NS/EW Streets:	AM												TOTAL
	Meyler St			Meyler St			223rd St			223rd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	1	2	0	1	2	0	
7:00 AM	10	5	11	6	1	7	5	119	1	14	228	5	412
7:15 AM	7	4	22	8	2	7	6	167	2	16	272	14	527
7:30 AM	28	13	19	9	8	12	12	155	5	14	300	10	585
7:45 AM	21	17	14	20	19	13	22	187	6	8	267	29	623
8:00 AM	18	5	14	18	15	22	12	157	11	8	273	12	565
8:15 AM	7	2	13	5	3	6	2	105	6	16	257	7	429
8:30 AM	15	0	10	2	3	7	5	128	3	4	277	13	467
8:45 AM	6	1	6	4	0	7	4	146	6	11	247	3	441
<b>TOTAL VOLUMES :</b>	112	47	109	72	51	81	68	1164	40	91	2121	93	4049
<b>APPROACH %'s :</b>	41.79%	17.54%	40.67%	35.29%	25.00%	39.71%	5.35%	91.51%	3.14%	3.95%	92.02%	4.03%	
<b>PEAK HR START TIME :</b>	715 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	74	39	69	55	44	54	52	666	24	46	1112	65	2300
<b>PEAK HR FACTOR :</b>	0.758			0.695			0.863			0.944			0.923

UTURNS			
NB	SB	EB	WB
0	0	1	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	2	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5726-002

Day: Wednesday

City: Torrance

Date: 11/4/2015

**PM**

NS/EW Streets:	Meyler St		Meyler St			223rd St			223rd St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	1	2	0	1	2	0	
4:00 PM	3	8	10	4	3	6	9	274	19	21	168	5	530
4:15 PM	7	8	5	1	6	5	21	267	32	24	177	9	562
4:30 PM	6	1	13	14	5	10	8	272	11	17	179	4	540
4:45 PM	3	1	7	7	1	11	10	267	23	19	182	13	544
5:00 PM	4	6	14	8	1	10	11	304	14	14	189	10	585
5:15 PM	6	2	8	3	4	9	15	274	22	6	214	6	569
5:30 PM	10	3	6	6	4	8	14	262	26	21	228	9	597
5:45 PM	7	4	7	2	6	7	18	290	27	18	182	19	587
<b>TOTAL VOLUMES :</b>	46	33	70	45	30	66	106	2210	174	140	1519	75	4514
<b>APPROACH %'s :</b>	30.87%	22.15%	46.98%	31.91%	21.28%	46.81%	4.26%	88.76%	6.99%	8.07%	87.60%	4.33%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	27	15	35	19	15	34	58	1130	89	59	813	44	2338
<b>PEAK HR FACTOR :</b>	0.802			0.895			0.953			0.888			0.979

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	1	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	1
0	0	0	0
0	0	0	1

NB	SB	EB	WB
0	0	1	2

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-012

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	Vermont Ave			Vermont Ave			223rd St			223rd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 2	WT 2	WR 0	TOTAL
7:00 AM	21	132	31	22	69	10	10	103	9	65	183	79	734
7:15 AM	17	177	33	21	63	16	22	133	6	64	258	58	868
7:30 AM	45	224	42	40	119	21	32	147	10	56	221	60	1017
7:45 AM	33	261	43	41	83	32	33	184	24	46	224	86	1090
8:00 AM	39	185	20	43	104	26	20	130	25	73	261	82	1008
8:15 AM	21	159	25	19	79	10	26	132	13	72	273	72	901
8:30 AM	29	128	23	18	76	19	16	95	11	56	258	63	792
8:45 AM	19	124	28	20	70	13	19	123	18	66	245	38	783
<b>TOTAL VOLUMES :</b>	NL 224	NT 1390	NR 245	SL 224	ST 663	SR 147	EL 178	ET 1047	ER 116	WL 498	WT 1923	WR 538	TOTAL 7193
<b>APPROACH %'s :</b>	12.05%	74.77%	13.18%	21.66%	64.12%	14.22%	13.27%	78.08%	8.65%	16.83%	64.99%	18.18%	
<b>PEAK HR START TIME :</b>	730 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	138	829	130	143	385	89	111	593	72	247	979	300	4016
<b>PEAK HR FACTOR :</b>	0.814			0.857			0.805			0.915			0.921

UTURNS			
NB	SB	EB	WB
5	0	0	3
1	0	0	4
2	0	0	0
3	0	1	3
0	1	0	3
1	0	0	2
1	1	2	0
1	0	0	0
NB 14	SB 2	EB 3	WB 15

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-012

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Vermont Ave			Vermont Ave			223rd St			223rd St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 2	WT 2	WR 0	
4:00 PM	15	94	46	71	138	20	23	225	24	54	154	31	895
4:15 PM	14	87	44	43	135	20	17	268	24	65	185	28	930
4:30 PM	13	89	49	47	161	16	16	260	23	49	131	23	877
4:45 PM	19	94	42	55	163	29	24	281	37	64	187	43	1038
5:00 PM	15	102	57	67	196	24	8	247	35	56	166	30	1003
5:15 PM	20	93	46	78	170	28	13	266	16	76	197	26	1029
5:30 PM	21	109	45	71	212	29	15	268	29	57	182	26	1064
5:45 PM	27	67	44	70	161	29	11	250	24	64	193	36	976
<b>TOTAL VOLUMES :</b>	NL 144	NT 735	NR 373	SL 502	ST 1336	SR 195	EL 127	ET 2065	ER 212	WL 485	WT 1395	WR 243	TOTAL 7812
<b>APPROACH %'s :</b>	11.50%	58.71%	29.79%	24.69%	65.72%	9.59%	5.28%	85.90%	8.82%	22.85%	65.71%	11.45%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	75	398	190	271	741	110	60	1062	117	253	732	125	4134
<b>PEAK HR FACTOR :</b>	0.947			0.899			0.906			0.928			0.971

UTURNS			
NB	SB	EB	WB
2	3	1	0
0	0	0	3
0	0	0	2
1	1	0	3
1	0	0	0
0	2	0	2
1	0	0	7
2	2	2	0
NB 7	SB 8	EB 3	WB 17

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-013

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM													
NS/EW Streets:	I-110			I-110			223rd St			223rd St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	49	0	157	0	148	14	39	187	0	594
7:15 AM	0	0	0	60	0	130	0	177	25	41	238	0	671
7:30 AM	0	0	0	92	0	112	0	202	36	57	251	0	750
7:45 AM	0	0	0	92	0	91	0	248	31	33	272	0	767
8:00 AM	0	0	0	60	1	144	0	169	28	41	284	0	727
8:15 AM	0	0	0	50	0	200	0	148	10	34	192	0	634
8:30 AM	0	0	0	46	0	178	0	144	15	33	228	0	644
8:45 AM	0	0	0	50	1	136	0	132	25	28	187	0	559
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	#DIV/0!	#DIV/0!	#DIV/0!	30.26%	0.12%	69.62%	0.00%	88.14%	11.86%	14.27%	85.73%	0.00%	5346
<b>PEAK HR START TIME :</b>	7:15 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	0	0	304	1	477	0	796	120	172	1045	0	2915
<b>PEAK HR FACTOR :</b>	0.000			0.954			0.821			0.936			0.950

UTURNS			
NB	SB	EB	WB
0	0	0	2
0	0	0	0
0	0	0	1
0	0	0	2
0	0	0	0
0	0	0	1
0	0	0	1
0	0	0	0
NB	SB	EB	WB
0	0	0	7

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-014

Day: Wednesday

City: West Carson

Date: 10/29/2014

AM

NS/EW Streets:	Figueroa St		Figueroa St			223rd St			223rd St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
7:00 AM	17	133	18	17	31	27	75	99	26	11	183	31	668
7:15 AM	33	139	23	15	44	29	83	109	37	18	223	38	791
7:30 AM	22	212	42	9	69	48	72	145	56	13	258	81	1027
7:45 AM	24	186	56	19	91	65	84	209	52	28	203	92	1109
8:00 AM	23	148	28	23	56	35	54	121	33	13	241	45	820
8:15 AM	15	106	10	22	38	29	72	134	22	7	189	31	675
8:30 AM	20	95	9	17	47	45	52	103	19	11	187	29	634
8:45 AM	12	55	18	20	25	36	51	105	36	22	166	34	580
<b>TOTAL VOLUMES :</b>	NL 166	NT 1074	NR 204	SL 142	ST 401	SR 314	EL 543	ET 1025	ER 281	WL 123	WT 1650	WR 381	TOTAL 6304
<b>APPROACH %'s :</b>	11.50%	74.38%	14.13%	16.57%	46.79%	36.64%	29.37%	55.44%	15.20%	5.71%	76.60%	17.69%	
<b>PEAK HR START TIME :</b>	7:15 AM												
<b>PEAK HR VOL :</b>	102	685	149	66	260	177	293	584	178	72	925	256	3747
<b>PEAK HR FACTOR :</b>	0.848			0.719			0.764			0.890			0.845

UTURNS			
NB	SB	EB	WB
0	8	7	0
2	7	3	0
1	1	6	0
1	4	5	1
0	10	7	1
0	10	9	0
0	5	3	0
0	7	6	0
NB 4	SB 52	EB 46	WB 2

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5731-014

Day: Wednesday

City: West Carson

Date: 10/29/2014

PM

NS/EW Streets:	Figueroa St			Figueroa St			223rd St			223rd St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
4:00 PM	11	93	32	38	63	32	77	245	46	10	125	31	803
4:15 PM	8	70	15	35	62	41	90	297	49	15	139	24	845
4:30 PM	12	90	26	30	76	38	73	288	45	14	122	25	839
4:45 PM	7	64	21	30	70	28	83	311	60	16	164	25	879
5:00 PM	16	104	22	29	91	41	82	286	47	14	145	36	913
5:15 PM	18	74	22	32	111	39	67	308	48	28	172	34	953
5:30 PM	16	88	32	36	90	37	66	311	52	15	142	26	911
5:45 PM	21	77	34	50	113	41	70	290	61	17	157	34	965
<b>TOTAL VOLUMES :</b>	NL 109	NT 660	NR 204	SL 280	ST 676	SR 297	EL 608	ET 2336	ER 408	WL 129	WT 1166	WR 235	TOTAL 7108
<b>APPROACH %'s :</b>	11.20%	67.83%	20.97%	22.35%	53.95%	23.70%	18.14%	69.69%	12.17%	8.43%	76.21%	15.36%	
<b>PEAK HR START TIME :</b>	500 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	71	343	110	147	405	158	285	1195	208	74	616	130	3742
<b>PEAK HR FACTOR :</b>	0.923			0.870			0.984			0.876			0.969

UTURNS			
NB	SB	EB	WB
0	7	5	0
0	9	8	1
0	8	2	1
0	8	8	1
0	4	4	0
2	3	6	0
2	9	4	0
2	9	8	1
NB 6	SB 57	EB 45	WB 4

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:  
National Data & Surveying Services

Project ID: 15-5805-003

Day: Wednesday

City: Carson

Date: 12/2/2015

AM													
NS/EW Streets:	Western Ave			Western Ave			Sepulveda Blvd			Sepulveda Blvd			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
7:00 AM	44	234	57	13	132	35	27	239	12	57	372	36	1258
7:15 AM	44	238	56	11	196	43	20	253	17	58	457	22	1415
7:30 AM	42	270	81	13	280	60	48	247	14	85	380	21	1541
7:45 AM	30	236	86	11	268	75	65	345	15	89	407	15	1642
8:00 AM	32	245	77	30	180	64	66	323	17	67	376	24	1501
8:15 AM	35	222	53	22	146	68	50	346	26	63	439	36	1506
8:30 AM	47	267	53	27	151	84	53	240	15	64	363	45	1409
8:45 AM	44	191	48	15	129	57	62	315	18	44	371	40	1334
9:00 AM	32	160	51	25	135	47	55	268	17	49	270	27	1136
9:15 AM	38	150	36	27	110	41	39	269	21	39	336	41	1147
9:30 AM	39	151	50	25	137	41	23	207	12	35	300	26	1046
9:45 AM	44	146	50	25	136	48	42	199	27	42	307	33	1099
<b>TOTAL VOLUMES :</b>	471	2510	698	244	2000	663	550	3251	211	692	4378	366	16034
<b>APPROACH %'s :</b>	12.80%	68.23%	18.97%	8.39%	68.80%	22.81%	13.71%	81.03%	5.26%	12.73%	80.54%	6.73%	
<b>PEAK HR START TIME :</b>	730 AM												
<b>PEAK HR VOL :</b>	139	973	297	76	874	267	229	1261	72	304	1602	96	6190
<b>PEAK HR FACTOR :</b>	0.896			0.859			0.919			0.930			0.942

UTURNS			
NB	SB	EB	WB
5	0	1	1
2	0	0	0
3	0	0	1
4	0	0	0
2	0	0	0
1	1	0	0
0	2	0	1
0	0	0	0
4	0	0	0
9	0	1	1
2	1	0	1
0	1	1	0
NB	SB	EB	WB
32	5	3	5

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5805-003

Day: Wednesday

City: Carson

Date: 12/2/2015

**PM**

NS/EW Streets:	Western Ave		Western Ave			Sepulveda Blvd			Sepulveda Blvd			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	
3:00 PM	43	182	73	39	242	40	39	332	30	73	286	40	1419
3:15 PM	21	205	58	39	199	36	53	390	39	70	304	39	1453
3:30 PM	35	205	93	49	221	34	51	338	24	66	302	29	1447
3:45 PM	33	183	81	39	207	42	54	387	39	73	342	41	1521
4:00 PM	38	213	88	41	256	29	59	322	31	70	279	37	1463
4:15 PM	29	189	92	37	234	27	66	353	43	74	296	29	1469
4:30 PM	33	201	85	42	267	40	59	294	37	76	338	38	1510
4:45 PM	43	193	72	40	227	27	60	355	36	83	362	39	1537
5:00 PM	47	220	69	50	254	34	57	297	33	73	298	36	1468
5:15 PM	51	183	82	43	223	27	44	350	25	75	375	38	1516
5:30 PM	41	200	98	41	257	45	49	336	26	78	345	26	1542
5:45 PM	44	178	70	40	237	31	36	367	29	74	322	34	1462
<b>TOTAL VOLUMES :</b>	458	2352	961	500	2824	412	627	4121	392	885	3849	426	17807
<b>APPROACH %'s :</b>	12.15%	62.37%	25.48%	13.38%	75.59%	11.03%	12.20%	80.18%	7.63%	17.15%	74.59%	8.26%	
<b>PEAK HR START TIME :</b>	4:45 PM												
<b>PEAK HR VOL :</b>	182	796	321	174	961	133	210	1338	120	309	1380	139	6063
<b>PEAK HR FACTOR :</b>	0.958												
	0.924			0.924			0.925			0.936			0.983

UTURNS			
NB	SB	EB	WB
3	0		0
2	2		1
5	0		0
2	0		0
5	0		0
1	0		1
5	0		0
5	0		2
2	1		1
2	1		0
3	0		1
2	0		0
NB	SB	EB	WB
37	4	0	6

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5815-002

Day: Wednesday

City: Carson

Date: 12/9/2015

PM

NS/EW Streets:	I-405 NB Ramps			I-405 SB Ramps			E Carson St			E Carson St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	1	0.5	0.5	1	1	2	0	1	2	1	
4:00 PM	1	6	1	5	1	110	22	203	2	1	151	82	585
4:15 PM	2	1	1	6	0	106	27	206	1	0	145	84	579
4:30 PM	1	0	0	6	1	118	19	201	0	0	161	98	605
4:45 PM	0	1	0	10	2	121	25	225	2	1	187	78	652
5:00 PM	0	1	1	4	0	116	38	228	0	0	185	99	672
5:15 PM	2	1	1	5	0	119	26	235	4	0	184	77	654
5:30 PM	0	0	1	2	0	117	21	233	0	1	184	71	630
5:45 PM	0	0	0	6	0	132	17	203	1	0	166	52	577
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	6	10	5	44	4	939	195	1734	10	3	1363	641	4954
	28.57%	47.62%	23.81%	4.46%	0.41%	95.14%	10.06%	89.43%	0.52%	0.15%	67.91%	31.94%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	2	3	3	21	2	473	110	921	6	2	740	325	2608
<b>PEAK HR FACTOR :</b>	0.500			0.932			0.975			0.939			0.970

UTURNS			
NB	SB	EB	WB
0	0	0	1
0	0	0	0
0	1	0	0
0	0	1	0
0	1	0	0
0	0	0	0
0	0	0	0
0	0	1	0
0	0	1	0

CONTROL : Signalized



# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 15-5815-001

Day: Wednesday

City: Carson

Date: 12/9/2015

PM

NS/EW Streets:	I-405 SB Ramps		I-405 SB Ramps			E Carson St			E Carson St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	10	1	25	0	0	0	2	203	148	23	241	2	655
4:15 PM	11	1	22	0	0	2	2	214	160	11	246	4	673
4:30 PM	5	2	18	0	0	0	0	194	216	9	261	0	705
4:45 PM	6	3	21	0	0	1	2	238	207	14	301	1	794
5:00 PM	5	1	18	0	0	0	0	243	214	28	266	3	778
5:15 PM	6	4	23	0	0	1	2	245	197	18	279	2	777
5:30 PM	6	2	24	0	0	1	1	229	204	21	284	2	774
5:45 PM	5	1	21	0	0	0	0	205	196	9	291	3	731
<b>TOTAL VOLUMES :</b>	54	15	172	0	0	5	9	1771	1542	133	2169	17	5887
<b>APPROACH %'s :</b>	22.41%	6.22%	71.37%	0.00%	0.00%	100.00%	0.27%	53.31%	46.42%	5.74%	93.53%	0.73%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	23	10	86	0	0	3	5	955	822	81	1130	8	3123
<b>PEAK HR FACTOR :</b>	0.902			0.750			0.975			0.964			0.983

UTURNS			
NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5177 Cars-010

Day: Thursday

City: Carson

**TOTALS**

Date: 4/3/2014

NS/EW Streets:	AM												TOTAL
	Wilmington Ave			Wilmington Ave			I-405 NB Ramps			I-405 NB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	84	23	9	122	0	0	0	0	291	0	141	586
7:15 AM	0	97	25	11	149	0	0	0	0	293	0	137	615
7:30 AM	0	108	13	6	158	0	0	0	0	288	0	117	582
7:45 AM	0	147	18	7	155	0	0	0	0	277	0	160	617
8:00 AM	0	132	19	14	122	0	0	0	0	246	0	139	540
8:15 AM	0	98	24	11	157	0	0	0	0	254	0	127	573
8:30 AM	0	86	28	13	141	0	0	0	0	204	0	121	507
8:45 AM	0	88	20	16	125	0	0	0	0	268	0	101	530
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	0	840	170	87	1129	0	0	0	0	2121	0	1043	5390
	0.00%	83.17%	16.83%	7.15%	92.85%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	67.04%	0.00%	32.96%	
<b>PEAK HR START TIME :</b>	7:15 AM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	484	75	38	584	0	0	0	0	1104	0	553	2838
<b>PEAK HR FACTOR :</b>	0.847			0.948			0.000			0.948			0.929

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

# Intersection Turning Movement

Prepared by:

**National Data & Surveying Services**

Project ID: 14-5177 Cars-010

Day: Thursday

City: Carson

**TOTALS**

Date: 4/3/2014

**PM**

NS/EW Streets:	Wilmington Ave			Wilmington Ave			I-405 NB Ramps			I-405 NB Ramps			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	101	56	32	232	0	0	0	0	210	0	77	607
4:15 PM	0	75	52	17	225	0	0	0	0	237	0	71	602
4:30 PM	0	87	67	17	244	0	0	0	0	174	0	98	600
4:45 PM	0	89	68	15	238	0	0	0	0	264	0	79	664
5:00 PM	0	74	48	27	222	0	0	0	0	245	0	69	611
5:15 PM	0	109	47	18	267	0	0	0	0	259	0	95	686
5:30 PM	0	90	55	17	228	0	0	0	0	264	0	78	642
5:45 PM	0	89	58	10	187	0	0	0	0	210	0	103	568
<b>TOTAL VOLUMES :</b>	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
<b>APPROACH %'s :</b>	0	714	451	153	1843	0	0	0	0	1863	0	670	5694
	0.00%	61.29%	38.71%	7.67%	92.33%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	73.55%	0.00%	26.45%	
<b>PEAK HR START TIME :</b>	445 PM												<b>TOTAL</b>
<b>PEAK HR VOL :</b>	0	362	218	77	955	0	0	0	0	1032	0	321	2965
<b>PEAK HR FACTOR :</b>	0.924			0.905			0.000			0.956			0.932

UTURNS			
NB	SB	EB	WB
0	0	0	0

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

## **APPENDIX C: LOS ANALYSIS**

## **APPENDIX C**

**EXISTING**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 1 - Normandie Avenue & Torrance Boulevard  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	101	0	0.000	N-S(1): 0.296 *
	TH	2.00	382	3,200	0.151	N-S(2): 0.247
	LT	1.00	32	1,600	0.020 *	E-W(1): 0.374
Westbound	RT	0.00	74	0	0.000	E-W(2): 0.539 *
	TH	2.00	1,461	3,200	0.480 *	V/C: 0.835
	LT	1.00	103	1,600	0.064	Lost Time: 0.100
Northbound	RT	0.00	147	0	0.000	ITS: 0.000
	TH	2.00	736	3,200	0.276 *	ICU: 0.935
	LT	1.00	154	1,600	0.096	LOS: E
Eastbound	RT	0.00	77	0	0.000	
	TH	2.00	915	3,200	0.310	
	LT	1.00	95	1,600	0.059 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	152	0	0.000	N-S(1): 0.293
	TH	2.00	729	3,200	0.275 *	N-S(2): 0.336 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.500 *
Westbound	RT	0.00	43	0	0.000	E-W(2): 0.380
	TH	2.00	963	3,200	0.314	V/C: 0.836
	LT	1.00	58	1,600	0.036 *	Lost Time: 0.100
Northbound	RT	0.00	149	0	0.000	ITS: 0.000
	TH	2.00	530	3,200	0.212	ICU: 0.936
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	0.00	111	0	0.000	
	TH	2.00	1,373	3,200	0.464 *	
	LT	1.00	106	1,600	0.066	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 2 - Vermont Avenue & Torrance Boulevard  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	185	1,600	0.008	N-S(1): 0.277 * N-S(2): 0.253 E-W(1): 0.373 E-W(2): 0.550 *
	TH	2.00	566	3,200	0.177	
	LT	1.00	37	1,600	0.023 *	
Westbound	RT	0.00	111	0	0.000	V/C: 0.827 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,303	3,200	0.442 *	
	LT	1.00	89	1,600	0.056	
Northbound	RT	1.00	182	1,600	0.058	ICU: 0.927
	TH	2.00	813	3,200	0.254 *	
	LT	1.00	122	1,600	0.076	
Eastbound	RT	0.00	147	0	0.000	LOS: E
	TH	2.00	866	3,200	0.317	
	LT	1.00	172	1,600	0.108 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	229	1,600	0.039	N-S(1): 0.221 N-S(2): 0.319 * E-W(1): 0.461 * E-W(2): 0.347
	TH	2.00	863	3,200	0.270 *	
	LT	1.00	112	1,600	0.070	
Westbound	RT	0.00	89	0	0.000	V/C: 0.780 Lost Time: 0.100 ITS: 0.000
	TH	2.00	689	3,200	0.243	
	LT	1.00	60	1,600	0.038 *	
Northbound	RT	1.00	120	1,600	0.038	ICU: 0.880
	TH	2.00	484	3,200	0.151	
	LT	1.00	78	1,600	0.049 *	
Eastbound	RT	0.00	96	0	0.000	LOS: D
	TH	2.00	1,259	3,200	0.423 *	
	LT	1.00	166	1,600	0.104	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
Left Lane: 1600 vph  
Double Lt Penalty: 20 %  
ITS: 0 %

N-S Split Phase : N  
E-W Split Phase : N  
Lost Time (% of cycle) : 10  
V/C Round Off (decs.) : 3

OLA Movements :  
FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.065	N-S(1): 0.409 *
	TH	2.00	710	3,200	0.222	N-S(2): 0.316
	LT	1.00	93	1,600	0.058 *	E-W(1): 0.306
Westbound	RT	0.00	153	0	0.000	E-W(2): 0.434 *
	TH	2.00	1,121	3,200	0.398 *	V/C: 0.843
	LT	1.00	66	1,600	0.041	Lost Time: 0.100
Northbound	RT	1.00	83	1,600	0.031	ITS: 0.000
	TH	2.00	1,123	3,200	0.351 *	ICU: 0.943
	LT	1.00	150	1,600	0.094	LOS: E
Eastbound	RT	0.00	103	0	0.000	
	TH	2.00	745	3,200	0.265	
	LT	1.00	58	1,600	0.036 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	220	1,600	0.111	N-S(1): 0.344
	TH	2.00	1,295	3,200	0.405 *	N-S(2): 0.499 *
	LT	1.00	154	1,600	0.096	E-W(1): 0.407 *
Westbound	RT	0.00	122	0	0.000	E-W(2): 0.376
	TH	2.00	910	3,200	0.323	V/C: 0.906
	LT	1.00	70	1,600	0.044 *	Lost Time: 0.100
Northbound	RT	1.00	116	1,600	0.051	ITS: 0.000
	TH	2.00	793	3,200	0.248	ICU: 1.006
	LT	1.00	151	1,600	0.094 *	LOS: F
Eastbound	RT	0.00	183	0	0.000	
	TH	2.00	980	3,200	0.363 *	
	LT	1.00	84	1,600	0.053	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 4 - Normandie Avenue & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	147	0	0.000	N-S(1): 0.249
	TH	2.00	358	3,200	0.158 *	N-S(2): 0.289 *
	LT	1.00	33	1,600	0.021	E-W(1): 0.437
Westbound	RT	0.00	75	0	0.000	E-W(2): 0.515 *
	TH	2.00	1,186	3,200	0.394 *	V/C: 0.804
	LT	1.00	161	1,600	0.101	Lost Time: 0.100
Northbound	RT	0.00	71	0	0.000	ITS: 0.000
	TH	2.00	660	3,200	0.228	ICU: 0.904
	LT	1.00	209	1,600	0.131 *	LOS: E
Eastbound	RT	0.00	187	0	0.000	
	TH	2.00	887	3,200	0.336	
	LT	1.00	194	1,600	0.121 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	162	0	0.000	N-S(1): 0.243
	TH	2.00	517	3,200	0.212 *	N-S(2): 0.318 *
	LT	1.00	92	1,600	0.058	E-W(1): 0.512 *
Westbound	RT	0.00	76	0	0.000	E-W(2): 0.466
	TH	2.00	1,019	3,200	0.342	V/C: 0.830
	LT	1.00	153	1,600	0.096 *	Lost Time: 0.100
Northbound	RT	0.00	104	0	0.000	ITS: 0.000
	TH	2.00	489	3,200	0.185	ICU: 0.930
	LT	1.00	170	1,600	0.106 *	LOS: E
Eastbound	RT	0.00	163	0	0.000	
	TH	2.00	1,168	3,200	0.416 *	
	LT	1.00	199	1,600	0.124	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 5 - Budlong Avenue & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.011
	TH	1.00	0	1,600	0.032 *	N-S(2): 0.032 *
	LT	0.00	17	1,600	0.011	E-W(1): 0.299
Westbound	RT	0.00	16	0	0.000	E-W(2): 0.438 *
	TH	2.00	1,356	3,200	0.429 *	V/C: 0.470
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	ICU: 0.570
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	957	3,200	0.299	
	LT	1.00	15	1,600	0.009 *	LOS: A

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.013
	TH	1.00	0	1,600	0.034 *	N-S(2): 0.034 *
	LT	0.00	20	1,600	0.013	E-W(1): 0.402
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.405 *
	TH	2.00	1,219	3,200	0.389 *	V/C: 0.439
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	ICU: 0.539
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,287	3,200	0.402	
	LT	1.00	25	1,600	0.016 *	LOS: A

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 6 - Berendo Avenue & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
Left Lane: 1600 vph  
Double Lt Penalty: 20 %  
ITS: 0 %

N-S Split Phase : N  
E-W Split Phase : N  
Lost Time (% of cycle) : 10  
V/C Round Off (decs.) : 3

OLA Movements :  
FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.009
	TH	1.00	1	1,600	0.023 *	N-S(2): 0.035 *
	LT	1.00	13	1,600	0.008	E-W(1): 0.360
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.440 *
	TH	2.00	1,341	3,200	0.429 *	V/C: 0.475
	LT	1.00	107	1,600	0.067	Lost Time: 0.100
Northbound	RT	1.00	44	1,600	0.000	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	19	1,600	0.012 *	
Eastbound	RT	0.00	43	0	0.000	ICU: 0.575
	TH	2.00	893	3,200	0.293	
	LT	1.00	17	1,600	0.011 *	LOS: A

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.046 *
	TH	1.00	4	1,600	0.024	N-S(2): 0.032
	LT	1.00	24	1,600	0.015 *	E-W(1): 0.415 *
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.406
	TH	2.00	1,200	3,200	0.389	V/C: 0.461
	LT	1.00	28	1,600	0.018 *	Lost Time: 0.100
Northbound	RT	1.00	77	1,600	0.031 *	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	12	1,600	0.008	
Eastbound	RT	0.00	23	0	0.000	ICU: 0.561
	TH	2.00	1,248	3,200	0.397 *	
	LT	1.00	27	1,600	0.017	LOS: A

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 7 - Medical Center Drive & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

**OLA Movements :**  
**FF Movements:**

**Date/Time:** AM PEAK HOUR

**N-S Split Phase :** N  
**E-W Split Phase :** N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	34	0	0.000	N-S(1): 0.051
	TH	1.00	1	1	1,600	0.053 *	N-S(2): 0.072 *
	LT	0.00	45	50	1,600	0.031	E-W(1): 0.409
Westbound	RT	0.00	10	10	0	0.000	E-W(2): 0.460 *
	TH	2.00	1,436	1,436	3,200	0.452 *	V/C: 0.532
	LT	1.00	182	182	1,600	0.114	Lost Time: 0.100
Northbound	RT	1.00	114	114	1,600	0.000	ITS: 0.000
	TH	1.00	1	1	1,600	0.020	
	LT	0.00	28	31	1,600	0.019 *	
Eastbound	RT	0.00	16	16	0	0.000	ICU: 0.632
	TH	2.00	928	928	3,200	0.295	
	LT	1.00	13	13	1,600	0.008 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	17	17	0	0.000	N-S(1): 0.027
	TH	1.00	0	0	1,600	0.019 *	N-S(2): 0.037 *
	LT	0.00	12	14	1,600	0.009	E-W(1): 0.465 *
Westbound	RT	0.00	25	25	0	0.000	E-W(2): 0.411
	TH	2.00	1,242	1,242	3,200	0.396	V/C: 0.502
	LT	1.00	86	86	1,600	0.054 *	Lost Time: 0.100
Northbound	RT	1.00	104	104	1,600	0.011	ITS: 0.000
	TH	1.00	0	0	1,600	0.018	
	LT	0.00	25	28	1,600	0.018 *	
Eastbound	RT	0.00	14	14	0	0.000	ICU: 0.602
	TH	2.00	1,302	1,302	3,200	0.411 *	
	LT	1.00	24	24	1,600	0.015	LOS: B

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 8 - Vermont Avenue & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	210	1,600	0.054	N-S(1):	0.336 *
	TH	2.00	487	3,200	0.152	N-S(2):	0.249
	LT	1.00	124	1,600	0.078 *	E-W(1):	0.435
Westbound	RT	1.00	132	1,600	0.005	E-W(2):	0.469 *
	TH	2.00	1,250	3,200	0.391 *	V/C:	0.805
	LT	1.00	256	1,600	0.160	Lost Time:	0.100
Northbound	RT	1.00	222	1,600	0.000	ITS:	0.000
	TH	2.00	824	3,200	0.258 *	ICU:	0.905
	LT	1.00	155	1,600	0.097	LOS:	E
Eastbound	RT	1.00	81	1,600	0.000		
	TH	2.00	881	3,200	0.275		
	LT	1.00	124	1,600	0.078 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	179	1,600	0.041	N-S(1):	0.300
	TH	2.00	740	3,200	0.231 *	N-S(2):	0.314 *
	LT	1.00	272	1,600	0.170	E-W(1):	0.479 *
Westbound	RT	1.00	163	1,600	0.000	E-W(2):	0.390
	TH	2.00	1,022	3,200	0.319	V/C:	0.793
	LT	1.00	152	1,600	0.095 *	Lost Time:	0.100
Northbound	RT	1.00	345	1,600	0.121	ITS:	0.000
	TH	2.00	415	3,200	0.130	ICU:	0.893
	LT	1.00	133	1,600	0.083 *	LOS:	D
Eastbound	RT	1.00	109	1,600	0.000		
	TH	2.00	1,230	3,200	0.384 *		
	LT	1.00	113	1,600	0.071		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	538	1,600	0.336 *	N-S(1): 0.083
	TH	0.00	0	0	0.000	N-S(2): 0.336 *
	LT	1.00	132	1,600	0.083	E-W(1): 0.360
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.378 *
	TH	2.00	1,211	3,200	0.378 *	V/C: 0.714
	LT	1.00	174	1,600	0.109	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.814
	LT	0.00	0	0	0.000 *	LOS: D
Eastbound	RT	0.00	131	0	0.000	
	TH	3.00	1,074	4,800	0.251	
	LT	0.00	0	0	0.000 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	400	1,600	0.250 *	N-S(1): 0.164
	TH	0.00	0	0	0.000	N-S(2): 0.250 *
	LT	1.00	263	1,600	0.164	E-W(1): 0.499 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.308
	TH	2.00	984	3,200	0.308	V/C: 0.749
	LT	1.00	178	1,600	0.111 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.849
	LT	0.00	0	0	0.000 *	LOS: D
Eastbound	RT	0.00	261	0	0.000	
	TH	3.00	1,600	4,800	0.388 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	148	1,600	0.058	N-S(1): 0.168 N-S(2): 0.191 * E-W(1): 0.261 E-W(2): 0.370 *
	TH	2.00	258	3,200	0.081 *	
	LT	2.00	38	2,560	0.015	
Westbound	RT	1.00	98	1,600	0.054	V/C: 0.561 Lost Time: 0.100 ITS: 0.000
	TH	2.00	961	3,200	0.300 *	
	LT	1.00	95	1,600	0.059	
Northbound	RT	1.00	171	1,600	0.077	ICU: 0.661
	TH	2.00	488	3,200	0.153	
	LT	2.00	282	2,560	0.110 *	
Eastbound	RT	1.00	449	1,600	0.170	LOS: B
	TH	2.00	645	3,200	0.202	
	LT	1.00	112	1,600	0.070 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	161	1,600	0.069	N-S(1): 0.123 N-S(2): 0.227 * E-W(1): 0.435 * E-W(2): 0.312
	TH	2.00	468	3,200	0.146 *	
	LT	2.00	131	2,560	0.051	
Westbound	RT	1.00	70	1,600	0.018	V/C: 0.662 Lost Time: 0.100 ITS: 0.000
	TH	2.00	797	3,200	0.249	
	LT	1.00	103	1,600	0.064 *	
Northbound	RT	1.00	138	1,600	0.054	ICU: 0.762
	TH	2.00	231	3,200	0.072	
	LT	2.00	207	2,560	0.081 *	
Eastbound	RT	1.00	565	1,600	0.272	LOS: C
	TH	2.00	1,188	3,200	0.371 *	
	LT	1.00	100	1,600	0.063	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	68	0	0.000	N-S(1): 0.438 *
	TH	2.00	876	3,200	0.295	N-S(2): 0.368
	LT	1.00	11	1,600	0.007 *	E-W(1): 0.125
Westbound	RT	0.00	36	0	0.000	E-W(2): 0.147 *
	TH	1.00	77	1,600	0.136 *	V/C: 0.585
	LT	0.00	104	1,600	0.065	Lost Time: 0.100
Northbound	RT	0.00	31	0	0.000	ITS: 0.000
	TH	2.00	1,348	3,200	0.431 *	ICU: 0.685
	LT	1.00	116	1,600	0.073	LOS: B
Eastbound	RT	0.00	55	0	0.000	
	TH	1.00	23	1,600	0.060	
	LT	0.00	18	1,600	0.011 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	17	0	0.000	N-S(1): 0.314
	TH	2.00	1,446	3,200	0.457 *	N-S(2): 0.493 *
	LT	1.00	30	1,600	0.019	E-W(1): 0.226 *
Westbound	RT	0.00	19	0	0.000	E-W(2): 0.101
	TH	1.00	39	1,600	0.066	V/C: 0.719
	LT	0.00	47	1,600	0.029 *	Lost Time: 0.100
Northbound	RT	0.00	23	0	0.000	ITS: 0.000
	TH	2.00	921	3,200	0.295	ICU: 0.819
	LT	1.00	58	1,600	0.036 *	LOS: D
Eastbound	RT	0.00	162	0	0.000	
	TH	1.00	97	1,600	0.197 *	
	LT	0.00	56	1,600	0.035	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 12 - Normandie Avenue & 220th Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

**OLA Movements :**  
**FF Movements:**

**Date/Time:** AM PEAK HOUR

**N-S Split Phase :** N  
**E-W Split Phase :** N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	26	26	0	0.000	N-S(1): 0.340 * N-S(2): 0.144 E-W(1): 0.140 E-W(2): 0.162 *
	TH	2.00	384	384	3,200	0.128	
	LT	1.00	69	69	1,600	0.043 *	
Westbound	RT	0.00	100	100	0	0.000	V/C: 0.502 Lost Time: 0.100 ITS: 0.000
	TH	1.00	76	76	1,600	0.142 *	
	LT	0.00	46	51	1,600	0.032	
Northbound	RT	0.00	117	117	0	0.000	ICU: 0.602
	TH	2.00	834	834	3,200	0.297 *	
	LT	1.00	25	25	1,600	0.016	
Eastbound	RT	0.00	42	42	0	0.000	LOS: B
	TH	1.00	99	99	1,600	0.108	
	LT	0.00	29	32	1,600	0.020 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	36	0	0.000	N-S(1): 0.214 N-S(2): 0.262 * E-W(1): 0.114 E-W(2): 0.119 *
	TH	2.00	758	758	3,200	0.248 *	
	LT	1.00	74	74	1,600	0.046	
Westbound	RT	0.00	84	84	0	0.000	V/C: 0.381 Lost Time: 0.100 ITS: 0.000
	TH	1.00	35	35	1,600	0.105 *	
	LT	0.00	44	49	1,600	0.031	
Northbound	RT	0.00	41	41	0	0.000	ICU: 0.481
	TH	2.00	498	498	3,200	0.168	
	LT	1.00	23	23	1,600	0.014 *	
Eastbound	RT	0.00	50	50	0	0.000	LOS: A
	TH	1.00	61	61	1,600	0.083	
	LT	0.00	20	22	1,600	0.014 *	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 13 - Meyler Street & 220th Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

**OLA Movements :**  
**FF Movements:**

**Date/Time:** AM PEAK HOUR

**N-S Split Phase :** N  
**E-W Split Phase :** N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	1	1	0	0.000	N-S(1): 0.116 * N-S(2): 0.073 E-W(1): 0.166 * E-W(2): 0.148
	TH	1.00	0	0	1,600	0.007	
	LT	0.00	9	10	1,600	0.006 *	
Westbound	RT	0.00	21	21	0	0.000	V/C: 0.282 Lost Time: 0.100 ITS: 0.000
	TH	1.00	143	143	1,600	0.145	
	LT	0.00	61	68	1,600	0.043 *	
Northbound	RT	0.00	66	66	0	0.000	ICU: 0.382
	TH	1.00	4	4	1,600	0.110 *	
	LT	0.00	96	106	1,600	0.066	
Eastbound	RT	0.00	51	51	0	0.000	LOS: A
	TH	1.00	141	141	1,600	0.123 *	
	LT	0.00	3	4	1,600	0.003	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	5	5	0	0.000	N-S(1): 0.072 * N-S(2): 0.037 E-W(1): 0.193 * E-W(2): 0.081
	TH	1.00	4	4	1,600	0.028	
	LT	0.00	31	35	1,600	0.022 *	
Westbound	RT	0.00	3	3	0	0.000	V/C: 0.265 Lost Time: 0.100 ITS: 0.000
	TH	1.00	96	96	1,600	0.077	
	LT	0.00	21	24	1,600	0.015 *	
Northbound	RT	0.00	65	65	0	0.000	ICU: 0.365
	TH	1.00	0	0	1,600	0.050 *	
	LT	0.00	13	15	1,600	0.009	
Eastbound	RT	0.00	33	33	0	0.000	LOS: A
	TH	1.00	246	246	1,600	0.178 *	
	LT	0.00	5	6	1,600	0.004	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 14 - Vermont Avenue & 220th Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

**OLA Movements :**  
**FF Movements:**

**Date/Time:** AM PEAK HOUR

**N-S Split Phase :** N  
**E-W Split Phase :** N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	252	252	0	0.000	N-S(1): 0.366 * N-S(2): 0.355 E-W(1): 0.190 * E-W(2): 0.155
	TH	2.00	498	498	3,200	0.234	
	LT	1.00	56	56	1,600	0.035 *	
Westbound	RT	0.00	37	37	0	0.000	V/C: 0.556 Lost Time: 0.100 ITS: 0.000
	TH	1.00	27	27	1,600	0.052	
	LT	0.00	17	19	1,600	0.012 *	
Northbound	RT	0.00	40	40	0	0.000	ICU: 0.656
	TH	2.00	1,019	1,019	3,200	0.331 *	
	LT	1.00	194	194	1,600	0.121	
Eastbound	RT	0.00	88	88	0	0.000	LOS: B
	TH	1.00	32	32	1,600	0.178 *	
	LT	0.00	149	164	1,600	0.103	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	64	64	0	0.000	N-S(1): 0.188 N-S(2): 0.324 * E-W(1): 0.290 * E-W(2): 0.218
	TH	2.00	906	906	3,200	0.303 *	
	LT	1.00	22	22	1,600	0.014	
Westbound	RT	0.00	43	43	0	0.000	V/C: 0.614 Lost Time: 0.100 ITS: 0.000
	TH	1.00	12	12	1,600	0.056	
	LT	0.00	31	35	1,600	0.022 *	
Northbound	RT	0.00	14	14	0	0.000	ICU: 0.714
	TH	2.00	544	544	3,200	0.174	
	LT	1.00	34	34	1,600	0.021 *	
Eastbound	RT	0.00	156	156	0	0.000	LOS: C
	TH	1.00	13	13	1,600	0.268 *	
	LT	0.00	235	259	1,600	0.162	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Existing

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	379	1,600	0.164 *	N-S(1): 0.272
	TH	2.00	366	3,200	0.114	N-S(2): 0.460 *
	LT	1.00	128	1,600	0.080	E-W(1): 0.353 *
Westbound	RT	1.00	89	1,600	0.016	E-W(2): 0.000
	TH	1.00	207	1,600	0.184 *	V/C: 0.813
	LT	0.00	87	1,600	0.054	Lost Time: 0.100
Northbound	RT	1.00	145	1,600	0.063	ITS: 0.000
	TH	2.00	615	3,200	0.192	ICU: 0.913
	LT	1.00	473	1,600	0.296 *	LOS: E
Eastbound	RT	1.00	47	1,600	0.000	
	TH	1.00	37	1,600	0.169 *	
	LT	0.00	233	1,600	0.146	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	475	1,600	0.221 *	N-S(1): 0.137
	TH	2.00	545	3,200	0.170	N-S(2): 0.475 *
	LT	1.00	75	1,600	0.047	E-W(1): 0.311 *
Westbound	RT	1.00	52	1,600	0.009	E-W(2): 0.000
	TH	1.00	104	1,600	0.100 *	V/C: 0.786
	LT	0.00	56	1,600	0.035	Lost Time: 0.100
Northbound	RT	1.00	50	1,600	0.014	ITS: 0.000
	TH	2.00	287	3,200	0.090	ICU: 0.886
	LT	1.00	406	1,600	0.254 *	LOS: D
Eastbound	RT	1.00	103	1,600	0.000	
	TH	1.00	95	1,600	0.211 *	
	LT	0.00	242	1,600	0.151	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	53	1,600	0.018	N-S(1): 0.441 * N-S(2): 0.399 E-W(1): 0.273 E-W(2): 0.352 *
	TH	2.00	898	3,200	0.281	
	LT	1.00	74	1,600	0.046 *	
Westbound	RT	0.00	181	0	0.000	V/C: 0.793 Lost Time: 0.100 ITS: 0.000
	TH	2.00	853	3,200	0.323 *	
	LT	1.00	244	1,600	0.153	
Northbound	RT	1.00	166	1,600	0.028	ICU: 0.893
	TH	2.00	1,265	3,200	0.395 *	
	LT	1.00	188	1,600	0.118	
Eastbound	RT	1.00	109	1,600	0.009	LOS: D
	TH	2.00	383	3,200	0.120	
	LT	1.00	47	1,600	0.029 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	42	1,600	0.009	N-S(1): 0.397 N-S(2): 0.485 * E-W(1): 0.334 * E-W(2): 0.244
	TH	2.00	1,357	3,200	0.424 *	
	LT	1.00	203	1,600	0.127	
Westbound	RT	0.00	87	0	0.000	V/C: 0.819 Lost Time: 0.100 ITS: 0.000
	TH	2.00	586	3,200	0.210	
	LT	1.00	74	1,600	0.046 *	
Northbound	RT	1.00	164	1,600	0.079	ICU: 0.919
	TH	2.00	863	3,200	0.270	
	LT	1.00	98	1,600	0.061 *	
Eastbound	RT	1.00	189	1,600	0.088	LOS: E
	TH	2.00	923	3,200	0.288 *	
	LT	1.00	54	1,600	0.034	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 17 - Normandie Avenue & 223rd Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	64	0	0.000	N-S(1): 0.314 *
	TH	2.00	359	3,200	0.132	N-S(2): 0.209
	LT	1.00	49	1,600	0.031 *	E-W(1): 0.279
Westbound	RT	0.00	75	0	0.000	E-W(2): 0.393 *
	TH	2.00	1,018	3,200	0.342 *	V/C: 0.707
	LT	1.00	114	1,600	0.071	Lost Time: 0.100
Northbound	RT	0.00	105	0	0.000	ITS: 0.000
	TH	2.00	799	3,200	0.283 *	ICU: 0.807
	LT	1.00	123	1,600	0.077	LOS: D
Eastbound	RT	0.00	64	0	0.000	
	TH	2.00	600	3,200	0.208	
	LT	1.00	82	1,600	0.051 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	75	0	0.000	N-S(1): 0.221
	TH	2.00	684	3,200	0.237 *	N-S(2): 0.276 *
	LT	1.00	85	1,600	0.053	E-W(1): 0.446 *
Westbound	RT	0.00	84	0	0.000	E-W(2): 0.288
	TH	2.00	696	3,200	0.244	V/C: 0.722
	LT	1.00	93	1,600	0.058 *	Lost Time: 0.100
Northbound	RT	0.00	123	0	0.000	ITS: 0.000
	TH	2.00	414	3,200	0.168	ICU: 0.822
	LT	1.00	63	1,600	0.039 *	LOS: D
Eastbound	RT	0.00	105	0	0.000	
	TH	2.00	1,137	3,200	0.388 *	
	LT	1.00	71	1,600	0.044	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 18 - Meyler Street & 223rd Street  
 Description: Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	54	54	0	0.000	N-S(1): 0.157 * N-S(2): 0.150 E-W(1): 0.245 E-W(2): 0.401 *
	TH	1.00	44	44	1,600	0.099	
	LT	0.00	55	61	1,600	0.038 *	
Westbound	RT	0.00	65	65	0	0.000	V/C: 0.558 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,112	1,112	3,200	0.368 *	
	LT	1.00	46	46	1,600	0.029	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.658
	TH	1.00	39	39	1,600	0.119 *	
	LT	0.00	74	82	1,600	0.051	
Eastbound	RT	0.00	24	24	0	0.000	LOS: B
	TH	2.00	666	666	3,200	0.216	
	LT	1.00	52	52	1,600	0.033 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	34	0	0.000	N-S(1): 0.063 * N-S(2): 0.063 * E-W(1): 0.418 * E-W(2): 0.304
	TH	1.00	15	15	1,600	0.044 *	
	LT	0.00	19	21	1,600	0.013 *	
Westbound	RT	0.00	44	44	0	0.000	V/C: 0.481 Lost Time: 0.100 ITS: 0.000
	TH	2.00	813	813	3,200	0.268	
	LT	1.00	59	59	1,600	0.037 *	
Northbound	RT	0.00	35	35	0	0.000	ICU: 0.581
	TH	1.00	15	15	1,600	0.050 *	
	LT	0.00	27	30	1,600	0.019 *	
Eastbound	RT	0.00	89	89	0	0.000	LOS: A
	TH	2.00	1,130	1,130	3,200	0.381 *	
	LT	1.00	58	58	1,600	0.036	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 19 - Vermont Avenue & 223rd Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 10 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	89	0	0.000	N-S(1): 0.348 *
	TH	2.00	385	3,200	0.148	N-S(2): 0.234
	LT	1.00	143	1,600	0.089 *	E-W(1): 0.271
Westbound	RT	0.00	300	0	0.000	E-W(2): 0.469 *
	TH	2.00	979	3,200	0.400 *	V/C: 0.817
	LT	2.00	247	2,880	0.086	Lost Time: 0.100
Northbound	RT	1.00	130	1,600	0.000	ITS: 0.000
	TH	2.00	829	3,200	0.259 *	ICU: 0.917
	LT	1.00	138	1,600	0.086	LOS: E
Eastbound	RT	1.00	72	1,600	0.000	
	TH	2.00	593	3,200	0.185	
	LT	1.00	111	1,600	0.069 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	110	0	0.000	N-S(1): 0.293
	TH	2.00	741	3,200	0.266 *	N-S(2): 0.313 *
	LT	1.00	271	1,600	0.169	E-W(1): 0.420 *
Westbound	RT	0.00	125	0	0.000	E-W(2): 0.306
	TH	2.00	732	3,200	0.268	V/C: 0.733
	LT	2.00	253	2,880	0.088 *	Lost Time: 0.100
Northbound	RT	1.00	190	1,600	0.031	ITS: 0.000
	TH	2.00	398	3,200	0.124	ICU: 0.833
	LT	1.00	75	1,600	0.047 *	LOS: D
Eastbound	RT	1.00	117	1,600	0.026	
	TH	2.00	1,062	3,200	0.332 *	
	LT	1.00	60	1,600	0.038	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	477	1,600	0.298 *	N-S(1): 0.190 N-S(2): 0.298 * E-W(1): 0.357 * E-W(2): 0.327
	TH	2.00	1	1,600	0.191	
	LT	0.00	304	1,600	0.190	
Westbound	RT	0.00	0	0	0.000	V/C: 0.655 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,045	3,200	0.327	
	LT	1.00	172	1,600	0.108 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.755
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	120	1,600	0.075	LOS: C
	TH	2.00	796	3,200	0.249 *	
	LT	0.00	0	0	0.000	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	388	0	0.000	N-S(1): 0.266 * N-S(2): 0.244 E-W(1): 0.477 * E-W(2): 0.232
	TH	2.00	2	1,600	0.244	
	LT	0.00	426	1,600	0.266 *	
Westbound	RT	0.00	0	0	0.000	V/C: 0.743 Lost Time: 0.100 ITS: 0.000
	TH	2.00	742	3,200	0.232	
	LT	1.00	120	1,600	0.075 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.843
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	204	1,600	0.128	LOS: D
	TH	2.00	1,285	3,200	0.402 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	177	1,600	0.019	N-S(1):	0.255 *
	TH	2.00	260	3,200	0.081	N-S(2):	0.145
	LT	1.00	66	1,600	0.041 *	E-W(1):	0.228
Westbound	RT	1.00	256	1,600	0.139	E-W(2):	0.472 *
	TH	2.00	925	3,200	0.289 *	V/C:	0.727
	LT	1.00	72	1,600	0.045	Lost Time:	0.100
Northbound	RT	1.00	149	1,600	0.071	ITS:	0.000
	TH	2.00	685	3,200	0.214 *	ICU:	0.827
	LT	1.00	102	1,600	0.064	LOS:	D
Eastbound	RT	1.00	178	1,600	0.079		
	TH	2.00	584	3,200	0.183		
	LT	1.00	293	1,600	0.183 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	158	1,600	0.010	N-S(1):	0.199 *
	TH	2.00	405	3,200	0.127	N-S(2):	0.171
	LT	1.00	147	1,600	0.092 *	E-W(1):	0.419 *
Westbound	RT	1.00	130	1,600	0.035	E-W(2):	0.371
	TH	2.00	616	3,200	0.193	V/C:	0.618
	LT	1.00	74	1,600	0.046 *	Lost Time:	0.100
Northbound	RT	1.00	110	1,600	0.046	ITS:	0.000
	TH	2.00	343	3,200	0.107 *	ICU:	0.718
	LT	1.00	71	1,600	0.044	LOS:	C
Eastbound	RT	1.00	208	1,600	0.108		
	TH	2.00	1,195	3,200	0.373 *		
	LT	1.00	285	1,600	0.178		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Existing

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	267	1,600	0.095	N-S(1): 0.352
	TH	2.00	874	3,200	0.273 *	N-S(2): 0.360 *
	LT	1.00	76	1,600	0.048	E-W(1): 0.468
Westbound	RT	0.00	96	0	0.000	E-W(2): 0.497 *
	TH	3.00	1,602	4,800	0.354 *	V/C: 0.857
	LT	1.00	304	1,600	0.190	Lost Time: 0.100
Northbound	RT	1.00	297	1,600	0.091	ITS: 0.000
	TH	2.00	973	3,200	0.304	ICU: 0.957
	LT	1.00	139	1,600	0.087 *	LOS: E
Eastbound	RT	0.00	72	0	0.000	
	TH	3.00	1,261	4,800	0.278	
	LT	1.00	229	1,600	0.143 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.018	N-S(1): 0.358
	TH	2.00	961	3,200	0.300 *	N-S(2): 0.414 *
	LT	1.00	174	1,600	0.109	E-W(1): 0.497 *
Westbound	RT	0.00	139	0	0.000	E-W(2): 0.447
	TH	3.00	1,380	4,800	0.316	V/C: 0.911
	LT	1.00	309	1,600	0.193 *	Lost Time: 0.100
Northbound	RT	1.00	321	1,600	0.104	ITS: 0.000
	TH	2.00	796	3,200	0.249	ICU: 1.011
	LT	1.00	182	1,600	0.114 *	LOS: F
Eastbound	RT	0.00	120	0	0.000	
	TH	3.00	1,338	4,800	0.304 *	
	LT	1.00	210	1,600	0.131	

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard  
**Analyst:** <Fehr & Peers>     **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	154	1	154	98	1	98
	↵↵ Left-Through		0			0	
	↵↵ Through	736	1	442	530	1	340
	↵↵ Through-Right		1			1	
	↵↵ Right	147	0	147	149	0	149
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	32	1	32	130	1	130
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	382	1	242	729	1	441
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	101	0	101	152	0	152
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵ Left	95	1	95	106	1	106
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	915	1	496	1373	1	742
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	77	0	77	111	0	111
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵ Left	103	1	103	58	1	58
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	1461	1	768	963	1	503
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	74	0	74	43	0	43
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	474		<i>North-South:</i>	539
			<i>East-West:</i>	863		<i>East-West:</i>	800
			<i>SUM:</i>	1337		<i>SUM:</i>	1339
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.972			0.974
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.902</b>			<b>0.904</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	150	1	150	151	1	151
	↔ Left-Through		0			0	
	↔ Through	1123	2	562	793	2	397
	↔ Through-Right		0			0	
	↔ Right	83	1	50	116	1	81
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	93	1	93	154	1	154
	↔ Left-Through		0			0	
	↔ Through	710	2	355	1295	2	648
	↔ Through-Right		0			0	
	↔ Right	133	1	104	220	1	178
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	58	1	58	84	1	84
	↔ Left-Through		0			0	
	↔ Through	745	1	424	980	1	582
	↔ Through-Right		1			1	
	↔ Right	103	0	103	183	0	183
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	66	1	66	70	1	70
	↔ Left-Through		0			0	
	↔ Through	1121	1	637	910	1	516
	↔ Through-Right		1			1	
	↔ Right	153	0	153	122	0	122
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	655		<i>North-South:</i>	799
			<i>East-West:</i>	695		<i>East-West:</i>	652
			<i>SUM:</i>	1350		<i>SUM:</i>	1451
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.947			1.018
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.877</b>			<b>0.948</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	209	1	209	170	1	170
	↵↵ Left-Through		0			0	
	↵↵ Through	660	2	330	489	2	245
	↵↵ Through-Right		0			0	
	↵↵ Right	71	1	0	104	1	28
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	33	1	33	92	1	92
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	358	1	253	517	1	340
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	147	0	147	162	0	162
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	194	1	194	199	1	199
	↵↵ Left-Through		0			0	
	↵↵ Through	887	2	444	1168	2	584
	↵↵ Through-Right		0			0	
	↵↵ Right	187	1	83	163	1	78
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	161	1	161	153	1	153
	↵↵ Left-Through		0			0	
	↵↵ Through	1186	2	593	1019	2	510
	↵↵ Through-Right		0			0	
	↵↵ Right	75	1	59	76	1	30
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	462		<i>North-South:</i>	510
			<i>East-West:</i>	787		<i>East-West:</i>	737
			<i>SUM:</i>	1249		<i>SUM:</i>	1247
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.833			0.907
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.763</b>			<b>0.837</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>C</b>			<b>D</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	116	1	116	58	1	58
	↵↵ Left-Through		0			0	
	↵↵ Through	1348	1	690	921	1	472
	↵↵ Through-Right		1			1	
	↵↵ Right	31	0	31	23	0	23
	↵↵↵ Left-Through-Right ↵↵↵ Left-Right		0 0			0 0	
<b>SOUTHBOUND</b>	↵↵↵ Left	11	1	11	30	1	30
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	876	1	472	1446	1	732
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	68	0	68	17	0	17
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		0 0			0 0	
<b>EASTBOUND</b>	↵↵↵ Left	18	0	18	56	0	56
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	23	0	96	97	0	315
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	55	0	0	162	0	0
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		1 0			1 0	
<b>WESTBOUND</b>	↵↵↵ Left	104	0	104	47	0	47
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	77	0	217	39	0	105
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	36	0	0	19	0	0
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		1 0			1 0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	701		<i>North-South:</i>	790
			<i>East-West:</i>	235		<i>East-West:</i>	362
			<i>SUM:</i>	936		<i>SUM:</i>	1152
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.624			0.768
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.554</b>			<b>0.698</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>B</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	25	1	25	23	1	23
	↵↵ Left-Through		0			0	
	↵↵↵ Through	834	1	476	498	1	270
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵ Right	117	0	117	41	0	41
	↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵ Left	69	1	69	74	1	74
	↵↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵↵ Through	384	1	205	758	1	397
	↵↵↵↵↵↵↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵↵↵↵↵↵↵ Right	26	0	26	36	0	36
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵ Left	29	0	29	20	0	20
	↵↵↵↵↵↵↵↵ Left-Through		1			1	
	↵↵↵↵↵↵↵↵↵ Through	99	0	128	61	0	81
	↵↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Right	42	1	30	50	1	39
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵ Left	46	0	46	44	0	44
	↵↵↵↵↵↵↵↵ Left-Through		1			1	
	↵↵↵↵↵↵↵↵↵ Through	76	0	122	35	0	79
	↵↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Right	100	1	66	84	1	47
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	545		<i>North-South:</i>	420
			<i>East-West:</i>	174		<i>East-West:</i>	125
			<i>SUM:</i>	719		<i>SUM:</i>	545
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.479			0.363
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.409</b>			<b>0.293</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	188	1	188	98	1	98
	↵↵ Left-Through		0			0	
	↵↵↵ Through	1265	2	633	863	2	432
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	166	1	44	164	1	127
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵ Left	74	1	74	203	1	203
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	898	2	449	1357	2	679
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵ Right	53	1	30	42	1	15
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵ Left	47	1	47	54	1	54
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	383	2	192	923	2	462
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵ Right	109	1	15	189	1	140
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵ Left	244	1	244	74	1	74
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	853	1	517	586	1	337
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	181	0	181	87	0	87
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	707		<i>North-South:</i>	777
			<i>East-West:</i>	564		<i>East-West:</i>	536
			<i>SUM:</i>	1271		<i>SUM:</i>	1313
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.892			0.921
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.822</b>			<b>0.851</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>D</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	123	1	123	63	1	63
	↵↵ Left-Through		0			0	
	↵↵ Through	799	2	400	414	2	207
	↵↵ Through-Right		0			0	
	↵↵ Right	105	1	48	123	1	77
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	49	1	49	85	1	85
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	359	1	212	684	1	380
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	64	0	64	75	0	75
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	82	1	82	71	1	71
	↵↵ Left-Through		0			0	
	↵↵ Through	600	1	332	1137	1	621
	↵↵ Through-Right		1			1	
	↵↵ Right	64	0	64	105	0	105
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	114	1	114	93	1	93
	↵↵ Left-Through		0			0	
	↵↵ Through	1018	2	509	696	2	348
	↵↵ Through-Right		0			0	
	↵↵ Right	75	1	51	84	1	42
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>				<i>North-South:</i> 449			<i>North-South:</i> 443
				<i>East-West:</i> 591			<i>East-West:</i> 714
				<i>SUM:</i> 1040			<i>SUM:</i> 1157
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.693			0.771
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.623</b>			<b>0.701</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	139	1	139	182	1	182
	↵↵ Left-Through		0			0	
	↵↵ Through	973	2	487	796	2	398
	↵↵ Through-Right		0			0	
	↵↵ Right	297	1	145	321	1	167
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	76	1	76	174	1	174
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	874	2	437	961	2	481
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	267	1	153	133	1	28
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	229	1	229	210	1	210
	↵↵ Left-Through		0			0	
	↵↵ Through	1261	2	444	1338	2	486
	↵↵ Through-Right		1			1	
	↵↵ Right	72	0	72	120	0	120
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	304	1	304	309	1	309
	↵↵ Left-Through		0			0	
	↵↵ Through	1602	2	566	1380	2	506
	↵↵ Through-Right		1			1	
	↵↵ Right	96	0	96	139	0	139
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		576	<i>North-South:</i>		663
		<i>East-West:</i>		795	<i>East-West:</i>		795
		<i>SUM:</i>		1371	<i>SUM:</i>		1458
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.997			1.060
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.927</b>			<b>0.990</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

**EXISTING PLUS 2023 PROJECT**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 1 - Normandie Avenue & Torrance Boulevard  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	101	0	0.000	N-S(1): 0.297 *
	TH	2.00	400	3,200	0.157	N-S(2): 0.253
	LT	1.00	32	1,600	0.020 *	E-W(1): 0.376
Westbound	RT	0.00	74	0	0.000	E-W(2): 0.539 *
	TH	2.00	1,461	3,200	0.480 *	V/C: 0.836
	LT	1.00	104	1,600	0.065	Lost Time: 0.100
Northbound	RT	0.00	147	0	0.000	ITS: 0.000
	TH	2.00	740	3,200	0.277 *	ICU: 0.936
	LT	1.00	154	1,600	0.096	LOS: E
Eastbound	RT	0.00	80	0	0.000	
	TH	2.00	915	3,200	0.311	
	LT	1.00	95	1,600	0.059 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	152	0	0.000	N-S(1): 0.299
	TH	2.00	733	3,200	0.277 *	N-S(2): 0.338 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.500 *
Westbound	RT	0.00	43	0	0.000	E-W(2): 0.380
	TH	2.00	963	3,200	0.314	V/C: 0.838
	LT	1.00	58	1,600	0.036 *	Lost Time: 0.100
Northbound	RT	0.00	150	0	0.000	ITS: 0.000
	TH	2.00	547	3,200	0.218	ICU: 0.938
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	0.00	112	0	0.000	
	TH	2.00	1,373	3,200	0.464 *	
	LT	1.00	106	1,600	0.066	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 2 - Vermont Avenue & Torrance Boulevard  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	186	1,600	0.009	N-S(1): 0.278 *
	TH	2.00	579	3,200	0.181	N-S(2): 0.257
	LT	1.00	37	1,600	0.023 *	E-W(1): 0.374
Westbound	RT	0.00	111	0	0.000	E-W(2): 0.550 *
	TH	2.00	1,303	3,200	0.442 *	V/C: 0.828
	LT	1.00	91	1,600	0.057	Lost Time: 0.100
Northbound	RT	1.00	182	1,600	0.057	ITS: 0.000
	TH	2.00	816	3,200	0.255 *	
	LT	1.00	122	1,600	0.076	
Eastbound	RT	0.00	147	0	0.000	ICU: 0.928
	TH	2.00	866	3,200	0.317	
	LT	1.00	172	1,600	0.108 *	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	229	1,600	0.039	N-S(1): 0.225
	TH	2.00	866	3,200	0.271 *	N-S(2): 0.320 *
	LT	1.00	112	1,600	0.070	E-W(1): 0.461 *
Westbound	RT	0.00	89	0	0.000	E-W(2): 0.347
	TH	2.00	689	3,200	0.243	V/C: 0.781
	LT	1.00	60	1,600	0.038 *	Lost Time: 0.100
Northbound	RT	1.00	120	1,600	0.038	ITS: 0.000
	TH	2.00	497	3,200	0.155	
	LT	1.00	78	1,600	0.049 *	
Eastbound	RT	0.00	96	0	0.000	ICU: 0.881
	TH	2.00	1,259	3,200	0.423 *	
	LT	1.00	167	1,600	0.104	LOS: D

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.065	N-S(1): 0.409 * N-S(2): 0.317 E-W(1): 0.309 E-W(2): 0.435 *
	TH	2.00	715	3,200	0.223	
	LT	1.00	93	1,600	0.058 *	
Westbound	RT	0.00	154	0	0.000	V/C: 0.844 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,122	3,200	0.399 *	
	LT	1.00	66	1,600	0.041	
Northbound	RT	1.00	83	1,600	0.031	ICU: 0.944
	TH	2.00	1,124	3,200	0.351 *	
	LT	1.00	150	1,600	0.094	
Eastbound	RT	0.00	105	0	0.000	LOS: E
	TH	2.00	752	3,200	0.268	
	LT	1.00	58	1,600	0.036 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	220	1,600	0.111	N-S(1): 0.345 N-S(2): 0.500 * E-W(1): 0.408 * E-W(2): 0.379
	TH	2.00	1,296	3,200	0.405 *	
	LT	1.00	154	1,600	0.096	
Westbound	RT	0.00	126	0	0.000	V/C: 0.908 Lost Time: 0.100 ITS: 0.000
	TH	2.00	918	3,200	0.326	
	LT	1.00	70	1,600	0.044 *	
Northbound	RT	1.00	116	1,600	0.051	ICU: 1.008
	TH	2.00	798	3,200	0.249	
	LT	1.00	152	1,600	0.095 *	
Eastbound	RT	0.00	183	0	0.000	LOS: F
	TH	2.00	981	3,200	0.364 *	
	LT	1.00	84	1,600	0.053	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 4 - Normandie Avenue & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	147	0	0.000	N-S(1): 0.255
	TH	2.00	375	3,200	0.163 *	N-S(2): 0.294 *
	LT	1.00	39	1,600	0.024	E-W(1): 0.442
Westbound	RT	0.00	76	0	0.000	E-W(2): 0.516 *
	TH	2.00	1,187	3,200	0.395 *	V/C: 0.810
	LT	1.00	167	1,600	0.104	Lost Time: 0.100
Northbound	RT	0.00	76	0	0.000	ITS: 0.000
	TH	2.00	663	3,200	0.231	ICU: 0.910
	LT	1.00	210	1,600	0.131 *	LOS: E
Eastbound	RT	0.00	192	0	0.000	
	TH	2.00	890	3,200	0.338	
	LT	1.00	194	1,600	0.121 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	162	0	0.000	N-S(1): 0.252
	TH	2.00	520	3,200	0.213 *	N-S(2): 0.324 *
	LT	1.00	93	1,600	0.058	E-W(1): 0.514 *
Westbound	RT	0.00	79	0	0.000	E-W(2): 0.468
	TH	2.00	1,023	3,200	0.344	V/C: 0.838
	LT	1.00	156	1,600	0.098 *	Lost Time: 0.100
Northbound	RT	0.00	117	0	0.000	ITS: 0.000
	TH	2.00	504	3,200	0.194	ICU: 0.938
	LT	1.00	178	1,600	0.111 *	LOS: E
Eastbound	RT	0.00	164	0	0.000	
	TH	2.00	1,168	3,200	0.416 *	
	LT	1.00	199	1,600	0.124	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 5 - Budlong Avenue & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.011
	TH	1.00	0	1,600	0.032 *	N-S(2): 0.032 *
	LT	0.00	17	1,600	0.011	E-W(1): 0.332
Westbound	RT	0.00	16	0	0.000	E-W(2): 0.492 *
	TH	2.00	1,528	3,200	0.483 *	V/C: 0.524
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.624
	LT	0.00	0	0	0.000 *	LOS: B
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,063	3,200	0.332	
	LT	1.00	15	1,600	0.009 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.013
	TH	1.00	0	1,600	0.034 *	N-S(2): 0.034 *
	LT	0.00	20	1,600	0.013	E-W(1): 0.438 *
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.426
	TH	2.00	1,286	3,200	0.410	V/C: 0.472
	LT	0.00	0	0	0.000 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.572
	LT	0.00	0	0	0.000 *	LOS: A
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,402	3,200	0.438 *	
	LT	1.00	25	1,600	0.016	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 6 - Berendo Avenue & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.009
	TH	1.00	1	1,600	0.023 *	N-S(2): 0.035 *
	LT	1.00	13	1,600	0.008	E-W(1): 0.415
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.494 *
	TH	2.00	1,513	3,200	0.483 *	V/C: 0.529
	LT	1.00	142	1,600	0.089	Lost Time: 0.100
Northbound	RT	1.00	52	1,600	0.000	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	19	1,600	0.012 *	
Eastbound	RT	0.00	45	0	0.000	ICU: 0.629
	TH	2.00	997	3,200	0.326	
	LT	1.00	17	1,600	0.011 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.063 *
	TH	1.00	4	1,600	0.024	N-S(2): 0.033
	LT	1.00	24	1,600	0.015 *	E-W(1): 0.455 *
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.426
	TH	2.00	1,265	3,200	0.409	V/C: 0.518
	LT	1.00	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	1.00	112	1,600	0.048 *	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	14	1,600	0.009	
Eastbound	RT	0.00	23	0	0.000	ICU: 0.618
	TH	2.00	1,362	3,200	0.433 *	
	LT	1.00	27	1,600	0.017	LOS: B

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 7 - Medical Center Drive & Carson Street  
 Description: Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.40	34	34	648	0.044	N-S(1): 0.053 * N-S(2): 0.044 E-W(1): 0.330 E-W(2): 0.533 *
	TH	0.00	0	0	0	0.000	
	LT	0.60	45	50	952	0.053 *	
Westbound	RT	0.00	10	10	0	0.000	V/C: 0.586 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,670	1,670	3,200	0.525 *	
	LT	0.00	0	0	0	0.000	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.686 LOS: B
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,056	1,056	3,200	0.330	
	LT	1.00	13	13	1,600	0.008 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.55	17	17	877	0.004	N-S(1): 0.019 * N-S(2): 0.004 E-W(1): 0.458 * E-W(2): 0.441
	TH	0.00	0	0	0	0.000	
	LT	0.45	12	14	723	0.019 *	
Westbound	RT	0.00	25	25	0	0.000	V/C: 0.477 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,339	1,339	3,200	0.426	
	LT	0.00	0	0	0	0.000 *	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.577 LOS: A
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,465	1,465	3,200	0.458 *	
	LT	1.00	24	24	1,600	0.015	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 8 - Vermont Avenue & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	216	1,600	0.057	N-S(1): 0.336 *
	TH	2.00	495	3,200	0.155	N-S(2): 0.256
	LT	1.00	124	1,600	0.078 *	E-W(1): 0.450
Westbound	RT	1.00	132	1,600	0.005	E-W(2): 0.481 *
	TH	2.00	1,290	3,200	0.403 *	V/C: 0.817
	LT	1.00	273	1,600	0.171	Lost Time: 0.100
Northbound	RT	1.00	226	1,600	0.000	ITS: 0.000
	TH	2.00	826	3,200	0.258 *	ICU: 0.917
	LT	1.00	161	1,600	0.101	LOS: E
Eastbound	RT	1.00	83	1,600	0.000	
	TH	2.00	892	3,200	0.279	
	LT	1.00	125	1,600	0.078 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	180	1,600	0.038	N-S(1): 0.302
	TH	2.00	742	3,200	0.232 *	N-S(2): 0.316 *
	LT	1.00	272	1,600	0.170	E-W(1): 0.497 *
Westbound	RT	1.00	163	1,600	0.000	E-W(2): 0.396
	TH	2.00	1,031	3,200	0.322	V/C: 0.813
	LT	1.00	156	1,600	0.098 *	Lost Time: 0.100
Northbound	RT	1.00	362	1,600	0.129	ITS: 0.000
	TH	2.00	423	3,200	0.132	ICU: 0.913
	LT	1.00	134	1,600	0.084 *	LOS: E
Eastbound	RT	1.00	115	1,600	0.000	
	TH	2.00	1,278	3,200	0.399 *	
	LT	1.00	119	1,600	0.074	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	573	1,600	0.358 *	N-S(1): 0.083
	TH	0.00	0	0	0.000	N-S(2): 0.358 *
	LT	1.00	132	1,600	0.083	E-W(1): 0.363
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.386 *
	TH	2.00	1,234	3,200	0.386 *	V/C: 0.744
	LT	1.00	174	1,600	0.109	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	133	0	0.000	ICU: 0.844
	TH	3.00	1,087	4,800	0.254	
	LT	0.00	0	0	0.000 *	LOS: D

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	408	1,600	0.255 *	N-S(1): 0.164
	TH	0.00	0	0	0.000	N-S(2): 0.255 *
	LT	1.00	263	1,600	0.164	E-W(1): 0.512 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.309
	TH	2.00	988	3,200	0.309	V/C: 0.767
	LT	1.00	178	1,600	0.111 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	270	0	0.000	ICU: 0.867
	TH	3.00	1,656	4,800	0.401 *	
	LT	0.00	0	0	0.000	LOS: D

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	153	1,600	0.060	N-S(1): 0.168
	TH	2.00	261	3,200	0.082 *	N-S(2): 0.195 *
	LT	2.00	38	2,560	0.015	E-W(1): 0.262
Westbound	RT	1.00	98	1,600	0.054	E-W(2): 0.375 *
	TH	2.00	973	3,200	0.304 *	V/C: 0.570
	LT	1.00	95	1,600	0.059	Lost Time: 0.100
Northbound	RT	1.00	171	1,600	0.077	ITS: 0.000
	TH	2.00	489	3,200	0.153	ICU: 0.670
	LT	2.00	288	2,560	0.113 *	LOS: B
Eastbound	RT	1.00	457	1,600	0.173	
	TH	2.00	649	3,200	0.203	
	LT	1.00	113	1,600	0.071 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	162	1,600	0.068	N-S(1): 0.124
	TH	2.00	469	3,200	0.147 *	N-S(2): 0.228 *
	LT	2.00	131	2,560	0.051	E-W(1): 0.439 *
Westbound	RT	1.00	70	1,600	0.018	E-W(2): 0.316
	TH	2.00	799	3,200	0.250	V/C: 0.667
	LT	1.00	103	1,600	0.064 *	Lost Time: 0.100
Northbound	RT	1.00	138	1,600	0.054	ITS: 0.000
	TH	2.00	234	3,200	0.073	ICU: 0.767
	LT	2.00	208	2,560	0.081 *	LOS: C
Eastbound	RT	1.00	604	1,600	0.296	
	TH	2.00	1,200	3,200	0.375 *	
	LT	1.00	105	1,600	0.066	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	68	0	0.000	N-S(1): 0.442 *
	TH	2.00	876	3,200	0.295	N-S(2): 0.368
	LT	1.00	18	1,600	0.011 *	E-W(1): 0.125
Westbound	RT	0.00	37	0	0.000	E-W(2): 0.147 *
	TH	1.00	77	1,600	0.136 *	V/C: 0.589
	LT	0.00	104	1,600	0.065	Lost Time: 0.100
Northbound	RT	0.00	31	0	0.000	ITS: 0.000
	TH	2.00	1,348	3,200	0.431 *	ICU: 0.689
	LT	1.00	116	1,600	0.073	LOS: B
Eastbound	RT	0.00	55	0	0.000	
	TH	1.00	23	1,600	0.060	
	LT	0.00	18	1,600	0.011 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	17	0	0.000	N-S(1): 0.314
	TH	2.00	1,446	3,200	0.457 *	N-S(2): 0.493 *
	LT	1.00	31	1,600	0.019	E-W(1): 0.226 *
Westbound	RT	0.00	24	0	0.000	E-W(2): 0.104
	TH	1.00	39	1,600	0.069	V/C: 0.719
	LT	0.00	47	1,600	0.029 *	Lost Time: 0.100
Northbound	RT	0.00	23	0	0.000	ITS: 0.000
	TH	2.00	921	3,200	0.295	ICU: 0.819
	LT	1.00	58	1,600	0.036 *	LOS: D
Eastbound	RT	0.00	162	0	0.000	
	TH	1.00	97	1,600	0.197 *	
	LT	0.00	56	1,600	0.035	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 12 - Normandie Avenue & 220th Street  
 Description: Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	26	26	0	0.000	N-S(1): 0.351 * N-S(2): 0.144 E-W(1): 0.145 E-W(2): 0.165 *
	TH	2.00	385	385	3,200	0.128	
	LT	1.00	78	78	1,600	0.049 *	
Westbound	RT	0.00	102	102	0	0.000	V/C: 0.516 Lost Time: 0.100 ITS: 0.000
	TH	1.00	77	77	1,600	0.144 *	
	LT	0.00	46	51	1,600	0.032	
Northbound	RT	0.00	118	118	0	0.000	ICU: 0.616
	TH	2.00	849	849	3,200	0.302 *	
	LT	1.00	25	25	1,600	0.016	
Eastbound	RT	0.00	42	42	0	0.000	LOS: B
	TH	1.00	105	105	1,600	0.113	
	LT	0.00	30	33	1,600	0.021 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	36	0	0.000	N-S(1): 0.217 N-S(2): 0.265 * E-W(1): 0.115 E-W(2): 0.128 *
	TH	2.00	767	767	3,200	0.251 *	
	LT	1.00	76	76	1,600	0.048	
Westbound	RT	0.00	93	93	0	0.000	V/C: 0.393 Lost Time: 0.100 ITS: 0.000
	TH	1.00	40	40	1,600	0.114 *	
	LT	0.00	44	49	1,600	0.031	
Northbound	RT	0.00	41	41	0	0.000	ICU: 0.493
	TH	2.00	501	501	3,200	0.169	
	LT	1.00	23	23	1,600	0.014 *	
Eastbound	RT	0.00	50	50	0	0.000	LOS: A
	TH	1.00	62	62	1,600	0.084	
	LT	0.00	20	22	1,600	0.014 *	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 13 - Meyler Street & 220th Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

**OLA Movements :**  
**FF Movements:**

**Date/Time:** AM PEAK HOUR

**N-S Split Phase :** N  
**E-W Split Phase :** N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	2	2	0	0.000	N-S(1): 0.124 * N-S(2): 0.075 E-W(1): 0.209 * E-W(2): 0.189
	TH	1.00	2	2	1,600	0.009	
	LT	0.00	10	11	1,600	0.007 *	
Westbound	RT	0.00	25	25	0	0.000	V/C: 0.333 Lost Time: 0.100 ITS: 0.000
	TH	1.00	145	145	1,600	0.183	
	LT	0.00	61	122	1,600	0.076 *	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.433
	TH	1.00	12	12	1,600	0.117 *	
	LT	0.00	96	106	1,600	0.066	
Eastbound	RT	0.00	51	51	0	0.000	LOS: A
	TH	1.00	152	152	1,600	0.133 *	
	LT	0.00	8	9	1,600	0.006	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	10	10	0	0.000	N-S(1): 0.075 * N-S(2): 0.047 E-W(1): 0.197 * E-W(2): 0.090
	TH	1.00	12	12	1,600	0.038	
	LT	0.00	35	39	1,600	0.024 *	
Westbound	RT	0.00	4	4	0	0.000	V/C: 0.272 Lost Time: 0.100 ITS: 0.000
	TH	1.00	106	106	1,600	0.086	
	LT	0.00	24	27	1,600	0.017 *	
Northbound	RT	0.00	65	65	0	0.000	ICU: 0.372
	TH	1.00	2	2	1,600	0.051 *	
	LT	0.00	13	15	1,600	0.009	
Eastbound	RT	0.00	33	33	0	0.000	LOS: A
	TH	1.00	248	248	1,600	0.180 *	
	LT	0.00	6	7	1,600	0.004	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 14 - Vermont Avenue & 220th Street  
 Description: Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	269	269	0	0.000	N-S(1): 0.370
	TH	2.00	501	501	3,200	0.241 *	N-S(2): 0.375 *
	LT	1.00	56	56	1,600	0.035	E-W(1): 0.196 *
Westbound	RT	0.00	37	37	0	0.000	E-W(2): 0.158
	TH	1.00	27	27	1,600	0.052	V/C: 0.571
	LT	0.00	17	19	1,600	0.012 *	Lost Time: 0.100
Northbound	RT	0.00	40	40	0	0.000	ITS: 0.000
	TH	2.00	1,031	1,031	3,200	0.335	ICU: 0.671
	LT	1.00	214	214	1,600	0.134 *	LOS: B
Eastbound	RT	0.00	93	93	0	0.000	
	TH	1.00	32	32	1,600	0.184 *	
	LT	0.00	153	169	1,600	0.106	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	68	68	0	0.000	N-S(1): 0.189
	TH	2.00	918	918	3,200	0.308 *	N-S(2): 0.332 *
	LT	1.00	22	22	1,600	0.014	E-W(1): 0.313 *
Westbound	RT	0.00	43	43	0	0.000	E-W(2): 0.229
	TH	1.00	12	12	1,600	0.056	V/C: 0.645
	LT	0.00	31	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	0.00	14	14	0	0.000	ITS: 0.000
	TH	2.00	547	547	3,200	0.175	ICU: 0.745
	LT	1.00	38	38	1,600	0.024 *	LOS: C
Eastbound	RT	0.00	176	176	0	0.000	
	TH	1.00	13	13	1,600	0.291 *	
	LT	0.00	251	277	1,600	0.173	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	387	1,600	0.167 *	N-S(1): 0.273
	TH	2.00	369	3,200	0.115	N-S(2): 0.465 *
	LT	1.00	128	1,600	0.080	E-W(1): 0.357 *
Westbound	RT	1.00	89	1,600	0.016	E-W(2): 0.000
	TH	1.00	207	1,600	0.184 *	V/C: 0.822
	LT	0.00	87	1,600	0.054	Lost Time: 0.100
Northbound	RT	1.00	145	1,600	0.063	ITS: 0.000
	TH	2.00	616	3,200	0.193	ICU: 0.922
	LT	1.00	476	1,600	0.298 *	LOS: E
Eastbound	RT	1.00	57	1,600	0.000	
	TH	1.00	37	1,600	0.173 *	
	LT	0.00	239	1,600	0.149	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	513	1,600	0.245 *	N-S(1): 0.138
	TH	2.00	546	3,200	0.171	N-S(2): 0.508 *
	LT	1.00	75	1,600	0.047	E-W(1): 0.311 *
Westbound	RT	1.00	52	1,600	0.009	E-W(2): 0.000
	TH	1.00	104	1,600	0.100 *	V/C: 0.819
	LT	0.00	56	1,600	0.035	Lost Time: 0.100
Northbound	RT	1.00	50	1,600	0.014	ITS: 0.000
	TH	2.00	290	3,200	0.091	ICU: 0.919
	LT	1.00	421	1,600	0.263 *	LOS: E
Eastbound	RT	1.00	105	1,600	0.000	
	TH	1.00	95	1,600	0.211 *	
	LT	0.00	243	1,600	0.152	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	53	1,600	0.018	N-S(1): 0.441 * N-S(2): 0.399 E-W(1): 0.273 E-W(2): 0.352 *
	TH	2.00	898	3,200	0.281	
	LT	1.00	74	1,600	0.046 *	
Westbound	RT	0.00	181	0	0.000	V/C: 0.793 Lost Time: 0.100 ITS: 0.000
	TH	2.00	853	3,200	0.323 *	
	LT	1.00	244	1,600	0.153	
Northbound	RT	1.00	168	1,600	0.029	ICU: 0.893
	TH	2.00	1,265	3,200	0.395 *	
	LT	1.00	188	1,600	0.118	
Eastbound	RT	1.00	109	1,600	0.009	LOS: D
	TH	2.00	385	3,200	0.120	
	LT	1.00	47	1,600	0.029 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	42	1,600	0.009	N-S(1): 0.397 N-S(2): 0.485 * E-W(1): 0.336 * E-W(2): 0.245
	TH	2.00	1,357	3,200	0.424 *	
	LT	1.00	203	1,600	0.127	
Westbound	RT	0.00	87	0	0.000	V/C: 0.821 Lost Time: 0.100 ITS: 0.000
	TH	2.00	588	3,200	0.211	
	LT	1.00	76	1,600	0.048 *	
Northbound	RT	1.00	164	1,600	0.079	ICU: 0.921
	TH	2.00	863	3,200	0.270	
	LT	1.00	98	1,600	0.061 *	
Eastbound	RT	1.00	189	1,600	0.088	LOS: E
	TH	2.00	923	3,200	0.288 *	
	LT	1.00	54	1,600	0.034	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 17 - Normandie Avenue & 223rd Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	64	0	0.000	N-S(1): 0.316 *
	TH	2.00	360	3,200	0.133	N-S(2): 0.210
	LT	1.00	50	1,600	0.031 *	E-W(1): 0.279
Westbound	RT	0.00	84	0	0.000	E-W(2): 0.397 *
	TH	2.00	1,018	3,200	0.344 *	V/C: 0.713
	LT	1.00	114	1,600	0.071	Lost Time: 0.100
Northbound	RT	0.00	108	0	0.000	ITS: 0.000
	TH	2.00	803	3,200	0.285 *	ICU: 0.813
	LT	1.00	123	1,600	0.077	LOS: D
Eastbound	RT	0.00	64	0	0.000	
	TH	2.00	601	3,200	0.208	
	LT	1.00	85	1,600	0.053 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	77	0	0.000	N-S(1): 0.223
	TH	2.00	688	3,200	0.239 *	N-S(2): 0.278 *
	LT	1.00	88	1,600	0.055	E-W(1): 0.448 *
Westbound	RT	0.00	86	0	0.000	E-W(2): 0.289
	TH	2.00	698	3,200	0.245	V/C: 0.726
	LT	1.00	96	1,600	0.060 *	Lost Time: 0.100
Northbound	RT	0.00	123	0	0.000	ITS: 0.000
	TH	2.00	415	3,200	0.168	ICU: 0.826
	LT	1.00	63	1,600	0.039 *	LOS: D
Eastbound	RT	0.00	105	0	0.000	
	TH	2.00	1,137	3,200	0.388 *	
	LT	1.00	71	1,600	0.044	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 18 - Meyler Street & 223rd Street  
 Description: Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	54	54	0	0.000	N-S(1): 0.158 * N-S(2): 0.152 E-W(1): 0.245 E-W(2): 0.408 *
	TH	1.00	44	44	1,600	0.101	
	LT	0.00	57	63	1,600	0.039 *	
Westbound	RT	0.00	72	72	0	0.000	V/C: 0.566 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,121	1,121	3,200	0.373 *	
	LT	1.00	46	46	1,600	0.029	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.666
	TH	1.00	39	39	1,600	0.119 *	
	LT	0.00	74	82	1,600	0.051	
Eastbound	RT	0.00	24	24	0	0.000	LOS: B
	TH	2.00	667	667	3,200	0.216	
	LT	1.00	56	56	1,600	0.035 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	38	38	0	0.000	N-S(1): 0.068 N-S(2): 0.070 * E-W(1): 0.419 * E-W(2): 0.305
	TH	1.00	15	15	1,600	0.051 *	
	LT	0.00	26	29	1,600	0.018	
Westbound	RT	0.00	46	46	0	0.000	V/C: 0.489 Lost Time: 0.100 ITS: 0.000
	TH	2.00	816	816	3,200	0.269	
	LT	1.00	59	59	1,600	0.037 *	
Northbound	RT	0.00	35	35	0	0.000	ICU: 0.589
	TH	1.00	15	15	1,600	0.050	
	LT	0.00	27	30	1,600	0.019 *	
Eastbound	RT	0.00	89	89	0	0.000	LOS: A
	TH	2.00	1,133	1,133	3,200	0.382 *	
	LT	1.00	58	58	1,600	0.036	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 19 - Vermont Avenue & 223rd Street  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	10 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	89	0	0.000	N-S(1): 0.354 *
	TH	2.00	386	3,200	0.148	N-S(2): 0.235
	LT	1.00	150	1,600	0.094 *	E-W(1): 0.272
Westbound	RT	0.00	328	0	0.000	E-W(2): 0.482 *
	TH	2.00	994	3,200	0.413 *	V/C: 0.836
	LT	2.00	247	2,880	0.086	Lost Time: 0.100
Northbound	RT	1.00	130	1,600	0.000	ITS: 0.000
	TH	2.00	833	3,200	0.260 *	ICU: 0.936
	LT	1.00	139	1,600	0.087	LOS: E
Eastbound	RT	1.00	72	1,600	0.000	
	TH	2.00	595	3,200	0.186	
	LT	1.00	111	1,600	0.069 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	111	0	0.000	N-S(1): 0.312
	TH	2.00	745	3,200	0.268 *	N-S(2): 0.315 *
	LT	1.00	299	1,600	0.187	E-W(1): 0.423 *
Westbound	RT	0.00	131	0	0.000	E-W(2): 0.309
	TH	2.00	735	3,200	0.271	V/C: 0.738
	LT	2.00	253	2,880	0.088 *	Lost Time: 0.100
Northbound	RT	1.00	190	1,600	0.031	ITS: 0.000
	TH	2.00	399	3,200	0.125	ICU: 0.838
	LT	1.00	75	1,600	0.047 *	LOS: D
Eastbound	RT	1.00	118	1,600	0.027	
	TH	2.00	1,071	3,200	0.335 *	
	LT	1.00	60	1,600	0.038	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	495	1,600	0.309 *	N-S(1): 0.190
	TH	2.00	1	1,600	0.191	N-S(2): 0.309 *
	LT	0.00	304	1,600	0.190	E-W(1): 0.359 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.334
	TH	2.00	1,070	3,200	0.334	V/C: 0.668
	LT	1.00	172	1,600	0.108 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	122	1,600	0.076	ICU: 0.768
	TH	2.00	803	3,200	0.251 *	
	LT	0.00	0	0	0.000	LOS: C

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	392	0	0.000	N-S(1): 0.266 *
	TH	2.00	2	1,600	0.246	N-S(2): 0.246
	LT	0.00	426	1,600	0.266 *	E-W(1): 0.486 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.234
	TH	2.00	748	3,200	0.234	V/C: 0.752
	LT	1.00	120	1,600	0.075 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	212	1,600	0.133	ICU: 0.852
	TH	2.00	1,314	3,200	0.411 *	
	LT	0.00	0	0	0.000	LOS: D

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Existing plus 2023 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	190	1,600	0.026	N-S(1): 0.255 *
	TH	2.00	260	3,200	0.081	N-S(2): 0.146
	LT	1.00	66	1,600	0.041 *	E-W(1): 0.228
Westbound	RT	1.00	257	1,600	0.140	E-W(2): 0.478 *
	TH	2.00	934	3,200	0.292 *	V/C: 0.733
	LT	1.00	72	1,600	0.045	Lost Time: 0.100
Northbound	RT	1.00	149	1,600	0.071	ITS: 0.000
	TH	2.00	685	3,200	0.214 *	ICU: 0.833
	LT	1.00	104	1,600	0.065	LOS: D
Eastbound	RT	1.00	178	1,600	0.079	
	TH	2.00	587	3,200	0.183	
	LT	1.00	297	1,600	0.186 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	161	1,600	0.006	N-S(1): 0.200 *
	TH	2.00	405	3,200	0.127	N-S(2): 0.172
	LT	1.00	148	1,600	0.093 *	E-W(1): 0.422 *
Westbound	RT	1.00	130	1,600	0.035	E-W(2): 0.382
	TH	2.00	618	3,200	0.193	V/C: 0.622
	LT	1.00	74	1,600	0.046 *	Lost Time: 0.100
Northbound	RT	1.00	110	1,600	0.046	ITS: 0.000
	TH	2.00	343	3,200	0.107 *	ICU: 0.722
	LT	1.00	72	1,600	0.045	LOS: C
Eastbound	RT	1.00	210	1,600	0.109	
	TH	2.00	1,204	3,200	0.376 *	
	LT	1.00	302	1,600	0.189	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Existing plus 2023 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	267	1,600	0.095	N-S(1): 0.353
	TH	2.00	874	3,200	0.273 *	N-S(2): 0.360 *
	LT	1.00	76	1,600	0.048	E-W(1): 0.468
Westbound	RT	0.00	96	0	0.000	E-W(2): 0.497 *
	TH	3.00	1,602	4,800	0.354 *	V/C: 0.857
	LT	1.00	304	1,600	0.190	Lost Time: 0.100
Northbound	RT	1.00	297	1,600	0.091	ITS: 0.000
	TH	2.00	975	3,200	0.305	
	LT	1.00	139	1,600	0.087 *	
Eastbound	RT	0.00	72	0	0.000	ICU: 0.957
	TH	3.00	1,261	4,800	0.278	
	LT	1.00	229	1,600	0.143 *	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.018	N-S(1): 0.358
	TH	2.00	963	3,200	0.301 *	N-S(2): 0.415 *
	LT	1.00	174	1,600	0.109	E-W(1): 0.497 *
Westbound	RT	0.00	139	0	0.000	E-W(2): 0.447
	TH	3.00	1,380	4,800	0.316	V/C: 0.912
	LT	1.00	309	1,600	0.193 *	Lost Time: 0.100
Northbound	RT	1.00	321	1,600	0.104	ITS: 0.000
	TH	2.00	796	3,200	0.249	
	LT	1.00	182	1,600	0.114 *	
Eastbound	RT	0.00	120	0	0.000	ICU: 1.012
	TH	3.00	1,338	4,800	0.304 *	
	LT	1.00	210	1,600	0.131	LOS: F

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	154	1	154	98	1	98
	↵↵ Left-Through		0			0	
	↵↵ Through	740	1	444	547	1	349
	↵↵ Through-Right		1			1	
	↵↵ Right	147	0	147	150	0	150
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	32	1	32	130	1	130
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	400	1	251	733	1	443
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	101	0	101	152	0	152
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵ Left	95	1	95	106	1	106
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	915	1	498	1373	1	743
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	80	0	80	112	0	112
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵ Left	104	1	104	58	1	58
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	1461	1	768	963	1	503
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	74	0	74	43	0	43
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	476		<i>North-South:</i>	541
			<i>East-West:</i>	863		<i>East-West:</i>	801
			<i>SUM:</i>	1339		<i>SUM:</i>	1342
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.974			0.976
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.904</b>			<b>0.906</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				3			3
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	150	1	150	152	1	152
	↵↵		0			0	
	↵↵↵	1124	2	562	798	2	399
	↵↵↵↵		0			0	
	↵↵↵↵	83	1	50	116	1	81
	↵↵↵↵↵		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵	93	1	93	154	1	154
	↵↵↵↵		0			0	
	↵↵↵↵↵	715	2	358	1296	2	648
	↵↵↵↵		0			0	
	↵↵↵↵	133	1	104	220	1	178
	↵↵↵↵↵		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵	58	1	58	84	1	84
	↵↵↵↵		0			0	
	↵↵↵↵↵	752	1	429	981	1	582
	↵↵↵↵↵		1			1	
	↵↵↵↵↵	105	0	105	183	0	183
	↵↵↵↵↵		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵	66	1	66	70	1	70
	↵↵↵↵		0			0	
	↵↵↵↵↵	1122	1	638	918	1	522
	↵↵↵↵↵		1			1	
	↵↵↵↵↵	154	0	154	126	0	126
	↵↵↵↵↵		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	655	<i>North-South:</i>		800
			<i>East-West:</i>	696	<i>East-West:</i>		652
			<b>SUM:</b>	1351	<b>SUM:</b>		1452
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.948			1.019
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				0.878			0.949
<b>LEVEL OF SERVICE (LOS):</b>				D			E

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	210	1	210	178	1	178
	↔ Left-Through		0			0	
	→ Through	663	2	332	504	2	252
	→ Through-Right		0			0	
	↔ Right	76	1	0	117	1	39
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	39	1	39	93	1	93
	↔ Left-Through		0			0	
	→ Through	375	1	261	520	1	341
	→ Through-Right		1			1	
	↔ Right	147	0	147	162	0	162
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	194	1	194	199	1	199
	↔ Left-Through		0			0	
	→ Through	890	2	445	1168	2	584
	→ Through-Right		0			0	
	↔ Right	192	1	87	164	1	75
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	167	1	167	156	1	156
	↔ Left-Through		0			0	
	→ Through	1187	2	594	1023	2	512
	→ Through-Right		0			0	
	↔ Right	76	1	57	79	1	33
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	471		<i>North-South:</i>	519
			<i>East-West:</i>	788		<i>East-West:</i>	740
			<i>SUM:</i>	1259		<i>SUM:</i>	1259
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.839			0.916
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.769</b>			<b>0.846</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>C</b>			<b>D</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	116	1	116	58	1	58
	↵↵ Left-Through		0			0	
	↵↵ Through	1348	1	690	921	1	472
	↵↵ Through-Right		1			1	
	↵↵ Right	31	0	31	23	0	23
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	18	1	18	31	1	31
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	876	1	472	1446	1	732
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	68	0	68	17	0	17
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵ Left	18	0	18	56	0	56
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	23	0	96	97	0	315
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	55	0	0	162	0	0
	↵↵↵ Left-Through-Right		1			1	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵ Left	104	0	104	47	0	47
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	77	0	218	39	0	110
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	37	0	0	24	0	0
	↵↵↵ Left-Through-Right		1			1	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	708		<i>North-South:</i>	790
			<i>East-West:</i>	236		<i>East-West:</i>	362
			<i>SUM:</i>	944		<i>SUM:</i>	1152
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.629			0.768
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.559</b>			<b>0.698</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>B</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	↵	25	1	25	23	1	23
	↵↵		0			0	
	↵↵↵	849	1	484	501	1	271
	↵↵↵↵		1			1	
	↵↵↵↵↵	118	0	118	41	0	41
	↵↵↵↵↵↵		0			0	
SOUTHBOUND	↵↵↵↵↵↵	78	1	78	76	1	76
	↵↵↵↵↵		0			0	
	↵↵↵↵	385	1	206	767	1	402
	↵↵↵		1			1	
	↵↵	26	0	26	36	0	36
	↵		0			0	
EASTBOUND	↵	30	0	30	20	0	20
	↵↵		1			1	
	↵↵↵	105	0	135	62	0	82
	↵↵↵↵		0			0	
	↵↵↵↵↵	42	1	30	50	1	39
	↵↵↵↵↵↵		0			0	
WESTBOUND	↵↵↵↵↵↵	46	0	46	44	0	44
	↵↵↵↵↵		1			1	
	↵↵↵↵	77	0	123	40	0	84
	↵↵↵		0			0	
	↵↵↵↵	102	1	63	93	1	55
	↵↵↵↵↵↵		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	562		<i>North-South:</i>	425
			<i>East-West:</i>	181		<i>East-West:</i>	126
			<i>SUM:</i>	743		<i>SUM:</i>	551
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.495			0.367
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.425</b>			<b>0.297</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	188	1	188	98	1	98
	↵↵ Left-Through		0			0	
	↵↵ Through	1265	2	633	863	2	432
	↵↵ Through-Right		0			0	
	↵↵ Right	168	1	46	164	1	126
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	74	1	74	203	1	203
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	898	2	449	1357	2	679
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	53	1	30	42	1	15
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵ Left	47	1	47	54	1	54
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	385	2	193	923	2	462
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	109	1	15	189	1	140
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵ Left	244	1	244	76	1	76
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	853	1	517	588	1	338
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	181	0	181	87	0	87
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		707	<i>North-South:</i>		777
		<i>East-West:</i>		564	<i>East-West:</i>		538
		<i>SUM:</i>		1271	<i>SUM:</i>		1315
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.892			0.923
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.822</b>			<b>0.853</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>D</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				2			2
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	123	1	123	63	1	63
	↵↵ Left-Through		0			0	
	↵↵↵ Through	803	2	402	415	2	208
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	108	1	51	123	1	75
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵ Left	50	1	50	88	1	88
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	360	1	212	688	1	383
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	64	0	64	77	0	77
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵ Left	85	1	85	71	1	71
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	601	1	333	1137	1	621
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	64	0	64	105	0	105
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵ Left	114	1	114	96	1	96
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	1018	2	509	698	2	349
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵ Right	84	1	59	86	1	42
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	452	<b>North-South:</b>		446
			<b>East-West:</b>	594	<b>East-West:</b>		717
			<b>SUM:</b>	1046	<b>SUM:</b>		1163
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.697			0.775
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.627</b>			<b>0.705</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
0				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	139	1	139	182	1	182
	↔↔ Left-Through		0			0	
	↔↔ Through	975	2	488	796	2	398
	↔↔ Through-Right		0			0	
	↔↔ Right	297	1	145	321	1	167
	↔↔↔ Left-Through-Right		0			0	
	↔↔↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔↔↔ Left	76	1	76	174	1	174
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	874	2	437	963	2	482
	↔↔↔ Through-Right		0			0	
	↔↔↔ Right	267	1	153	133	1	28
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔↔↔ Left	229	1	229	210	1	210
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	1261	2	444	1338	2	486
	↔↔↔ Through-Right		1			1	
	↔↔↔ Right	72	0	72	120	0	120
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔↔↔ Left	304	1	304	309	1	309
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	1602	2	566	1380	2	506
	↔↔↔ Through-Right		1			1	
	↔↔↔ Right	96	0	96	139	0	139
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	576		<i>North-South:</i>	664
			<i>East-West:</i>	795		<i>East-West:</i>	795
			<i>SUM:</i>	1371		<i>SUM:</i>	1459
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.997			1.061
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.927</b>			<b>0.991</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

**EXISTING PLUS 2030 PROJECT**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 1 - Normandie Avenue & Torrance Boulevard  
**Description:** Existing plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	101	0	0.000	N-S(1): 0.300 *
	TH	2.00	441	3,200	0.169	N-S(2): 0.265
	LT	1.00	32	1,600	0.020 *	E-W(1): 0.379
Westbound	RT	0.00	74	0	0.000	E-W(2): 0.539 *
	TH	2.00	1,461	3,200	0.480 *	V/C: 0.839
	LT	1.00	106	1,600	0.066	Lost Time: 0.100
Northbound	RT	0.00	148	0	0.000	ITS: 0.000
	TH	2.00	747	3,200	0.280 *	ICU: 0.939
	LT	1.00	154	1,600	0.096	LOS: E
Eastbound	RT	0.00	86	0	0.000	
	TH	2.00	915	3,200	0.313	
	LT	1.00	95	1,600	0.059 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	152	0	0.000	N-S(1): 0.312
	TH	2.00	747	3,200	0.281 *	N-S(2): 0.342 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.502 *
Westbound	RT	0.00	43	0	0.000	E-W(2): 0.380
	TH	2.00	963	3,200	0.314	V/C: 0.844
	LT	1.00	59	1,600	0.037 *	Lost Time: 0.100
Northbound	RT	0.00	152	0	0.000	ITS: 0.000
	TH	2.00	588	3,200	0.231	ICU: 0.944
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	0.00	114	0	0.000	
	TH	2.00	1,373	3,200	0.465 *	
	LT	1.00	106	1,600	0.066	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 2 - Vermont Avenue & Torrance Boulevard  
**Description:** Existing plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	187	1,600	0.009	N-S(1): 0.280 *
	TH	2.00	608	3,200	0.190	N-S(2): 0.266
	LT	1.00	37	1,600	0.023 *	E-W(1): 0.375
Westbound	RT	0.00	111	0	0.000	E-W(2): 0.550 *
	TH	2.00	1,304	3,200	0.442 *	V/C: 0.830
	LT	1.00	93	1,600	0.058	Lost Time: 0.100
Northbound	RT	1.00	182	1,600	0.056	ITS: 0.000
	TH	2.00	821	3,200	0.257 *	
	LT	1.00	122	1,600	0.076	
Eastbound	RT	0.00	147	0	0.000	ICU: 0.930
	TH	2.00	866	3,200	0.317	
	LT	1.00	172	1,600	0.108 *	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	230	1,600	0.039	N-S(1): 0.235
	TH	2.00	876	3,200	0.274 *	N-S(2): 0.323 *
	LT	1.00	112	1,600	0.070	E-W(1): 0.463 *
Westbound	RT	0.00	89	0	0.000	E-W(2): 0.348
	TH	2.00	689	3,200	0.243	V/C: 0.786
	LT	1.00	62	1,600	0.039 *	Lost Time: 0.100
Northbound	RT	1.00	123	1,600	0.038	ITS: 0.000
	TH	2.00	528	3,200	0.165	
	LT	1.00	78	1,600	0.049 *	
Eastbound	RT	0.00	96	0	0.000	ICU: 0.886
	TH	2.00	1,260	3,200	0.424 *	
	LT	1.00	168	1,600	0.105	LOS: D

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.065	N-S(1): 0.411 * N-S(2): 0.321 E-W(1): 0.314 E-W(2): 0.437 *
	TH	2.00	725	3,200	0.227	
	LT	1.00	94	1,600	0.059 *	
Westbound	RT	0.00	156	0	0.000	V/C: 0.848 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,127	3,200	0.401 *	
	LT	1.00	66	1,600	0.041	
Northbound	RT	1.00	83	1,600	0.031	ICU: 0.948
	TH	2.00	1,126	3,200	0.352 *	
	LT	1.00	151	1,600	0.094	
Eastbound	RT	0.00	108	0	0.000	LOS: E
	TH	2.00	766	3,200	0.273	
	LT	1.00	58	1,600	0.036 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	220	1,600	0.111	N-S(1): 0.349 N-S(2): 0.502 * E-W(1): 0.410 * E-W(2): 0.388
	TH	2.00	1,300	3,200	0.406 *	
	LT	1.00	154	1,600	0.096	
Westbound	RT	0.00	136	0	0.000	V/C: 0.912 Lost Time: 0.100 ITS: 0.000
	TH	2.00	936	3,200	0.335	
	LT	1.00	70	1,600	0.044 *	
Northbound	RT	1.00	116	1,600	0.051	ICU: 1.012
	TH	2.00	809	3,200	0.253	
	LT	1.00	154	1,600	0.096 *	
Eastbound	RT	0.00	185	0	0.000	LOS: F
	TH	2.00	987	3,200	0.366 *	
	LT	1.00	84	1,600	0.053	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 4 - Normandie Avenue & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	147	0	0.000	N-S(1): 0.268
	TH	2.00	411	3,200	0.174 *	N-S(2): 0.308 *
	LT	1.00	51	1,600	0.032	E-W(1): 0.457
Westbound	RT	0.00	77	0	0.000	E-W(2): 0.517 *
	TH	2.00	1,189	3,200	0.396 *	V/C: 0.825
	LT	1.00	182	1,600	0.114	Lost Time: 0.100
Northbound	RT	0.00	85	0	0.000	ITS: 0.000
	TH	2.00	669	3,200	0.236	ICU: 0.925
	LT	1.00	215	1,600	0.134 *	LOS: E
Eastbound	RT	0.00	201	0	0.000	
	TH	2.00	895	3,200	0.343	
	LT	1.00	194	1,600	0.121 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	162	0	0.000	N-S(1): 0.277
	TH	2.00	534	3,200	0.218 *	N-S(2): 0.341 *
	LT	1.00	98	1,600	0.061	E-W(1): 0.521 *
Westbound	RT	0.00	87	0	0.000	E-W(2): 0.474
	TH	2.00	1,034	3,200	0.350	V/C: 0.862
	LT	1.00	165	1,600	0.103 *	Lost Time: 0.100
Northbound	RT	0.00	150	0	0.000	ITS: 0.000
	TH	2.00	540	3,200	0.216	ICU: 0.962
	LT	1.00	196	1,600	0.123 *	LOS: E
Eastbound	RT	0.00	168	0	0.000	
	TH	2.00	1,171	3,200	0.418 *	
	LT	1.00	199	1,600	0.124	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 5 - Budlong Avenue & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.011
	TH	1.00	0	1,600	0.032 *	N-S(2): 0.032 *
	LT	0.00	17	1,600	0.011	E-W(1): 0.337
Westbound	RT	0.00	16	0	0.000	E-W(2): 0.504 *
	TH	2.00	1,567	3,200	0.495 *	V/C: 0.536
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.636
	LT	0.00	0	0	0.000 *	LOS: B
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,079	3,200	0.337	
	LT	1.00	15	1,600	0.009 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.013
	TH	1.00	0	1,600	0.034 *	N-S(2): 0.034 *
	LT	0.00	20	1,600	0.013	E-W(1): 0.457 *
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.432
	TH	2.00	1,304	3,200	0.416	V/C: 0.491
	LT	0.00	0	0	0.000 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.591
	LT	0.00	0	0	0.000 *	LOS: A
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,462	3,200	0.457 *	
	LT	1.00	25	1,600	0.016	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 6 - Berendo Avenue & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.009
	TH	1.00	1	1,600	0.023 *	N-S(2): 0.036 *
	LT	1.00	13	1,600	0.008	E-W(1): 0.466
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.506 *
	TH	2.00	1,551	3,200	0.495 *	V/C: 0.542
	LT	1.00	216	1,600	0.135	Lost Time: 0.100
Northbound	RT	1.00	68	1,600	0.000	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	20	1,600	0.013 *	
Eastbound	RT	0.00	49	0	0.000	ICU: 0.642
	TH	2.00	1,009	3,200	0.331	
	LT	1.00	17	1,600	0.011 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.097 *
	TH	1.00	4	1,600	0.024	N-S(2): 0.036
	LT	1.00	24	1,600	0.015 *	E-W(1): 0.491 *
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.431
	TH	2.00	1,279	3,200	0.414	V/C: 0.588
	LT	1.00	63	1,600	0.039 *	Lost Time: 0.100
Northbound	RT	1.00	194	1,600	0.082 *	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	19	1,600	0.012	
Eastbound	RT	0.00	25	0	0.000	ICU: 0.688
	TH	2.00	1,421	3,200	0.452 *	
	LT	1.00	27	1,600	0.017	LOS: B

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 7 - Medical Center Drive & Carson Street  
 Description: Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.40	34	34	648	0.044	N-S(1): 0.053 * N-S(2): 0.044 E-W(1): 0.339 E-W(2): 0.568 *
	TH	0.00	0	0	0	0.000	
	LT	0.60	45	50	952	0.053 *	
Westbound	RT	0.00	10	10	0	0.000	V/C: 0.621 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,783	1,783	3,200	0.560 *	
	LT	0.00	0	0	0	0.000	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.721 LOS: C
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,084	1,084	3,200	0.339	
	LT	1.00	13	13	1,600	0.008 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.55	17	17	877	0.004	N-S(1): 0.019 * N-S(2): 0.004 E-W(1): 0.502 * E-W(2): 0.454
	TH	0.00	0	0	0	0.000	
	LT	0.45	12	14	723	0.019 *	
Westbound	RT	0.00	25	25	0	0.000	V/C: 0.521 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,381	1,381	3,200	0.439	
	LT	0.00	0	0	0	0.000 *	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.621 LOS: B
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,606	1,606	3,200	0.502 *	
	LT	1.00	24	24	1,600	0.015	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 8 - Vermont Avenue & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	230	1,600	0.064	N-S(1): 0.337 *
	TH	2.00	513	3,200	0.160	N-S(2): 0.268
	LT	1.00	124	1,600	0.078 *	E-W(1): 0.481
Westbound	RT	1.00	132	1,600	0.005	E-W(2): 0.509 *
	TH	2.00	1,377	3,200	0.430 *	V/C: 0.846
	LT	1.00	312	1,600	0.195	Lost Time: 0.100
Northbound	RT	1.00	234	1,600	0.000	ITS: 0.000
	TH	2.00	829	3,200	0.259 *	ICU: 0.946
	LT	1.00	172	1,600	0.108	LOS: E
Eastbound	RT	1.00	87	1,600	0.000	
	TH	2.00	914	3,200	0.286	
	LT	1.00	127	1,600	0.079 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	185	1,600	0.033	N-S(1): 0.316
	TH	2.00	748	3,200	0.234 *	N-S(2): 0.321 *
	LT	1.00	272	1,600	0.170	E-W(1): 0.541 *
Westbound	RT	1.00	163	1,600	0.000	E-W(2): 0.415
	TH	2.00	1,063	3,200	0.332	V/C: 0.862
	LT	1.00	170	1,600	0.106 *	Lost Time: 0.100
Northbound	RT	1.00	403	1,600	0.146	ITS: 0.000
	TH	2.00	443	3,200	0.138	ICU: 0.962
	LT	1.00	139	1,600	0.087 *	LOS: E
Eastbound	RT	1.00	128	1,600	0.000	
	TH	2.00	1,392	3,200	0.435 *	
	LT	1.00	132	1,600	0.083	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	650	1,600	0.406 *	N-S(1): 0.083 N-S(2): 0.406 * E-W(1): 0.369 E-W(2): 0.401 *
	TH	0.00	0	0	0.000	
	LT	1.00	132	1,600	0.083	
Westbound	RT	0.00	0	0	0.000	V/C: 0.807 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,282	3,200	0.401 *	
	LT	1.00	174	1,600	0.109	
Northbound	RT	0.00	0	0	0.000	ICU: 0.907
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	137	0	0.000	LOS: E
	TH	3.00	1,113	4,800	0.260	
	LT	0.00	0	0	0.000 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	435	1,600	0.272 *	N-S(1): 0.164 N-S(2): 0.272 * E-W(1): 0.544 * E-W(2): 0.315
	TH	0.00	0	0	0.000	
	LT	1.00	263	1,600	0.164	
Westbound	RT	0.00	0	0	0.000	V/C: 0.816 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,007	3,200	0.315	
	LT	1.00	178	1,600	0.111 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.916
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	290	0	0.000	LOS: E
	TH	3.00	1,790	4,800	0.433 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Existing plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :	EBR,		
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	163	1,600	0.066	N-S(1): 0.168
	TH	2.00	267	3,200	0.083 *	N-S(2): 0.201 *
	LT	2.00	38	2,560	0.015	E-W(1): 0.263
Westbound	RT	1.00	98	1,600	0.054	E-W(2): 0.384 *
	TH	2.00	997	3,200	0.312 *	V/C: 0.585
	LT	1.00	95	1,600	0.059	Lost Time: 0.100
Northbound	RT	1.00	171	1,600	0.077	ITS: 0.000
	TH	2.00	490	3,200	0.153	
	LT	2.00	302	2,560	0.118 *	
Eastbound	RT	1.00	476	1,600	0.180	ICU: 0.685
	TH	2.00	654	3,200	0.204	
	LT	1.00	115	1,600	0.072 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	166	1,600	0.067	N-S(1): 0.126
	TH	2.00	471	3,200	0.147 *	N-S(2): 0.231 *
	LT	2.00	131	2,560	0.051	E-W(1): 0.448 *
Westbound	RT	1.00	70	1,600	0.018	E-W(2): 0.327
	TH	2.00	809	3,200	0.253	V/C: 0.679
	LT	1.00	103	1,600	0.064 *	Lost Time: 0.100
Northbound	RT	1.00	138	1,600	0.054	ITS: 0.000
	TH	2.00	241	3,200	0.075	
	LT	2.00	214	2,560	0.084 *	
Eastbound	RT	1.00	698	1,600	0.353	ICU: 0.779
	TH	2.00	1,228	3,200	0.384 *	
	LT	1.00	118	1,600	0.074	LOS: C

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	68	0	0.000	N-S(1): 0.450 *
	TH	2.00	876	3,200	0.295	N-S(2): 0.368
	LT	1.00	31	1,600	0.019 *	E-W(1): 0.125
Westbound	RT	0.00	40	0	0.000	E-W(2): 0.149 *
	TH	1.00	77	1,600	0.138 *	V/C: 0.599
	LT	0.00	104	1,600	0.065	Lost Time: 0.100
Northbound	RT	0.00	32	0	0.000	ITS: 0.000
	TH	2.00	1,348	3,200	0.431 *	ICU: 0.699
	LT	1.00	116	1,600	0.073	LOS: B
Eastbound	RT	0.00	55	0	0.000	
	TH	1.00	23	1,600	0.060	
	LT	0.00	18	1,600	0.011 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	17	0	0.000	N-S(1): 0.318
	TH	2.00	1,446	3,200	0.457 *	N-S(2): 0.493 *
	LT	1.00	37	1,600	0.023	E-W(1): 0.227 *
Westbound	RT	0.00	38	0	0.000	E-W(2): 0.113
	TH	1.00	39	1,600	0.078	V/C: 0.720
	LT	0.00	48	1,600	0.030 *	Lost Time: 0.100
Northbound	RT	0.00	23	0	0.000	ITS: 0.000
	TH	2.00	921	3,200	0.295	ICU: 0.820
	LT	1.00	58	1,600	0.036 *	LOS: D
Eastbound	RT	0.00	162	0	0.000	
	TH	1.00	97	1,600	0.197 *	
	LT	0.00	56	1,600	0.035	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 12 - Normandie Avenue & 220th Street  
 Description: Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	26	26	0	0.000	N-S(1): 0.374 * N-S(2): 0.146 E-W(1): 0.154 E-W(2): 0.171 *
	TH	2.00	390	390	3,200	0.130	
	LT	1.00	97	97	1,600	0.061 *	
Westbound	RT	0.00	106	106	0	0.000	V/C: 0.545 Lost Time: 0.100 ITS: 0.000
	TH	1.00	80	80	1,600	0.148 *	
	LT	0.00	46	51	1,600	0.032	
Northbound	RT	0.00	120	120	0	0.000	ICU: 0.645
	TH	2.00	880	880	3,200	0.313 *	
	LT	1.00	25	25	1,600	0.016	
Eastbound	RT	0.00	42	42	0	0.000	LOS: B
	TH	1.00	116	116	1,600	0.122	
	LT	0.00	33	37	1,600	0.023 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	37	37	0	0.000	N-S(1): 0.225 N-S(2): 0.271 * E-W(1): 0.119 E-W(2): 0.152 *
	TH	2.00	785	785	3,200	0.257 *	
	LT	1.00	83	83	1,600	0.052	
Westbound	RT	0.00	115	115	0	0.000	V/C: 0.423 Lost Time: 0.100 ITS: 0.000
	TH	1.00	54	54	1,600	0.137 *	
	LT	0.00	45	50	1,600	0.031	
Northbound	RT	0.00	42	42	0	0.000	ICU: 0.523
	TH	2.00	513	513	3,200	0.173	
	LT	1.00	23	23	1,600	0.014 *	
Eastbound	RT	0.00	50	50	0	0.000	LOS: A
	TH	1.00	67	67	1,600	0.088	
	LT	0.00	21	24	1,600	0.015 *	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 13 - Meyler Street & 220th Street  
 Description: Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	4	4	0	0.000	N-S(1): 0.140 * N-S(2): 0.081 E-W(1): 0.198 * E-W(2): 0.171
	TH	1.00	6	6	1,600	0.015	
	LT	0.00	12	14	1,600	0.009 *	
Westbound	RT	0.00	32	32	0	0.000	V/C: 0.338 Lost Time: 0.100 ITS: 0.000
	TH	1.00	150	150	1,600	0.158	
	LT	0.00	63	70	1,600	0.044 *	
Northbound	RT	0.00	74	74	0	0.000	ICU: 0.438
	TH	1.00	30	30	1,600	0.131 *	
	LT	0.00	96	106	1,600	0.066	
Eastbound	RT	0.00	51	51	0	0.000	LOS: A
	TH	1.00	174	174	1,600	0.154 *	
	LT	0.00	19	21	1,600	0.013	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	22	22	0	0.000	N-S(1): 0.087 * N-S(2): 0.073 E-W(1): 0.210 * E-W(2): 0.115
	TH	1.00	32	32	1,600	0.064	
	LT	0.00	43	48	1,600	0.030 *	
Westbound	RT	0.00	7	7	0	0.000	V/C: 0.297 Lost Time: 0.100 ITS: 0.000
	TH	1.00	130	130	1,600	0.108	
	LT	0.00	31	35	1,600	0.022 *	
Northbound	RT	0.00	68	68	0	0.000	ICU: 0.397
	TH	1.00	8	8	1,600	0.057 *	
	LT	0.00	13	15	1,600	0.009	
Eastbound	RT	0.00	33	33	0	0.000	LOS: A
	TH	1.00	257	257	1,600	0.188 *	
	LT	0.00	10	11	1,600	0.007	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 14 - Vermont Avenue & 220th Street  
 Description: Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	307	307	0	0.000	N-S(1): 0.377
	TH	2.00	507	507	3,200	0.254 *	N-S(2): 0.413 *
	LT	1.00	56	56	1,600	0.035	E-W(1): 0.207 *
Westbound	RT	0.00	37	37	0	0.000	E-W(2): 0.163
	TH	1.00	27	27	1,600	0.052	V/C: 0.620
	LT	0.00	17	19	1,600	0.012 *	Lost Time: 0.100
Northbound	RT	0.00	40	40	0	0.000	ITS: 0.000
	TH	2.00	1,055	1,055	3,200	0.342	ICU: 0.720
	LT	1.00	255	255	1,600	0.159 *	LOS: C
Eastbound	RT	0.00	102	102	0	0.000	
	TH	1.00	32	32	1,600	0.195 *	
	LT	0.00	161	178	1,600	0.111	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	83	83	0	0.000	N-S(1): 0.192
	TH	2.00	947	947	3,200	0.322 *	N-S(2): 0.356 *
	LT	1.00	22	22	1,600	0.014	E-W(1): 0.371 *
Westbound	RT	0.00	43	43	0	0.000	E-W(2): 0.257
	TH	1.00	12	12	1,600	0.056	V/C: 0.727
	LT	0.00	31	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	0.00	14	14	0	0.000	ITS: 0.000
	TH	2.00	556	556	3,200	0.178	ICU: 0.827
	LT	1.00	54	54	1,600	0.034 *	LOS: D
Eastbound	RT	0.00	225	225	0	0.000	
	TH	1.00	13	13	1,600	0.349 *	
	LT	0.00	291	321	1,600	0.201	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Existing plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	406	1,600	0.175 *	N-S(1): 0.273
	TH	2.00	375	3,200	0.117	N-S(2): 0.477 *
	LT	1.00	128	1,600	0.080	E-W(1): 0.365 *
Westbound	RT	1.00	89	1,600	0.016	E-W(2): 0.000
	TH	1.00	207	1,600	0.184 *	V/C: 0.842
	LT	0.00	87	1,600	0.054	Lost Time: 0.100
Northbound	RT	1.00	145	1,600	0.063	ITS: 0.000
	TH	2.00	618	3,200	0.193	ICU: 0.942
	LT	1.00	483	1,600	0.302 *	LOS: E
Eastbound	RT	1.00	80	1,600	0.000	
	TH	1.00	37	1,600	0.181 *	
	LT	0.00	252	1,600	0.158	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	606	1,600	0.301 *	N-S(1): 0.140
	TH	2.00	549	3,200	0.172	N-S(2): 0.586 *
	LT	1.00	75	1,600	0.047	E-W(1): 0.314 *
Westbound	RT	1.00	52	1,600	0.009	E-W(2): 0.000
	TH	1.00	104	1,600	0.100 *	V/C: 0.900
	LT	0.00	56	1,600	0.035	Lost Time: 0.100
Northbound	RT	1.00	50	1,600	0.014	ITS: 0.000
	TH	2.00	298	3,200	0.093	ICU: 1.000
	LT	1.00	456	1,600	0.285 *	LOS: E
Eastbound	RT	1.00	114	1,600	0.000	
	TH	1.00	95	1,600	0.214 *	
	LT	0.00	248	1,600	0.155	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	53	1,600	0.018	N-S(1): 0.442 *
	TH	2.00	898	3,200	0.281	N-S(2): 0.399
	LT	1.00	74	1,600	0.046 *	E-W(1): 0.274
Westbound	RT	0.00	181	0	0.000	E-W(2): 0.352 *
	TH	2.00	854	3,200	0.323 *	V/C: 0.794
	LT	1.00	245	1,600	0.153	Lost Time: 0.100
Northbound	RT	1.00	170	1,600	0.030	ITS: 0.000
	TH	2.00	1,266	3,200	0.396 *	ICU: 0.894
	LT	1.00	188	1,600	0.118	LOS: D
Eastbound	RT	1.00	109	1,600	0.009	
	TH	2.00	388	3,200	0.121	
	LT	1.00	47	1,600	0.029 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	42	1,600	0.009	N-S(1): 0.397
	TH	2.00	1,358	3,200	0.424 *	N-S(2): 0.485 *
	LT	1.00	203	1,600	0.127	E-W(1): 0.338 *
Westbound	RT	0.00	87	0	0.000	E-W(2): 0.246
	TH	2.00	592	3,200	0.212	V/C: 0.823
	LT	1.00	79	1,600	0.049 *	Lost Time: 0.100
Northbound	RT	1.00	166	1,600	0.079	ITS: 0.000
	TH	2.00	863	3,200	0.270	ICU: 0.923
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	1.00	189	1,600	0.088	
	TH	2.00	925	3,200	0.289 *	
	LT	1.00	54	1,600	0.034	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 17 - Normandie Avenue & 223rd Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	65	0	0.000	N-S(1): 0.321 *
	TH	2.00	362	3,200	0.133	N-S(2): 0.210
	LT	1.00	51	1,600	0.032 *	E-W(1): 0.281
Westbound	RT	0.00	104	0	0.000	E-W(2): 0.407 *
	TH	2.00	1,019	3,200	0.351 *	V/C: 0.728
	LT	1.00	116	1,600	0.073	Lost Time: 0.100
Northbound	RT	0.00	113	0	0.000	ITS: 0.000
	TH	2.00	812	3,200	0.289 *	ICU: 0.828
	LT	1.00	123	1,600	0.077	LOS: D
Eastbound	RT	0.00	64	0	0.000	
	TH	2.00	603	3,200	0.208	
	LT	1.00	89	1,600	0.056 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	81	0	0.000	N-S(1): 0.229
	TH	2.00	697	3,200	0.243 *	N-S(2): 0.282 *
	LT	1.00	94	1,600	0.059	E-W(1): 0.452 *
Westbound	RT	0.00	94	0	0.000	E-W(2): 0.294
	TH	2.00	701	3,200	0.248	V/C: 0.734
	LT	1.00	103	1,600	0.064 *	Lost Time: 0.100
Northbound	RT	0.00	126	0	0.000	ITS: 0.000
	TH	2.00	418	3,200	0.170	ICU: 0.834
	LT	1.00	63	1,600	0.039 *	LOS: D
Eastbound	RT	0.00	105	0	0.000	
	TH	2.00	1,138	3,200	0.388 *	
	LT	1.00	74	1,600	0.046	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 18 - Meyler Street & 223rd Street  
 Description: Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	57	57	0	0.000	N-S(1): 0.160 * N-S(2): 0.155 E-W(1): 0.245 E-W(2): 0.423 *
	TH	1.00	44	44	1,600	0.104	
	LT	0.00	60	66	1,600	0.041 *	
Westbound	RT	0.00	88	88	0	0.000	V/C: 0.583 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,142	1,142	3,200	0.384 *	
	LT	1.00	46	46	1,600	0.029	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.683
	TH	1.00	39	39	1,600	0.119 *	
	LT	0.00	74	82	1,600	0.051	
Eastbound	RT	0.00	24	24	0	0.000	LOS: B
	TH	2.00	668	668	3,200	0.216	
	LT	1.00	62	62	1,600	0.039 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	47	47	0	0.000	N-S(1): 0.081 N-S(2): 0.088 * E-W(1): 0.421 * E-W(2): 0.313
	TH	1.00	15	15	1,600	0.069 *	
	LT	0.00	44	49	1,600	0.031	
Westbound	RT	0.00	51	51	0	0.000	V/C: 0.509 Lost Time: 0.100 ITS: 0.000
	TH	2.00	825	825	3,200	0.274	
	LT	1.00	59	59	1,600	0.037 *	
Northbound	RT	0.00	35	35	0	0.000	ICU: 0.609
	TH	1.00	15	15	1,600	0.050	
	LT	0.00	27	30	1,600	0.019 *	
Eastbound	RT	0.00	89	89	0	0.000	LOS: B
	TH	2.00	1,139	1,139	3,200	0.384 *	
	LT	1.00	62	62	1,600	0.039	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 19 - Vermont Avenue & 223rd Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 12.5 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	89	0	0.000	N-S(1): 0.365 *
	TH	2.00	387	3,200	0.149	N-S(2): 0.238
	LT	1.00	163	1,600	0.102 *	E-W(1): 0.275
Westbound	RT	0.00	385	0	0.000	E-W(2): 0.510 *
	TH	2.00	1,027	3,200	0.441 *	V/C: 0.875
	LT	2.00	247	2,800	0.088	Lost Time: 0.100
Northbound	RT	1.00	130	1,600	0.000	ITS: 0.000
	TH	2.00	841	3,200	0.263 *	ICU: 0.975
	LT	1.00	142	1,600	0.089	LOS: E
Eastbound	RT	1.00	73	1,600	0.000	
	TH	2.00	599	3,200	0.187	
	LT	1.00	111	1,600	0.069 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	112	0	0.000	N-S(1): 0.355 *
	TH	2.00	753	3,200	0.270	N-S(2): 0.318
	LT	1.00	367	1,600	0.229 *	E-W(1): 0.431 *
Westbound	RT	0.00	153	0	0.000	E-W(2): 0.320
	TH	2.00	748	3,200	0.282	V/C: 0.786
	LT	2.00	253	2,800	0.090 *	Lost Time: 0.100
Northbound	RT	1.00	190	1,600	0.028	ITS: 0.000
	TH	2.00	402	3,200	0.126 *	ICU: 0.886
	LT	1.00	76	1,600	0.048	LOS: D
Eastbound	RT	1.00	121	1,600	0.028	
	TH	2.00	1,091	3,200	0.341 *	
	LT	1.00	60	1,600	0.038	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	533	1,600	0.333 *	N-S(1): 0.190 N-S(2): 0.333 * E-W(1): 0.363 * E-W(2): 0.351
	TH	2.00	1	1,600	0.191	
	LT	0.00	304	1,600	0.190	
Westbound	RT	0.00	0	0	0.000	V/C: 0.696 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,122	3,200	0.351	
	LT	1.00	172	1,600	0.108 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.796
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	125	1,600	0.078	LOS: C
	TH	2.00	817	3,200	0.255 *	
	LT	0.00	0	0	0.000	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	406	0	0.000	N-S(1): 0.266 * N-S(2): 0.255 E-W(1): 0.507 * E-W(2): 0.240
	TH	2.00	2	1,600	0.255	
	LT	0.00	426	1,600	0.266 *	
Westbound	RT	0.00	0	0	0.000	V/C: 0.773 Lost Time: 0.100 ITS: 0.000
	TH	2.00	767	3,200	0.240	
	LT	1.00	120	1,600	0.075 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.873
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	231	1,600	0.144	LOS: D
	TH	2.00	1,383	3,200	0.432 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Existing plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	219	1,600	0.042	N-S(1):	0.255 *
	TH	2.00	260	3,200	0.081	N-S(2):	0.148
	LT	1.00	66	1,600	0.041 *	E-W(1):	0.230
Westbound	RT	1.00	257	1,600	0.140	E-W(2):	0.489 *
	TH	2.00	955	3,200	0.298 *	V/C:	0.744
	LT	1.00	72	1,600	0.045	Lost Time:	0.100
Northbound	RT	1.00	149	1,600	0.071	ITS:	0.000
	TH	2.00	685	3,200	0.214 *	ICU:	0.844
	LT	1.00	107	1,600	0.067	LOS:	D
Eastbound	RT	1.00	180	1,600	0.079		
	TH	2.00	591	3,200	0.185		
	LT	1.00	305	1,600	0.191 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	172	1,600	0.000	N-S(1):	0.200 *
	TH	2.00	405	3,200	0.127	N-S(2):	0.173
	LT	1.00	149	1,600	0.093 *	E-W(1):	0.429 *
Westbound	RT	1.00	131	1,600	0.035	E-W(2):	0.411
	TH	2.00	625	3,200	0.195	V/C:	0.629
	LT	1.00	74	1,600	0.046 *	Lost Time:	0.100
Northbound	RT	1.00	110	1,600	0.046	ITS:	0.000
	TH	2.00	343	3,200	0.107 *	ICU:	0.729
	LT	1.00	73	1,600	0.046	LOS:	C
Eastbound	RT	1.00	214	1,600	0.111		
	TH	2.00	1,227	3,200	0.383 *		
	LT	1.00	345	1,600	0.216		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Existing plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	267	1,600	0.095	N-S(1): 0.354
	TH	2.00	875	3,200	0.273 *	N-S(2): 0.360 *
	LT	1.00	76	1,600	0.048	E-W(1): 0.468
Westbound	RT	0.00	96	0	0.000	E-W(2): 0.497 *
	TH	3.00	1,602	4,800	0.354 *	V/C: 0.857
	LT	1.00	304	1,600	0.190	Lost Time: 0.100
Northbound	RT	1.00	297	1,600	0.091	ITS: 0.000
	TH	2.00	978	3,200	0.306	
	LT	1.00	139	1,600	0.087 *	
Eastbound	RT	0.00	72	0	0.000	ICU: 0.957
	TH	3.00	1,261	4,800	0.278	
	LT	1.00	229	1,600	0.143 *	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	133	1,600	0.018	N-S(1): 0.358
	TH	2.00	967	3,200	0.302 *	N-S(2): 0.416 *
	LT	1.00	174	1,600	0.109	E-W(1): 0.497 *
Westbound	RT	0.00	139	0	0.000	E-W(2): 0.447
	TH	3.00	1,380	4,800	0.316	V/C: 0.913
	LT	1.00	309	1,600	0.193 *	Lost Time: 0.100
Northbound	RT	1.00	321	1,600	0.104	ITS: 0.000
	TH	2.00	798	3,200	0.249	
	LT	1.00	182	1,600	0.114 *	
Eastbound	RT	0.00	120	0	0.000	ICU: 1.013
	TH	3.00	1,338	4,800	0.304 *	
	LT	1.00	210	1,600	0.131	LOS: F

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard  
**Analyst:** <Fehr & Peers>     **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	154	1	154	98	1	98
	↵↵ Left-Through		0			0	
	↵↵ Through	747	1	448	588	1	370
	↵↵ Through-Right		1			1	
	↵↵ Right	148	0	148	152	0	152
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	32	1	32	130	1	130
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	441	1	271	747	1	450
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	101	0	101	152	0	152
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	95	1	95	106	1	106
	↵↵ Left-Through		0			0	
	↵↵ Through	915	1	501	1373	1	744
	↵↵ Through-Right		1			1	
	↵↵ Right	86	0	86	114	0	114
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	106	1	106	59	1	59
	↵↵ Left-Through		0			0	
	↵↵ Through	1461	1	768	963	1	503
	↵↵ Through-Right		1			1	
	↵↵ Right	74	0	74	43	0	43
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	480		<i>North-South:</i>	548
			<i>East-West:</i>	863		<i>East-West:</i>	803
			<i>SUM:</i>	1343		<i>SUM:</i>	1351
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.977			0.983
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.907</b>			<b>0.913</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	151	1	151	154	1	154
	↔ Left-Through		0			0	
	↔ Through	1126	2	563	809	2	405
	↔ Through-Right		0			0	
	↔ Right	83	1	50	116	1	81
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	94	1	94	154	1	154
	↔ Left-Through		0			0	
	↔ Through	725	2	363	1300	2	650
	↔ Through-Right		0			0	
	↔ Right	133	1	104	220	1	178
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	58	1	58	84	1	84
	↔ Left-Through		0			0	
	↔ Through	766	1	437	987	1	586
	↔ Through-Right		1			1	
	↔ Right	108	0	108	185	0	185
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	66	1	66	70	1	70
	↔ Left-Through		0			0	
	↔ Through	1127	1	642	936	1	536
	↔ Through-Right		1			1	
	↔ Right	156	0	156	136	0	136
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	657		<i>North-South:</i>	804
			<i>East-West:</i>	700		<i>East-West:</i>	656
			<i>SUM:</i>	1357		<i>SUM:</i>	1460
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.952			1.025
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.882</b>			<b>0.955</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	215	1	215	196	1	196
	↔ Left-Through		0			0	
	→ Through	669	2	335	540	2	270
	→ Through-Right		0			0	
	↔ Right	85	1	0	150	1	68
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	51	1	51	98	1	98
	↔ Left-Through		0			0	
	→ Through	411	1	279	534	1	348
	→ Through-Right		1			1	
	↔ Right	147	0	147	162	0	162
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	194	1	194	199	1	199
	↔ Left-Through		0			0	
	→ Through	895	2	448	1171	2	586
	→ Through-Right		0			0	
	↔ Right	201	1	94	168	1	70
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	182	1	182	165	1	165
	↔ Left-Through		0			0	
	→ Through	1189	2	595	1034	2	517
	→ Through-Right		0			0	
	↔ Right	77	1	52	87	1	38
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	494		<i>North-South:</i>	544
			<i>East-West:</i>	789		<i>East-West:</i>	751
			<i>SUM:</i>	1283		<i>SUM:</i>	1295
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.855			0.942
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.785</b>			<b>0.872</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>C</b>			<b>D</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	↵	116	1	116	58	1	58
	↵↵		0			0	
	↵↵↵	1348	1	690	921	1	472
	↵↵↵↵		1			1	
	↵↵↵↵↵	32	0	32	23	0	23
	↵↵↵↵↵↵		0			0	
SOUTHBOUND	↵↵↵↵↵↵	31	1	31	37	1	37
	↵↵↵↵↵		0			0	
	↵↵↵↵	876	1	472	1446	1	732
	↵↵↵		1			1	
	↵↵	68	0	68	17	0	17
	↵		0			0	
EASTBOUND	↵↵↵↵↵↵	18	0	18	56	0	56
	↵↵↵↵↵		0			0	
	↵↵↵↵	23	0	96	97	0	315
	↵↵↵		0			0	
	↵↵	55	0	0	162	0	0
	↵		1			1	
WESTBOUND	↵↵↵↵↵↵	104	0	104	48	0	48
	↵↵↵↵↵		0			0	
	↵↵↵↵	77	0	221	39	0	125
	↵↵↵		0			0	
	↵↵	40	0	0	38	0	0
	↵		1			1	
<b>CRITICAL VOLUMES</b>				<i>North-South:</i> 721			<i>North-South:</i> 790
				<i>East-West:</i> 239			<i>East-West:</i> 363
				<i>SUM:</i> 960			<i>SUM:</i> 1153
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.640			0.769
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.570</b>			<b>0.699</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>B</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM			
				2			2	
No. of Phases				0			0	
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0	
Right Turns: FREE-1, NRTOR-2 or OLA-3?		<i>NB--</i> 0	<i>SB--</i> 0	0	<i>NB--</i> 0	<i>SB--</i> 0	0	
ATSAC-1 or ATSAC+ATCS-2?		<i>EB--</i> 0	<i>WB--</i> 0	0	<i>EB--</i> 0	<i>WB--</i> 0	0	
Override Capacity				1			1	
				0			0	
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	
<b>NORTHBOUND</b>	↵	Left	25	1	25	23	1	23
	↵↵	Left-Through		0		0	0	
	↵↵↵	Through	880	1	500	513	1	278
	↵↵↵↵	Through-Right		1			1	
	↵↵↵↵↵	Right	120	0	120	42	0	42
	↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵	Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵	Left	97	1	97	83	1	83
	↵↵↵↵↵↵	Left-Through		0		0	0	
	↵↵↵↵↵	Through	390	1	208	785	1	411
	↵↵↵↵	Through-Right		1			1	
	↵↵↵	Right	26	0	26	37	0	37
	↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵	Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵	Left	33	0	33	21	0	21
	↵↵↵↵↵↵	Left-Through		1			1	
	↵↵↵↵↵	Through	116	0	149	67	0	88
	↵↵↵↵↵↵	Through-Right		0			0	
	↵↵↵↵↵↵↵	Right	42	1	30	50	1	39
	↵↵↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵	Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵	Left	46	0	46	45	0	45
	↵↵↵↵↵↵	Left-Through		1			1	
	↵↵↵↵↵	Through	80	0	126	54	0	99
	↵↵↵↵↵↵	Through-Right		0			0	
	↵↵↵↵↵↵↵	Right	106	1	58	115	1	74
	↵↵↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵	Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	597		<i>North-South:</i>	434	
			<i>East-West:</i>	195		<i>East-West:</i>	133	
			<i>SUM:</i>	792		<i>SUM:</i>	567	
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.528			0.378	
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				0.458			0.308	
<b>LEVEL OF SERVICE (LOS):</b>				A			A	

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	188	1	188	98	1	98
	↵↵ Left-Through		0			0	
	↵↵↵ Through	1266	2	633	863	2	432
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	170	1	48	166	1	127
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵ Left	74	1	74	203	1	203
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	898	2	449	1358	2	679
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵ Right	53	1	30	42	1	15
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵ Left	47	1	47	54	1	54
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	388	2	194	925	2	463
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵ Right	109	1	15	189	1	140
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵ Left	245	1	245	79	1	79
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	854	1	518	592	1	340
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	181	0	181	87	0	87
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	707		<i>North-South:</i>	777
			<i>East-West:</i>	565		<i>East-West:</i>	542
			<i>SUM:</i>	1272		<i>SUM:</i>	1319
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.893			0.926
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.823</b>			<b>0.856</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>D</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	123	1	123	63	1	63
	↵↵ Left-Through		0			0	
	↵↵ Through	812	2	406	418	2	209
	↵↵ Through-Right		0			0	
	↵↵ Right	113	1	55	126	1	75
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	51	1	51	94	1	94
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	362	1	214	697	1	389
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	65	0	65	81	0	81
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	89	1	89	74	1	74
	↵↵ Left-Through		0			0	
	↵↵ Through	603	1	334	1138	1	622
	↵↵ Through-Right		1			1	
	↵↵ Right	64	0	64	105	0	105
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	116	1	116	103	1	103
	↵↵ Left-Through		0			0	
	↵↵ Through	1019	2	510	701	2	351
	↵↵ Through-Right		0			0	
	↵↵ Right	104	1	79	94	1	47
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		457	<i>North-South:</i>		452
		<i>East-West:</i>		599	<i>East-West:</i>		725
		<i>SUM:</i>		1056	<i>SUM:</i>		1177
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.704			0.785
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.634</b>			<b>0.715</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Existing plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				4			4
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	Left	139	1	139	1	182
	↵↵	Left-Through		0		0	
	↵↵↵	Through	978	2	489	2	399
	↵↵↵↵	Through-Right		0		0	
	↵↵↵↵↵	Right	297	1	145	1	167
	↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵	Left-Right		0		0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵	Left	76	1	76	1	174
	↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵	Through	875	2	438	2	484
	↵↵↵↵↵↵↵↵	Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵	Right	267	1	153	1	28
	↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵	Left	229	1	229	1	210
	↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵	Through	1261	2	444	2	486
	↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		1		1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	72	0	72	0	120
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left	304	1	304	1	309
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through	1602	2	566	2	506
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		1		1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	96	0	96	0	139
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	577		<b>North-South:</b>	666
			<b>East-West:</b>	795		<b>East-West:</b>	795
			<b>SUM:</b>	1372		<b>SUM:</b>	1461
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.998			1.063
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				0.928			0.993
<b>LEVEL OF SERVICE (LOS):</b>				E			E

**EXISTING PLUS 2023 PROJECT PLUS CUMULATIVE**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 1 - Normandie Avenue & Torrance Boulevard  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	104	0	0.000	N-S(1): 0.299 *
	TH	2.00	406	3,200	0.159	N-S(2): 0.255
	LT	1.00	32	1,600	0.020 *	E-W(1): 0.402
Westbound	RT	0.00	74	0	0.000	E-W(2): 0.564 *
	TH	2.00	1,526	3,200	0.500 *	V/C: 0.863
	LT	1.00	104	1,600	0.065	Lost Time: 0.100
Northbound	RT	0.00	147	0	0.000	ITS: 0.000
	TH	2.00	747	3,200	0.279 *	ICU: 0.963
	LT	1.00	154	1,600	0.096	LOS: E
Eastbound	RT	0.00	86	0	0.000	
	TH	2.00	991	3,200	0.337	
	LT	1.00	103	1,600	0.064 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	162	0	0.000	N-S(1): 0.300
	TH	2.00	747	3,200	0.284 *	N-S(2): 0.345 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.549 *
Westbound	RT	0.00	43	0	0.000	E-W(2): 0.424
	TH	2.00	1,090	3,200	0.354	V/C: 0.894
	LT	1.00	58	1,600	0.036 *	Lost Time: 0.100
Northbound	RT	0.00	150	0	0.000	ITS: 0.000
	TH	2.00	551	3,200	0.219	ICU: 0.994
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	0.00	119	0	0.000	
	TH	2.00	1,524	3,200	0.513 *	
	LT	1.00	112	1,600	0.070	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 2 - Vermont Avenue & Torrance Boulevard  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	240	1,600	0.007	N-S(1): 0.281 * N-S(2): 0.266 E-W(1): 0.380 E-W(2): 0.588 *
	TH	2.00	608	3,200	0.190	
	LT	1.00	37	1,600	0.023 *	
Westbound	RT	0.00	111	0	0.000	V/C: 0.869 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,314	3,200	0.445 *	
	LT	1.00	91	1,600	0.057	
Northbound	RT	1.00	182	1,600	0.057	ICU: 0.969
	TH	2.00	826	3,200	0.258 *	
	LT	1.00	122	1,600	0.076	
Eastbound	RT	0.00	149	0	0.000	LOS: E
	TH	2.00	883	3,200	0.323	
	LT	1.00	229	1,600	0.143 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	349	1,600	0.034	N-S(1): 0.237 N-S(2): 0.327 * E-W(1): 0.469 * E-W(2): 0.429
	TH	2.00	890	3,200	0.278 *	
	LT	1.00	112	1,600	0.070	
Westbound	RT	0.00	89	0	0.000	V/C: 0.796 Lost Time: 0.100 ITS: 0.000
	TH	2.00	696	3,200	0.245	
	LT	1.00	60	1,600	0.038 *	
Northbound	RT	1.00	120	1,600	0.038	ICU: 0.896
	TH	2.00	535	3,200	0.167	
	LT	1.00	78	1,600	0.049 *	
Eastbound	RT	0.00	98	0	0.000	LOS: D
	TH	2.00	1,281	3,200	0.431 *	
	LT	1.00	294	1,600	0.184	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 4 - Normandie Avenue & Carson Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	151	0	0.000	N-S(1): 0.256
	TH	2.00	384	3,200	0.167 *	N-S(2): 0.299 *
	LT	1.00	39	1,600	0.024	E-W(1): 0.475
Westbound	RT	0.00	76	0	0.000	E-W(2): 0.553 *
	TH	2.00	1,294	3,200	0.428 *	V/C: 0.852
	LT	1.00	167	1,600	0.104	Lost Time: 0.100
Northbound	RT	0.00	76	0	0.000	ITS: 0.000
	TH	2.00	665	3,200	0.232	ICU: 0.952
	LT	1.00	211	1,600	0.132 *	LOS: E
Eastbound	RT	0.00	195	0	0.000	
	TH	2.00	992	3,200	0.371	
	LT	1.00	200	1,600	0.125 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	175	0	0.000	N-S(1): 0.252
	TH	2.00	528	3,200	0.220 *	N-S(2): 0.334 *
	LT	1.00	93	1,600	0.058	E-W(1): 0.582 *
Westbound	RT	0.00	79	0	0.000	E-W(2): 0.540
	TH	2.00	1,241	3,200	0.413	V/C: 0.916
	LT	1.00	156	1,600	0.098 *	Lost Time: 0.100
Northbound	RT	0.00	117	0	0.000	ITS: 0.000
	TH	2.00	505	3,200	0.194	ICU: 1.016
	LT	1.00	182	1,600	0.114 *	LOS: F
Eastbound	RT	0.00	166	0	0.000	
	TH	2.00	1,382	3,200	0.484 *	
	LT	1.00	203	1,600	0.127	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 5 - Budlong Avenue & Carson Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.011
	TH	1.00	0	1,600	0.032 *	N-S(2): 0.032 *
	LT	0.00	17	1,600	0.011	E-W(1): 0.364
Westbound	RT	0.00	16	0	0.000	E-W(2): 0.525 *
	TH	2.00	1,635	3,200	0.516 *	V/C: 0.557
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	ICU: 0.657
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,165	3,200	0.364	
	LT	1.00	15	1,600	0.009 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.013
	TH	1.00	0	1,600	0.034 *	N-S(2): 0.034 *
	LT	0.00	20	1,600	0.013	E-W(1): 0.505 *
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.494
	TH	2.00	1,504	3,200	0.478	V/C: 0.539
	LT	0.00	0	0	0.000 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	ICU: 0.639
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,616	3,200	0.505 *	
	LT	1.00	25	1,600	0.016	LOS: B

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 6 - Berendo Avenue & Carson Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.009
	TH	1.00	1	1,600	0.023 *	N-S(2): 0.035 *
	LT	1.00	13	1,600	0.008	E-W(1): 0.447
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.528 *
	TH	2.00	1,620	3,200	0.517 *	V/C: 0.563
	LT	1.00	142	1,600	0.089	Lost Time: 0.100
Northbound	RT	1.00	52	1,600	0.000	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	19	1,600	0.012 *	
Eastbound	RT	0.00	45	0	0.000	ICU: 0.663
	TH	2.00	1,099	3,200	0.358	
	LT	1.00	17	1,600	0.011 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.063 *
	TH	1.00	4	1,600	0.024	N-S(2): 0.033
	LT	1.00	24	1,600	0.015 *	E-W(1): 0.522 *
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.495
	TH	2.00	1,483	3,200	0.478	V/C: 0.585
	LT	1.00	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	1.00	112	1,600	0.048 *	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	14	1,600	0.009	
Eastbound	RT	0.00	23	0	0.000	ICU: 0.685
	TH	2.00	1,576	3,200	0.500 *	
	LT	1.00	27	1,600	0.017	LOS: B

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 7 - Medical Center Drive & Carson Street  
 Description: Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.40	34	34	648	0.044	N-S(1): 0.053 * N-S(2): 0.044 E-W(1): 0.362 E-W(2): 0.566 *
	TH	0.00	0	0	0	0.000	
	LT	0.60	45	50	952	0.053 *	
Westbound	RT	0.00	10	10	0	0.000	V/C: 0.619 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,777	1,777	3,200	0.558 *	
	LT	0.00	0	0	0	0.000	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.719 LOS: C
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,158	1,158	3,200	0.362	
	LT	1.00	13	13	1,600	0.008 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.55	17	17	877	0.004	N-S(1): 0.019 * N-S(2): 0.004 E-W(1): 0.525 * E-W(2): 0.509
	TH	0.00	0	0	0	0.000	
	LT	0.45	12	14	723	0.019 *	
Westbound	RT	0.00	25	25	0	0.000	V/C: 0.544 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,557	1,557	3,200	0.494	
	LT	0.00	0	0	0	0.000 *	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.644 LOS: B
	TH	0.00	0	0	0	0.000 *	
	LT	0.00	0	0	0	0.000	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,679	1,679	3,200	0.525 *	
	LT	1.00	24	24	1,600	0.015	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 8 - Vermont Avenue & Carson Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	221	1,600	0.059	N-S(1): 0.339 *
	TH	2.00	522	3,200	0.163	N-S(2): 0.264
	LT	1.00	124	1,600	0.078 *	E-W(1): 0.481
Westbound	RT	1.00	132	1,600	0.005	E-W(2): 0.514 *
	TH	2.00	1,392	3,200	0.435 *	V/C: 0.853
	LT	1.00	273	1,600	0.171	Lost Time: 0.100
Northbound	RT	1.00	226	1,600	0.000	ITS: 0.000
	TH	2.00	834	3,200	0.261 *	ICU: 0.953
	LT	1.00	161	1,600	0.101	LOS: E
Eastbound	RT	1.00	83	1,600	0.000	
	TH	2.00	992	3,200	0.310	
	LT	1.00	126	1,600	0.079 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	183	1,600	0.036	N-S(1): 0.312
	TH	2.00	765	3,200	0.239 *	N-S(2): 0.323 *
	LT	1.00	272	1,600	0.170	E-W(1): 0.562 *
Westbound	RT	1.00	163	1,600	0.000	E-W(2): 0.467
	TH	2.00	1,245	3,200	0.389	V/C: 0.885
	LT	1.00	156	1,600	0.098 *	Lost Time: 0.100
Northbound	RT	1.00	362	1,600	0.129	ITS: 0.000
	TH	2.00	455	3,200	0.142	ICU: 0.985
	LT	1.00	134	1,600	0.084 *	LOS: E
Eastbound	RT	1.00	115	1,600	0.000	
	TH	2.00	1,486	3,200	0.464 *	
	LT	1.00	125	1,600	0.078	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	579	1,600	0.362 *	N-S(1): 0.088
	TH	0.00	0	0	0.000	N-S(2): 0.362 *
	LT	1.00	141	1,600	0.088	E-W(1): 0.384
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.416 *
	TH	2.00	1,330	3,200	0.416 *	V/C: 0.778
	LT	1.00	174	1,600	0.109	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.878
	LT	0.00	0	0	0.000 *	LOS: D
Eastbound	RT	0.00	133	0	0.000	
	TH	3.00	1,187	4,800	0.275	
	LT	0.00	0	0	0.000 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	430	1,600	0.269 *	N-S(1): 0.168
	TH	0.00	0	0	0.000	N-S(2): 0.269 *
	LT	1.00	268	1,600	0.168	E-W(1): 0.556 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.369
	TH	2.00	1,181	3,200	0.369	V/C: 0.825
	LT	1.00	178	1,600	0.111 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.925
	LT	0.00	0	0	0.000 *	LOS: E
Eastbound	RT	0.00	270	0	0.000	
	TH	3.00	1,864	4,800	0.445 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 12 - Normandie Avenue & 220th Street  
 Description: Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	26	26	0	0.000	N-S(1): 0.352 * N-S(2): 0.149 E-W(1): 0.147 E-W(2): 0.165 *
	TH	2.00	397	397	3,200	0.132	
	LT	1.00	78	78	1,600	0.049 *	
Westbound	RT	0.00	102	102	0	0.000	V/C: 0.517 Lost Time: 0.100 ITS: 0.000
	TH	1.00	77	77	1,600	0.144 *	
	LT	0.00	46	51	1,600	0.032	
Northbound	RT	0.00	118	118	0	0.000	ICU: 0.617
	TH	2.00	852	852	3,200	0.303 *	
	LT	1.00	27	27	1,600	0.017	
Eastbound	RT	0.00	46	46	0	0.000	LOS: B
	TH	1.00	105	105	1,600	0.115	
	LT	0.00	30	33	1,600	0.021 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	36	0	0.000	N-S(1): 0.219 N-S(2): 0.272 * E-W(1): 0.117 E-W(2): 0.128 *
	TH	2.00	777	777	3,200	0.254 *	
	LT	1.00	76	76	1,600	0.048	
Westbound	RT	0.00	93	93	0	0.000	V/C: 0.400 Lost Time: 0.100 ITS: 0.000
	TH	1.00	40	40	1,600	0.114 *	
	LT	0.00	44	49	1,600	0.031	
Northbound	RT	0.00	41	41	0	0.000	ICU: 0.500
	TH	2.00	505	505	3,200	0.171	
	LT	1.00	28	28	1,600	0.018 *	
Eastbound	RT	0.00	53	53	0	0.000	LOS: A
	TH	1.00	62	62	1,600	0.086	
	LT	0.00	20	22	1,600	0.014 *	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 13 - Meyler Street & 220th Street  
 Description: Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	2	2	0	0.000	N-S(1): 0.124 *
	TH	1.00	2	2	1,600	0.009	N-S(2): 0.075
	LT	0.00	10	11	1,600	0.007 *	E-W(1): 0.209 *
Westbound	RT	0.00	25	25	0	0.000	E-W(2): 0.189
	TH	1.00	145	145	1,600	0.183	V/C: 0.333
	LT	0.00	61	122	1,600	0.076 *	Lost Time: 0.100
Northbound	RT	0.00	69	69	0	0.000	ITS: 0.000
	TH	1.00	12	12	1,600	0.117 *	ICU: 0.433
	LT	0.00	96	106	1,600	0.066	LOS: A
Eastbound	RT	0.00	51	51	0	0.000	
	TH	1.00	152	152	1,600	0.133 *	
	LT	0.00	8	9	1,600	0.006	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	10	10	0	0.000	N-S(1): 0.075 *
	TH	1.00	12	12	1,600	0.038	N-S(2): 0.047
	LT	0.00	35	39	1,600	0.024 *	E-W(1): 0.197 *
Westbound	RT	0.00	4	4	0	0.000	E-W(2): 0.090
	TH	1.00	106	106	1,600	0.086	V/C: 0.272
	LT	0.00	24	27	1,600	0.017 *	Lost Time: 0.100
Northbound	RT	0.00	65	65	0	0.000	ITS: 0.000
	TH	1.00	2	2	1,600	0.051 *	ICU: 0.372
	LT	0.00	13	15	1,600	0.009	LOS: A
Eastbound	RT	0.00	33	33	0	0.000	
	TH	1.00	248	248	1,600	0.180 *	
	LT	0.00	6	7	1,600	0.004	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 14 - Vermont Avenue & 220th Street  
 Description: Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	269	269	0	0.000	N-S(1): 0.372
	TH	2.00	528	528	3,200	0.249 *	N-S(2): 0.383 *
	LT	1.00	56	56	1,600	0.035	E-W(1): 0.196 *
Westbound	RT	0.00	37	37	0	0.000	E-W(2): 0.158
	TH	1.00	27	27	1,600	0.052	V/C: 0.579
	LT	0.00	17	19	1,600	0.012 *	Lost Time: 0.100
Northbound	RT	0.00	40	40	0	0.000	ITS: 0.000
	TH	2.00	1,039	1,039	3,200	0.337	ICU: 0.679
	LT	1.00	214	214	1,600	0.134 *	LOS: B
Eastbound	RT	0.00	93	93	0	0.000	
	TH	1.00	32	32	1,600	0.184 *	
	LT	0.00	153	169	1,600	0.106	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	68	68	0	0.000	N-S(1): 0.199
	TH	2.00	941	941	3,200	0.315 *	N-S(2): 0.339 *
	LT	1.00	22	22	1,600	0.014	E-W(1): 0.313 *
Westbound	RT	0.00	43	43	0	0.000	E-W(2): 0.229
	TH	1.00	12	12	1,600	0.056	V/C: 0.652
	LT	0.00	31	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	0.00	14	14	0	0.000	ITS: 0.000
	TH	2.00	579	579	3,200	0.185	ICU: 0.752
	LT	1.00	38	38	1,600	0.024 *	LOS: C
Eastbound	RT	0.00	176	176	0	0.000	
	TH	1.00	13	13	1,600	0.291 *	
	LT	0.00	251	277	1,600	0.173	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 17 - Normandie Avenue & 223rd Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	64	0	0.000	N-S(1): 0.320 *
	TH	2.00	374	3,200	0.137	N-S(2): 0.214
	LT	1.00	52	1,600	0.033 *	E-W(1): 0.284
Westbound	RT	0.00	85	0	0.000	E-W(2): 0.400 *
	TH	2.00	1,024	3,200	0.347 *	V/C: 0.720
	LT	1.00	119	1,600	0.074	Lost Time: 0.100
Northbound	RT	0.00	111	0	0.000	ITS: 0.000
	TH	2.00	806	3,200	0.287 *	ICU: 0.820
	LT	1.00	123	1,600	0.077	LOS: D
Eastbound	RT	0.00	64	0	0.000	
	TH	2.00	607	3,200	0.210	
	LT	1.00	85	1,600	0.053 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	77	0	0.000	N-S(1): 0.227
	TH	2.00	699	3,200	0.243 *	N-S(2): 0.282 *
	LT	1.00	89	1,600	0.056	E-W(1): 0.452 *
Westbound	RT	0.00	88	0	0.000	E-W(2): 0.294
	TH	2.00	712	3,200	0.250	V/C: 0.734
	LT	1.00	98	1,600	0.061 *	Lost Time: 0.100
Northbound	RT	0.00	125	0	0.000	ITS: 0.000
	TH	2.00	422	3,200	0.171	ICU: 0.834
	LT	1.00	63	1,600	0.039 *	LOS: D
Eastbound	RT	0.00	105	0	0.000	
	TH	2.00	1,147	3,200	0.391 *	
	LT	1.00	71	1,600	0.044	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 18 - Meyler Street & 223rd Street  
 Description: Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	54	54	0	0.000	N-S(1): 0.158 * N-S(2): 0.152 E-W(1): 0.248 E-W(2): 0.412 *
	TH	1.00	44	44	1,600	0.101	
	LT	0.00	57	63	1,600	0.039 *	
Westbound	RT	0.00	72	72	0	0.000	V/C: 0.570 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,133	1,133	3,200	0.377 *	
	LT	1.00	46	46	1,600	0.029	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.670
	TH	1.00	39	39	1,600	0.119 *	
	LT	0.00	74	82	1,600	0.051	
Eastbound	RT	0.00	24	24	0	0.000	LOS: B
	TH	2.00	678	678	3,200	0.219	
	LT	1.00	56	56	1,600	0.035 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	38	38	0	0.000	N-S(1): 0.068 N-S(2): 0.070 * E-W(1): 0.423 * E-W(2): 0.311
	TH	1.00	15	15	1,600	0.051 *	
	LT	0.00	26	29	1,600	0.018	
Westbound	RT	0.00	46	46	0	0.000	V/C: 0.493 Lost Time: 0.100 ITS: 0.000
	TH	2.00	834	834	3,200	0.275	
	LT	1.00	59	59	1,600	0.037 *	
Northbound	RT	0.00	35	35	0	0.000	ICU: 0.593
	TH	1.00	15	15	1,600	0.050	
	LT	0.00	27	30	1,600	0.019 *	
Eastbound	RT	0.00	89	89	0	0.000	LOS: A
	TH	2.00	1,146	1,146	3,200	0.386 *	
	LT	1.00	58	58	1,600	0.036	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 19 - Vermont Avenue & 223rd Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 10 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	89	0	0.000	N-S(1): 0.358 *
	TH	2.00	411	3,200	0.156	N-S(2): 0.243
	LT	1.00	152	1,600	0.095 *	E-W(1): 0.279
Westbound	RT	0.00	328	0	0.000	E-W(2): 0.487 *
	TH	2.00	1,007	3,200	0.417 *	V/C: 0.845
	LT	2.00	250	2,880	0.087	Lost Time: 0.100
Northbound	RT	1.00	136	1,600	0.000	ITS: 0.000
	TH	2.00	841	3,200	0.263 *	ICU: 0.945
	LT	1.00	139	1,600	0.087	LOS: E
Eastbound	RT	1.00	72	1,600	0.000	
	TH	2.00	615	3,200	0.192	
	LT	1.00	112	1,600	0.070 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	112	0	0.000	N-S(1): 0.323 *
	TH	2.00	765	3,200	0.274	N-S(2): 0.321
	LT	1.00	301	1,600	0.188 *	E-W(1): 0.433 *
Westbound	RT	0.00	131	0	0.000	E-W(2): 0.316
	TH	2.00	760	3,200	0.278	V/C: 0.756
	LT	2.00	271	2,880	0.094 *	Lost Time: 0.100
Northbound	RT	1.00	207	1,600	0.035	ITS: 0.000
	TH	2.00	431	3,200	0.135 *	ICU: 0.856
	LT	1.00	75	1,600	0.047	LOS: D
Eastbound	RT	1.00	118	1,600	0.027	
	TH	2.00	1,086	3,200	0.339 *	
	LT	1.00	60	1,600	0.038	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing plus 2023 Project plus Cumulative

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	497	1,600	0.311 *	N-S(1): 0.194
	TH	2.00	1	1,600	0.194	N-S(2): 0.311 *
	LT	0.00	310	1,600	0.194	E-W(1): 0.368 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.339
	TH	2.00	1,084	3,200	0.339	V/C: 0.679
	LT	1.00	174	1,600	0.109 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	123	1,600	0.077	ICU: 0.779
	TH	2.00	829	3,200	0.259 *	
	LT	0.00	0	0	0.000	LOS: C

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	400	0	0.000	N-S(1): 0.274 *
	TH	2.00	2	1,600	0.251	N-S(2): 0.251
	LT	0.00	438	1,600	0.274 *	E-W(1): 0.499 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.245
	TH	2.00	784	3,200	0.245	V/C: 0.773
	LT	1.00	124	1,600	0.078 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	213	1,600	0.133	ICU: 0.873
	TH	2.00	1,348	3,200	0.421 *	
	LT	0.00	0	0	0.000	LOS: D

\* - Denotes critical movement

**EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 1 - Normandie Avenue & Torrance Boulevard  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	104	0	0.000	N-S(1): 0.302 *
	TH	2.00	447	3,200	0.172	N-S(2): 0.268
	LT	1.00	32	1,600	0.020 *	E-W(1): 0.404
Westbound	RT	0.00	74	0	0.000	E-W(2): 0.564 *
	TH	2.00	1,526	3,200	0.500 *	V/C: 0.866
	LT	1.00	106	1,600	0.066	Lost Time: 0.100
Northbound	RT	0.00	148	0	0.000	ITS: 0.000
	TH	2.00	754	3,200	0.282 *	ICU: 0.966
	LT	1.00	154	1,600	0.096	LOS: E
Eastbound	RT	0.00	92	0	0.000	
	TH	2.00	991	3,200	0.338	
	LT	1.00	103	1,600	0.064 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	162	0	0.000	N-S(1): 0.314
	TH	2.00	761	3,200	0.288 *	N-S(2): 0.349 *
	LT	1.00	130	1,600	0.081	E-W(1): 0.551 *
Westbound	RT	0.00	43	0	0.000	E-W(2): 0.424
	TH	2.00	1,090	3,200	0.354	V/C: 0.900
	LT	1.00	59	1,600	0.037 *	Lost Time: 0.100
Northbound	RT	0.00	152	0	0.000	ITS: 0.000
	TH	2.00	592	3,200	0.233	ICU: 1.000
	LT	1.00	98	1,600	0.061 *	LOS: E
Eastbound	RT	0.00	121	0	0.000	
	TH	2.00	1,524	3,200	0.514 *	
	LT	1.00	112	1,600	0.070	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 2 - Vermont Avenue & Torrance Boulevard  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements :  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	241	1,600	0.008	N-S(1): 0.283 * N-S(2): 0.275 E-W(1): 0.381 E-W(2): 0.589 *
	TH	2.00	637	3,200	0.199	
	LT	1.00	37	1,600	0.023 *	
Westbound	RT	0.00	111	0	0.000	V/C: 0.872 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,315	3,200	0.446 *	
	LT	1.00	93	1,600	0.058	
Northbound	RT	1.00	182	1,600	0.056	ICU: 0.972
	TH	2.00	831	3,200	0.260 *	
	LT	1.00	122	1,600	0.076	
Eastbound	RT	0.00	149	0	0.000	LOS: E
	TH	2.00	883	3,200	0.323	
	LT	1.00	229	1,600	0.143 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	350	1,600	0.034	N-S(1): 0.247 N-S(2): 0.330 * E-W(1): 0.470 * E-W(2): 0.429
	TH	2.00	900	3,200	0.281 *	
	LT	1.00	112	1,600	0.070	
Westbound	RT	0.00	89	0	0.000	V/C: 0.800 Lost Time: 0.100 ITS: 0.000
	TH	2.00	696	3,200	0.245	
	LT	1.00	62	1,600	0.039 *	
Northbound	RT	1.00	123	1,600	0.038	ICU: 0.900
	TH	2.00	566	3,200	0.177	
	LT	1.00	78	1,600	0.049 *	
Eastbound	RT	0.00	98	0	0.000	LOS: D
	TH	2.00	1,282	3,200	0.431 *	
	LT	1.00	295	1,600	0.184	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 4 - Normandie Avenue & Carson Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	151	0	0.000	N-S(1): 0.268
	TH	2.00	420	3,200	0.178 *	N-S(2): 0.313 *
	LT	1.00	51	1,600	0.032	E-W(1): 0.489
Westbound	RT	0.00	77	0	0.000	E-W(2): 0.554 *
	TH	2.00	1,296	3,200	0.429 *	V/C: 0.867
	LT	1.00	182	1,600	0.114	Lost Time: 0.100
Northbound	RT	0.00	85	0	0.000	ITS: 0.000
	TH	2.00	671	3,200	0.236	ICU: 0.967
	LT	1.00	216	1,600	0.135 *	LOS: E
Eastbound	RT	0.00	204	0	0.000	
	TH	2.00	997	3,200	0.375	
	LT	1.00	200	1,600	0.125 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	175	0	0.000	N-S(1): 0.277
	TH	2.00	542	3,200	0.224 *	N-S(2): 0.349 *
	LT	1.00	98	1,600	0.061	E-W(1): 0.589 *
Westbound	RT	0.00	87	0	0.000	E-W(2): 0.545
	TH	2.00	1,252	3,200	0.418	V/C: 0.938
	LT	1.00	165	1,600	0.103 *	Lost Time: 0.100
Northbound	RT	0.00	150	0	0.000	ITS: 0.000
	TH	2.00	541	3,200	0.216	ICU: 1.038
	LT	1.00	200	1,600	0.125 *	LOS: F
Eastbound	RT	0.00	170	0	0.000	
	TH	2.00	1,385	3,200	0.486 *	
	LT	1.00	203	1,600	0.127	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 5 - Budlong Avenue & Carson Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.011
	TH	1.00	0	1,600	0.032 *	N-S(2): 0.032 *
	LT	0.00	17	1,600	0.011	E-W(1): 0.369
Westbound	RT	0.00	16	0	0.000	E-W(2): 0.537 *
	TH	2.00	1,674	3,200	0.528 *	V/C: 0.569
	LT	0.00	0	0	0.000	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.669
	LT	0.00	0	0	0.000 *	LOS: B
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,181	3,200	0.369	
	LT	1.00	15	1,600	0.009 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	35	0	0.000	N-S(1): 0.013
	TH	1.00	0	1,600	0.034 *	N-S(2): 0.034 *
	LT	0.00	20	1,600	0.013	E-W(1): 0.524 *
Westbound	RT	0.00	27	0	0.000	E-W(2): 0.500
	TH	2.00	1,522	3,200	0.484	V/C: 0.558
	LT	0.00	0	0	0.000 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	ICU: 0.658
	LT	0.00	0	0	0.000 *	LOS: B
Eastbound	RT	0.00	0	0	0.000	
	TH	2.00	1,676	3,200	0.524 *	
	LT	1.00	25	1,600	0.016	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 6 - Berendo Avenue & Carson Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	36	0	0.000	N-S(1): 0.009
	TH	1.00	1	1,600	0.023 *	N-S(2): 0.036 *
	LT	1.00	13	1,600	0.008	E-W(1): 0.498
Westbound	RT	0.00	33	0	0.000	E-W(2): 0.539 *
	TH	2.00	1,658	3,200	0.528 *	V/C: 0.575
	LT	1.00	216	1,600	0.135	Lost Time: 0.100
Northbound	RT	1.00	68	1,600	0.000	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	20	1,600	0.013 *	
Eastbound	RT	0.00	49	0	0.000	ICU: 0.675
	TH	2.00	1,111	3,200	0.363	
	LT	1.00	17	1,600	0.011 *	LOS: B

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.097 *
	TH	1.00	4	1,600	0.024	N-S(2): 0.036
	LT	1.00	24	1,600	0.015 *	E-W(1): 0.558 *
Westbound	RT	0.00	45	0	0.000	E-W(2): 0.499
	TH	2.00	1,497	3,200	0.482	V/C: 0.655
	LT	1.00	63	1,600	0.039 *	Lost Time: 0.100
Northbound	RT	1.00	194	1,600	0.082 *	ITS: 0.000
	TH	1.00	2	1,600	0.001	
	LT	1.00	19	1,600	0.012	
Eastbound	RT	0.00	25	0	0.000	ICU: 0.755
	TH	2.00	1,635	3,200	0.519 *	
	LT	1.00	27	1,600	0.017	LOS: C

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 7 - Medical Center Drive & Carson Street  
 Description: Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : Y  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.40	34	34	648	0.044	N-S(1): 0.053 * N-S(2): 0.000 E-W(1): 0.371 E-W(2): 0.602 *
	TH	0.00	0	0	0	0.000	
	LT	0.60	45	50	952	0.053 *	
Westbound	RT	0.00	10	10	0	0.000	V/C: 0.655 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,890	1,890	3,200	0.594 *	
	LT	0.00	0	0	0	0.000	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.755 LOS: C
	TH	0.00	0	0	0	0.000	
	LT	0.00	0	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,186	1,186	3,200	0.371	
	LT	1.00	13	13	1,600	0.008 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.55	17	17	877	0.004	N-S(1): 0.019 * N-S(2): 0.000 E-W(1): 0.569 * E-W(2): 0.523
	TH	0.00	0	0	0	0.000	
	LT	0.45	12	14	723	0.019 *	
Westbound	RT	0.00	25	25	0	0.000	V/C: 0.588 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,599	1,599	3,200	0.508	
	LT	0.00	0	0	0	0.000 *	
Northbound	RT	0.00	0	0	0	0.000	ICU: 0.688 LOS: B
	TH	0.00	0	0	0	0.000	
	LT	0.00	0	0	0	0.000 *	
Eastbound	RT	0.00	0	0	0	0.000	
	TH	2.00	1,820	1,820	3,200	0.569 *	
	LT	1.00	24	24	1,600	0.015	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 8 - Vermont Avenue & Carson Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	235	1,600	0.067	N-S(1): 0.340 *
	TH	2.00	540	3,200	0.169	N-S(2): 0.277
	LT	1.00	124	1,600	0.078 *	E-W(1): 0.512
Westbound	RT	1.00	132	1,600	0.005	E-W(2): 0.542 *
	TH	2.00	1,479	3,200	0.462 *	V/C: 0.882
	LT	1.00	312	1,600	0.195	Lost Time: 0.100
Northbound	RT	1.00	234	1,600	0.000	ITS: 0.000
	TH	2.00	837	3,200	0.262 *	ICU: 0.982
	LT	1.00	172	1,600	0.108	LOS: E
Eastbound	RT	1.00	87	1,600	0.000	
	TH	2.00	1,014	3,200	0.317	
	LT	1.00	128	1,600	0.080 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	188	1,600	0.031	N-S(1): 0.318
	TH	2.00	771	3,200	0.241 *	N-S(2): 0.328 *
	LT	1.00	272	1,600	0.170	E-W(1): 0.606 *
Westbound	RT	1.00	163	1,600	0.000	E-W(2): 0.485
	TH	2.00	1,277	3,200	0.399	V/C: 0.934
	LT	1.00	170	1,600	0.106 *	Lost Time: 0.100
Northbound	RT	1.00	403	1,600	0.146	ITS: 0.000
	TH	2.00	475	3,200	0.148	ICU: 1.034
	LT	1.00	139	1,600	0.087 *	LOS: F
Eastbound	RT	1.00	128	1,600	0.000	
	TH	2.00	1,600	3,200	0.500 *	
	LT	1.00	138	1,600	0.086	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	656	1,600	0.410 *	N-S(1): 0.088 N-S(2): 0.410 * E-W(1): 0.390 E-W(2): 0.431 *
	TH	0.00	0	0	0.000	
	LT	1.00	141	1,600	0.088	
Westbound	RT	0.00	0	0	0.000	V/C: 0.841 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,378	3,200	0.431 *	
	LT	1.00	174	1,600	0.109	
Northbound	RT	0.00	0	0	0.000	ICU: 0.941
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	137	0	0.000	LOS: E
	TH	3.00	1,213	4,800	0.281	
	LT	0.00	0	0	0.000 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	457	1,600	0.286 *	N-S(1): 0.168 N-S(2): 0.286 * E-W(1): 0.588 * E-W(2): 0.375
	TH	0.00	0	0	0.000	
	LT	1.00	268	1,600	0.168	
Westbound	RT	0.00	0	0	0.000	V/C: 0.874 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,200	3,200	0.375	
	LT	1.00	178	1,600	0.111 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.974
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	290	0	0.000	LOS: E
	TH	3.00	1,998	4,800	0.477 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 12 - Normandie Avenue & 220th Street  
 Description: Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	26	26	0	0.000	N-S(1): 0.374 * N-S(2): 0.151 E-W(1): 0.156 E-W(2): 0.171 *
	TH	2.00	402	402	3,200	0.134	
	LT	1.00	97	97	1,600	0.061 *	
Westbound	RT	0.00	106	106	0	0.000	V/C: 0.545 Lost Time: 0.100 ITS: 0.000
	TH	1.00	80	80	1,600	0.148 *	
	LT	0.00	46	51	1,600	0.032	
Northbound	RT	0.00	120	120	0	0.000	ICU: 0.645
	TH	2.00	883	883	3,200	0.313 *	
	LT	1.00	27	27	1,600	0.017	
Eastbound	RT	0.00	46	46	0	0.000	LOS: B
	TH	1.00	116	116	1,600	0.124	
	LT	0.00	33	37	1,600	0.023 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	37	37	0	0.000	N-S(1): 0.227 N-S(2): 0.278 * E-W(1): 0.121 E-W(2): 0.152 *
	TH	2.00	795	795	3,200	0.260 *	
	LT	1.00	83	83	1,600	0.052	
Westbound	RT	0.00	115	115	0	0.000	V/C: 0.430 Lost Time: 0.100 ITS: 0.000
	TH	1.00	54	54	1,600	0.137 *	
	LT	0.00	45	50	1,600	0.031	
Northbound	RT	0.00	42	42	0	0.000	ICU: 0.530
	TH	2.00	517	517	3,200	0.175	
	LT	1.00	28	28	1,600	0.018 *	
Eastbound	RT	0.00	53	53	0	0.000	LOS: A
	TH	1.00	67	67	1,600	0.090	
	LT	0.00	21	24	1,600	0.015 *	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 13 - Meyler Street & 220th Street  
 Description: Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	4	4	0	0.000	N-S(1): 0.140 * N-S(2): 0.081 E-W(1): 0.233 * E-W(2): 0.206
	TH	1.00	6	6	1,600	0.015	
	LT	0.00	12	14	1,600	0.009 *	
Westbound	RT	0.00	32	32	0	0.000	V/C: 0.373 Lost Time: 0.100 ITS: 0.000
	TH	1.00	150	150	1,600	0.193	
	LT	0.00	63	126	1,600	0.079 *	
Northbound	RT	0.00	74	74	0	0.000	ICU: 0.473
	TH	1.00	30	30	1,600	0.131 *	
	LT	0.00	96	106	1,600	0.066	
Eastbound	RT	0.00	51	51	0	0.000	LOS: A
	TH	1.00	174	174	1,600	0.154 *	
	LT	0.00	19	21	1,600	0.013	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	22	22	0	0.000	N-S(1): 0.087 * N-S(2): 0.073 E-W(1): 0.210 * E-W(2): 0.115
	TH	1.00	32	32	1,600	0.064	
	LT	0.00	43	48	1,600	0.030 *	
Westbound	RT	0.00	7	7	0	0.000	V/C: 0.297 Lost Time: 0.100 ITS: 0.000
	TH	1.00	130	130	1,600	0.108	
	LT	0.00	31	35	1,600	0.022 *	
Northbound	RT	0.00	68	68	0	0.000	ICU: 0.397
	TH	1.00	8	8	1,600	0.057 *	
	LT	0.00	13	15	1,600	0.009	
Eastbound	RT	0.00	33	33	0	0.000	LOS: A
	TH	1.00	257	257	1,600	0.188 *	
	LT	0.00	10	11	1,600	0.007	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 14 - Vermont Avenue & 220th Street  
 Description: Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	307	307	0	0.000	N-S(1): 0.380
	TH	2.00	534	534	3,200	0.263 *	N-S(2): 0.422 *
	LT	1.00	56	56	1,600	0.035	E-W(1): 0.207 *
Westbound	RT	0.00	37	37	0	0.000	E-W(2): 0.163
	TH	1.00	27	27	1,600	0.052	V/C: 0.629
	LT	0.00	17	19	1,600	0.012 *	Lost Time: 0.100
Northbound	RT	0.00	40	40	0	0.000	ITS: 0.000
	TH	2.00	1,063	1,063	3,200	0.345	ICU: 0.729
	LT	1.00	255	255	1,600	0.159 *	LOS: C
Eastbound	RT	0.00	102	102	0	0.000	
	TH	1.00	32	32	1,600	0.195 *	
	LT	0.00	161	178	1,600	0.111	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	83	83	0	0.000	N-S(1): 0.202
	TH	2.00	970	970	3,200	0.329 *	N-S(2): 0.363 *
	LT	1.00	22	22	1,600	0.014	E-W(1): 0.371 *
Westbound	RT	0.00	43	43	0	0.000	E-W(2): 0.257
	TH	1.00	12	12	1,600	0.056	V/C: 0.734
	LT	0.00	31	35	1,600	0.022 *	Lost Time: 0.100
Northbound	RT	0.00	14	14	0	0.000	ITS: 0.000
	TH	2.00	588	588	3,200	0.188	ICU: 0.834
	LT	1.00	54	54	1,600	0.034 *	LOS: D
Eastbound	RT	0.00	225	225	0	0.000	
	TH	1.00	13	13	1,600	0.349 *	
	LT	0.00	291	321	1,600	0.201	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 17 - Normandie Avenue & 223rd Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	65	0	0.000	N-S(1): 0.324 *
	TH	2.00	376	3,200	0.138	N-S(2): 0.215
	LT	1.00	53	1,600	0.033 *	E-W(1): 0.286
Westbound	RT	0.00	105	0	0.000	E-W(2): 0.409 *
	TH	2.00	1,025	3,200	0.353 *	V/C: 0.733
	LT	1.00	121	1,600	0.076	Lost Time: 0.100
Northbound	RT	0.00	116	0	0.000	ITS: 0.000
	TH	2.00	815	3,200	0.291 *	ICU: 0.833
	LT	1.00	123	1,600	0.077	LOS: D
Eastbound	RT	0.00	64	0	0.000	
	TH	2.00	609	3,200	0.210	
	LT	1.00	89	1,600	0.056 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	81	0	0.000	N-S(1): 0.232
	TH	2.00	708	3,200	0.247 *	N-S(2): 0.286 *
	LT	1.00	95	1,600	0.059	E-W(1): 0.458 *
Westbound	RT	0.00	96	0	0.000	E-W(2): 0.299
	TH	2.00	715	3,200	0.253	V/C: 0.744
	LT	1.00	105	1,600	0.066 *	Lost Time: 0.100
Northbound	RT	0.00	128	0	0.000	ITS: 0.000
	TH	2.00	425	3,200	0.173	ICU: 0.844
	LT	1.00	63	1,600	0.039 *	LOS: D
Eastbound	RT	0.00	105	0	0.000	
	TH	2.00	1,148	3,200	0.392 *	
	LT	1.00	74	1,600	0.046	

\* - Denotes critical movement

Project Title: Harbor-UCLA Medical Center  
 Intersection: 18 - Meyler Street & 223rd Street  
 Description: Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

Date/Time: AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	57	57	0	0.000	N-S(1): 0.160 * N-S(2): 0.155 E-W(1): 0.249 E-W(2): 0.427 *
	TH	1.00	44	44	1,600	0.104	
	LT	0.00	60	66	1,600	0.041 *	
Westbound	RT	0.00	88	88	0	0.000	V/C: 0.587 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,154	1,154	3,200	0.388 *	
	LT	1.00	46	46	1,600	0.029	
Northbound	RT	0.00	69	69	0	0.000	ICU: 0.687
	TH	1.00	39	39	1,600	0.119 *	
	LT	0.00	74	82	1,600	0.051	
Eastbound	RT	0.00	24	24	0	0.000	LOS: B
	TH	2.00	679	679	3,200	0.220	
	LT	1.00	62	62	1,600	0.039 *	

Date/Time: PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	ADJ VOL	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	47	47	0	0.000	N-S(1): 0.081 N-S(2): 0.088 * E-W(1): 0.425 * E-W(2): 0.318
	TH	1.00	15	15	1,600	0.069 *	
	LT	0.00	44	49	1,600	0.031	
Westbound	RT	0.00	51	51	0	0.000	V/C: 0.513 Lost Time: 0.100 ITS: 0.000
	TH	2.00	843	843	3,200	0.279	
	LT	1.00	59	59	1,600	0.037 *	
Northbound	RT	0.00	35	35	0	0.000	ICU: 0.613
	TH	1.00	15	15	1,600	0.050	
	LT	0.00	27	30	1,600	0.019 *	
Eastbound	RT	0.00	89	89	0	0.000	LOS: B
	TH	2.00	1,152	1,152	3,200	0.388 *	
	LT	1.00	62	62	1,600	0.039	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 19 - Vermont Avenue & 223rd Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 10 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	89	0	0.000	N-S(1): 0.368 *
	TH	2.00	412	3,200	0.157	N-S(2): 0.246
	LT	1.00	165	1,600	0.103 *	E-W(1): 0.280
Westbound	RT	0.00	385	0	0.000	E-W(2): 0.515 *
	TH	2.00	1,040	3,200	0.445 *	V/C: 0.883
	LT	2.00	250	2,880	0.087	Lost Time: 0.100
Northbound	RT	1.00	136	1,600	0.000	ITS: 0.000
	TH	2.00	849	3,200	0.265 *	ICU: 0.983
	LT	1.00	142	1,600	0.089	LOS: E
Eastbound	RT	1.00	73	1,600	0.000	
	TH	2.00	619	3,200	0.193	
	LT	1.00	112	1,600	0.070 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	113	0	0.000	N-S(1): 0.367 *
	TH	2.00	773	3,200	0.277	N-S(2): 0.325
	LT	1.00	369	1,600	0.231 *	E-W(1): 0.440 *
Westbound	RT	0.00	153	0	0.000	E-W(2): 0.327
	TH	2.00	773	3,200	0.289	V/C: 0.807
	LT	2.00	271	2,880	0.094 *	Lost Time: 0.100
Northbound	RT	1.00	207	1,600	0.035	ITS: 0.000
	TH	2.00	434	3,200	0.136 *	ICU: 0.907
	LT	1.00	76	1,600	0.048	LOS: E
Eastbound	RT	1.00	121	1,600	0.028	
	TH	2.00	1,106	3,200	0.346 *	
	LT	1.00	60	1,600	0.038	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing plus 2030 Project plus Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	535	1,600	0.334 *	N-S(1): 0.194 N-S(2): 0.334 * E-W(1): 0.372 * E-W(2): 0.355
	TH	2.00	1	1,600	0.194	
	LT	0.00	310	1,600	0.194	
Westbound	RT	0.00	0	0	0.000	V/C: 0.706 Lost Time: 0.100 ITS: 0.000
	TH	2.00	1,136	3,200	0.355	
	LT	1.00	174	1,600	0.109 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.806
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	1.00	126	1,600	0.079	LOS: D
	TH	2.00	843	3,200	0.263 *	
	LT	0.00	0	0	0.000	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	414	0	0.000	N-S(1): 0.274 * N-S(2): 0.260 E-W(1): 0.521 * E-W(2): 0.251
	TH	2.00	2	1,600	0.260	
	LT	0.00	438	1,600	0.274 *	
Westbound	RT	0.00	0	0	0.000	V/C: 0.795 Lost Time: 0.100 ITS: 0.000
	TH	2.00	803	3,200	0.251	
	LT	1.00	124	1,600	0.078 *	
Northbound	RT	0.00	0	0	0.000	ICU: 0.895
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	232	1,600	0.145	LOS: D
	TH	2.00	1,417	3,200	0.443 *	
	LT	0.00	0	0	0.000	

\* - Denotes critical movement

**INTERIM**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	143	1,600	0.070	N-S(1):	0.439 *
	TH	2.00	758	3,200	0.237	N-S(2):	0.338
	LT	1.00	100	1,600	0.063 *	E-W(1):	0.359
Westbound	RT	0.00	171	0	0.000	E-W(2):	0.499 *
	TH	2.00	1,301	3,200	0.460 *	V/C:	0.938
	LT	1.00	70	1,600	0.044	Lost Time:	0.100
Northbound	RT	1.00	89	1,600	0.034	ITS:	0.000
	TH	2.00	1,203	3,200	0.376 *	ICU:	1.038
	LT	1.00	161	1,600	0.101	LOS:	F
Eastbound	RT	0.00	111	0	0.000		
	TH	2.00	896	3,200	0.315		
	LT	1.00	63	1,600	0.039 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	237	1,600	0.119	N-S(1):	0.373
	TH	2.00	1,384	3,200	0.433 *	N-S(2):	0.535 *
	LT	1.00	167	1,600	0.104	E-W(1):	0.503 *
Westbound	RT	0.00	156	0	0.000	E-W(2):	0.473
	TH	2.00	1,173	3,200	0.415	V/C:	1.038
	LT	1.00	75	1,600	0.047 *	Lost Time:	0.100
Northbound	RT	1.00	124	1,600	0.054	ITS:	0.000
	TH	2.00	861	3,200	0.269	ICU:	1.138
	LT	1.00	163	1,600	0.102 *	LOS:	F
Eastbound	RT	0.00	197	0	0.000		
	TH	2.00	1,261	3,200	0.456 *		
	LT	1.00	92	1,600	0.058		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	158	1,600	0.061	N-S(1):	0.183
	TH	2.00	276	3,200	0.086 *	N-S(2):	0.204 *
	LT	2.00	48	2,560	0.019	E-W(1):	0.327
Westbound	RT	1.00	116	1,600	0.063	E-W(2):	0.426 *
	TH	2.00	1,122	3,200	0.351 *	V/C:	0.630
	LT	1.00	125	1,600	0.078	Lost Time:	0.100
Northbound	RT	1.00	211	1,600	0.093	ITS:	0.000
	TH	2.00	526	3,200	0.164	ICU:	0.730
	LT	2.00	301	2,560	0.118 *	LOS:	C
Eastbound	RT	1.00	482	1,600	0.184		
	TH	2.00	796	3,200	0.249		
	LT	1.00	120	1,600	0.075 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	172	1,600	0.074	N-S(1):	0.137
	TH	2.00	506	3,200	0.158 *	N-S(2):	0.244 *
	LT	2.00	150	2,560	0.059	E-W(1):	0.575 *
Westbound	RT	1.00	83	1,600	0.023	E-W(2):	0.393
	TH	2.00	1,043	3,200	0.326	V/C:	0.819
	LT	1.00	182	1,600	0.114 *	Lost Time:	0.100
Northbound	RT	1.00	204	1,600	0.071	ITS:	0.000
	TH	2.00	250	3,200	0.078	ICU:	0.919
	LT	2.00	221	2,560	0.086 *	LOS:	E
Eastbound	RT	1.00	608	1,600	0.294		
	TH	2.00	1,476	3,200	0.461 *		
	LT	1.00	107	1,600	0.067		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.470 *
	TH	2.00	937	3,200	0.316	N-S(2):	0.394
	LT	1.00	12	1,600	0.008 *	E-W(1):	0.134
Westbound	RT	0.00	38	0	0.000	E-W(2):	0.157 *
	TH	1.00	82	1,600	0.145 *	V/C:	0.627
	LT	0.00	112	1,600	0.070	Lost Time:	0.100
Northbound	RT	0.00	33	0	0.000	ITS:	0.000
	TH	2.00	1,444	3,200	0.462 *	ICU:	0.727
	LT	1.00	124	1,600	0.078	LOS:	C
Eastbound	RT	0.00	59	0	0.000		
	TH	1.00	25	1,600	0.064		
	LT	0.00	19	1,600	0.012 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.340
	TH	2.00	1,547	3,200	0.489 *	N-S(2):	0.528 *
	LT	1.00	32	1,600	0.020	E-W(1):	0.242 *
Westbound	RT	0.00	20	0	0.000	E-W(2):	0.108
	TH	1.00	42	1,600	0.070	V/C:	0.770
	LT	0.00	50	1,600	0.031 *	Lost Time:	0.100
Northbound	RT	0.00	26	0	0.000	ITS:	0.000
	TH	2.00	999	3,200	0.320	ICU:	0.870
	LT	1.00	62	1,600	0.039 *	LOS:	D
Eastbound	RT	0.00	173	0	0.000		
	TH	1.00	104	1,600	0.211 *		
	LT	0.00	60	1,600	0.038		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Interim

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	411	1,600	0.179 *	N-S(1): 0.302
	TH	2.00	414	3,200	0.129	N-S(2): 0.502 *
	LT	1.00	137	1,600	0.086	E-W(1): 0.377 *
Westbound	RT	1.00	95	1,600	0.017	E-W(2): 0.000
	TH	1.00	221	1,600	0.196 *	V/C: 0.879
	LT	0.00	93	1,600	0.058	Lost Time: 0.100
Northbound	RT	1.00	155	1,600	0.068	ITS: 0.000
	TH	2.00	690	3,200	0.216	
	LT	1.00	517	1,600	0.323 *	
Eastbound	RT	1.00	52	1,600	0.000	ICU: 0.979
	TH	1.00	40	1,600	0.181 *	
	LT	0.00	249	1,600	0.156	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	525	1,600	0.248 *	N-S(1): 0.164
	TH	2.00	647	3,200	0.202	N-S(2): 0.529 *
	LT	1.00	80	1,600	0.050	E-W(1): 0.331 *
Westbound	RT	1.00	56	1,600	0.010	E-W(2): 0.000
	TH	1.00	111	1,600	0.107 *	V/C: 0.860
	LT	0.00	60	1,600	0.038	Lost Time: 0.100
Northbound	RT	1.00	53	1,600	0.014	ITS: 0.000
	TH	2.00	366	3,200	0.114	
	LT	1.00	450	1,600	0.281 *	
Eastbound	RT	1.00	115	1,600	0.000	ICU: 0.960
	TH	1.00	101	1,600	0.224 *	
	LT	0.00	258	1,600	0.161	LOS: E

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	58	1,600	0.021	N-S(1):	0.472 *
	TH	2.00	961	3,200	0.300	N-S(2):	0.428
	LT	1.00	79	1,600	0.049 *	E-W(1):	0.292
Westbound	RT	0.00	194	0	0.000	E-W(2):	0.378 *
	TH	2.00	915	3,200	0.347 *	V/C:	0.850
	LT	1.00	263	1,600	0.164	Lost Time:	0.100
Northbound	RT	1.00	180	1,600	0.030	ITS:	0.000
	TH	2.00	1,355	3,200	0.423 *	ICU:	0.950
	LT	1.00	204	1,600	0.128	LOS:	E
Eastbound	RT	1.00	121	1,600	0.012		
	TH	2.00	411	3,200	0.128		
	LT	1.00	50	1,600	0.031 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	45	1,600	0.010	N-S(1):	0.428
	TH	2.00	1,452	3,200	0.454 *	N-S(2):	0.521 *
	LT	1.00	217	1,600	0.136	E-W(1):	0.363 *
Westbound	RT	0.00	96	0	0.000	E-W(2):	0.264
	TH	2.00	631	3,200	0.227	V/C:	0.884
	LT	1.00	85	1,600	0.053 *	Lost Time:	0.100
Northbound	RT	1.00	179	1,600	0.085	ITS:	0.000
	TH	2.00	934	3,200	0.292	ICU:	0.984
	LT	1.00	107	1,600	0.067 *	LOS:	E
Eastbound	RT	1.00	204	1,600	0.094		
	TH	2.00	991	3,200	0.310 *		
	LT	1.00	59	1,600	0.037		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	193	1,600	0.019	N-S(1):	0.283 *
	TH	2.00	296	3,200	0.093	N-S(2):	0.161
	LT	1.00	73	1,600	0.046 *	E-W(1):	0.249
Westbound	RT	1.00	280	1,600	0.152	E-W(2):	0.517 *
	TH	2.00	1,000	3,200	0.313 *	V/C:	0.800
	LT	1.00	77	1,600	0.048	Lost Time:	0.100
Northbound	RT	1.00	159	1,600	0.075	ITS:	0.000
	TH	2.00	757	3,200	0.237 *	ICU:	0.900
	LT	1.00	109	1,600	0.068	LOS:	D
Eastbound	RT	1.00	190	1,600	0.085		
	TH	2.00	644	3,200	0.201		
	LT	1.00	326	1,600	0.204 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	188	1,600	0.016	N-S(1):	0.230 *
	TH	2.00	476	3,200	0.149	N-S(2):	0.197
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.456 *
Westbound	RT	1.00	154	1,600	0.045	E-W(2):	0.415
	TH	2.00	679	3,200	0.212	V/C:	0.686
	LT	1.00	79	1,600	0.049 *	Lost Time:	0.100
Northbound	RT	1.00	117	1,600	0.048	ITS:	0.000
	TH	2.00	406	3,200	0.127 *	ICU:	0.786
	LT	1.00	76	1,600	0.048	LOS:	C
Eastbound	RT	1.00	222	1,600	0.115		
	TH	2.00	1,301	3,200	0.407 *		
	LT	1.00	325	1,600	0.203		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Interim

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	287	1,600	0.102	N-S(1):	0.380
	TH	2.00	935	3,200	0.292 *	N-S(2):	0.385 *
	LT	1.00	86	1,600	0.054	E-W(1):	0.500
Westbound	RT	0.00	105	0	0.000	E-W(2):	0.532 *
	TH	3.00	1,710	4,800	0.378 *	V/C:	0.917
	LT	1.00	325	1,600	0.203	Lost Time:	0.100
Northbound	RT	1.00	317	1,600	0.097	ITS:	0.000
	TH	2.00	1,043	3,200	0.326	ICU:	1.017
	LT	1.00	148	1,600	0.093 *	LOS:	F
Eastbound	RT	0.00	77	0	0.000		
	TH	3.00	1,347	4,800	0.297		
	LT	1.00	247	1,600	0.154 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	148	1,600	0.021	N-S(1):	0.388
	TH	2.00	1,029	3,200	0.322 *	N-S(2):	0.443 *
	LT	1.00	188	1,600	0.118	E-W(1):	0.531 *
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.481
	TH	3.00	1,474	4,800	0.338	V/C:	0.974
	LT	1.00	330	1,600	0.206 *	Lost Time:	0.100
Northbound	RT	1.00	343	1,600	0.111	ITS:	0.000
	TH	2.00	863	3,200	0.270	ICU:	1.074
	LT	1.00	194	1,600	0.121 *	LOS:	F
Eastbound	RT	0.00	128	0	0.000		
	TH	3.00	1,430	4,800	0.325 *		
	LT	1.00	228	1,600	0.143		

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard  
**Analyst:** <Fehr & Peers>     **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	164	1	164	105	1	105
	↵↵ Left-Through		0			0	
	↵↵ Through	793	1	475	570	1	365
	↵↵ Through-Right		1			1	
	↵↵ Right	157	0	157	159	0	159
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	34	1	34	139	1	139
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	414	1	263	792	1	482
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	111	0	111	172	0	172
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	109	1	109	119	1	119
	↵↵ Left-Through		0			0	
	↵↵ Through	1053	1	571	1617	1	872
	↵↵ Through-Right		1			1	
	↵↵ Right	88	0	88	126	0	126
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵ Left	110	1	110	62	1	62
	↵↵ Left-Through		0			0	
	↵↵ Through	1625	1	852	1155	1	601
	↵↵ Through-Right		1			1	
	↵↵ Right	79	0	79	46	0	46
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	509		<i>North-South:</i>	587
			<i>East-West:</i>	961		<i>East-West:</i>	934
			<i>SUM:</i>	1470		<i>SUM:</i>	1521
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.069			1.106
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.999</b>			<b>1.036</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	161	1	161	163	1	163
	↔ Left-Through		0			0	
	→ Through	1203	2	602	861	2	431
	→ Through-Right		0			0	
	↔ Right	89	1	54	124	1	87
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	100	1	100	167	1	167
	↔ Left-Through		0			0	
	→ Through	758	2	379	1384	2	692
	→ Through-Right		0			0	
	↔ Right	143	1	112	237	1	191
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	63	1	63	92	1	92
	↔ Left-Through		0			0	
	→ Through	896	1	504	1261	1	729
	→ Through-Right		1			1	
	↔ Right	111	0	111	197	0	197
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	70	1	70	75	1	75
	↔ Left-Through		0			0	
	→ Through	1301	1	736	1173	1	665
	→ Through-Right		1			1	
	↔ Right	171	0	171	156	0	156
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	702		<i>North-South:</i>	855
			<i>East-West:</i>	799		<i>East-West:</i>	804
			<i>SUM:</i>	1501		<i>SUM:</i>	1659
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.092			1.207
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.022</b>			<b>1.137</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	224	1	224	186	1	186
	↔ Left-Through		0			0	
	→ Through	707	2	354	523	2	262
	→ Through-Right		0			0	
	↔ Right	76	1	0	111	1	30
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	35	1	35	98	1	98
	↔ Left-Through		0			0	
	→ Through	391	1	276	560	1	373
	→ Through-Right		1			1	
	↔ Right	161	0	161	186	0	186
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	213	1	213	216	1	216
	↔ Left-Through		0			0	
	→ Through	1049	2	525	1461	2	731
	→ Through-Right		0			0	
	↔ Right	203	1	91	176	1	83
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	172	1	172	163	1	163
	↔ Left-Through		0			0	
	→ Through	1373	2	687	1306	2	653
	→ Through-Right		0			0	
	↔ Right	80	1	63	81	1	32
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	500		<i>North-South:</i>	559
			<i>East-West:</i>	900		<i>East-West:</i>	894
			<i>SUM:</i>	1400		<i>SUM:</i>	1453
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.933			1.057
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.863</b>			<b>0.987</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
0				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	↵	124	1	124	62	1	62
	↵↵		0			0	
	↵↵↵	1444	1	739	999	1	513
	↵↵↵↵		1			1	
	↵↵↵↵↵	33	0	33	26	0	26
	↵↵↵↵↵↵		0			0	
SOUTHBOUND	↵↵↵↵↵↵	12	1	12	32	1	32
	↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵	937	1	505	1547	1	783
	↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵	73	0	73	18	0	18
	↵↵↵↵↵↵↵↵↵↵↵		0			0	
EASTBOUND	↵↵↵↵↵↵↵↵↵↵↵	19	0	19	60	0	60
	↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	25	0	103	104	0	337
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	59	0	0	173	0	0
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
WESTBOUND	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	112	0	112	50	0	50
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	82	0	232	42	0	112
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	38	0	0	20	0	0
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
CRITICAL VOLUMES			North-South:	751		North-South:	845
			East-West:	251		East-West:	387
			SUM:	1002		SUM:	1232
VOLUME/CAPACITY (V/C) RATIO:				0.668			0.821
V/C LESS ATSAC/ATCS ADJUSTMENT:				<b>0.598</b>			<b>0.751</b>
LEVEL OF SERVICE (LOS):				<b>A</b>			<b>C</b>



## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	↵	29	1	29	30	1	30
	↵↵		0			0	
	↵↵↵	893	1	509	536	1	290
	↵↵↵↵		1			1	
	↵↵↵↵↵	125	0	125	44	0	44
	↵↵↵↵↵↵		0			0	
SOUTHBOUND	↵↵↵↵↵↵	74	1	74	79	1	79
	↵↵↵↵↵		0			0	
	↵↵↵↵	422	1	225	819	1	429
	↵↵↵		1			1	
	↵↵	28	0	28	38	0	38
	↵		0			0	
EASTBOUND	↵↵↵↵↵↵	31	0	31	21	0	21
	↵↵↵↵↵		1			1	
	↵↵↵↵	106	0	137	65	0	86
	↵↵↵		0			0	
	↵↵	49	1	35	56	1	41
	↵		0			0	
WESTBOUND	↵↵↵↵↵↵	49	0	49	47	0	47
	↵↵↵↵↵		1			1	
	↵↵↵↵	81	0	130	37	0	84
	↵↵↵		0			0	
	↵↵	107	1	70	90	1	51
	↵		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	583		<i>North-South:</i>	459
			<i>East-West:</i>	186		<i>East-West:</i>	133
			<i>SUM:</i>	769		<i>SUM:</i>	592
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.513			0.395
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.443</b>			<b>0.325</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				3			3
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
0				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	204	1	204	107	1	107
	↵↵ Left-Through		0			0	
	↵↵ Through	1355	2	678	934	2	467
	↵↵ Through-Right		0			0	
	↵↵ Right	180	1	49	179	1	137
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	79	1	79	217	1	217
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	961	2	481	1452	2	726
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	58	1	33	45	1	16
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	50	1	50	59	1	59
	↵ Left-Through		0			0	
	↵ Through	411	2	206	991	2	496
	↵ Through-Right		0			0	
	↵ Right	121	1	19	204	1	151
	↵↵ Left-Through-Right		0			0	
	↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵ Left	263	1	263	85	1	85
	↵ Left-Through		0			0	
	↵ Through	915	1	555	631	1	364
	↵ Through-Right		1			1	
	↵ Right	194	0	194	96	0	96
	↵↵ Left-Through-Right		0			0	
	↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		757	<i>North-South:</i>		833
		<i>East-West:</i>		605	<i>East-West:</i>		581
		<i>SUM:</i>		1362	<i>SUM:</i>		1414
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.956			0.992
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.886</b>			<b>0.922</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	131	1	131	67	1	67
	↵↵ Left-Through		0			0	
	↵↵ Through	856	2	428	449	2	225
	↵↵ Through-Right		0			0	
	↵↵ Right	115	1	52	133	1	83
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	54	1	54	92	1	92
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	397	1	233	741	1	411
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	68	0	68	80	0	80
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	88	1	88	76	1	76
	↵↵ Left-Through		0			0	
	↵↵ Through	647	1	358	1224	1	668
	↵↵ Through-Right		1			1	
	↵↵ Right	68	0	68	112	0	112
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵ Left	127	1	127	101	1	101
	↵↵ Left-Through		0			0	
	↵↵ Through	1093	2	547	757	2	379
	↵↵ Through-Right		0			0	
	↵↵ Right	81	1	54	92	1	46
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	482		<i>North-South:</i>	478
			<i>East-West:</i>	635		<i>East-West:</i>	769
			<i>SUM:</i>	1117		<i>SUM:</i>	1247
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.745			0.831
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.675</b>			<b>0.761</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM			
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	
<b>No. of Phases</b>				4			4	
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0	
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0	
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0	
<b>Override Capacity</b>				1			1	
<b>Override Capacity</b>				0			0	
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	
<b>NORTHBOUND</b>	↵	Left	148	1	148	194	1	194
	↵↵	Left-Through		0		0	0	
	↵↵↵	Through	1043	2	522	863	2	432
	↵↵↵↵	Through-Right		0		0	0	
	↵↵↵↵↵	Right	317	1	155	343	1	178
	↵↵↵↵↵↵	Left-Through-Right		0		0	0	
	↵↵↵↵↵↵↵	Left-Right		0		0		
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵	Left	86	1	86	188	1	188
	↵↵↵↵↵↵↵↵	Left-Through		0		0	0	
	↵↵↵↵↵↵↵↵↵	Through	935	2	468	1029	2	515
	↵↵↵↵↵↵↵↵↵↵	Through-Right		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵	Right	287	1	164	148	1	34
	↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0		
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵	Left	247	1	247	228	1	228
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through	1347	2	475	1430	2	519
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		1		0	1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	77	0	77	128	0	128
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0		
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left	325	1	325	330	1	330
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through	1710	2	605	1474	2	541
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		1		0	1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	105	0	105	150	0	150
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0		
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	616		<b>North-South:</b>	709	
			<b>East-West:</b>	852		<b>East-West:</b>	849	
			<b>SUM:</b>	1468		<b>SUM:</b>	1558	
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.068			1.133	
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.998</b>			<b>1.063</b>	
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>F</b>	

## **INTERIM PLUS 2023 PROJECT**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	143	1,600	0.070	N-S(1):	0.439 *
	TH	2.00	763	3,200	0.238	N-S(2):	0.339
	LT	1.00	100	1,600	0.063 *	E-W(1):	0.362
Westbound	RT	0.00	172	0	0.000	E-W(2):	0.500 *
	TH	2.00	1,302	3,200	0.461 *	V/C:	0.939
	LT	1.00	70	1,600	0.044	Lost Time:	0.100
Northbound	RT	1.00	89	1,600	0.034	ITS:	0.000
	TH	2.00	1,204	3,200	0.376 *	ICU:	1.039
	LT	1.00	161	1,600	0.101	LOS:	F
Eastbound	RT	0.00	113	0	0.000		
	TH	2.00	903	3,200	0.318		
	LT	1.00	63	1,600	0.039 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	237	1,600	0.119	N-S(1):	0.375
	TH	2.00	1,385	3,200	0.433 *	N-S(2):	0.536 *
	LT	1.00	167	1,600	0.104	E-W(1):	0.503 *
Westbound	RT	0.00	160	0	0.000	E-W(2):	0.477
	TH	2.00	1,181	3,200	0.419	V/C:	1.039
	LT	1.00	75	1,600	0.047 *	Lost Time:	0.100
Northbound	RT	1.00	124	1,600	0.054	ITS:	0.000
	TH	2.00	866	3,200	0.271	ICU:	1.139
	LT	1.00	164	1,600	0.103 *	LOS:	F
Eastbound	RT	0.00	197	0	0.000		
	TH	2.00	1,262	3,200	0.456 *		
	LT	1.00	92	1,600	0.058		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	163	1,600	0.064	N-S(1):	0.184
	TH	2.00	279	3,200	0.087 *	N-S(2):	0.207 *
	LT	2.00	48	2,560	0.019	E-W(1):	0.328
Westbound	RT	1.00	116	1,600	0.063	E-W(2):	0.430 *
	TH	2.00	1,134	3,200	0.354 *	V/C:	0.637
	LT	1.00	125	1,600	0.078	Lost Time:	0.100
Northbound	RT	1.00	211	1,600	0.093	ITS:	0.000
	TH	2.00	527	3,200	0.165	ICU:	0.737
	LT	2.00	307	2,560	0.120 *	LOS:	C
Eastbound	RT	1.00	490	1,600	0.186		
	TH	2.00	800	3,200	0.250		
	LT	1.00	121	1,600	0.076 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	173	1,600	0.073	N-S(1):	0.138
	TH	2.00	507	3,200	0.158 *	N-S(2):	0.245 *
	LT	2.00	150	2,560	0.059	E-W(1):	0.579 *
Westbound	RT	1.00	83	1,600	0.023	E-W(2):	0.397
	TH	2.00	1,045	3,200	0.327	V/C:	0.824
	LT	1.00	182	1,600	0.114 *	Lost Time:	0.100
Northbound	RT	1.00	204	1,600	0.071	ITS:	0.000
	TH	2.00	253	3,200	0.079	ICU:	0.924
	LT	2.00	222	2,560	0.087 *	LOS:	E
Eastbound	RT	1.00	647	1,600	0.318		
	TH	2.00	1,488	3,200	0.465 *		
	LT	1.00	112	1,600	0.070		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	73	0	0.000	N-S(1):	0.474 *
	TH	2.00	937	3,200	0.316	N-S(2):	0.394
	LT	1.00	19	1,600	0.012 *	E-W(1):	0.134
Westbound	RT	0.00	39	0	0.000	E-W(2):	0.158 *
	TH	1.00	82	1,600	0.146 *	V/C:	0.632
	LT	0.00	112	1,600	0.070	Lost Time:	0.100
Northbound	RT	0.00	33	0	0.000	ITS:	0.000
	TH	2.00	1,444	3,200	0.462 *	ICU:	0.732
	LT	1.00	124	1,600	0.078	LOS:	C
Eastbound	RT	0.00	59	0	0.000		
	TH	1.00	25	1,600	0.064		
	LT	0.00	19	1,600	0.012 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	18	0	0.000	N-S(1):	0.341
	TH	2.00	1,547	3,200	0.489 *	N-S(2):	0.528 *
	LT	1.00	33	1,600	0.021	E-W(1):	0.242 *
Westbound	RT	0.00	25	0	0.000	E-W(2):	0.111
	TH	1.00	42	1,600	0.073	V/C:	0.770
	LT	0.00	50	1,600	0.031 *	Lost Time:	0.100
Northbound	RT	0.00	26	0	0.000	ITS:	0.000
	TH	2.00	999	3,200	0.320	ICU:	0.870
	LT	1.00	62	1,600	0.039 *	LOS:	D
Eastbound	RT	0.00	173	0	0.000		
	TH	1.00	104	1,600	0.211 *		
	LT	0.00	60	1,600	0.038		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Interim plus Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	419	1,600	0.182 *	N-S(1): 0.302
	TH	2.00	417	3,200	0.130	N-S(2): 0.507 *
	LT	1.00	137	1,600	0.086	E-W(1): 0.380 *
Westbound	RT	1.00	95	1,600	0.017	E-W(2): 0.000
	TH	1.00	221	1,600	0.196 *	V/C: 0.887
	LT	0.00	93	1,600	0.058	Lost Time: 0.100
Northbound	RT	1.00	155	1,600	0.068	ITS: 0.000
	TH	2.00	691	3,200	0.216	
	LT	1.00	520	1,600	0.325 *	
Eastbound	RT	1.00	62	1,600	0.000	ICU: 0.987
	TH	1.00	40	1,600	0.184 *	
	LT	0.00	255	1,600	0.159	LOS: E

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	563	1,600	0.271 *	N-S(1): 0.165
	TH	2.00	648	3,200	0.203	N-S(2): 0.562 *
	LT	1.00	80	1,600	0.050	E-W(1): 0.332 *
Westbound	RT	1.00	56	1,600	0.010	E-W(2): 0.000
	TH	1.00	111	1,600	0.107 *	V/C: 0.894
	LT	0.00	60	1,600	0.038	Lost Time: 0.100
Northbound	RT	1.00	53	1,600	0.014	ITS: 0.000
	TH	2.00	369	3,200	0.115	
	LT	1.00	465	1,600	0.291 *	
Eastbound	RT	1.00	117	1,600	0.000	ICU: 0.994
	TH	1.00	101	1,600	0.225 *	
	LT	0.00	259	1,600	0.162	LOS: E

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	58	1,600	0.021	N-S(1):	0.472 *
	TH	2.00	961	3,200	0.300	N-S(2):	0.428
	LT	1.00	79	1,600	0.049 *	E-W(1):	0.293
Westbound	RT	0.00	194	0	0.000	E-W(2):	0.378 *
	TH	2.00	915	3,200	0.347 *	V/C:	0.850
	LT	1.00	263	1,600	0.164	Lost Time:	0.100
Northbound	RT	1.00	182	1,600	0.032	ITS:	0.000
	TH	2.00	1,355	3,200	0.423 *	ICU:	0.950
	LT	1.00	204	1,600	0.128	LOS:	E
Eastbound	RT	1.00	121	1,600	0.012		
	TH	2.00	413	3,200	0.129		
	LT	1.00	50	1,600	0.031 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	45	1,600	0.010	N-S(1):	0.428
	TH	2.00	1,452	3,200	0.454 *	N-S(2):	0.521 *
	LT	1.00	217	1,600	0.136	E-W(1):	0.364 *
Westbound	RT	0.00	96	0	0.000	E-W(2):	0.265
	TH	2.00	633	3,200	0.228	V/C:	0.885
	LT	1.00	87	1,600	0.054 *	Lost Time:	0.100
Northbound	RT	1.00	179	1,600	0.085	ITS:	0.000
	TH	2.00	934	3,200	0.292	ICU:	0.985
	LT	1.00	107	1,600	0.067 *	LOS:	E
Eastbound	RT	1.00	204	1,600	0.094		
	TH	2.00	991	3,200	0.310 *		
	LT	1.00	59	1,600	0.037		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	206	1,600	0.026	N-S(1):	0.283 *
	TH	2.00	296	3,200	0.093	N-S(2):	0.162
	LT	1.00	73	1,600	0.046 *	E-W(1):	0.250
Westbound	RT	1.00	281	1,600	0.153	E-W(2):	0.521 *
	TH	2.00	1,009	3,200	0.315 *	V/C:	0.804
	LT	1.00	77	1,600	0.048	Lost Time:	0.100
Northbound	RT	1.00	159	1,600	0.075	ITS:	0.000
	TH	2.00	757	3,200	0.237 *	ICU:	0.904
	LT	1.00	111	1,600	0.069	LOS:	E
Eastbound	RT	1.00	190	1,600	0.084		
	TH	2.00	647	3,200	0.202		
	LT	1.00	330	1,600	0.206 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	191	1,600	0.013	N-S(1):	0.230 *
	TH	2.00	476	3,200	0.149	N-S(2):	0.197
	LT	1.00	165	1,600	0.103 *	E-W(1):	0.458 *
Westbound	RT	1.00	154	1,600	0.045	E-W(2):	0.427
	TH	2.00	681	3,200	0.213	V/C:	0.688
	LT	1.00	79	1,600	0.049 *	Lost Time:	0.100
Northbound	RT	1.00	117	1,600	0.048	ITS:	0.000
	TH	2.00	406	3,200	0.127 *	ICU:	0.788
	LT	1.00	77	1,600	0.048	LOS:	C
Eastbound	RT	1.00	224	1,600	0.116		
	TH	2.00	1,310	3,200	0.409 *		
	LT	1.00	342	1,600	0.214		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Interim plus Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	287	1,600	0.102	N-S(1):	0.381
	TH	2.00	935	3,200	0.292 *	N-S(2):	0.385 *
	LT	1.00	86	1,600	0.054	E-W(1):	0.500
Westbound	RT	0.00	105	0	0.000	E-W(2):	0.532 *
	TH	3.00	1,710	4,800	0.378 *	V/C:	0.917
	LT	1.00	325	1,600	0.203	Lost Time:	0.100
Northbound	RT	1.00	317	1,600	0.097	ITS:	0.000
	TH	2.00	1,045	3,200	0.327	ICU:	1.017
	LT	1.00	148	1,600	0.093 *	LOS:	F
Eastbound	RT	0.00	77	0	0.000		
	TH	3.00	1,347	4,800	0.297		
	LT	1.00	247	1,600	0.154 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	148	1,600	0.021	N-S(1):	0.388
	TH	2.00	1,031	3,200	0.322 *	N-S(2):	0.443 *
	LT	1.00	188	1,600	0.118	E-W(1):	0.531 *
Westbound	RT	0.00	150	0	0.000	E-W(2):	0.481
	TH	3.00	1,474	4,800	0.338	V/C:	0.974
	LT	1.00	330	1,600	0.206 *	Lost Time:	0.100
Northbound	RT	1.00	343	1,600	0.111	ITS:	0.000
	TH	2.00	863	3,200	0.270	ICU:	1.074
	LT	1.00	194	1,600	0.121 *	LOS:	F
Eastbound	RT	0.00	128	0	0.000		
	TH	3.00	1,430	4,800	0.325 *		
	LT	1.00	228	1,600	0.143		

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
		<b>No. of Phases</b>		4			4
		<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>		0			0
		<b>NB--</b>	<b>SB--</b>	0	<b>NB--</b>	<b>SB--</b>	0
		<b>EB--</b>	<b>WB--</b>	0	<b>EB--</b>	<b>WB--</b>	0
		<b>ATSAC-1 or ATSAC+ATCS-2?</b>		1			1
		<b>Override Capacity</b>		0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	← Left	164	1	164	105	1	105
	← Left-Through		0			0	
	→ Through	797	1	477	587	1	374
	→ Through-Right		1			1	
	→ Right	157	0	157	160	0	160
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	34	1	34	139	1	139
	↔ Left-Through		0			0	
	→ Through	432	1	272	796	1	484
	→ Through-Right		1			1	
	→ Right	111	0	111	172	0	172
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	← Left	109	1	109	119	1	119
	← Left-Through		0			0	
	→ Through	1053	1	572	1617	1	872
	→ Through-Right		1			1	
	→ Right	91	0	91	127	0	127
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	← Left	111	1	111	62	1	62
	← Left-Through		0			0	
	→ Through	1625	1	852	1155	1	601
	→ Through-Right		1			1	
	→ Right	79	0	79	46	0	46
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		511	<i>North-South:</i>		589
		<i>East-West:</i>		961	<i>East-West:</i>		934
		<b>SUM:</b>		1472	<b>SUM:</b>		1523
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.071			1.108
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.001</b>			<b>1.038</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	161	1	161	164	1	164
	↵↵ Left-Through		0			0	
	↵↵ Through	1204	2	602	866	2	433
	↵↵ Through-Right		0			0	
	↵↵ Right	89	1	54	124	1	87
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	100	1	100	167	1	167
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	763	2	382	1385	2	693
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	143	1	112	237	1	191
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	63	1	63	92	1	92
	↵↵ Left-Through		0			0	
	↵↵ Through	903	1	508	1262	1	730
	↵↵ Through-Right		1			1	
	↵↵ Right	113	0	113	197	0	197
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	70	1	70	75	1	75
	↵↵ Left-Through		0			0	
	↵↵ Through	1302	1	737	1181	1	671
	↵↵ Through-Right		1			1	
	↵↵ Right	172	0	172	160	0	160
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	702		<i>North-South:</i>	857
			<i>East-West:</i>	800		<i>East-West:</i>	805
			<i>SUM:</i>	1502		<i>SUM:</i>	1662
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.092			1.209
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.022</b>			<b>1.139</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	225	1	225	194	1	194
	↵↵		0			0	
	↵↵↵	710	2	355	538	2	269
	↵↵↵↵		0			0	
	↵↵↵↵↵	81	1	0	124	1	41
	↵↵↵↵↵↵		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵	41	1	41	99	1	99
	↵↵↵↵		0			0	
	↵↵↵	408	1	285	563	1	375
	↵↵		1			1	
	↵	161	0	161	186	0	186
<b>EASTBOUND</b>	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵	213	1	213	216	1	216
	↵↵↵↵		0			0	
	↵↵↵	1052	2	526	1461	2	731
	↵↵		0			0	
	↵	208	1	96	177	1	80
<b>WESTBOUND</b>	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵	178	1	178	166	1	166
	↵↵↵↵		0			0	
	↵↵↵	1374	2	687	1310	2	655
	↵↵		0			0	
	↵	81	1	61	84	1	35
<b>CRITICAL VOLUMES</b>				North-South: 510 East-West: 900 SUM: 1410			North-South: 569 East-West: 897 SUM: 1466
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.940			1.066
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.870</b>			<b>0.996</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	124	1	124	62	1	62
	↵↵ Left-Through		0			0	
	↵↵ Through	1444	1	739	999	1	513
	↵↵ Through-Right		1			1	
	↵↵ Right	33	0	33	26	0	26
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	19	1	19	33	1	33
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	937	1	505	1547	1	783
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	73	0	73	18	0	18
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	19	0	19	60	0	60
	↵↵ Left-Through		0			0	
	↵↵ Through	25	0	103	104	0	337
	↵↵ Through-Right		0			0	
	↵↵ Right	59	0	0	173	0	0
	↵↵↵ Left-Through-Right		1			1	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	112	0	112	50	0	50
	↵↵ Left-Through		0			0	
	↵↵ Through	82	0	233	42	0	117
	↵↵ Through-Right		0			0	
	↵↵ Right	39	0	0	25	0	0
	↵↵↵ Left-Through-Right		1			1	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	758		<i>North-South:</i>	845
			<i>East-West:</i>	252		<i>East-West:</i>	387
			<i>SUM:</i>	1010		<i>SUM:</i>	1232
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.673			0.821
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.603</b>			<b>0.751</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	↵	29	1	29	30	1	30
	↵↵		0			0	
	↵↵↵	908	1	517	539	1	292
	↵↵↵↵		1			1	
	↵↵↵↵↵	126	0	126	44	0	44
	↵↵↵↵↵↵		0			0	
SOUTHBOUND	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵	83	1	83	81	1	81
	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵	423	1	226	828	1	433
	↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵	28	0	28	38	0	38
EASTBOUND	↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵	32	1	32	21	1	21
	↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	112	0	144	66	0	87
	↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	49	0	35	56	0	41
WESTBOUND	↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	49	1	49	47	1	47
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	82	0	131	42	0	89
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	109	1	68	99	1	59
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	600		<i>North-South:</i>	463
			<i>East-West:</i>	193		<i>East-West:</i>	134
			<i>SUM:</i>	793		<i>SUM:</i>	597
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.529			0.398
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.459</b>			<b>0.328</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				3			3
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	204	1	204	107	1	107
	↵↵ Left-Through		0			0	
	↵↵ Through	1355	2	678	934	2	467
	↵↵ Through-Right		0			0	
	↵↵ Right	182	1	51	179	1	136
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	79	1	79	217	1	217
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	961	2	481	1452	2	726
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	58	1	33	45	1	16
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	50	1	50	59	1	59
	↵↵ Left-Through		0			0	
	↵↵ Through	413	2	207	991	2	496
	↵↵ Through-Right		0			0	
	↵↵ Right	121	1	19	204	1	151
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	263	1	263	87	1	87
	↵↵ Left-Through		0			0	
	↵↵ Through	915	1	555	633	1	365
	↵↵ Through-Right		1			1	
	↵↵ Right	194	0	194	96	0	96
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	757		<b>North-South:</b>	833
			<b>East-West:</b>	605		<b>East-West:</b>	583
			<b>SUM:</b>	1362		<b>SUM:</b>	1416
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.956			0.994
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.886</b>			<b>0.924</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>D</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				2			2
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	Left	131	1	131	1	67
	↵↵	Left-Through		0		0	
	↵↵↵	Through	860	2	430	2	225
	↵↵↵↵	Through-Right		0		0	
	↵↵↵↵↵	Right	118	1	55	1	81
	↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵	Left-Right		0		0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵	Left	55	1	55	1	95
	↵↵↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵↵↵	Through	398	1	233	1	414
	↵↵↵↵↵↵↵↵↵↵	Through-Right		1		1	
	↵↵↵↵↵↵↵↵↵↵↵	Right	68	0	68	0	82
	↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵	Left	91	1	91	1	76
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through	648	1	358	1	668
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		1		1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	68	0	68	0	112
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left	127	1	127	1	104
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through	1093	2	547	2	380
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Right	90	1	63	1	47
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0		0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	Left-Right		0		0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	485		<b>North-South:</b>	481
			<b>East-West:</b>	638		<b>East-West:</b>	772
			<b>SUM:</b>	1123		<b>SUM:</b>	1253
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.749			0.835
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.679</b>			<b>0.765</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Interim plus 2023 Project  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
0				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	148	1	148	194	1	194
	↔↔ Left-Through		0			0	
	↔↔ Through	1045	2	523	863	2	432
	↔↔ Through-Right		0			0	
	↔↔ Right	317	1	155	343	1	178
	↔↔↔ Left-Through-Right		0			0	
	↔↔↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔↔↔ Left	86	1	86	188	1	188
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	935	2	468	1031	2	516
	↔↔↔ Through-Right		0			0	
	↔↔↔ Right	287	1	164	148	1	34
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔↔↔ Left	247	1	247	228	1	228
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	1347	2	475	1430	2	519
	↔↔↔ Through-Right		1			1	
	↔↔↔ Right	77	0	77	128	0	128
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔↔↔ Left	325	1	325	330	1	330
	↔↔↔ Left-Through		0			0	
	↔↔↔ Through	1710	2	605	1474	2	541
	↔↔↔ Through-Right		1			1	
	↔↔↔ Right	105	0	105	150	0	150
	↔↔↔↔ Left-Through-Right		0			0	
	↔↔↔↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>				<i>North-South:</i> 616			<i>North-South:</i> 710
				<i>East-West:</i> 852			<i>East-West:</i> 849
				<i>SUM:</i> 1468			<i>SUM:</i> 1559
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.068			1.134
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.998</b>			<b>1.064</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>F</b>

**CUMULATIVE**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	150	1,600	0.073	N-S(1):	0.462 *
	TH	2.00	798	3,200	0.249	N-S(2):	0.355
	LT	1.00	105	1,600	0.066 *	E-W(1):	0.376
Westbound	RT	0.00	180	0	0.000	E-W(2):	0.523 *
	TH	2.00	1,363	3,200	0.482 *	V/C:	0.985
	LT	1.00	74	1,600	0.046	Lost Time:	0.100
Northbound	RT	1.00	93	1,600	0.035	ITS:	0.000
	TH	2.00	1,266	3,200	0.396 *	ICU:	1.085
	LT	1.00	170	1,600	0.106	LOS:	F
Eastbound	RT	0.00	117	0	0.000		
	TH	2.00	938	3,200	0.330		
	LT	1.00	66	1,600	0.041 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	249	1,600	0.126	N-S(1):	0.393
	TH	2.00	1,456	3,200	0.455 *	N-S(2):	0.563 *
	LT	1.00	176	1,600	0.110	E-W(1):	0.525 *
Westbound	RT	0.00	163	0	0.000	E-W(2):	0.493
	TH	2.00	1,223	3,200	0.433	V/C:	1.088
	LT	1.00	79	1,600	0.049 *	Lost Time:	0.100
Northbound	RT	1.00	130	1,600	0.057	ITS:	0.000
	TH	2.00	905	3,200	0.283	ICU:	1.188
	LT	1.00	172	1,600	0.108 *	LOS:	F
Eastbound	RT	0.00	208	0	0.000		
	TH	2.00	1,316	3,200	0.476 *		
	LT	1.00	96	1,600	0.060		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	166	1,600	0.064	N-S(1):	0.193
	TH	2.00	291	3,200	0.091 *	N-S(2):	0.215 *
	LT	2.00	50	2,560	0.020	E-W(1):	0.342
Westbound	RT	1.00	121	1,600	0.066	E-W(2):	0.447 *
	TH	2.00	1,176	3,200	0.368 *	V/C:	0.662
	LT	1.00	131	1,600	0.082	Lost Time:	0.100
Northbound	RT	1.00	220	1,600	0.097	ITS:	0.000
	TH	2.00	553	3,200	0.173	ICU:	0.762
	LT	2.00	317	2,560	0.124 *	LOS:	C
Eastbound	RT	1.00	507	1,600	0.193		
	TH	2.00	832	3,200	0.260		
	LT	1.00	126	1,600	0.079 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	181	1,600	0.078	N-S(1):	0.143
	TH	2.00	532	3,200	0.166 *	N-S(2):	0.257 *
	LT	2.00	157	2,560	0.061	E-W(1):	0.600 *
Westbound	RT	1.00	87	1,600	0.024	E-W(2):	0.410
	TH	2.00	1,087	3,200	0.340	V/C:	0.857
	LT	1.00	188	1,600	0.118 *	Lost Time:	0.100
Northbound	RT	1.00	212	1,600	0.074	ITS:	0.000
	TH	2.00	263	3,200	0.082	ICU:	0.957
	LT	2.00	233	2,560	0.091 *	LOS:	E
Eastbound	RT	1.00	640	1,600	0.309		
	TH	2.00	1,543	3,200	0.482 *		
	LT	1.00	112	1,600	0.070		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.494 *
	TH	2.00	986	3,200	0.332	N-S(2):	0.413
	LT	1.00	12	1,600	0.008 *	E-W(1):	0.142
Westbound	RT	0.00	40	0	0.000	E-W(2):	0.166 *
	TH	1.00	87	1,600	0.153 *	V/C:	0.660
	LT	0.00	118	1,600	0.074	Lost Time:	0.100
Northbound	RT	0.00	35	0	0.000	ITS:	0.000
	TH	2.00	1,519	3,200	0.486 *	ICU:	0.760
	LT	1.00	130	1,600	0.081	LOS:	C
Eastbound	RT	0.00	62	0	0.000		
	TH	1.00	26	1,600	0.068		
	LT	0.00	20	1,600	0.013 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.358
	TH	2.00	1,627	3,200	0.514 *	N-S(2):	0.555 *
	LT	1.00	34	1,600	0.021	E-W(1):	0.254 *
Westbound	RT	0.00	21	0	0.000	E-W(2):	0.113
	TH	1.00	44	1,600	0.074	V/C:	0.809
	LT	0.00	53	1,600	0.033 *	Lost Time:	0.100
Northbound	RT	0.00	27	0	0.000	ITS:	0.000
	TH	2.00	1,051	3,200	0.337	ICU:	0.909
	LT	1.00	65	1,600	0.041 *	LOS:	E
Eastbound	RT	0.00	182	0	0.000		
	TH	1.00	109	1,600	0.221 *		
	LT	0.00	63	1,600	0.039		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Cumulative

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	432	1,600	0.188 *	N-S(1): 0.316
	TH	2.00	434	3,200	0.136	N-S(2): 0.527 *
	LT	1.00	144	1,600	0.090	E-W(1): 0.397 *
Westbound	RT	1.00	100	1,600	0.018	E-W(2): 0.000
	TH	1.00	233	1,600	0.207 *	V/C: 0.924
	LT	0.00	98	1,600	0.061	Lost Time: 0.100
Northbound	RT	1.00	163	1,600	0.071	ITS: 0.000
	TH	2.00	724	3,200	0.226	
	LT	1.00	543	1,600	0.339 *	
Eastbound	RT	1.00	55	1,600	0.000	ICU: 1.024
	TH	1.00	42	1,600	0.190 *	
	LT	0.00	262	1,600	0.164	LOS: F

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	552	1,600	0.260 *	N-S(1): 0.172
	TH	2.00	677	3,200	0.212	N-S(2): 0.556 *
	LT	1.00	84	1,600	0.053	E-W(1): 0.350 *
Westbound	RT	1.00	58	1,600	0.010	E-W(2): 0.000
	TH	1.00	117	1,600	0.113 *	V/C: 0.906
	LT	0.00	63	1,600	0.039	Lost Time: 0.100
Northbound	RT	1.00	56	1,600	0.015	ITS: 0.000
	TH	2.00	382	3,200	0.119	
	LT	1.00	473	1,600	0.296 *	
Eastbound	RT	1.00	121	1,600	0.000	ICU: 1.006
	TH	1.00	107	1,600	0.237 *	
	LT	0.00	272	1,600	0.170	LOS: F

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	61	1,600	0.022	N-S(1):	0.497 *
	TH	2.00	1,011	3,200	0.316	N-S(2):	0.450
	LT	1.00	83	1,600	0.052 *	E-W(1):	0.308
Westbound	RT	0.00	204	0	0.000	E-W(2):	0.397 *
	TH	2.00	962	3,200	0.364 *	V/C:	0.894
	LT	1.00	276	1,600	0.173	Lost Time:	0.100
Northbound	RT	1.00	189	1,600	0.032	ITS:	0.000
	TH	2.00	1,425	3,200	0.445 *	ICU:	0.994
	LT	1.00	214	1,600	0.134	LOS:	E
Eastbound	RT	1.00	127	1,600	0.013		
	TH	2.00	432	3,200	0.135		
	LT	1.00	53	1,600	0.033 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	47	1,600	0.010	N-S(1):	0.450
	TH	2.00	1,527	3,200	0.477 *	N-S(2):	0.547 *
	LT	1.00	228	1,600	0.143	E-W(1):	0.382 *
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.278
	TH	2.00	663	3,200	0.239	V/C:	0.929
	LT	1.00	89	1,600	0.056 *	Lost Time:	0.100
Northbound	RT	1.00	188	1,600	0.090	ITS:	0.000
	TH	2.00	983	3,200	0.307	ICU:	1.029
	LT	1.00	112	1,600	0.070 *	LOS:	F
Eastbound	RT	1.00	214	1,600	0.099		
	TH	2.00	1,043	3,200	0.326 *		
	LT	1.00	62	1,600	0.039		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	203	1,600	0.020	N-S(1):	0.297 *
	TH	2.00	310	3,200	0.097	N-S(2):	0.169
	LT	1.00	77	1,600	0.048 *	E-W(1):	0.262
Westbound	RT	1.00	295	1,600	0.160	E-W(2):	0.542 *
	TH	2.00	1,051	3,200	0.328 *	V/C:	0.839
	LT	1.00	81	1,600	0.051	Lost Time:	0.100
Northbound	RT	1.00	167	1,600	0.079	ITS:	0.000
	TH	2.00	796	3,200	0.249 *	ICU:	0.939
	LT	1.00	115	1,600	0.072	LOS:	E
Eastbound	RT	1.00	200	1,600	0.089		
	TH	2.00	676	3,200	0.211		
	LT	1.00	342	1,600	0.214 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	197	1,600	0.017	N-S(1):	0.241 *
	TH	2.00	499	3,200	0.156	N-S(2):	0.206
	LT	1.00	172	1,600	0.108 *	E-W(1):	0.479 *
Westbound	RT	1.00	161	1,600	0.047	E-W(2):	0.436
	TH	2.00	713	3,200	0.223	V/C:	0.720
	LT	1.00	83	1,600	0.052 *	Lost Time:	0.100
Northbound	RT	1.00	124	1,600	0.052	ITS:	0.000
	TH	2.00	425	3,200	0.133 *	ICU:	0.820
	LT	1.00	80	1,600	0.050	LOS:	D
Eastbound	RT	1.00	234	1,600	0.121		
	TH	2.00	1,367	3,200	0.427 *		
	LT	1.00	341	1,600	0.213		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Cumulative

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	302	1,600	0.108	N-S(1):	0.399
	TH	2.00	984	3,200	0.308 *	N-S(2):	0.406 *
	LT	1.00	90	1,600	0.056	E-W(1):	0.526
Westbound	RT	0.00	111	0	0.000	E-W(2):	0.561 *
	TH	3.00	1,800	4,800	0.398 *	V/C:	0.967
	LT	1.00	342	1,600	0.214	Lost Time:	0.100
Northbound	RT	1.00	334	1,600	0.102	ITS:	0.000
	TH	2.00	1,097	3,200	0.343	ICU:	1.067
	LT	1.00	156	1,600	0.098 *	LOS:	F
Eastbound	RT	0.00	81	0	0.000		
	TH	3.00	1,418	4,800	0.312		
	LT	1.00	260	1,600	0.163 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	155	1,600	0.022	N-S(1):	0.406
	TH	2.00	1,083	3,200	0.338 *	N-S(2):	0.466 *
	LT	1.00	197	1,600	0.123	E-W(1):	0.558 *
Westbound	RT	0.00	158	0	0.000	E-W(2):	0.506
	TH	3.00	1,551	4,800	0.356	V/C:	1.024
	LT	1.00	347	1,600	0.217 *	Lost Time:	0.100
Northbound	RT	1.00	361	1,600	0.117	ITS:	0.000
	TH	2.00	907	3,200	0.283	ICU:	1.124
	LT	1.00	204	1,600	0.128 *	LOS:	F
Eastbound	RT	0.00	135	0	0.000		
	TH	3.00	1,504	4,800	0.341 *		
	LT	1.00	240	1,600	0.150		

\* - Denotes critical movement

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard  
**Analyst:** <Fehr & Peers>    **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	173	1	173	110	1	110
	↵↵ Left-Through		0			0	
	↵↵↵ Through	834	1	500	599	1	383
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	165	0	165	167	0	167
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵ Left	36	1	36	146	1	146
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	435	1	276	833	1	507
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	116	0	116	181	0	181
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵ Left	115	1	115	125	1	125
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	1104	1	599	1693	1	913
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	93	0	93	132	0	132
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵ Left	116	1	116	65	1	65
	↵↵↵↵ Left-Through		0			0	
	↵↵↵↵ Through	1706	1	895	1209	1	629
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵ Right	83	0	83	48	0	48
	↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	536		<i>North-South:</i>	617
			<i>East-West:</i>	1010		<i>East-West:</i>	978
			<i>SUM:</i>	1546		<i>SUM:</i>	1595
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.124			1.160
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.054</b>			<b>1.090</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				4			4
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	170	1	170	172	1	172
	↵↵		0			0	
	↵↵↵	1266	2	633	905	2	453
	↵↵↵↵		0			0	
	↵↵↵↵↵	93	1	56	130	1	91
	↵↵↵↵↵↵		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵	105	1	105	176	1	176
	↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵	798	2	399	1456	2	728
	↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵	150	1	117	249	1	201
	↵↵↵↵↵↵↵↵↵↵↵		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵	66	1	66	96	1	96
	↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	938	1	528	1316	1	762
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	117	0	117	208	0	208
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	74	1	74	79	1	79
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	1363	1	772	1223	1	693
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	180	0	180	163	0	163
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		738	<i>North-South:</i>		900
		<i>East-West:</i>		838	<i>East-West:</i>		841
		<i>SUM:</i>		1576	<i>SUM:</i>		1741
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.146			1.266
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.076</b>			<b>1.196</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	236	1	236	195	1	195
	↵↵ Left-Through		0		0	0	
	↵↵ Through	743	2	372	550	2	275
	↵↵ Through-Right		0		0	0	
	↵↵ Right	80	1	0	117	1	31
	↵↵↵ Left-Through-Right		0		0	0	
	↵↵↵ Left-Right		0		0		
<b>SOUTHBOUND</b>	↵↵↵ Left	37	1	37	103	1	103
	↵↵↵ Left-Through		0		0	0	
	↵↵↵ Through	411	1	290	589	1	392
	↵↵↵ Through-Right		1		1	1	
	↵↵↵ Right	169	0	169	195	0	195
	↵↵↵ Left-Through-Right		0		0	0	
	↵↵↵ Left-Right		0		0		
<b>EASTBOUND</b>	↵ Left	224	1	224	228	1	228
	↵↵ Left-Through		0		0	0	
	↵↵ Through	1098	2	549	1526	2	763
	↵↵ Through-Right		0		0	0	
	↵↵ Right	213	1	95	185	1	88
	↵↵↵ Left-Through-Right		0		0	0	
	↵↵↵ Left-Right		0		0		
<b>WESTBOUND</b>	↵↵ Left	181	1	181	172	1	172
	↵↵ Left-Through		0		0	0	
	↵↵ Through	1439	2	720	1363	2	682
	↵↵ Through-Right		0		0	0	
	↵↵ Right	84	1	66	85	1	34
	↵↵↵ Left-Through-Right		0		0	0	
	↵↵↵ Left-Right		0		0		
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		526	<i>North-South:</i>		587
		<i>East-West:</i>		944	<i>East-West:</i>		935
		<i>SUM:</i>		1470	<i>SUM:</i>		1522
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.980			1.107
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.910</b>			<b>1.037</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>F</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	130	1	130	65	1	65
	↵↵		0			0	
	↵↵↵	1519	1	777	1051	1	539
	↵↵↵↵		1			1	
	↵↵↵↵↵	35	0	35	27	0	27
	↵↵↵↵↵↵		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵	12	1	12	34	1	34
	↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵	986	1	531	1627	1	823
	↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵	76	0	76	19	0	19
	↵↵↵↵↵↵↵↵↵↵↵		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵	20	0	20	63	0	63
	↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	26	0	108	109	0	354
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	62	0	0	182	0	0
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	118	0	118	53	0	53
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	87	0	245	44	0	118
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	40	0	0	21	0	0
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		789	<i>North-South:</i>		888
		<i>East-West:</i>		265	<i>East-West:</i>		407
		<i>SUM:</i>		1054	<i>SUM:</i>		1295
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.703			0.863
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.633</b>			<b>0.793</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	30	1	30	31	1	31
	↵↵ Left-Through		0			0	
	↵↵↵ Through	940	1	536	563	1	305
	↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵ Right	131	0	131	46	0	46
	↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵ Left	78	1	78	83	1	83
	↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵ Through	443	1	236	862	1	451
	↵↵↵↵↵↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵↵↵↵↵↵ Right	29	0	29	40	0	40
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵ Left	33	0	33	22	0	22
	↵↵↵↵↵↵↵ Left-Through		1			1	
	↵↵↵↵↵↵↵↵ Through	111	0	144	69	0	91
	↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵ Right	51	1	36	59	1	44
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵ Left	52	0	52	49	0	49
	↵↵↵↵↵↵↵ Left-Through		1			1	
	↵↵↵↵↵↵↵↵ Through	85	0	137	39	0	88
	↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵ Right	112	1	73	94	1	53
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>				<i>North-South:</i> 614			<i>North-South:</i> 482
				<i>East-West:</i> 196			<i>East-West:</i> 140
				<i>SUM:</i> 810			<i>SUM:</i> 622
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.540			0.415
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.470</b>			<b>0.345</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM			
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	
<b>No. of Phases</b>				3			3	
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0	
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0	
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0	
<b>Override Capacity</b>				1			1	
<b>Override Capacity</b>				0			0	
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	
<b>NORTHBOUND</b>	↵	Left	1	214	112	1	112	
	↵↵	Left-Through	0		0	0		
	↵↵↵	Through	1425	2	713	983	2	492
	↵↵↵↵	Through-Right	0	0		0	0	
	↵↵↵↵↵	Right	189	1	51	188	1	144
	↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵	Left-Right	0			0		
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵	Left	1	83	228	1	228	
	↵↵↵↵↵↵	Left-Through	0		0	0		
	↵↵↵↵↵↵↵	Through	1011	2	506	1527	2	764
	↵↵↵↵↵↵↵↵	Through-Right	0	0		0	0	
	↵↵↵↵↵↵↵↵↵	Right	61	1	35	47	1	16
	↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	Left-Right	0			0		
<b>EASTBOUND</b>	↵↵↵↵↵↵↵	Left	1	53	62	1	62	
	↵↵↵↵↵↵	Left-Through	0		0	0		
	↵↵↵↵↵↵↵	Through	432	2	216	1043	2	522
	↵↵↵↵↵↵↵↵	Through-Right	0	0		0	0	
	↵↵↵↵↵↵↵↵↵	Right	127	1	20	214	1	158
	↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	Left-Right	0			0		
<b>WESTBOUND</b>	↵↵↵↵↵↵↵	Left	1	276	89	1	89	
	↵↵↵↵↵↵	Left-Through	0		0	0		
	↵↵↵↵↵↵↵	Through	962	1	583	663	1	382
	↵↵↵↵↵↵↵↵	Through-Right	0	1		0	1	
	↵↵↵↵↵↵↵↵↵	Right	204	0	204	101	0	101
	↵↵↵↵↵↵↵↵↵↵	Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	Left-Right	0			0		
<b>CRITICAL VOLUMES</b>		<b>North-South:</b>		796	<b>North-South:</b>		876	
		<b>East-West:</b>		636	<b>East-West:</b>		611	
		<b>SUM:</b>		1432	<b>SUM:</b>		1487	
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.005			1.044	
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.935</b>			<b>0.974</b>	
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>	

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				2			2
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	138	1	138	71	1	71
	↵↵ Left-Through		0			0	
	↵↵↵ Through	901	2	451	472	2	236
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵ Right	121	1	55	140	1	87
	↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵ Left	57	1	57	96	1	96
	↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵ Through	417	1	245	779	1	432
	↵↵↵↵↵↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵↵↵↵↵↵ Right	72	0	72	84	0	84
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵ Left	92	1	92	80	1	80
	↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵ Through	680	1	376	1287	1	703
	↵↵↵↵↵↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵↵↵↵↵↵ Right	72	0	72	118	0	118
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵ Left	133	1	133	106	1	106
	↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵ Through	1150	2	575	796	2	398
	↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵ Right	85	1	57	96	1	48
	↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	508		<b>North-South:</b>	503
			<b>East-West:</b>	667		<b>East-West:</b>	809
			<b>SUM:</b>	1175		<b>SUM:</b>	1312
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.783			0.875
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.713</b>			<b>0.805</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>C</b>			<b>D</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↔ Left	156	1	156	204	1	204
	↔ Left-Through		0			0	
	→ Through	1097	2	549	907	2	454
	→ Through-Right		0			0	
	↔ Right	334	1	163	361	1	188
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>SOUTHBOUND</b>	↔ Left	90	1	90	197	1	197
	↔ Left-Through		0			0	
	→ Through	984	2	492	1083	2	542
	→ Through-Right		0			0	
	↔ Right	302	1	172	155	1	35
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>EASTBOUND</b>	↔ Left	260	1	260	240	1	240
	↔ Left-Through		0			0	
	→ Through	1418	2	500	1504	2	546
	→ Through-Right		1			1	
	↔ Right	81	0	81	135	0	135
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>WESTBOUND</b>	↔ Left	342	1	342	347	1	347
	↔ Left-Through		0			0	
	→ Through	1800	2	637	1551	2	570
	→ Through-Right		1			1	
	↔ Right	111	0	111	158	0	158
	↔ Left-Through-Right		0			0	
	↔ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		648	<i>North-South:</i>		746
		<i>East-West:</i>		897	<i>East-West:</i>		893
		<i>SUM:</i>		1545	<i>SUM:</i>		1639
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.124			1.192
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.054</b>			<b>1.122</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

**CUMULATIVE PLUS 2030 PROJECT**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 3 - Western Avenue & Carson Street  
**Description:** Cumulative plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	150	1,600	0.073	N-S(1):	0.463 *
	TH	2.00	813	3,200	0.254	N-S(2):	0.361
	LT	1.00	106	1,600	0.066 *	E-W(1):	0.384
Westbound	RT	0.00	183	0	0.000	E-W(2):	0.526 *
	TH	2.00	1,369	3,200	0.485 *	V/C:	0.989
	LT	1.00	74	1,600	0.046	Lost Time:	0.100
Northbound	RT	1.00	93	1,600	0.035	ITS:	0.000
	TH	2.00	1,269	3,200	0.397 *	ICU:	1.089
	LT	1.00	171	1,600	0.107	LOS:	F
Eastbound	RT	0.00	122	0	0.000		
	TH	2.00	959	3,200	0.338		
	LT	1.00	66	1,600	0.041 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	249	1,600	0.126	N-S(1):	0.398
	TH	2.00	1,461	3,200	0.457 *	N-S(2):	0.566 *
	LT	1.00	176	1,600	0.110	E-W(1):	0.528 *
Westbound	RT	0.00	177	0	0.000	E-W(2):	0.506
	TH	2.00	1,249	3,200	0.446	V/C:	1.094
	LT	1.00	79	1,600	0.049 *	Lost Time:	0.100
Northbound	RT	1.00	130	1,600	0.057	ITS:	0.000
	TH	2.00	921	3,200	0.288	ICU:	1.194
	LT	1.00	175	1,600	0.109 *	LOS:	F
Eastbound	RT	0.00	210	0	0.000		
	TH	2.00	1,323	3,200	0.479 *		
	LT	1.00	96	1,600	0.060		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 10 - Figueroa Street & Carson Street  
**Description:** Cumulative plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %  
 OLA Movements : EBR,  
 FF Movements:

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	181	1,600	0.073	N-S(1):	0.193
	TH	2.00	300	3,200	0.094 *	N-S(2):	0.226 *
	LT	2.00	50	2,560	0.020	E-W(1):	0.345
Westbound	RT	1.00	121	1,600	0.066	E-W(2):	0.460 *
	TH	2.00	1,212	3,200	0.379 *	V/C:	0.686
	LT	1.00	131	1,600	0.082	Lost Time:	0.100
Northbound	RT	1.00	220	1,600	0.097	ITS:	0.000
	TH	2.00	555	3,200	0.173	ICU:	0.786
	LT	2.00	337	2,560	0.132 *	LOS:	C
Eastbound	RT	1.00	534	1,600	0.202		
	TH	2.00	841	3,200	0.263		
	LT	1.00	129	1,600	0.081 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	186	1,600	0.076	N-S(1):	0.146
	TH	2.00	535	3,200	0.167 *	N-S(2):	0.261 *
	LT	2.00	157	2,560	0.061	E-W(1):	0.613 *
Westbound	RT	1.00	87	1,600	0.024	E-W(2):	0.424
	TH	2.00	1,099	3,200	0.343	V/C:	0.874
	LT	1.00	188	1,600	0.118 *	Lost Time:	0.100
Northbound	RT	1.00	212	1,600	0.074	ITS:	0.000
	TH	2.00	273	3,200	0.085	ICU:	0.974
	LT	2.00	240	2,560	0.094 *	LOS:	E
Eastbound	RT	1.00	773	1,600	0.389		
	TH	2.00	1,583	3,200	0.495 *		
	LT	1.00	130	1,600	0.081		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 11 - Western Avenue & 220th Street  
**Description:** Cumulative plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	76	0	0.000	N-S(1):	0.506 *
	TH	2.00	986	3,200	0.332	N-S(2):	0.413
	LT	1.00	32	1,600	0.020 *	E-W(1):	0.142
Westbound	RT	0.00	44	0	0.000	E-W(2):	0.169 *
	TH	1.00	87	1,600	0.156 *	V/C:	0.675
	LT	0.00	118	1,600	0.074	Lost Time:	0.100
Northbound	RT	0.00	36	0	0.000	ITS:	0.000
	TH	2.00	1,519	3,200	0.486 *	ICU:	0.775
	LT	1.00	130	1,600	0.081	LOS:	C
Eastbound	RT	0.00	62	0	0.000		
	TH	1.00	26	1,600	0.068		
	LT	0.00	20	1,600	0.013 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	0.00	19	0	0.000	N-S(1):	0.363
	TH	2.00	1,627	3,200	0.514 *	N-S(2):	0.555 *
	LT	1.00	41	1,600	0.026	E-W(1):	0.255 *
Westbound	RT	0.00	40	0	0.000	E-W(2):	0.125
	TH	1.00	44	1,600	0.086	V/C:	0.810
	LT	0.00	54	1,600	0.034 *	Lost Time:	0.100
Northbound	RT	0.00	27	0	0.000	ITS:	0.000
	TH	2.00	1,051	3,200	0.337	ICU:	0.910
	LT	1.00	65	1,600	0.041 *	LOS:	E
Eastbound	RT	0.00	182	0	0.000		
	TH	1.00	109	1,600	0.221 *		
	LT	0.00	63	1,600	0.039		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Cumulative plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	459	1,600	0.199 *	N-S(1): 0.317
	TH	2.00	443	3,200	0.138	N-S(2): 0.545 *
	LT	1.00	144	1,600	0.090	E-W(1): 0.409 *
Westbound	RT	1.00	100	1,600	0.018	E-W(2): 0.000
	TH	1.00	233	1,600	0.207 *	V/C: 0.954
	LT	0.00	98	1,600	0.061	Lost Time: 0.100
Northbound	RT	1.00	163	1,600	0.071	ITS: 0.000
	TH	2.00	727	3,200	0.227	
	LT	1.00	553	1,600	0.346 *	
Eastbound	RT	1.00	88	1,600	0.000	ICU: 1.054
	TH	1.00	42	1,600	0.202 *	
	LT	0.00	281	1,600	0.176	LOS: F

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	683	1,600	0.340 *	N-S(1): 0.176
	TH	2.00	681	3,200	0.213	N-S(2): 0.667 *
	LT	1.00	84	1,600	0.053	E-W(1): 0.354 *
Westbound	RT	1.00	58	1,600	0.010	E-W(2): 0.000
	TH	1.00	117	1,600	0.113 *	V/C: 1.021
	LT	0.00	63	1,600	0.039	Lost Time: 0.100
Northbound	RT	1.00	56	1,600	0.015	ITS: 0.000
	TH	2.00	393	3,200	0.123	
	LT	1.00	523	1,600	0.327 *	
Eastbound	RT	1.00	132	1,600	0.000	ICU: 1.121
	TH	1.00	107	1,600	0.241 *	
	LT	0.00	278	1,600	0.174	LOS: F

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 16 - Western Avenue & 223rd Street  
**Description:** Cumulative plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	61	1,600	0.022	N-S(1):	0.498 *
	TH	2.00	1,011	3,200	0.316	N-S(2):	0.450
	LT	1.00	83	1,600	0.052 *	E-W(1):	0.310
Westbound	RT	0.00	204	0	0.000	E-W(2):	0.398 *
	TH	2.00	963	3,200	0.365 *	V/C:	0.896
	LT	1.00	277	1,600	0.173	Lost Time:	0.100
Northbound	RT	1.00	193	1,600	0.034	ITS:	0.000
	TH	2.00	1,426	3,200	0.446 *	ICU:	0.996
	LT	1.00	214	1,600	0.134	LOS:	E
Eastbound	RT	1.00	127	1,600	0.013		
	TH	2.00	437	3,200	0.137		
	LT	1.00	53	1,600	0.033 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	47	1,600	0.010	N-S(1):	0.450
	TH	2.00	1,528	3,200	0.478 *	N-S(2):	0.548 *
	LT	1.00	228	1,600	0.143	E-W(1):	0.386 *
Westbound	RT	0.00	101	0	0.000	E-W(2):	0.280
	TH	2.00	669	3,200	0.241	V/C:	0.934
	LT	1.00	94	1,600	0.059 *	Lost Time:	0.100
Northbound	RT	1.00	190	1,600	0.089	ITS:	0.000
	TH	2.00	983	3,200	0.307	ICU:	1.034
	LT	1.00	112	1,600	0.070 *	LOS:	F
Eastbound	RT	1.00	214	1,600	0.099		
	TH	2.00	1,045	3,200	0.327 *		
	LT	1.00	62	1,600	0.039		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 21 - Figueroa Street & 223rd Street  
**Description:** Cumulative plus 2030 Project

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	245	1,600	0.043	N-S(1):	0.297 *
	TH	2.00	310	3,200	0.097	N-S(2):	0.172
	LT	1.00	77	1,600	0.048 *	E-W(1):	0.264
Westbound	RT	1.00	296	1,600	0.161	E-W(2):	0.559 *
	TH	2.00	1,081	3,200	0.338 *	V/C:	0.856
	LT	1.00	81	1,600	0.051	Lost Time:	0.100
Northbound	RT	1.00	167	1,600	0.079	ITS:	0.000
	TH	2.00	796	3,200	0.249 *	ICU:	0.956
	LT	1.00	120	1,600	0.075	LOS:	E
Eastbound	RT	1.00	202	1,600	0.089		
	TH	2.00	683	3,200	0.213		
	LT	1.00	354	1,600	0.221 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.00	211	1,600	0.007	N-S(1):	0.242 *
	TH	2.00	499	3,200	0.156	N-S(2):	0.207
	LT	1.00	174	1,600	0.109 *	E-W(1):	0.489 *
Westbound	RT	1.00	162	1,600	0.047	E-W(2):	0.477
	TH	2.00	722	3,200	0.226	V/C:	0.731
	LT	1.00	83	1,600	0.052 *	Lost Time:	0.100
Northbound	RT	1.00	124	1,600	0.052	ITS:	0.000
	TH	2.00	425	3,200	0.133 *	ICU:	0.831
	LT	1.00	82	1,600	0.051	LOS:	D
Eastbound	RT	1.00	240	1,600	0.124		
	TH	2.00	1,399	3,200	0.437 *		
	LT	1.00	401	1,600	0.251		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 22 - Western Avenue & Sepulveda Blvd  
**Description:** Cumulative plus 2030 Project

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	302	1,600	0.108	N-S(1): 0.400
	TH	2.00	985	3,200	0.308 *	N-S(2): 0.406 *
	LT	1.00	90	1,600	0.056	E-W(1): 0.526
Westbound	RT	0.00	111	0	0.000	E-W(2): 0.561 *
	TH	3.00	1,800	4,800	0.398 *	V/C: 0.967
	LT	1.00	342	1,600	0.214	Lost Time: 0.100
Northbound	RT	1.00	334	1,600	0.102	ITS: 0.000
	TH	2.00	1,102	3,200	0.344	
	LT	1.00	156	1,600	0.098 *	
Eastbound	RT	0.00	81	0	0.000	ICU: 1.067
	TH	3.00	1,418	4,800	0.312	
	LT	1.00	260	1,600	0.163 *	LOS: F

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	155	1,600	0.022	N-S(1): 0.407
	TH	2.00	1,089	3,200	0.340 *	N-S(2): 0.468 *
	LT	1.00	197	1,600	0.123	E-W(1): 0.558 *
Westbound	RT	0.00	158	0	0.000	E-W(2): 0.506
	TH	3.00	1,551	4,800	0.356	V/C: 1.026
	LT	1.00	347	1,600	0.217 *	Lost Time: 0.100
Northbound	RT	1.00	361	1,600	0.117	ITS: 0.000
	TH	2.00	909	3,200	0.284	
	LT	1.00	204	1,600	0.128 *	
Eastbound	RT	0.00	135	0	0.000	ICU: 1.126
	TH	3.00	1,504	4,800	0.341 *	
	LT	1.00	240	1,600	0.150	LOS: F

\* - Denotes critical movement

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**1**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Torrance Boulevard  
**Analyst:** <Fehr & Peers>     **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	173	1	173	110	1	110
	↵↵ Left-Through		0			0	
	↵↵ Through	845	1	506	657	1	414
	↵↵ Through-Right		1			1	
	↵↵ Right	166	0	166	170	0	170
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	36	1	36	146	1	146
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	494	1	305	851	1	516
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	116	0	116	181	0	181
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	115	1	115	125	1	125
	↵↵ Left-Through		0			0	
	↵↵ Through	1104	1	603	1693	1	914
	↵↵ Through-Right		1			1	
	↵↵ Right	102	0	102	135	0	135
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	119	1	119	66	1	66
	↵↵ Left-Through		0			0	
	↵↵ Through	1706	1	895	1209	1	629
	↵↵ Through-Right		1			1	
	↵↵ Right	83	0	83	48	0	48
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		542	<i>North-South:</i>		626
		<i>East-West:</i>		1010	<i>East-West:</i>		980
		<i>SUM:</i>		1552	<i>SUM:</i>		1606
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.129			1.168
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.059</b>			<b>1.098</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**3**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
0				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	171	1	171	175	1	175
	↵↵ Left-Through		0			0	
	↵↵ Through	1269	2	635	921	2	461
	↵↵ Through-Right		0			0	
	↵↵ Right	93	1	56	130	1	91
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	106	1	106	176	1	176
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	813	2	407	1461	2	731
	↵↵↵ Through-Right		0			0	
	↵↵↵ Right	150	1	117	249	1	201
	↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵ Left	66	1	66	96	1	96
	↵↵ Left-Through		0			0	
	↵↵ Through	959	1	541	1323	1	767
	↵↵ Through-Right		1			1	
	↵↵ Right	122	0	122	210	0	210
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵ Left	74	1	74	79	1	79
	↵↵ Left-Through		0			0	
	↵↵ Through	1369	1	776	1249	1	713
	↵↵ Through-Right		1			1	
	↵↵ Right	183	0	183	177	0	177
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	741		<i>North-South:</i>	906
			<i>East-West:</i>	842		<i>East-West:</i>	846
			<i>SUM:</i>	1583		<i>SUM:</i>	1752
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.151			1.274
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.081</b>			<b>1.204</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**4**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Carson Street

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				2			4
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	242	1	242	221	1	221
	↵↵ Left-Through		0			0	
	↵↵↵ Through	752	2	376	601	2	301
	↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵ Right	94	1	0	163	1	71
	↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵↵ Left	55	1	55	109	1	109
	↵↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵↵ Through	464	1	317	606	1	401
	↵↵↵↵↵↵↵↵↵↵ Through-Right		1			1	
	↵↵↵↵↵↵↵↵↵↵↵ Right	169	0	169	195	0	195
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵↵↵↵↵↵↵ Left	224	1	224	228	1	228
	↵↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵↵ Through	1106	2	553	1529	2	765
	↵↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Right	227	1	106	190	1	80
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵↵↵↵↵↵↵ Left	202	1	202	184	1	184
	↵↵↵↵↵↵↵↵ Left-Through		0			0	
	↵↵↵↵↵↵↵↵↵ Through	1442	2	721	1378	2	689
	↵↵↵↵↵↵↵↵↵↵ Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵ Right	86	1	59	96	1	42
	↵↵↵↵↵↵↵↵↵↵↵↵ Left-Through-Right		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<b>North-South:</b>	559		<b>North-South:</b>	622
			<b>East-West:</b>	945		<b>East-West:</b>	949
			<b>SUM:</b>	1504		<b>SUM:</b>	1571
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.003			1.143
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.933</b>			<b>1.073</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>F</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**11**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street  
**Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
		<b>No. of Phases</b>		2			2
		<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>		0			0
		<b>NB--</b>	<b>SB--</b>	0	<b>NB--</b>	<b>SB--</b>	0
		<b>EB--</b>	<b>WB--</b>	0	<b>EB--</b>	<b>WB--</b>	0
		<b>ATSAC-1 or ATSAC+ATCS-2?</b>		1			1
		<b>Override Capacity</b>		0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	Left	130	1	130	65	1	65
	Left-Through		0			0	
	Through	1519	1	778	1051	1	539
	Through-Right		1			1	
	Right	36	0	36	27	0	27
	Left-Through-Right		0			0	
	Left-Right		0			0	
<b>SOUTHBOUND</b>	Left	32	1	32	41	1	41
	Left-Through		0			0	
	Through	986	1	531	1627	1	823
	Through-Right		1			1	
	Right	76	0	76	19	0	19
	Left-Through-Right		0			0	
	Left-Right		0			0	
<b>EASTBOUND</b>	Left	20	0	20	63	0	63
	Left-Through		0			0	
	Through	26	0	108	109	0	354
	Through-Right		0			0	
	Right	62	0	0	182	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
<b>WESTBOUND</b>	Left	118	0	118	54	0	54
	Left-Through		0			0	
	Through	87	0	249	44	0	138
	Through-Right		0			0	
	Right	44	0	0	40	0	0
	Left-Through-Right		1			1	
	Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<b>North-South:</b>		810	<b>North-South:</b>		888
		<b>East-West:</b>		269	<b>East-West:</b>		408
		<b>SUM:</b>		1079	<b>SUM:</b>		1296
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.719			0.864
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.649</b>			<b>0.794</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>B</b>			<b>C</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**12**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 220th Street  
**Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	30	1	30	31	1	31
	↵↵ Left-Through		0			0	
	↵↵ Through	986	1	560	578	1	313
	↵↵ Through-Right		1			1	
	↵↵ Right	134	0	134	47	0	47
	↵↵↵ Left-Through-Right ↵↵↵ Left-Right		0 0			0 0	
<b>SOUTHBOUND</b>	↵↵↵ Left	106	1	106	92	1	92
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	449	1	239	889	1	465
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	29	0	29	41	0	41
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		0 0			0 0	
<b>EASTBOUND</b>	↵↵ Left	37	0	37	23	0	23
	↵↵ Left-Through		1			1	
	↵↵ Through	128	0	165	75	0	98
	↵↵ Through-Right		0			0	
	↵↵↵ Right	51	1	36	59	1	44
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		0 0			0 0	
<b>WESTBOUND</b>	↵↵ Left	52	0	52	50	0	50
	↵↵ Left-Through		1			1	
	↵↵ Through	89	0	141	58	0	108
	↵↵ Through-Right		0			0	
	↵↵↵ Right	118	1	65	125	1	79
	↵↵↵↵ Left-Through-Right ↵↵↵↵ Left-Right		0 0			0 0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	666		<i>North-South:</i>	496
			<i>East-West:</i>	217		<i>East-West:</i>	148
			<i>SUM:</i>	883		<i>SUM:</i>	644
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.589			0.429
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.519</b>			<b>0.359</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>A</b>			<b>A</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**16**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street  
**Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>No. of Phases</b>				3			3
<b>Opposed Ø'ing: N/S-1, E/W-2 or Both-3?</b>				0			0
<b>Right Turns: FREE-1, NRTOR-2 or OLA-3?</b>		<b>NB--</b> 0	<b>SB--</b> 0	0	<b>NB--</b> 0	<b>SB--</b> 0	0
<b>ATSAC-1 or ATSAC+ATCS-2?</b>		<b>EB--</b> 0	<b>WB--</b> 0	0	<b>EB--</b> 0	<b>WB--</b> 0	0
<b>Override Capacity</b>				1			1
<b>Override Capacity</b>				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵	214	1	214	112	1	112
	↵↵		0			0	
	↵↵↵	1426	2	713	983	2	492
	↵↵↵↵		0			0	
	↵↵↵↵↵	193	1	55	190	1	143
	↵↵↵↵↵↵		0			0	
<b>SOUTHBOUND</b>	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵	83	1	83	228	1	228
	↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵	1011	2	506	1528	2	764
	↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵	61	1	35	47	1	16
<b>EASTBOUND</b>	↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵	53	1	53	62	1	62
	↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵	437	2	219	1045	2	523
	↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵	127	1	20	214	1	158
<b>WESTBOUND</b>	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵	277	1	277	94	1	94
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		0			0	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	963	1	584	669	1	385
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵		1			1	
	↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵↵	204	0	204	101	0	101
<b>CRITICAL VOLUMES</b>				796			876
<b>CRITICAL VOLUMES</b>				637			617
<b>CRITICAL VOLUMES</b>				1433			1493
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.006			1.048
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.936</b>			<b>0.978</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>E</b>			<b>E</b>

# Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**17**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Normandie Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** 223rd Street  
**Analyst:** <Fehr & Peers> **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				2			2
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	↵ Left	138	1	138	71	1	71
	↵↵ Left-Through		0			0	
	↵↵ Through	914	2	457	476	2	238
	↵↵ Through-Right		0			0	
	↵↵ Right	129	1	62	143	1	85
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>SOUTHBOUND</b>	↵↵↵ Left	59	1	59	105	1	105
	↵↵↵ Left-Through		0			0	
	↵↵↵ Through	420	1	247	792	1	441
	↵↵↵ Through-Right		1			1	
	↵↵↵ Right	73	0	73	90	0	90
	↵↵↵ Left-Through-Right		0			0	
	↵↵↵ Left-Right		0			0	
<b>EASTBOUND</b>	↵ Left	99	1	99	83	1	83
	↵ Left-Through		0			0	
	↵ Through	683	1	378	1288	1	703
	↵ Through-Right		1			1	
	↵ Right	72	0	72	118	0	118
	↵↵ Left-Through-Right		0			0	
	↵↵ Left-Right		0			0	
<b>WESTBOUND</b>	↵ Left	135	1	135	116	1	116
	↵ Left-Through		0			0	
	↵ Through	1151	2	576	801	2	401
	↵ Through-Right		0			0	
	↵ Right	114	1	85	106	1	54
	↵↵ Left-Through-Right		0			0	
	↵↵ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>			<i>North-South:</i>	516		<i>North-South:</i>	512
			<i>East-West:</i>	675		<i>East-West:</i>	819
			<i>SUM:</i>	1191		<i>SUM:</i>	1331
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				0.794			0.887
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>0.724</b>			<b>0.817</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>C</b>			<b>D</b>

## Level of Service Worksheet (Circular 212 Method)



**I/S #:**  
**22**

**PROJECT TITLE:** <Project Name>  
**North-South Street:** Western Avenue  
**Scenario:** Cumulative plus 2030 Project  
**Count Date:** 1/0/1900

**East-West Street:** Sepulveda Blvd

**Analyst:** <Fehr & Peers>      **Date:** <date>

		AM			PM		
		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
No. of Phases				4			4
Opposed Ø'ing: N/S-1, E/W-2 or Both-3?				0			0
Right Turns: FREE-1, NRTOR-2 or OLA-3?		NB-- 0	SB-- 0	0	NB-- 0	SB-- 0	0
ATSAC-1 or ATSAC+ATCS-2?		EB-- 0	WB-- 0	0	EB-- 0	WB-- 0	0
Override Capacity				1			1
Override Capacity				0			0
MOVEMENT		Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
<b>NORTHBOUND</b>	← Left	156	1	156	204	1	204
	← Left-Through		0			0	
	→ Through	1102	2	551	909	2	455
	→ Through-Right		0			0	
	→ Right	334	1	163	361	1	188
	↙ Left-Through-Right		0			0	
	↘ Left-Right		0			0	
<b>SOUTHBOUND</b>	← Left	90	1	90	197	1	197
	← Left-Through		0			0	
	→ Through	985	2	493	1089	2	545
	→ Through-Right		0			0	
	→ Right	302	1	172	155	1	35
	↙ Left-Through-Right		0			0	
	↘ Left-Right		0			0	
<b>EASTBOUND</b>	← Left	260	1	260	240	1	240
	← Left-Through		0			0	
	→ Through	1418	2	500	1504	2	546
	→ Through-Right		1			1	
	→ Right	81	0	81	135	0	135
	↙ Left-Through-Right		0			0	
	↘ Left-Right		0			0	
<b>WESTBOUND</b>	← Left	342	1	342	347	1	347
	← Left-Through		0			0	
	→ Through	1800	2	637	1551	2	570
	→ Through-Right		1			1	
	→ Right	111	0	111	158	0	158
	↙ Left-Through-Right		0			0	
	↘ Left-Right		0			0	
<b>CRITICAL VOLUMES</b>		<i>North-South:</i>		649	<i>North-South:</i>		749
		<i>East-West:</i>		897	<i>East-West:</i>		893
		<i>SUM:</i>		1546	<i>SUM:</i>		1642
<b>VOLUME/CAPACITY (V/C) RATIO:</b>				1.124			1.194
<b>V/C LESS ATSAC/ATCS ADJUSTMENT:</b>				<b>1.054</b>			<b>1.124</b>
<b>LEVEL OF SERVICE (LOS):</b>				<b>F</b>			<b>F</b>

**EXISTING PLUS 2030 PROJECT PLUS MITIGATION**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing Plus 2030 Project Plus Mitigation

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.66	650	2,660	0.244 *	N-S(1):	0.244 *
	TH	0.00	0	0	0.000	N-S(2):	0.244 *
	LT	0.34	132	540	0.244 *	E-W(1):	0.369
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.401 *
	TH	2.00	1,282	3,200	0.401 *	V/C:	0.645
	LT	1.00	174	1,600	0.109	Lost Time:	0.100
Northbound	RT	0.00	0	0	0.000	ITS:	0.000
	TH	0.00	0	0	0.000 *	ICU:	0.745
	LT	0.00	0	0	0.000 *	LOS:	C
Eastbound	RT	0.00	137	0	0.000		
	TH	3.00	1,113	4,800	0.260		
	LT	0.00	0	0	0.000 *		

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS	
Southbound	RT	1.25	435	1,994	0.218 *	N-S(1):	0.218 *
	TH	0.00	0	0	0.000	N-S(2):	0.218 *
	LT	0.75	263	1,206	0.218 *	E-W(1):	0.544 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.315
	TH	2.00	1,007	3,200	0.315	V/C:	0.762
	LT	1.00	178	1,600	0.111 *	Lost Time:	0.100
Northbound	RT	0.00	0	0	0.000	ITS:	0.000
	TH	0.00	0	0	0.000 *	ICU:	0.862
	LT	0.00	0	0	0.000 *	LOS:	D
Eastbound	RT	0.00	290	0	0.000		
	TH	3.00	1,790	4,800	0.433 *		
	LT	0.00	0	0	0.000		

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Existing Plus 2030 Project Plus Mitigation

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.56	406	2,495	0.084	N-S(1): 0.239
	TH	1.44	375	2,305	0.163 *	N-S(2): 0.465 *
	LT	1.00	128	1,600	0.080	E-W(1): 0.342 *
Westbound	RT	1.00	89	1,600	0.016	E-W(2): 0.000
	TH	1.00	207	1,600	0.184 *	V/C: 0.807
	LT	0.00	87	1,600	0.054	Lost Time: 0.100
Northbound	RT	0.00	145	0	0.000	ITS: 0.000
	TH	3.00	618	4,800	0.159	ICU: 0.907
	LT	1.00	483	1,600	0.302 *	LOS: E
Eastbound	RT	0.00	80	0	0.000	
	TH	1.00	37	1,600	0.073	
	LT	1.00	252	1,600	0.158 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.57	606	2,518	0.163	N-S(1): 0.120
	TH	1.43	549	2,282	0.241 *	N-S(2): 0.526 *
	LT	1.00	75	1,600	0.047	E-W(1): 0.255 *
Westbound	RT	1.00	52	1,600	0.009	E-W(2): 0.000
	TH	1.00	104	1,600	0.100 *	V/C: 0.781
	LT	0.00	56	1,600	0.035	Lost Time: 0.100
Northbound	RT	0.00	50	0	0.000	ITS: 0.000
	TH	3.00	298	4,800	0.073	ICU: 0.881
	LT	1.00	456	1,600	0.285 *	LOS: D
Eastbound	RT	0.00	114	0	0.000	
	TH	1.00	95	1,600	0.131	
	LT	1.00	248	1,600	0.155 *	

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing Plus 2030 Project Plus Mitigation

Thru Lane: 1600 vph  
 Left Lane: 1600 vph  
 Double Lt Penalty: 20 %  
 ITS: 0 %

N-S Split Phase : N  
 E-W Split Phase : N  
 Lost Time (% of cycle) : 10  
 V/C Round Off (decs.) : 3

OLA Movements :  
 FF Movements:

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.27	533	2,035	0.262	N-S(1): 0.190
	TH	0.73	1	1,165	0.262 *	N-S(2): 0.262 *
	LT	0.00	304	1,600	0.190	E-W(1): 0.304
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.351 *
	TH	2.00	1,122	3,200	0.351 *	V/C: 0.613
	LT	1.00	172	1,600	0.108	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	125	0	0.000	ICU: 0.713
	TH	3.00	817	4,800	0.196	
	LT	0.00	0	0	0.000 *	LOS: C

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	406	1,600	0.254	N-S(1): 0.266
	TH	1.00	2	1,600	0.268 *	N-S(2): 0.268 *
	LT	0.00	426	1,600	0.266	E-W(1): 0.411 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.240
	TH	2.00	767	3,200	0.240	V/C: 0.679
	LT	1.00	120	1,600	0.075 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	231	0	0.000	ICU: 0.779
	TH	3.00	1,383	4,800	0.336 *	
	LT	0.00	0	0	0.000	LOS: C

\* - Denotes critical movement

**EXISTING PLUS 2030 PROJECT PLUS CUMULATIVE PLUS MITIGATION**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 9 - I-110 SB Ramps & Carson Street  
**Description:** Existing Plus 2030 Project Plus Cumulative Plus Mitigation

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.65	656	2,634	0.249 *	N-S(1): 0.249 *
	TH	0.00	0	0	0.000	N-S(2): 0.249 *
	LT	0.35	141	566	0.249 *	E-W(1): 0.390
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.431 *
	TH	2.00	1,378	3,200	0.431 *	V/C: 0.680
	LT	1.00	174	1,600	0.109	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	137	0	0.000	ICU: 0.780
	TH	3.00	1,213	4,800	0.281	
	LT	0.00	0	0	0.000 *	LOS: C

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.26	457	2,017	0.227 *	N-S(1): 0.227 *
	TH	0.00	0	0	0.000	N-S(2): 0.227 *
	LT	0.74	268	1,183	0.227 *	E-W(1): 0.588 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.375
	TH	2.00	1,200	3,200	0.375	V/C: 0.815
	LT	1.00	178	1,600	0.111 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000 *	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	290	0	0.000	ICU: 0.915
	TH	3.00	1,998	4,800	0.477 *	
	LT	0.00	0	0	0.000	LOS: E

\* - Denotes critical movement

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 20 - I-110 SB Ramps & 223rd Street  
**Description:** Existing Plus 2030 Project Plus Cumulative Plus Mitigation

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.26	535	2,024	0.264	N-S(1): 0.194
	TH	0.74	1	1,176	0.264 *	N-S(2): 0.264 *
	LT	0.00	310	1,600	0.194	E-W(1): 0.311
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.355 *
	TH	2.00	1,136	3,200	0.355 *	V/C: 0.619
	LT	1.00	174	1,600	0.109	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	126	0	0.000	ICU: 0.719
	TH	3.00	843	4,800	0.202	
	LT	0.00	0	0	0.000 *	LOS: C

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.00	414	1,600	0.259	N-S(1): 0.274
	TH	1.00	2	1,600	0.275 *	N-S(2): 0.275 *
	LT	0.00	438	1,600	0.274	E-W(1): 0.422 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.251
	TH	2.00	803	3,200	0.251	V/C: 0.697
	LT	1.00	124	1,600	0.078 *	Lost Time: 0.100
Northbound	RT	0.00	0	0	0.000	ITS: 0.000
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	
Eastbound	RT	0.00	232	0	0.000	ICU: 0.797
	TH	3.00	1,417	4,800	0.344 *	
	LT	0.00	0	0	0.000	LOS: C

\* - Denotes critical movement

**CUMULATIVE PLUS 2030 PROJECT PLUS MITIGATION**

**Project Title:** Harbor-UCLA Medical Center  
**Intersection:** 15 - Figueroa Street & 220th Street/I-110 NB Ramps  
**Description:** Cumulative Plus 2030 Project With Mitigation

Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	Y
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3
OLA Movements :			
FF Movements:			

**Date/Time:** AM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.53	459	2,443	0.100	N-S(1): 0.275
	TH	1.47	443	2,357	0.188 *	N-S(2): 0.534 *
	LT	1.00	144	1,600	0.090	E-W(1): 0.383 *
Westbound	RT	1.00	100	1,600	0.018	E-W(2): 0.000
	TH	1.00	233	1,600	0.207 *	V/C: 0.917
	LT	0.00	98	1,600	0.061	Lost Time: 0.100
Northbound	RT	0.00	163	0	0.000	ITS: 0.000
	TH	3.00	727	4,800	0.185	ICU: 1.017
	LT	1.00	553	1,600	0.346 *	LOS: F
Eastbound	RT	0.00	88	0	0.000	
	TH	1.00	42	1,600	0.081	
	LT	1.00	281	1,600	0.176 *	

**Date/Time:** PM PEAK HOUR

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	1.50	683	2,404	0.197	N-S(1): 0.147
	TH	1.50	681	2,396	0.284 *	N-S(2): 0.611 *
	LT	1.00	84	1,600	0.053	E-W(1): 0.287 *
Westbound	RT	1.00	58	1,600	0.010	E-W(2): 0.000
	TH	1.00	117	1,600	0.113 *	V/C: 0.898
	LT	0.00	63	1,600	0.039	Lost Time: 0.100
Northbound	RT	0.00	56	0	0.000	ITS: 0.000
	TH	3.00	393	4,800	0.094	ICU: 0.998
	LT	1.00	523	1,600	0.327 *	LOS: E
Eastbound	RT	0.00	132	0	0.000	
	TH	1.00	107	1,600	0.149	
	LT	1.00	278	1,600	0.174 *	

\* - Denotes critical movement

## **APPENDIX D: QUEUING ANALYSIS**

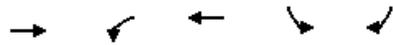
## **OFF RAMP QUEUEING ANALYSIS**

**EXISTING - AM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1309	189	1316	143	585
v/c Ratio	0.72	0.73	0.68	0.22	0.96
Control Delay	32.8	61.3	20.2	26.3	60.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	61.3	20.2	26.3	60.2
Queue Length 50th (ft)	288	129	336	70	374
Queue Length 95th (ft)	357	207	412	124	#634
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	1829	320	2054	642	610
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.72	0.59	0.64	0.22	0.96

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

# Queues

## 15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	293	51	320	97	514	826	139	398	412
v/c Ratio	4.97	0.11	1.27	0.25	1.03	0.67	0.82	0.67	0.72
Control Delay	1826.0	0.5	188.7	4.0	91.1	33.9	86.8	51.2	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1826.0	0.5	188.7	4.0	91.1	33.9	86.8	51.2	15.1
Queue Length 50th (ft)	~385	0	~311	0	~427	267	105	148	30
Queue Length 95th (ft)	#566	0	#496	19	#644	338	#213	203	140
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	59	453	252	384	497	1287	179	670	597
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	4.97	0.11	1.27	0.25	1.03	0.64	0.78	0.59	0.69

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016

	→	↘	↙	←	↓
Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	865	130	187	1136	849
v/c Ratio	0.49	0.15	0.49	0.51	0.95dr
Control Delay	21.4	3.8	14.3	13.4	41.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	3.8	14.3	13.4	41.2
Queue Length 50th (ft)	216	0	54	229	276
Queue Length 95th (ft)	320	36	99	322	355
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1764	854	510	2216	1194
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.15	0.37	0.51	0.71

### Intersection Summary

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

55: I-405 SB On/Off Ramp & Carson St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	626	629	101	1448	35	150
v/c Ratio	0.32	0.54	0.45	0.40	0.14	0.43
Control Delay	10.1	3.0	35.4	4.5	29.2	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.1	3.0	35.4	4.5	29.2	9.9
Queue Length 50th (ft)	76	0	42	75	14	0
Queue Length 95th (ft)	121	48	85	94	40	49
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	1969	1159	450	4078	613	647
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.54	0.22	0.36	0.06	0.23

Intersection Summary

# Queues

## 56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	83	685	2	888	253	2	21	668
v/c Ratio	0.29	0.21	0.00	0.37	0.22	0.01	0.06	0.42
Control Delay	24.2	1.2	7.0	6.8	1.9	21.0	20.9	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.2	1.2	7.0	6.8	1.9	21.0	20.9	0.8
Queue Length 50th (ft)	19	0	0	52	0	0	4	0
Queue Length 95th (ft)	71	63	4	176	33	6	27	0
Internal Link Dist (ft)		1703		1175		880	1493	
Turn Bay Length (ft)	70		90		180			650
Base Capacity (vph)	606	3408	532	2586	1225	869	869	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.20	0.00	0.34	0.21	0.00	0.02	0.42

### Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1200	601	608	41	635
v/c Ratio	0.70	0.67	0.42	0.16	0.43
Control Delay	25.9	18.4	24.9	23.9	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	18.4	24.9	23.9	26.0
Queue Length 50th (ft)	357	223	166	19	180
Queue Length 95th (ft)	436	358	216	46	232
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1713	895	1458	261	1477
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.70	0.67	0.42	0.16	0.43

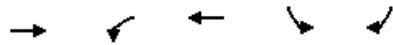
### Intersection Summary

**EXISTING - PM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2023	193	1070	286	435
v/c Ratio	0.97	0.70	0.49	0.57	0.85
Control Delay	43.8	54.8	12.7	34.7	43.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.8	54.8	12.7	34.7	43.0
Queue Length 50th (ft)	450	116	184	152	209
Queue Length 95th (ft)	#732	211	305	243	346
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	2086	367	2352	735	708
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.97	0.53	0.45	0.39	0.61

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	366	112	174	57	441	366	82	592	516
v/c Ratio	6.54	0.24	0.85	0.16	0.94	0.26	0.57	0.86	0.93
Control Delay	2547.9	4.5	81.7	1.0	70.4	24.0	67.2	59.1	44.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2547.9	4.5	81.7	1.0	70.4	24.0	67.2	59.1	44.0
Queue Length 50th (ft)	~512	0	129	0	325	95	61	235	176
Queue Length 95th (ft)	#707	29	#238	0	#518	138	114	#338	#400
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	56	463	241	392	513	1389	184	691	556
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	6.54	0.24	0.72	0.15	0.86	0.26	0.45	0.86	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016

	→	↘	↙	←	↓
Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	1397	222	130	807	887
v/c Ratio	0.77	0.25	0.57	0.36	0.83
Control Delay	27.0	7.8	25.2	10.9	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	7.8	25.2	10.9	36.5
Queue Length 50th (ft)	400	29	34	134	254
Queue Length 95th (ft)	621	89	103	206	332
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1820	881	395	2249	1291
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.77	0.25	0.33	0.36	0.69
<b>Intersection Summary</b>					

Queues

55: I-405 SB On/Off Ramp & Carson St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1038	893	88	1228	25	93
v/c Ratio	0.48	0.70	0.39	0.31	0.10	0.30
Control Delay	11.3	5.4	34.0	3.6	28.2	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	5.4	34.0	3.6	28.2	10.0
Queue Length 50th (ft)	146	22	36	59	10	0
Queue Length 95th (ft)	218	123	76	76	31	38
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	2179	1276	476	4307	648	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.70	0.18	0.29	0.04	0.15

Intersection Summary

Queues

56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	120	1008	2	804	353	5	3	25	514
v/c Ratio	0.40	0.32	0.01	0.37	0.32	0.02	0.01	0.07	0.32
Control Delay	26.8	2.6	9.5	9.1	2.3	24.2	0.0	23.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	2.6	9.5	9.1	2.3	24.2	0.0	23.7	0.5
Queue Length 50th (ft)	23	0	0	46	0	1	0	4	0
Queue Length 95th (ft)	95	101	4	167	40	11	0	31	0
Internal Link Dist (ft)		1703		1175		880		1493	
Turn Bay Length (ft)	70		90		180		10		650
Base Capacity (vph)	599	3324	392	2623	1265	735	774	858	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.30	0.01	0.31	0.28	0.01	0.00	0.03	0.32

Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1122	349	630	84	1038
v/c Ratio	0.67	0.37	0.42	0.32	0.68
Control Delay	25.3	3.7	19.6	27.8	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	3.7	19.6	27.8	30.5
Queue Length 50th (ft)	322	10	141	43	343
Queue Length 95th (ft)	396	59	191	88	421
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1761	968	1506	262	1518
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.36	0.42	0.32	0.68

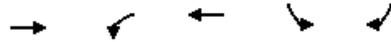
### Intersection Summary

**CUMULATIVE - AM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1581	212	1583	171	663
v/c Ratio	0.86	0.78	0.81	0.27	1.10
Control Delay	38.8	65.4	24.2	27.8	101.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	65.4	24.2	27.8	101.3
Queue Length 50th (ft)	387	149	461	90	~533
Queue Length 95th (ft)	461	#233	560	146	#764
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	1839	315	2017	631	600
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.67	0.78	0.27	1.10

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues

15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	331	60	360	109	590	964	157	472	470
v/c Ratio	5.71	0.13	1.47	0.29	1.20	0.77	0.90	0.74	0.82
Control Delay	2147.5	0.6	268.5	5.5	147.2	37.7	99.5	53.8	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2147.5	0.6	268.5	5.5	147.2	37.7	99.5	53.8	25.0
Queue Length 50th (ft)	~449	0	~381	0	~553	332	121	181	85
Queue Length 95th (ft)	#636	0	#571	30	#775	414	#248	241	#257
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	58	449	245	381	491	1270	176	662	582
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	5.71	0.13	1.47	0.29	1.20	0.76	0.89	0.71	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	1000	148	212	1291	964
v/c Ratio	0.61	0.18	0.63	0.60	1.03dr
Control Delay	27.0	5.8	20.4	16.4	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.0	5.8	20.4	16.4	47.3
Queue Length 50th (ft)	300	8	72	319	346
Queue Length 95th (ft)	417	51	118	388	#438
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1634	800	441	2138	1140
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.61	0.18	0.48	0.60	0.85

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

55: I-405 SB On/Off Ramp & Carson St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	715	713	113	1651	39	168
v/c Ratio	0.37	0.60	0.48	0.45	0.16	0.46
Control Delay	10.8	3.4	36.2	4.8	29.7	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	3.4	36.2	4.8	29.7	9.9
Queue Length 50th (ft)	92	0	47	90	15	0
Queue Length 95th (ft)	145	52	94	115	43	51
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	1957	1194	448	4051	609	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.60	0.25	0.41	0.06	0.26

Intersection Summary

Queues

56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	92	783	2	1015	285	2	24	759
v/c Ratio	0.34	0.25	0.00	0.44	0.25	0.01	0.07	0.48
Control Delay	28.0	2.3	9.0	9.0	2.4	25.0	24.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.3	9.0	9.0	2.4	25.0	24.4	1.0
Queue Length 50th (ft)	20	0	0	63	1	0	5	0
Queue Length 95th (ft)	77	73	4	213	39	7	29	0
Internal Link Dist (ft)		1703		1175		880	1493	
Turn Bay Length (ft)	70		90		180			650
Base Capacity (vph)	570	3293	457	2447	1178	816	816	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.24	0.00	0.41	0.24	0.00	0.03	0.48

Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1359	675	682	47	713
v/c Ratio	0.79	0.77	0.47	0.21	0.48
Control Delay	29.2	25.0	25.9	25.4	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.2	25.0	25.9	25.4	26.9
Queue Length 50th (ft)	435	319	192	23	208
Queue Length 95th (ft)	529	490	247	53	265
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1713	875	1457	228	1477
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.79	0.77	0.47	0.21	0.48

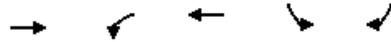
### Intersection Summary

**CUMULATIVE - PM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2497	217	1411	326	512
v/c Ratio	1.31	0.77	0.69	0.56	0.91
Control Delay	173.9	62.5	19.0	33.6	53.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	173.9	62.5	19.0	33.6	53.2
Queue Length 50th (ft)	~895	151	377	187	310
Queue Length 95th (ft)	#1000	#249	460	280	#511
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	1904	334	2142	670	634
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.31	0.65	0.66	0.49	0.81

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues

15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	412	132	195	63	514	476	91	736	600
v/c Ratio	7.63	0.29	0.92	0.17	1.04	0.36	0.63	1.11	1.13
Control Delay	3054.6	7.3	92.2	1.0	94.8	26.6	71.2	113.3	104.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3054.6	7.3	92.2	1.0	94.8	26.6	71.2	113.3	104.0
Queue Length 50th (ft)	~588	0	148	0	~432	133	68	~342	~345
Queue Length 95th (ft)	#789	45	#282	0	#644	182	123	#466	#572
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	54	450	226	381	492	1340	177	663	530
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	7.63	0.29	0.86	0.17	1.04	0.36	0.51	1.11	1.13

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	1607	250	151	946	1019
v/c Ratio	0.95	0.30	0.67	0.44	0.89
Control Delay	43.2	10.2	37.1	13.8	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	10.2	37.1	13.8	43.7
Queue Length 50th (ft)	609	49	62	202	342
Queue Length 95th (ft)	#863	115	131	251	436
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1694	828	368	2136	1202
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.95	0.30	0.41	0.44	0.85

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

# Queues

## 55: I-405 SB On/Off Ramp & Carson St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1187	1016	99	1405	28	105
v/c Ratio	0.55	0.80	0.42	0.36	0.11	0.33
Control Delay	12.5	9.9	34.6	3.8	28.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	9.9	34.6	3.8	28.7	10.0
Queue Length 50th (ft)	180	53	41	71	11	0
Queue Length 95th (ft)	269	#435	84	90	34	41
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	2171	1273	474	4289	645	644
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.80	0.21	0.33	0.04	0.16

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	135	1154	2	918	397	5	3	28	588
v/c Ratio	0.44	0.37	0.01	0.42	0.35	0.02	0.01	0.08	0.37
Control Delay	28.0	2.6	10.0	9.6	2.4	25.4	0.0	25.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.6	10.0	9.6	2.4	25.4	0.0	25.0	0.7
Queue Length 50th (ft)	27	0	0	56	0	1	0	5	0
Queue Length 95th (ft)	105	121	4	202	42	11	0	33	0
Internal Link Dist (ft)		1703		1175		880		1493	
Turn Bay Length (ft)	70		90		180		10		650
Base Capacity (vph)	594	3256	324	2510	1238	745	768	851	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.35	0.01	0.37	0.32	0.01	0.00	0.03	0.37

Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1276	392	708	95	1166
v/c Ratio	0.75	0.42	0.48	0.43	0.79
Control Delay	27.5	6.9	21.6	32.5	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	6.9	21.6	32.5	34.8
Queue Length 50th (ft)	393	48	168	52	406
Queue Length 95th (ft)	479	116	223	107	495
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1721	930	1475	220	1484
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.42	0.48	0.43	0.79

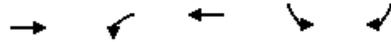
### Intersection Summary

**CUMULATIVE PLUS PROJECT- AM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	1629	212	1660	171	785
v/c Ratio	0.88	0.78	0.84	0.27	1.31
Control Delay	39.9	65.7	25.9	27.9	183.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	65.7	25.9	27.9	183.4
Queue Length 50th (ft)	405	149	502	90	~723
Queue Length 95th (ft)	#510	#233	612	146	#964
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	1856	313	2004	627	597
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	0.68	0.83	0.27	1.31

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

Queues

15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	351	96	360	109	601	967	157	482	499
v/c Ratio	6.05	0.21	1.48	0.29	1.23	0.77	0.90	0.76	0.85
Control Delay	2300.6	3.0	274.0	5.5	156.1	37.7	99.5	54.4	28.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2300.6	3.0	274.0	5.5	156.1	37.7	99.5	54.4	28.0
Queue Length 50th (ft)	~481	0	~383	0	~571	334	121	185	101
Queue Length 95th (ft)	#673	16	#573	30	#794	415	#248	246	#291
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	58	449	243	381	490	1272	176	662	593
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	6.05	0.21	1.48	0.29	1.23	0.76	0.89	0.73	0.84

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	1023	153	212	1375	1025
v/c Ratio	0.64	0.19	0.65	0.65	1.12dr
Control Delay	28.5	6.1	22.6	17.9	52.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	6.1	22.6	17.9	52.7
Queue Length 50th (ft)	312	10	72	353	385
Queue Length 95th (ft)	433	54	129	427	#521
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1597	785	425	2107	1113
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.64	0.19	0.50	0.65	0.92

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues

55: I-405 SB On/Off Ramp & Carson St

5/5/2016



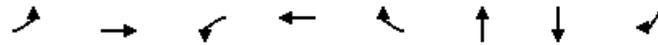
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	717	720	113	1685	39	168
v/c Ratio	0.37	0.60	0.48	0.46	0.16	0.46
Control Delay	10.8	3.4	36.2	4.9	29.7	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	3.4	36.2	4.9	29.7	9.9
Queue Length 50th (ft)	92	0	47	93	15	0
Queue Length 95th (ft)	146	52	94	119	43	51
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	1957	1197	448	4051	609	655
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.60	0.25	0.42	0.06	0.26

Intersection Summary

Queues

56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	92	785	2	1021	285	2	24	787
v/c Ratio	0.34	0.25	0.00	0.44	0.25	0.01	0.07	0.50
Control Delay	28.0	2.3	9.0	9.1	2.4	25.0	24.5	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	2.3	9.0	9.1	2.4	25.0	24.5	1.1
Queue Length 50th (ft)	20	0	0	63	1	0	5	0
Queue Length 95th (ft)	77	74	4	215	39	7	29	0
Internal Link Dist (ft)		1703		1175		880	1493	
Turn Bay Length (ft)	70		90		180			650
Base Capacity (vph)	569	3293	457	2445	1176	816	816	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.24	0.00	0.42	0.24	0.00	0.03	0.50

Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1387	675	682	47	713
v/c Ratio	0.81	0.77	0.47	0.21	0.48
Control Delay	30.0	25.0	25.9	25.4	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	25.0	25.9	25.4	26.9
Queue Length 50th (ft)	451	319	192	23	208
Queue Length 95th (ft)	548	490	247	53	265
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1713	875	1457	228	1477
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	0.77	0.47	0.21	0.48

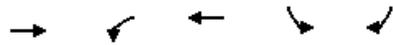
### Intersection Summary

**CUMULATIVE PLUS PROJECT- PM**

# Queues

## 9: I-110 SB On Ramp/I-110 SB Off Ramp & Carson St

5/5/2016



Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2736	217	1436	326	550
v/c Ratio	1.47	0.78	0.72	0.53	0.94
Control Delay	245.3	64.1	20.5	32.9	57.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	245.3	64.1	20.5	32.9	57.9
Queue Length 50th (ft)	~1032	152	388	189	353
Queue Length 95th (ft)	#1134	#249	473	280	#575
Internal Link Dist (ft)	1597		1799		
Turn Bay Length (ft)		150		380	
Base Capacity (vph)	1855	325	2080	650	617
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.47	0.67	0.69	0.50	0.89

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# Queues

## 15: Figueroa St & I-110 NB On/Off Ramp/220th St

5/5/2016



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	418	143	195	63	568	488	91	740	742
v/c Ratio	7.74	0.32	0.92	0.17	1.15	0.36	0.63	1.12	1.27
Control Delay	3104.8	8.3	92.9	1.0	129.8	26.8	71.2	115.5	156.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3104.8	8.3	92.9	1.0	129.8	26.8	71.2	115.5	156.4
Queue Length 50th (ft)	~597	0	148	0	~518	137	68	~345	~487
Queue Length 95th (ft)	#801	53	#283	0	#738	187	123	#469	#726
Internal Link Dist (ft)	960		1640			2105		1965	
Turn Bay Length (ft)				120	290		110		100
Base Capacity (vph)	54	452	225	381	492	1340	177	663	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	7.74	0.32	0.87	0.17	1.15	0.36	0.51	1.12	1.27

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# Queues

## 20: I-110 SB On Ramp/I-110 SB Off Ramp & 223rd St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	SBT
Lane Group Flow (vph)	1713	279	151	973	1038
v/c Ratio	1.02	0.34	0.68	0.46	0.91
Control Delay	58.0	11.2	37.3	14.1	45.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	11.2	37.3	14.1	45.5
Queue Length 50th (ft)	~703	60	62	210	357
Queue Length 95th (ft)	#953	134	131	260	#480
Internal Link Dist (ft)	2332			2520	1384
Turn Bay Length (ft)		210	190		
Base Capacity (vph)	1684	827	366	2125	1190
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.02	0.34	0.41	0.46	0.87

### Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

# Queues

## 55: I-405 SB On/Off Ramp & Carson St

5/5/2016



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1193	1047	99	1416	28	105
v/c Ratio	0.55	0.82	0.42	0.36	0.11	0.33
Control Delay	12.5	10.8	34.6	3.8	28.7	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	10.8	34.6	3.8	28.7	10.0
Queue Length 50th (ft)	181	55	41	72	11	0
Queue Length 95th (ft)	271	#458	84	91	34	41
Internal Link Dist (ft)	1292			1703	816	
Turn Bay Length (ft)		170	50			
Base Capacity (vph)	2171	1281	474	4289	645	644
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.82	0.21	0.33	0.04	0.16

### Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Queues

56: Carson Street & I-405 NB On/Off Ramp

5/5/2016



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	135	1160	2	921	397	5	3	28	597
v/c Ratio	0.44	0.37	0.01	0.42	0.35	0.02	0.01	0.08	0.38
Control Delay	28.1	2.6	10.0	9.6	2.4	25.4	0.0	25.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	2.6	10.0	9.6	2.4	25.4	0.0	25.0	0.7
Queue Length 50th (ft)	27	0	0	56	0	1	0	5	0
Queue Length 95th (ft)	105	122	4	203	42	11	0	33	0
Internal Link Dist (ft)		1703		1175		880		1493	
Turn Bay Length (ft)	70		90		180		10		650
Base Capacity (vph)	594	3256	322	2509	1237	744	768	851	1583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.36	0.01	0.37	0.32	0.01	0.00	0.03	0.38

Intersection Summary

# Queues

## 71: Wilmington Ave & 405 NB on/off Ramp

5/5/2016



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	1285	392	708	95	1166
v/c Ratio	0.75	0.42	0.48	0.43	0.79
Control Delay	27.6	6.9	21.7	32.7	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.6	6.9	21.7	32.7	35.0
Queue Length 50th (ft)	397	48	168	52	406
Queue Length 95th (ft)	484	116	223	107	495
Internal Link Dist (ft)	2167		1154		936
Turn Bay Length (ft)		470		110	
Base Capacity (vph)	1717	929	1472	219	1481
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	0.42	0.48	0.43	0.79

### Intersection Summary

## **NEW DRIVEWAY TURN POCKET QUEUEING ANALYSIS**

**EXISTING PLUS PROJECT - AM**

Queues

3:

6/1/2016

								
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1149	237	1566	41	133	33	38
v/c Ratio	0.22	0.64	0.47	0.59	0.15	0.33	0.13	0.12
Control Delay	20.9	23.5	11.6	7.8	43.0	9.4	42.7	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	23.5	11.6	7.8	43.0	9.4	42.7	16.7
Queue Length 50th (ft)	14	328	46	245	27	0	22	3
Queue Length 95th (ft)	38	402	119	297	61	54	52	34
Internal Link Dist (ft)		937		1073	625			513
Turn Bay Length (ft)	150		150			70	50	
Base Capacity (vph)	153	1792	504	2648	266	398	249	324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.64	0.47	0.59	0.15	0.33	0.13	0.12
<b>Intersection Summary</b>								

**EXISTING PLUS PROJECT - PM**

Queues

3:

6/1/2016

								
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1584	107	1376	59	155	33	38
v/c Ratio	0.14	0.71	0.38	0.51	0.26	0.39	0.15	0.13
Control Delay	10.8	16.8	9.6	6.1	47.0	9.9	44.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	16.8	9.6	6.1	47.0	9.9	44.8	17.5
Queue Length 50th (ft)	10	398	17	180	40	0	22	3
Queue Length 95th (ft)	26	481	45	218	82	59	53	35
Internal Link Dist (ft)		937		1073	625			513
Turn Bay Length (ft)	150		150			70	50	
Base Capacity (vph)	232	2237	281	2703	230	393	223	297
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.71	0.38	0.51	0.26	0.39	0.15	0.13
<b>Intersection Summary</b>								

**CUMULATIVE PLUS PROJECT- AM**

Queues

3:

6/1/2016

								
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1199	237	1620	36	133	33	33
v/c Ratio	0.23	0.67	0.48	0.61	0.14	0.33	0.13	0.10
Control Delay	21.6	24.2	14.0	8.1	42.9	9.4	42.7	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	24.2	14.0	8.1	42.9	9.4	42.7	2.4
Queue Length 50th (ft)	14	351	52	262	24	0	22	0
Queue Length 95th (ft)	39	428	133	316	55	54	52	8
Internal Link Dist (ft)		937		1073	625			513
Turn Bay Length (ft)	150		150			70	50	
Base Capacity (vph)	144	1792	490	2648	251	398	250	343
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.67	0.48	0.61	0.14	0.33	0.13	0.10
<b>Intersection Summary</b>								

**CUMULATIVE PLUS PROJECT- PM**

Queues

3:

6/1/2016

								
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1742	107	1586	54	155	33	33
v/c Ratio	0.19	0.77	0.45	0.59	0.24	0.39	0.15	0.10
Control Delay	11.9	18.1	17.7	7.0	46.6	9.9	44.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	18.1	17.7	7.0	46.6	9.9	44.8	0.6
Queue Length 50th (ft)	10	464	17	230	37	0	22	0
Queue Length 95th (ft)	27	559	72	278	77	59	53	3
Internal Link Dist (ft)		937		1073	625			513
Turn Bay Length (ft)	150		150			70	50	
Base Capacity (vph)	177	2267	239	2706	228	393	224	324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.77	0.45	0.59	0.24	0.39	0.15	0.10
<b>Intersection Summary</b>								

## **APPENDIX E: HCM ARTERIAL ANALYSIS**